Free to Trade: Democracies, Autocracies, and International Trade

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*R*elatively little research has focused on whether countries' political institutions affect their international trade relations. We address this issue by analyzing the relationship between regime type and trade policy. In a formal model of commercial policy, we establish that the ratification responsibility of the legislature in democratic states leads pairs of democracies to set trade barriers at a lower level than mixed country-pairs (composed of an autocracy and a democracy). We test this hypothesis by analyzing the effects of regime type on trade during the period from 1960 to 1990. The results of this analysis accord with our argument: Democratic pairs have had much more open trade relations than mixed pairs.

The effects of domestic political institutions on trade policy have long been a source of controversy among social scientists. Despite the widespread interest that this debate has prompted, however, remarkably few studies have addressed the links between political regime type and commercial policy.[1] Most work on the political economy of trade policy that examines institutional factors focuses only on variations in policy among democracies and avoids comparing democracies with other types of regimes. Moreover, many analyses of trade barriers—especially those by economists—ignore the effects of domestic political institutions. In light of the recent interest expressed in how regime type influences various aspects of foreign policy (e.g., Doyle 1986; Farber and Gowa 1995; Russett 1993; Siverson and Emmons 1991), a systematic analysis of the links between regime type and trade policy seems long overdue.

Here, we examine whether groups of democracies are better able to liberalize trade than are groups of autocracies or groups comprised of both democracies and autocracies. By providing one of the first assessments of whether patterns of commercial protection depend on regime type, we help shed light on whether there is a "democratic difference" in foreign economic policy. Our study also should contribute to a broader understanding of the political economy of trade policy. One recent analysis concludes: "Theoretical and empirical work relating [domestic] institutional contexts to trade policy outcomes is in its infancy but should be a promising area of research" (Rodrik 1995, 1485). We seek to help fill this important gap in the literature.

We develop a formal model that emphasizes the role of domestic legislatures in democracies. Central to this model is that the chief executive (i.e., prime minister or president) in a democracy needs the approval of a legislative majority to enact her preferred trade policies.[2] Absent such approval, the legislature's preferred policy becomes law. We argue that legislative "ratification" of commercial policy occurs in both parliamentary and presidential systems. In parliamentary systems, ratification is often ex ante; the potential prime minister must negotiate an acceptable trade policy with her legislative majority before taking office. This internal bargain is enforced afterward because the majority can call for a vote of (no) confidence if the prime minister strays from the accepted position in international economic negotiations. In presidential systems, major changes in trade policy usually require legislative ratification ex post.

By contrast, autocracies vest the chief executive with much more authority than democracies. Autocrats do not need a legislative majority to pass their trade policy initiatives; either a legislature does not exist or it rubber-stamps executive proposals. We claim that this institutional difference contributes to a greater tendency for pairs of democratic countries to agree upon lower trade barriers than pairs comprised of a democracy and an autocracy (i.e., mixed pairs). We further demonstrate that whether pairs of autocracies liberalize trade more extensively than either pairs of democracies or mixed pairs depends on the preferences of the

[1] For a few exceptions, see Bliss and Russett 1998, Dixon and Moon 1993, and Morrow, Siverson, and Tabares 1998.

[2] We are not arguing that autocracies do not need domestic political support. Our point is that autocrats do not require the majority approval of a legislature elected by the public to represent its interests. Autocrats may well depend on the support of such actors as the military or industrialists, but these groups do not represent the voting public.

political decision makers involved, as well as on institutional differences between their regime types. Hence, we can make no prediction about the trade barriers of autocratic pairs relative to mixed pairs or democratic pairs without knowledge of the respective executives' trade policy preferences.

Our focus differs sharply from studies that address how institutional variations among countries with the same regime type affect trade policy. Crucial to the following analysis is that the institutional feature which distinguishes democracies from autocracies is the existence of a popularly elected legislature with the capacity to constrain a country's chief executive. We assume that legislatures are more protectionist than executives in democracies and show that, even so, pairs of democracies are more likely than mixed pairs to liberalize commerce.[3] Our focus, then, is on differences across regime types not within them.

The results of an empirical analysis based on the period 1960–90 are consistent with these predictions. Holding constant various economic and political factors, democratic dyads tend to trade more freely than dyads composed of a democracy and an autocracy. Furthermore, no significant difference exists in the openness of commerce within autocratic pairs and within democratic pairs.

THE MODEL

The Actors and Their Preferences

A key difference between an autocracy and a democracy is that the latter is vested with a legislature that has de jure and de facto ratification power over the chief executive's proposals. Because no such institution exists or has such powers in an autocracy, it is modeled as a unitary actor; it has only an executive, who is effectively a dictator and is labeled A. In contrast, a democracy is characterized by two actors: an executive, who may be the president or prime minister, P, and a legislature, represented by the median legislator, C. In what follows, we consider the case in which two countries enter into negotiations to reduce trade barriers between them. The labels A, P, and C refer to the "home" country in these negotiations, whereas A^*, P^*, and C^* refer to the "foreign" country.

In the home country, each of the aforementioned actors tries to maximize its utility by obtaining the greatest possible level of electoral support. That support depends on the trade policy chosen. Every actor wants to enact the level of trade barriers that will maximize its political support (i.e., its ideal point). But each one must strike a balance among the conflicting preferences of its constituents to determine the ideal level. Actors receive political support from a variety of domestic groups. Some groups prefer that the home country lowers trade barriers (e.g., consumers, export-

ers, users of imported inputs, owners of relatively abundant factors), and others prefer that it raises barriers (e.g., import-competing firms, owners of scarce factors). All groups, however, prefer that the foreign country's trade barriers be as low as possible, an outcome that benefits consumers, exporters, and import-competing firms alike. Ceteris paribus, all domestic groups will increase their electoral support for policymakers in the home country if these officials negotiate very low levels of protection abroad.[4] We refer to the home country's trade barriers as t and those of the foreign country as t^*.

The political support function of each actor, U_i, can be expressed as a simple loss function. Every actor has an ideal level of trade barriers at home and abroad, denoted (t_i, t_i^*), that i would choose if it were not constrained by any of the other actors. All domestic actors prefer the elimination of foreign trade barriers; hence, $t_i^* = 0$ for $i = P, C, A$, and $t_i = 0$ for $i = P^*$, C^*, A^*. Each actor maximizes its utility by minimizing the difference between the level of protection that it prefers both at home and abroad and the level that actually obtains. For the home country, i's utility function is

$$U_i(t, t^*) = -(t - t_i)^2 - t^{*2} \quad \text{for } i = P, A, C. \qquad (1)$$

For the foreign country, its actors attempt to maximize

$$U_i(t, t^*) = -t^2 - (t^* - t_i^*)^2 \quad \text{for } i = P^*, A^*, C^*. \qquad (1^*)$$

These utility functions imply that the actors' indifference curves are circles. Their utility decreases symmetrically as changes occur in any direction away from their ideal level of trade barriers at home and abroad. Such utility functions are very common to spatial models (e.g., Enelow and Hinich 1984).[5]

Our approach to the making of trade policy is consistent with behavior in both democracies and autocracies. For instance, it captures the notion that democratically elected politicians are motivated by a desire to be reelected, the chances of which grow larger in the face of both rising welfare experienced by voters

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[4] This formulation of the objective functions bears some similarity to Krugman's GATT-think (Ethier 1998; Krugman 1997), in which trade negotiators are motivated by mercantilist notions: Exports are good, imports are bad, and an equal increase in exports and imports is good.

[5] As implied above, the objective functions 1 and 1* can be seen as the reduced form of a model that combines elements of the underlying economy with a political game of policymaking. For instance, if political support (as in Hillman 1982) is a function of consumer surplus (CS), tariff revenue (T), profits of the import-competing firms ($Profits_I$), and profits of the exporting firms ($Profits_E$), then for the home country, $(t_i, t_i^*) = \text{argmax } F(CS(t, t^*), Profits_I(t), Profits_E(t^*), \text{ and } T(t))$ for $i = P, C, A$, where F is increasing in each argument (Hillman, Long, and Moser 1995). The exact form of the function F and the weights placed on each term depend on the underlying market demand and supply conditions, the relative political pressure that each group can bring to bear, and the political institutions that mediate this pressure. This approach is consistent with Grossman and Helpman (1994), who posit that the government cares about a weighted average of social welfare and campaign contributions. Then equations 1 and 1* would be the second-order approximations of a political support function around the ideal points.

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[3] If legislatures are not more protectionist than executives, then the results depend on the actors' preferences. Differences in trade policy will depend on both institutions and preferences in that case. We focus instead on the case in which the effect of institutional variation is robust to any preference ordering among the players.

and increasing campaign contributions (or lobbying activity undertaken) by organized lobbies, such as industry groups. Hence, trade policies that raise consumer surplus and firm profits increase the political support that a politician receives. Consumers are made better off by a rise in their surplus; and because they vote according to their pocketbooks, their support for the government grows. In addition, as firms' profits rise, they distribute higher profits to consumers (who are also stockholders) and make larger contributions to (or exercise greater influence over) politicians. Note that the government responds to the pressures of both its import-competing and exporting firms. We assume that the government does not have a direct instrument to benefit the exporting sector (such as a subsidy), but it can reduce trade barriers abroad through negotiations and reciprocal concessions, thereby benefiting local exporting industries.

In autocracies, the executive must also maintain political support. The extent of the support provided by consumers and firms often depends on economic conditions. For example, a recent analysis notes that, in the wake of Deng Xiaoping's death, China's autocratic leaders "are acutely aware that a vibrant, flourishing, and progressing economy is the core of their legitimacy" (*New York Times*, February 21, 1997, A15). Again, trade policy has a direct influence on consumer surplus and firms' profits. Greater consumer surplus means higher real incomes, fewer incentives to riot and rebel, and thus more support for autocratic leaders. Similarly, greater firm profits mean higher incomes for at least some groups (the firm owners), implying increased political support for the autocrat. Whether autocrats care more about consumers and the overall state of the economy or the special interests of firms depends on a number of factors that do not concern us here.

The trade policy preferences of autocrats relative to those of democratic leaders are of central concern. It is unclear whether, on average, autocrats are more protectionist than democratic heads of state. Freed from the need to finance expensive electoral campaigns, autocrats may be more attentive to the economy's performance and hence less protectionist than their democratic counterparts. Yet, if autocrats depend only on the support of a small group of powerful interests, they may be more willing to extract economic rents (through trade barriers and other means) from those sectors of the economy in which these interests do not operate. We handle this difficult issue by varying the preferences of the autocrat relative to those of the democratic executive and assessing how changes in their relative preferences combined with the institutional differences between these two regime types affect our results.

In a democracy, the two main political actors often do not agree on the ideal level of home trade barriers; that is, t_P and t_C are unlikely to be identical. The executive and the median legislator may weigh consumer surplus and firm profits differently in their electoral calculus. Legislators, who represent smaller constituencies than the chief executive, are more easily captured by special interests than the executive (Mansfield and Busch 1995; Rogowski 1987). We assume that the median legislator cares more about the profits of import-competing firms than about consumer surplus and holds more protectionist preferences than the democratic executive (Lohmann and O'Halloran 1994; Rosendorff 1996). Thus, we assume that $t_P < t_C$ and $t_{P*} < t_{C*}$.[6]

All domestic agents prefer that, ceteris paribus, foreign barriers be as low as possible. Ideal values for the domestic trade barriers do vary, however. The median voter theorem is therefore applicable: Single-peaked objective functions over a single dimension imply the median voter is decisive (Black 1958). This similarity of preferences allows us to avoid the cycles associated with median voter models in larger dimensions. We can identify the median legislator as that member who holds the median value for the level of domestic trade barriers, and the legislature as represented by this median legislator.

Each player receives the maximum utility when its ideal trade barrier combination is adopted. Maximum feasible utility for each player is $U^P(t_P, 0)$, $U^C(t_C, 0)$, $U^A(t_A, 0)$, $U^{P*}(0, t_{P*}^*)$, $U^{C*}(0, t_{C*}^*)$, $U^{A*}(0, t_{A*}^*)$.

The Noncooperative Trade Barrier Setting Game: The Trade War

In the absence of any agreement on mutual trade policy concessions, each country is free to set trade barriers only in its own country. Each country sets its barriers *simultaneously*, taking the actions of the other as given. The Nash equilibrium to this noncooperative trade barrier-setting game can be considered the "trade war" outcome, which is what we assume occurs when countries do not agree to mutually acceptable trade barrier concessions. Political leaders at home have authority over t. Foreign barriers (t^*) are controlled by the foreign government. When both countries are autocratic (denoted AA^*), each executive determines the level of trade barriers in her country. Consider the problem facing the home autocrat, A, who maximizes equation 1 taking t^* as given. A's reaction function is independent of t^* and hence is vertical at t_A.[7] Similarly, A^*'s reaction function is independent of t and hence horizontal at t_{A*}^*. The Nash equilibrium is the pair of preferred trade barrier levels (t_A, t_{A*}^*) chosen by the home and the foreign autocrat. In Figure 1, this point is labeled N_{AA*}. Note that both parties could be made better off if they could negotiate to a point on or closer to the Pareto frontier, $t_A t_{A*}^*$.

When one or both countries are democracies, we assume that the legislature (C or C^*) has the final say on domestic trade policy.[8] Again, each domestic play-

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[6] Throughout, we assume that there is a meaningful difference between their preferences; we assume that $t_C > 2t_P$ and $t_{C*}^* > 2t_{P*}^*$.

[7] This follows from the additive separability of t and t^* in the objective functions in equations 1 and 1*.

[8] This assumption is not necessary for our results. If the legislature simply has some ability to force the executive to take its preferences into account in the event of the trade war outcome, then our results

FIGURE 1. Trade Barriers Set by Two Autocracies

The Negotiation Game: TILI

Consider the simplest bargaining game, in which we assume that the actors have perfect information. The players' ideal trade barrier levels at home and abroad are common knowledge, as is the structure of the game. We consider two bargaining structures. In the first game, the home country—by virtue of having the first move—is chosen to make a take-it-or-leave-it (TILI) offer to the foreign country. The latter can either accept and implement this offer or reject it, thereby inducing a reversion to the trade war outcome, that is, the Nash equilibrium. Then we switch the identity of the first mover and consider the same TILI game; that is, the foreign country makes the first move, and bargaining power is reversed. Under either bargaining structure, neither country can dictate the levels of trade barriers that both choose. Both countries know they can gain from making mutual concessions, and they know that everyone must be left at least as well off as they would be in the trade war outcome. We establish that the results are robust to this change in the bargaining structure, and we infer that any structure in which bargaining power is distributed in a less extreme fashion between the players will yield similar results.

For instance, if the parties agree to split evenly the gains from any mutual reductions in trade barrier levels —an approach consistent with the symmetric Nash Bargaining Solution (Nash 1950)—then they will generate outcomes that lie somewhere between that of TILI when the home executive proposes and TILI when the foreign executive proposes. Thus, our results are general to a variety of bargaining structures.

In the TILI game, the moves of the players occur in two steps. First, the home executive, whether democratic or not, makes an offer, specifying a mutually reduced level of home and foreign trade barriers. If both countries are autocracies, then the foreign leader is asked to agree. If home is a democracy and foreign is an autocracy, then the home executive puts her offer to both the foreign autocrat and the domestic legislature. Either player has veto power, which induces a reversion to the trade war outcome. If both countries are democracies, then the home executive picks an offer, which must be acceptable to the foreign executive and both legislatures.[9] Failure to obtain legislative ratification in the latter two cases leads to the trade war, or Nash equilibrium, either N_{DA^*} or N_{DD^*}. It is assumed that *no player* will ever take an action that is dominated: They will not reject an offer that is better than that which will be received in the trade war. The elimination of dominated strategies is equivalent (in this game) to requiring the equilibrium to be subgame perfect.

Note that the structure of preferences in the countries is symmetric. That is, the optimal level of trade barriers preferred by A is the same as that preferred by A^*, and similarly for P and P^* as well as C and C^*. We

er's ideal domestic policy is independent of the actions of the foreign player (and vice versa). When the home country is a democracy and the foreign one is an autocracy (denoted DA^*), the best-response functions call for C to implement t_C for any value of t^* and for A^* to play $t^*_{A^*}$, irrespective of t. The noncooperative game between home and abroad has as its equilibrium $N_{DA^*} = (t_C, t^*_{A^*})$, as labeled in Figure 2A, B, and C. Realized returns to C, P, and A^* are $C(t_C, t^*_{A^*})$, $P(t_C, t^*_{A^*})$, and $A^*(t_C, t^*_{A^*})$. These returns are lower than the respective optima $C(t_C, 0)$, $P(t_P, 0)$, and $A^*(0, t^*_{A^*})$. Pareto improvements are possible; if C, P, and A^* can agree to mutually reduce trade barriers (slightly) from $(t_C, t^*_{A^*})$, all could gain.

Finally, when both countries are democracies (DD^*), the Nash equilibrium is set by the two legislatures. In this case, failure to find mutual concessions leads to point $N_{DD^*} = (t_C, t^*_{C^*})$ in Figure 3.

In all three cases, the Nash equilibrium to this simultaneous game of trade barrier setting is the defect-defect outcome in the prisoners' dilemma. If the countries do not cooperate, they will choose a level of trade barriers at home that is ideal, but that results in a higher level abroad than they ideally desire. Since both countries make such a choice, they end up at the noncooperative Nash equilibrium, which is not welfare maximizing. If they coordinate their trade policies, then they can both achieve welfare gains. As such, the problem facing political leaders is to reach a pair of trade barrier levels closer to their optima, and this necessarily involves mutual concessions.

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are maintained. The legislature's preferences must simply affect a democracy's unilateral, noncooperative choice of barriers.

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[9] In fact, we require that the international negotiators choose a ratifiable offer that lies on their Pareto frontier when such an agreement exists.

FIGURE 2. Trade Barriers Set by an Autocracy and a Democracy
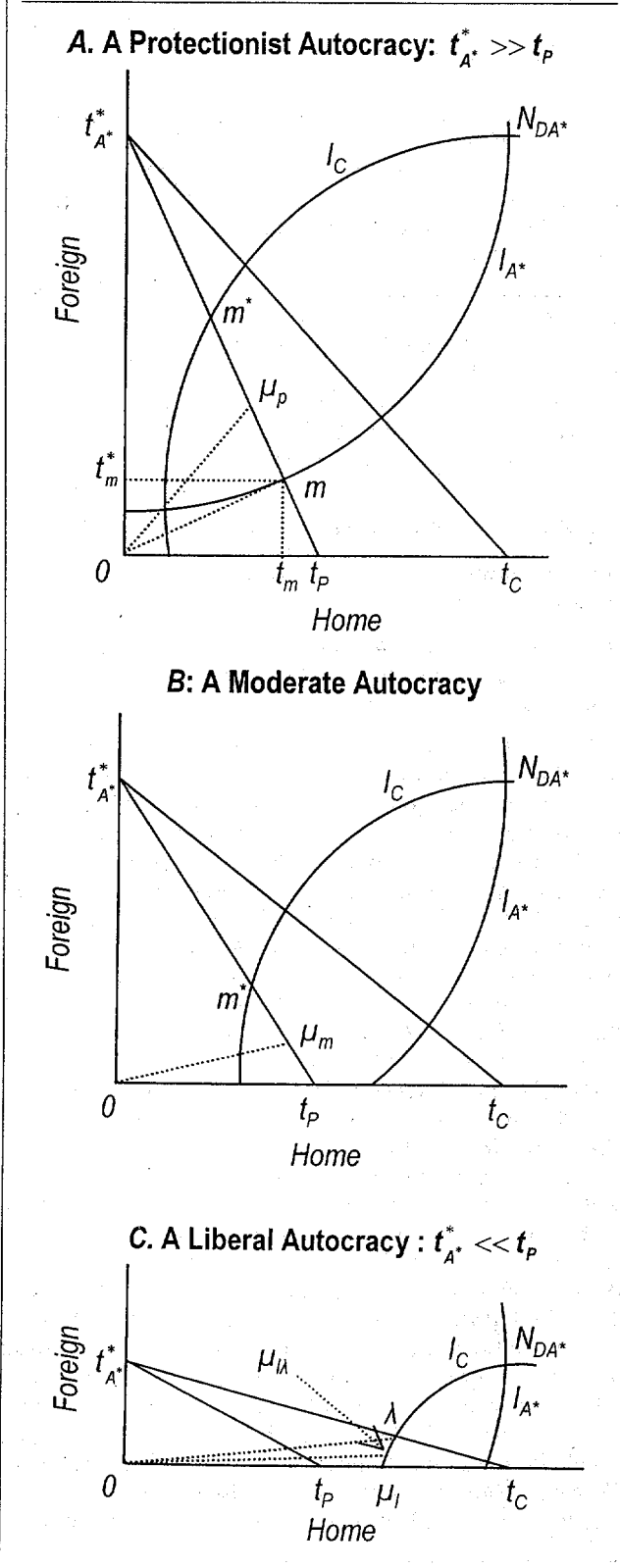
A. A Protectionist Autocracy: $t^*_{A^*} \gg t_P$

B: A Moderate Autocracy

C. A Liberal Autocracy: $t^*_{A^*} \ll t_P$

First, we do not model what happens when a protectionist autocrat faces an autocrat who prefers to liberalize trade, an interesting issue but one that departs from our focus on variations across regime types.

Second, the symmetry assumption implies that the distance between the democratic executive and its legislature is the same at home and abroad for all democratic dyads. Again, we make this assumption because we are interested in variations between regime types, not within them. Both our model and our data analysis treat each type of regime as homogeneous. Democracies are distinct from autocracies because they have a legislature that exercises ratification power, regardless of its preferences. The differences among regime types rest on institutional features and not on the policy preferences of decision makers. Varying the difference in the ideal policies of P and C does not alter the degree of democracy present; it only changes the extent to which government is divided within democracies. Furthermore, whether a government is divided or unified has no bearing on the degree to which a country is democratic. Hence, examining the influence of such divisions (i.e., as the ideal points of P and C diverge or converge) does not inform us about democracies versus autocracies, only about more divided versus less divided democracies.[10] Our model is capable of deriving outcomes when such symmetry of preferences is relaxed, but we have neither the space nor the data in this article to explore these variations within democracies.

Figures 1–3 show the central results. We measure the aggregate level of trade barriers by the sum of the two countries' levels of trade barriers. The indifference curves for the actors C, C^*, A, and A^* through N have been drawn and are labeled I_C, I_{C^*}, I_A, and I_{A^*}, respectively. These curves mark the boundary of the set of mutual reductions in trade barriers that are preferred by each player (respectively, C, C^*, or/and A, A^*) to the noncooperative Nash equilibrium outcome. The solution to the bargaining must lie in this feasible set, often termed the "win set." In addition, the contract curve between the executives A^* (or P^*) and A (or P) has been drawn. It is a straight line between the executives' ideal points (since the indifference curves are circles). The contract curve between C and P (or C^* and P^*) can be thought of as that part of the horizontal (vertical) axis that lies between t_C and t_P ($t^*_{C^*}$ and $t^*_{P^*}$). More generally, the contract curve refers to the set of points where the two actors' indifference curves are tangent, that is, the set of trade barriers that both actors mutually prefer to any other set of barriers. Note, however, that movements along

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[10] This is why comparative statics are less helpful. They ask what happens when the executive moves slightly closer to the legislature, or vice versa, and thus examine how divisions in government matter for trade policy. We believe that research on how democracies vary among themselves is vitally important, but we leave for another study an exploration of such intrademocracy divisions. See Lohmann and O'Halloran 1994, Milner and Rosendorff 1996, and O'Halloran 1994 for the effects of changes in the degree of divided government on trade policy.
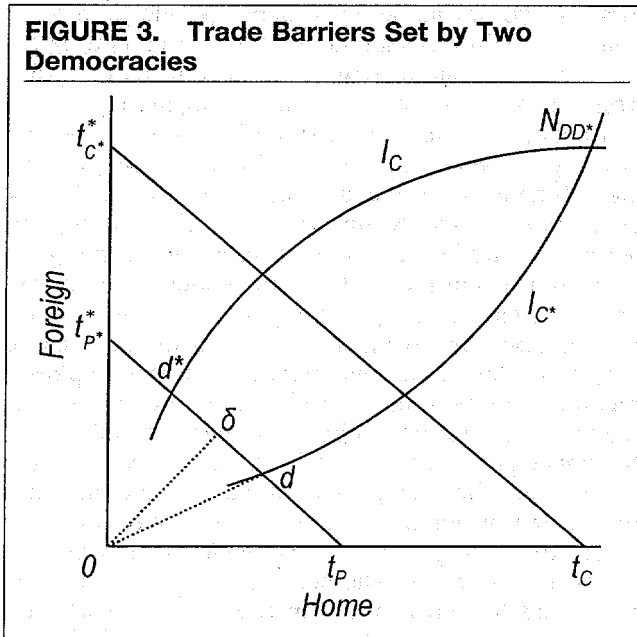
make this assumption because our focus is on differences *between* regime types, not within each regime type. This assumption, however, has two implications.

FIGURE 3. Trade Barriers Set by Two Democracies

the contract curve cannot make one actor better off without making the other worse off.

In Figure 1, two autocracies must agree on mutual concessions about trade barriers. Home will offer a mutual reduction of barriers to point a on the contract curve; this is the point on the Pareto frontier that leaves foreign indifferent between accepting and rejecting, thus allowing home to earn all the surplus. The level of bilateral trade barriers under TILI is measured by the sum of the home and foreign trade barriers. These aggregate barriers are $0t_a + 0t_a^*$.

Figure 2 presents the results of bargaining within mixed pairs, while varying the relative preferences of the autocrat and the democratic executive. In Figure 2A, a democracy seeks to find mutually acceptable trade concessions with a protectionist autocrat. The democratic executive, P, has freer trade inclinations than the autocratic leader, A^*. P must offer a set of trade barriers inside the area between the two indifference curves, I_C and I_{A^*}, in order for C and A^* to accept it. In addition, P will offer a point on the contract curve between t_P and $t_{A^*}^*$. Although P optimally wants to choose her ideal point, t_P, she is constrained by A^*. Thus, P must choose the point at which A^*'s indifference curve through the no-agreement point intersects the Pareto frontier, that is, point m.

In Figure 2B, a moderate autocrat seeks mutual trade concessions with a democracy. Now P's ideal point is in the win set. Naturally, P chooses this as the offer $(t_P, 0)$, which both the foreign autocrat and the democratic home legislature accept.

In Figure 2C, a liberal autocrat attempts to find mutual trade concessions with a democracy. The democratic executive is much more protectionist than the autocrat. The outcome in this case also must lie within the win set created by the legislature's indifference curve through the Nash trade war equilibrium, I_C, and the autocrat's indifference curve through this point,

I_{A^*}. The legislature exercises the major constraint here. The democratic executive and the autocrat will choose a point as close as possible to their ideal points that is still acceptable to the legislature; that is, one lying along the legislature's indifference curve. Hence, their choice is bounded by the legislature's preference in this case. Since P makes the offer, P chooses $\mu_l = t_C - t_{A^*}^*$, which is accepted by A^* as well as by C.[11]

In Figure 3, two democracies with symmetric preferences try to find mutually acceptable trade concessions. The executives must choose a set of trade barriers within the win set formed by the indifference curves of the median legislators through the Nash equilibrium, that is, between I_C and I_{C^*}. Again, the contract curve between the two executives inside the win set is the line segment d^*d. P chooses the point on that line segment closest to her ideal point, t_P. The offer is at point d, which is accepted by the foreign executive and both legislatures.

Levels of Trade Barriers and Regime Type

Can we compare the levels of trade barriers across the three types of regime pairs?

PROPOSITION: *Aggregate trade barriers are lower within democratic pairs than within pairs composed of an autocracy and a democracy.*
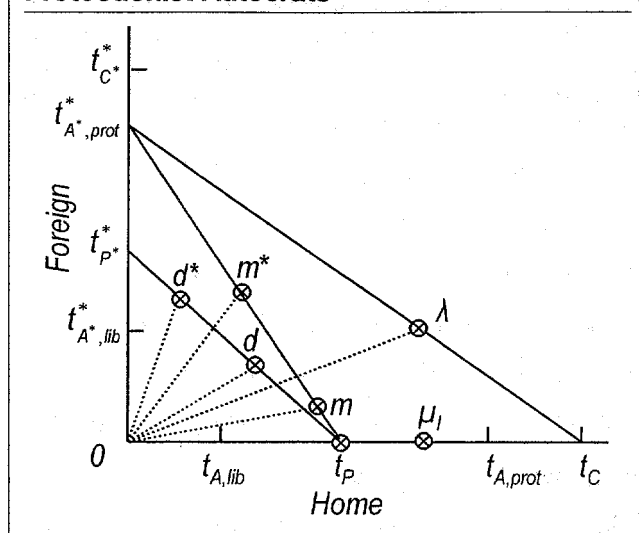
A complete proof for both bargaining structures is given in the Appendix (propositions 1 and 2). Although we measure the aggregate barriers by the sum of the two countries' trade barriers in the proofs, intuitive use can be made of the length of the ray from the origin to the agreement point. Figure 4 shows all the possible outcomes in a single diagram. When home makes the offer, the bilateral trade barrier level in the democratic pair is measured by the length of the ray $0d$. In the case of the protectionist autocracy in the mixed pair, the ray has length $0m$; in the moderate case, the length is $0t_P$; in the liberal case, the ray has length $0\mu_l$. In all these cases, the ray corresponding to the democratic pair $(0d)$ is smaller than that corresponding to the mixed pair $(0m, 0t_P, \text{ or } 0\mu_l)$.

A democracy lowers its trade barriers more when it seeks mutually acceptable concessions with another democracy than when it deals with an autocracy, no matter what the relative preferences of the two leaders. Why? When both are democracies and home makes the initial proposal, it is the pressure of the foreign legislature that forces the home country to compromise or else end up in a trade war. The Nash equilibrium is worse for both countries in the case of two democracies (N_{DD^*}) than in the autocracy-democracy case (N_{DA^*}), which induces the democratic executives to agree to liberalize trade more than otherwise.[12] The threat of a legislative veto in both countries moves the executives

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[11] Recall that P is required to offer to A^* a point on their Pareto frontier; in Figure 2C, no point on the line $t_{A^*}^* t_P$ is ratifiable. In this case, P offers μ_l, which is ratifiable.

[12] As Axelrod (1970, 56) observes, a worsening of the no-agreement point can induce greater cooperation between the actors under certain circumstances.

FIGURE 4. TILI Outcomes with Liberal and Protectionist Autocrats

the point at which the highest indifference curve of the foreign autocrat, I_{A^*}, is tangent to the home legislature's indifference curve.[13] In the case of two democracies, as in Figure 3, P^* proposes d^*, which both the home executive and the two legislatures accept. In effect, changing the proposer moves the outcome along the contract curve closer to the proposer's ideal point, which improves the outcome for the proposer at the expense of the other country. These outcomes, displayed in Figure 4, show that the ray $0d^*$ (aggregate barriers under joint democracy) is shorter than the rays $0m^*$ (aggregate barriers under the mixed case with a protectionist or a moderate autocrat) and 0λ (aggregate barriers in the mixed case with a liberal autocrat).

As pointed out above, the equilibrium outcome of any game in which the two countries divide the concessions equally (which we call the SPLIT game) is always in the middle of the range of the contract curve bounded by the maximum value that each can get when she proposes. In the case of two democracies (Figure 3), the SPLIT outcome is in the middle of the portion of the contract curve bounded by d^* and d, labeled δ. The outcomes in the other cases under SPLIT are labeled α, μ_p, μ_m, and $\mu_{I\lambda}$ in figures 1, 2A, 2B, and 2C, respectively. Inspection of the lengths of the rays in Figure 5 establishes that $0\delta < \min\{0\mu_P, 0\mu_m, 0\mu_{I\lambda}\}$.
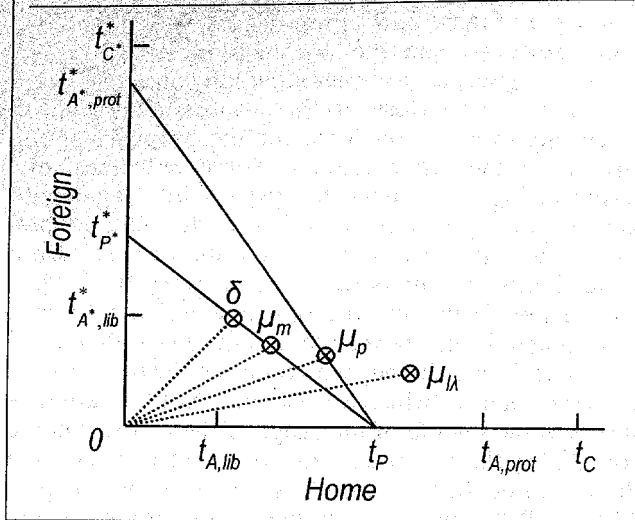
In sum, regime type is likely to exert an important influence on trade policy. Our model predicts that pairs of democracies should trade more freely than mixed pairs, a result that arises from the tendency for a protectionist legislature to enhance the prospects of trade barrier reductions. Yet, our model is silent on whether commerce will be more open within autocratic pairs than within either democratic or mixed pairs, an issue that hinges on the trade policy preferences of decision makers.

Our model is also silent on the effects of variations within regime types. It does not yield predictions about how institutional differences either among autocracies or among democracies (e.g., whether the government is presidential or parliamentary) affect trade policy, issues that have been addressed elsewhere (e.g., Mansfield and Busch 1995; Milner 1997; Milner and Rosendorff 1996, 1997; Pahre 1997). We focus solely on the institutional differences between autocracies and democracies. Central to our analysis is the assumption that, unlike autocracies, democracies are marked by a legislature that can effectively constrain the chief executive and that is more protectionist than the executive.

Following lemma 2 in the Appendix, it is clear that, given our symmetry assumption in the case of two democracies, aggregate barriers are t_P irrespective of the location of t_C. Hence, it is a direct consequence of lemma 2 that variations in the degree of division between the executive and the legislature in the democracies will have no effect on the outcome when two democracies bargain. Therefore, our claim that democratic dyads prefer lower trade barriers than mixed

to a freer trade equilibrium than in the case of a mixed pair. Paradoxically, then, a protectionist legislature forces democracies to lower their trade barriers more than otherwise.

In contrast, whether such barriers will be higher within democratic pairs than within autocratic pairs depends on the preferences of the leaders in the different regimes. When autocrats are more (less) protectionist than democratic executives, mutual reductions in trade barriers will be smaller (greater) between autocracies than between democracies (proposition 3 in the Appendix). Institutional differences alone do not distinguish between the outcomes; the structure of preferences is also important. The same is true for mixed pairs relative to autocratic pairs. When the preferences of the autocrats are protectionist relative to those of the legislature in a democracy, the pair of autocracies will be unable to lower barriers as much as the mixed pair (proposition 4 in the Appendix). Because the two autocrats do not have to contend with a legislature that is more protectionist than they are, they do not have to compromise as much. This reinforces our counterintuitive claim that a protectionist legislature may actually promote freer trade among countries.

In the Appendix we also show what happens when the foreign country is able to make the first offer. On the whole, the results reported above continue to hold. As the first mover, however, the foreign government has greater bargaining power. In each case, the equilibrium outcome now lies closer to the foreign government's ideal point. In Figure 1, for instance, the outcome is a^* instead of a. When A^* proposes, she knows that A will accept any point on the contract curve at or below the intersection of her indifference curve through the Nash trade war equilibrium, I_A. Thus, A^* proposes the set of trade barriers closest to her ideal point that A will also accept, that is, point a^*. In Figure 2A, the outcome is m^*; in Figure 2B, it is also m^*. In Figure 2C, the outcome is now λ, since this is

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[13] As in note 11, no point on the Pareto frontier between the ideal points of A^* and P is ratifiable in Figure 2C. In this instance, A^* offers λ, which is acceptable to both C and P.

FIGURE 5. SPLIT Outcomes with Liberal and Protectionist Autocrats

pairs is preserved, even if the legislatures in the democratic dyad case become more protectionist. Put more formally as a corollary to lemma 2 and proved in the Appendix:

COROLLARY. *Irrespective of which country makes the first offer, as the legislatures become more protectionist, the aggregate level of barriers on which a pair of democracies agree is unchanged.*

EMPIRICAL ANALYSIS

We now turn to an empirical analysis of the hypotheses derived from the model. Our central hypothesis is that trade barriers should be lower between two democracies than between an autocracy and a democracy. It is not possible to test this proposition directly, since reliable data on bilateral trade barriers are not available for many of the countries analyzed here, but data on bilateral trade flows are readily available for most countries and can serve as a proxy for trade policy. Various studies have found that, other things being equal, there is an inverse relationship between the height of trade barriers and the volume of interstate trade (e.g., Harrigan 1993; Leamer 1988; Rodrik 1994, 72; Trefler 1993). We therefore test the propositions stemming from our model by analyzing the effects of regime type on bilateral trade flows and controlling for various other known influences on interstate commerce.

The Statistical Model

To this end, we begin with a gravity model of bilateral trade, which predicts the amount of commerce that should occur between two countries in the absence of trade barriers. It includes the national income and population of both trading partners, as well as the geographic distance between them. Existing research indicates that the gravity framework—which can be derived from a broad class of international trade models—is quite successful in explaining the flow of

interstate commerce (Anderson 1979; Bergstrand 1985, 1989; Deardorff 1998; Eichengreen and Irwin 1995; Feenstra, Markusen, and Rose 1998; Frankel 1993; Frankel, Stein, and Wei 1995; Gowa 1994; Helpman and Krugman 1985; Linnemann 1966; Mansfield and Bronson 1997; Pollins 1989). We extend the gravity model in the following way:

$$\log(X_{ij}) = \log \beta_0 + \beta_1 \log(GDP_i \times GDP_j)$$

$$+ \beta_2 \log(POP_i \times POP_j) + \beta_3 \log(DIST_{ij})$$

$$+ \beta_4 MIXED_{ij} + \beta_5 AUT_{ij} + \beta_6 OTHER_{ij} + \beta_7 ALLY_{ij}$$

$$+ \beta_8 PTA_{ij} + \beta_9 MP_{ij} + \beta_{10}(ALLY_{ij} \times PTA_{ij})$$

$$+ \beta_{11}(ALLY_{ij} \times MP_{ij}) + \beta_{12}(PTA_{ij} \times MP_{ij})$$

$$+ \beta_{13} GATT_{ij} + \beta_{14} COL_{ij} + \beta_{15} COM_{ij} + \beta_{16} WAR_{ij}$$

$$+ \beta_{17} \text{lagged} \log(X_{ij}) + \log z_{ij}. \qquad (2)$$

In equation 2, X_{ij} is the value of exports from state i to state j in year t. GDP_i and GDP_j are these states' respective gross domestic products in year $t - 1$, POP_i and POP_j are their respective populations in $t - 1$, and $DIST_{ij}$ is the geographical distance between them.[14] We take the natural logarithm of each variable because the gravity model's underlying functional form is multiplicative (Anderson 1979; Bergstrand 1985, 1989; Deardorff 1998). Entering the trading partners' national incomes and populations (or, equivalently, their per-capita incomes) in product form is common and accords with theories of international trade based on models of imperfect competition (Eichengreen and Irwin 1995; Frankel 1993; Frankel, Stein, and Wei 1995; Helpman and Krugman 1985).[15] These theories indicate that β_1 should be positive and that β_2 and β_3 should be negative.

Ideally, we would use a measure of regime type that directly captures the extent to which countries have a legislature that can constrain the chief executive and affect trade policy choices. Because such a measure does not exist, we rely on a well-known index of regime type developed by Gurr and his colleagues (Jaggers and Gurr 1995; Gurr, Jaggers, and Moore 1989). This measure, which has been used repeatedly in studies of international relations (e.g., Farber and Gowa 1995; Mansfield and Snyder 1995; Oneal and Russett 1997; Russett 1993), emphasizes five institutional factors that

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[14] Per-capita income is sometimes included in gravity models instead of national population, but doing so yields equivalent results. Data on exports are taken from the International Monetary Fund's *Direction of Trade* (various years); those on GDP and population are taken from the Mark 5.6 version of the Penn World Table (Summers and Heston 1991) and from Maddison 1995. All data on GDP and exports are expressed in U.S. dollars and in real terms; they are deflated using the U.S. wholesale price index and producer price index. Distance is measured based on the closest ports between i and j or, if the countries are landlocked, the shortest land or rail distance between them. These data are taken from the Defense Mapping Agency 1985, Fitzpatrick and Modlin 1986, *Times Atlas of the World*, and *Times Concise Atlas of the World*.

[15] The effects of regime type on trade reported below do not depend on whether we introduce the GDPs and populations of the trading partners in product form.

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distinguish democracies from autocracies: (1) the competitiveness of the process through which a country's chief executive is selected, (2) the openness of that process, (3) the extent to which there are institutional constraints on a chief executive's decision-making authority, (4) the competitiveness of political participation within a country, and (5) the degree to which binding rules govern political participation within it.

One element of this measure is directly related to our central argument: States are coded as increasingly democratic as the chief executive faces greater institutional constraints, including those emanating from the legislature. But its other components are important as well. If political leaders are not elected competitively, then the legislature will be in a much weaker position vis-à-vis the executive. As Shumpeter (1942) observed, unless leaders can lose office, democratic constraints on their behavior—including those imposed by the legislature—are likely to be ineffective. The competitiveness of elections and political participation, then, are telling indicators of the extent to which institutions such as legislatures can constrain the head of state. Since Gurr's data do not directly tap whether the chief executive needs legislative ratification to enact policies, the following analysis provides only an indirect test of our model. We are unaware, however, of any data that more directly measure legislative control over the head of state. Moreover, this index seems appropriate for distinguishing between regimes with no legislature or an ineffective one and regimes with a popularly elected legislature that can constrain the executive.

To measure regime type, Jaggers and Gurr (1995) create an 11-point measure of a state's democratic characteristics ($DEMOC$) and an 11-point measure of its autocratic characteristics ($AUTOC$).[16] They then derive a variable, $REG = DEMOC - AUTOC$, which takes on values ranging from -10 to 10. Initially, we define countries for which $REG \geq 6$ as coherent democracies, those for which $REG \leq -6$ as coherent autocracies, and all remaining regimes as incoherent. After generating an initial set of estimates, we also assess the robustness of our results to this coding procedure. Relying on these criteria, we code each state in the sample as democratic, autocratic, or incoherent in year $t - 1$.

In equation 2, $MIXED_{ij}$ is a dummy variable that equals one if i and j include a democracy and an autocracy, zero otherwise; AUT_{ij} equals one if both i and j are autocracies, zero otherwise; and $OTHER_{ij}$ equals one if either i or j is an incoherent polity, zero otherwise. The reference category is a pair of democratic countries. Since our model indicates that greater trade liberalization should occur between democratic dyads than between mixed pairs, we expect β_4 to be negative. Our model, however, yields no determinate prediction about the sign of either β_5 or β_6.

Besides addressing the influence of national income, population, distance, and regime type, it is also important to take account of variables that might be respon-

sible for any observed relationship between regime type and bilateral trade. As we explain in more detail below, our analysis centers on the period after World War II. This era was marked by the existence of two major blocs, one made up of autocracies (the Warsaw Pact) and the other composed almost entirely of democracies (the North Atlantic Treaty Organization). To ensure that our results do not simply reflect Cold War rivalries, we include an array of international political variables in equation 2. For instance, there is evidence that democracies were especially likely to ally with one another during the Cold War (Siverson and Emmons 1991). Furthermore, various studies have found that alliances promote trade, which suggests that alliances may account for any observed effects of regime type on trade flows (Gowa 1994; Mansfield and Bronson 1997). In the same vein, recent research indicates that, since World War II, pairs of democracies have been much more likely to establish preferential trading arrangements (PTAs) than other pairs (Mansfield, Milner, and Rosendorff 1998); and it is widely recognized that such arrangements tend to promote the flow of commerce between member states (Frankel 1993; Frankel, Stein, and Wei 1995; Gowa 1994; Linnemann 1966; Mansfield and Bronson 1997; Pollins 1989). To control for the effects of alliances and PTAs, we include $ALLY_{ij}$ and PTA_{ij}. The former equals one if i and j are allied in year $t - 1$, zero otherwise. The latter equals one if i and j belong to the same PTA in $t - 1$, zero otherwise.

Previous studies also have found that states trade more extensively if they are members of the General Agreement on Tariffs and Trade (GATT), if they include a major power, if they have command economies, if they are not involved in a war, and if they had a colonial relationship (Gowa 1994; Kleiman 1976; Mansfield and Bronson 1997; Pollins 1989). As such, we include the following dummy variables, each of which is measured in $t - 1$: MP_{ij} equals one if either i or j is a major power, zero if neither state is a major power; $GATT_{ij}$ equals one if both i and j are parties to the GATT, zero otherwise; COL_{ij} equals one if i and j had a colonial relationship that concluded in or before $t - 1$ (and after World War II's onset), zero otherwise; COM_{ij} equals one if both i and j have command economies, zero if they do not; and WAR_{ij} equals one if i and j are at war, zero if they are not.[17] By including all these variables, we control for the most likely international political influences on trade relations during the Cold War.

Earlier research indicates that states belonging to

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[16] To compute these measures, we rely on the coding rules set forth in Gurr, Jaggers, and Moore 1989.

[17] Data on alliances are taken from Small and Singer 1969 and from updates of their list provided by the Correlates of War Project and dated March 25, 1993. Data on PTAs are taken from de Melo and Panagariya 1993, Hartland-Thunberg 1980, Pomfret 1988, and the World Trade Organization 1995. See Singer and Small (1994) for data on major powers and wars, selected issues of the GATT's *International Trade* and *Basic Instruments and Selected Documents* for data on GATT membership, Kornai (1992, 6–7) for data on command economies from 1960 to 1985, Staar et al. (1991) for these data in 1990, and Kurian (1992) for data on colonial relations. See Mansfield and Bronson (1997, esp. 105–6) for more on all the data used in this study, except those on regime type.

the same alliance and the same PTA conduct more trade than countries that are either allies or PTA members, but not both. Furthermore, there is evidence that allies and PTA members trade more extensively if at least one state is a major power (Mansfield and Bronson 1997). We thus introduce $ALLY_{ij} \times PTA_{ij}$, $ALLY_{ij} \times MP_{ij}$, and $PTA_{ij} \times MP_{ij}$ in equation 2. To account for any temporal dependence in bilateral trade flows, we include an instrument for the lagged value of log X_{ij}.[18] We also account for any country-specific or year-specific effects on trade by including dummy variables for all but one country and for all but one year analyzed here. Finally, log z_{ij} is a stochastic error term.

Our sample consists of all pairs of states listed as members of the interstate system by the Correlates of War Project (Singer and Small 1994) in 1960, 1965, 1970, 1975, 1980, 1985, or 1990 for which complete data are available. The independent variables in our model are measured in these years ($t - 1$), and the value of exports from i to j is measured one year hence (in years t, which are 1961, ..., 1991) to minimize any potential problems of simultaneity. We do not analyze years before 1960 because data on GDP and exports are especially limited for many autocracies until that point. Including the available data for these years could bias our results by systematically underrepresenting dyads that are not jointly democratic. After pooling these data, ordinary least squares was used to generate estimates of the parameters in equation 2. Tests of statistical significance are based on White (1980) heteroskedasticity-consistent standard errors.[19]

Estimates of the Parameters

Our initial results, which are reported in the first column of Table 1, accord with the central proposition advanced earlier. The estimate of $MIXED_{ij}$ is negative and statistically significant, which indicates that trade flows between democratic states tend to be greater than trade flows between democracies and autocracies. Moreover, the predicted difference in trade between democratic pairs and mixed pairs is relatively large: On average, a democracy and an autocracy engage in roughly 15% to 20% less commerce than a dyad composed of two democracies.[20]

As noted earlier, our model does not yield determinate predictions about whether trade will be more open within autocratic pairs than within either demo-

cratic or mixed pairs. The results in the first column of Table 1 provide little evidence that the flow of commerce between autocracies differs markedly from the flow between democracies, since the estimate of AUT_{ij} is not statistically significant. Yet, autocratic pairs trade much more extensively than mixed pairs. The estimate of AUT_{ij} is considerably larger than the estimate of $MIXED_{ij}$, and the difference between them is significant ($t = 5.79$). Finally, the estimate of $OTHER_{ij}$ is negative. Pairs that include an incoherent polity conduct significantly less trade than democratic or autocratic dyads, although they engage in significantly more commerce than mixed pairs.[21]

To assess the robustness of these results, we conduct a number of additional tests. First, our model emphasizes how domestic legislatures constrain the trade policy choices of executives in democracies. But in fledgling democracies, legislative institutions are often weak and poorly developed (e.g., Haggard and Kaufman 1995; Haggard and Webb 1994). Hence, trade policy between mature democracies may differ from that between countries that include a nascent democracy with a weakly institutionalized legislature. To address this issue, we include $DEMZ_{ij}$ in equation 2. It equals one if either i or j experienced a democratic transition between years $t - 6$ and $t - 1$ (i.e., if either state is not a coherent democracy in $t - 6$ and if both states are democratic in $t - 1$), zero otherwise. For present purposes, AUT_{ij}, $MIXED_{ij}$, and $OTHER_{ij}$ are set equal to zero if $DEMZ_{ij}$ equals one.

As shown in the second column of Table 1, pairs with a fledgling democracy conduct significantly less trade than pairs composed of two mature democracies, since the estimate of $DEMZ_{ij}$ is negative and statistically significant. Furthermore, when $DEMZ_{ij}$ is included in the analysis, there is even stronger evidence that democratic pairs trade more extensively than mixed pairs. The estimate of $MIXED_{ij}$ continues to be statistically significant, and its absolute value is noticeably larger than before.

Second, we address the robustness of the preceding results with respect to the coding of democratic and autocratic regimes. Thus far, we have coded states as democratic if $REG \geq 6$, and we have coded them as autocratic if $REG \leq -6$. These operational definitions have been used in other studies, but they are clearly somewhat arbitrary, and it is important to determine if relaxing them affects our findings. We therefore estimate equation 2 after redefining these thresholds as: (a) 5 and -5, (b) 4 and -4, (c) 3 and -3, (d) 2 and -2, and (e) 1 and -1.

Table 2 shows the estimates of $MIXED_{ij}$, AUT_{ij}, and $OTHER_{ij}$ for each set of thresholds. (The estimates of the remaining parameters are not presented to conserve space.) These results provide a further indication that our earlier findings are quite robust. The estimate of $MIXED_{ij}$ is negative and statistically significant

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[18] We use an instrument for the lagged value of log X_{ij}, rather than its observed value, because the natural logarithm of the lagged value of exports is likely to be correlated with the error term in equation 2, which would yield inconsistent estimates. This instrument is generated by regressing the lagged value of the natural logarithm of exports on the lagged values of the natural logarithms of GDP_i, GDP_j, POP_i, and POP_j, as well as a dummy variable for each year but one in the sample. Note that we use data on exports from 1956 and data on GDP and population from 1955 to derive estimates of the lagged value of log X_{ij} for 1961.

[19] All of the statistical analyses in this article are conducted using STATA version 5.0.

[20] More precisely, the estimated change in the predicted volume of trade for a mixed pair compared to a democratic pair is $e^{\beta_4} - 1$. From column 1 of Table 1, $\beta_4 = -0.188$; and $e^{-0.188} - 1 = -0.17$.

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[21] Note that, like the difference between democratic pairs and dyads with an incoherent polity shown in Table 1, the differences between $OTHER_{ij}$, on the one hand, and both $MIXED_{ij}$ and AUT_{ij}, on the other, are statistically significant ($t = 3.07$ and 3.52, respectively).

TABLE 1. Regression of Trade on GDP, Population, Distance, Regime Type, Alliances, Preferential Trading Arrangements, Major Power, GATT, Prior Colonial Ties, Command Economies, and War, 1960–90, Using Different Measures of Regime Type

| | Measure of Regime Type | | | |
| | Jaggers and Gurr (1995) | | Alvarez et al. (1996) | |
Variable	(1)	(1A)	(2)	(2A)
log β_0	17.274***	17.688***	22.550***	23.263***
	(3.058)	(3.057)	(3.166)	(3.175)
log($GDP_i \times GDP_j$)	.512***	.512***	.580***	.582***
	(.039)	(.039)	(.044)	(.044)
log($POP_i \times POP_j$)	−.937***	−.943***	−1.211***	−1.232***
	(.080)	(.080)	(.083)	(.084)
log($DIST_{ij}$)	−.759***	−.758***	−.778***	−.777***
	(.014)	(.014)	(.014)	(.014)
$MIXED_{ij}$	−.188***	−.233***	−.111***	−.134***
	(.035)	(.039)	(.025)	(.027)
AUT_{ij}	.098	.036	−.053	−.075
	(.065)	(.069)	(.051)	(.052)
$OTHER_{ij}$	−.088*	−.141***	—	—
	(.039)	(.043)		
$DEMZ_{ij}$	—	−.142**	—	−.120**
		(.053)		(.043)
$ALLY_{ij}$	.119*	.115*	.184***	.180***
	(.052)	(.052)	(.051)	(.051)
PTA_{ij}	.527***	.521***	.473***	.470***
	(.039)	(.039)	(.040)	(.040)
MP_{ij}	.548***	.548***	.618***	.620***
	(.136)	(.135)	(.136)	(.137)
$ALLY_{ij} \times PTA_{ij}$	.535***	.537***	.618***	.620***
	(.066)	(.067)	(.066)	(.066)
$ALLY_{ij} \times MP_{ij}$	.179**	.182**	.052	.050
	(.068)	(.068)	(.067)	(.067)
$PTA_{ij} \times MP_{ij}$	−.476***	−.483***	−.518***	−.522***
	(.068)	(.068)	(.068)	(.068)
$GATT_{ij}$	.074	.072	.126**	.125**
	(.038)	(.038)	(.040)	(.040)
COL_{ij}	1.682***	1.684***	1.780***	1.787***
	(.085)	(.085)	(.087)	(.087)
COM_{ij}	1.033***	1.031***	.855***	.847***
	(.095)	(.095)	(.117)	(.117)
WAR_{ij}	−6.463***	−6.447***	−6.556***	−6.562***
	(.107)	(.107)	(.110)	(.110)
lagged log (X_{ij})	.855***	.855***	.946***	.946***
	(.014)	(.014)	(.014)	(.014)
$\bar{R}^2$	.53	.53	.55	.55
N	33,116	33,116	30,480	30,480

Note: Entries are unstandardized regression coefficients. Figures in parentheses are White heteroskedasticity-consistent standard errors. One-tailed tests are conducted for the regression coefficient of $MIXED_{ij}$, since its sign is specified by the model. Two-tailed tests are conducted for the remaining coefficients. Regressions include dummy variables for country-specific and year-specific fixed effects. *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

regardless of which set of thresholds is used, and its size does not vary much. Furthermore, the estimate of AUT_{ij} continues to be positive, and there is only one case in which it is statistically significant. The estimate of $OTHER_{ij}$ continues to be negative, and it is significant in two instances.

TABLE 2. Estimated Effects of Regime Type on Trade, Based on Different Operational Definitions of Democracy and Autocracy, 1960–90

Operational Definition of		Regression Coefficient		
Democracy	Autocracy	$MIXED_{ij}$	AUT_{ij}	$OTHER_{ij}$
$REG \geq 5$	$REG \leq -5$	-.171*** (.034)	.109 (.064)	-.110** (.043)
$REG \geq 4$	$REG \leq -4$	-.184*** (.034)	.100 (.063)	-.119** (.046)
$REG \geq 3$	$REG \leq -3$	-.141*** (.034)	.128* (.063)	-.060 (.053)
$REG \geq 2$	$REG \leq -2$	-.138*** (.034)	.093 (.063)	-.047 (.058)
$REG \geq 1$	$REG \leq -1$	-.143*** (.033)	.053 (.062)	-.193 (.104)

Note: Entries are unstandardized regression coefficients based on equation 2 and using the Jaggers and Gurr (1995) measure of regime type. Figures in parentheses are White heteroskedasticity-consistent standard errors. One-tailed tests are conducted for the regression coefficient of $MIXED_{ij}$, since its sign is specified by the model. Two-tailed tests are conducted for the remaining coefficients. Regressions include dummy variables for country-specific and year-specific fixed effects. $*p \leq .05$, $**p \leq .01$, $***p \leq .001$.

Besides altering the thresholds that distinguish between regime types when the Jaggers and Gurr (1995) measure (REG) is used, we examined whether our results differ if another measure of regime type is used. Various alternative measures exist, but very few cover the range of countries and years analyzed here.[22] Alvarez et al. (1996), however, have coded the regime type of most countries in our sample on an annual basis during the period from 1950 to 1990. Unlike Jaggers and Gurr, Alvarez et al. identify each state as either democratic or autocratic in every year. Relying on their measure has certain advantages, since we do not need to establish quantitative thresholds to code regime type. From our standpoint, however, this measure also has certain drawbacks, especially Alvarez et al.'s (1996, 5) intentionally narrow definition of democracy, which centers solely on the competitiveness of the political process. In their view, democracy exists when there are competitive elections for the head of state and the legislature; otherwise, the regime is autocratic. As noted above, the competitiveness of the political process helps shape whether the legislature can effectively constrain the chief executive. In contrast to Jaggers and Gurr, however, Alvarez et al. do not directly measure our key variable of interest: the legislature's role in constraining the executive.

Nonetheless, it is useful to analyze the Alvarez et al. data in order to assess the robustness of our initial results. To this end, we reestimated equation 2 after using their data to code $MIXED_{ij}$, AUT_{ij}, and $DEMZ_{ij}$. Note that $OTHER_{ij}$ is not included in this analysis, since Alvarez et al. code each state as either a democracy or an autocracy. The results are presented in the third column (omitting $DEMZ_{ij}$) and the fourth column (including $DEMZ_{ij}$) of Table 1. Clearly, there is considerable agreement between these findings and those generated using the Jaggers and Gurr data.

Particularly important for present purposes is that the estimate of $MIXED_{ij}$ continues to be negative and statistically significant, although its absolute value is somewhat smaller when we rely on the Alvarez et al. data rather than the Jaggers and Gurr data. Furthermore, we again find that democratic transitions dampen trade, since the estimate of $DEMZ_{ij}$ is negative and significant. It is also noteworthy that no statistically significant difference exists between the flow of trade within autocratic pairs and democratic pairs. As in the first two columns in Table 1, the estimate of AUT_{ij} is not significant, although it is negative when the Alvarez et al. data are used, and it is positive when the Jaggers and Gurr data are employed. In sum, our results are quite robust with respect to the coding of regime type.[23]

Third, it is useful to ensure that our statistical design does not mask any substantial intertemporal variation in the effects of regime type on trade. In a preliminary effort to address this issue, we conducted separate analyses of each decade in our sample; we pooled the observations for 1960 and 1965, for 1970 and 1975, and for 1980 and 1985, and we analyzed 1990 alone. For each set of observations, we estimated equation 2 using the same operational measure of regime type that was used to generate our original results (i.e., states are coded as democratic if $REG \geq 6$, autocratic if $REG \leq -6$).[24] Table 3 presents the estimated coefficients of $MIXED_{ij}$, AUT_{ij}, and $OTHER_{ij}$. (As in Table 2, the remaining coefficient estimates are not reported to

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[22] For example, the Political Regime Change data set developed by Gasiorowski (1996) is restricted to 97 less developed countries, a much different sample of countries than ours.

[23] Note that we have included country-specific fixed effects in all the preceding analyses, but we also analyzed whether replacing them with pair-specific fixed effects has any bearing on our results. To this end, we reestimated the models shown in the second and fourth columns of Table 1 after accounting for pair-specific fixed effects and found that doing so has little influence on the estimates.

[24] To estimate equation 2 for the 1960s, the 1970s, and the 1980s, a dummy variable for the first year in each decade (1960, 1970, and 1980, respectively) is included. Note that the following results are quite similar if the Alvarez et al. (1996) data on regime type are used instead of the Jaggers and Gurr data.

TABLE 3. Estimated Effects of Regime Type on Trade by Decade, 1960–90

	Regression Coefficient		
Years	$MIXED_{ij}$	AUT_{ij}	$OTHER_{ij}$
1960 and 1965	−.191*	.182	.029
	(.083)	(.156)	(.117)
1970 and 1975	.015	.147	.147
	(.083)	(.149)	(.119)
1980 and 1985	−.294***	−.036	.006
	(.081)	(.153)	(.119)
1990	−.494***	−.547*	−.274
	(.126)	(.256)	(.155)

Note: Entries are unstandardized regression coefficients based on equation 2 and using the Jaggers and Gurr (1995) measure of regime type. Figures in parentheses are White heteroskedasticity-consistent standard errors. One-tailed tests are conducted for the regression coefficient of $MIXED_{ij}$, since its sign is specified by the model. Two-tailed tests are conducted for the remaining coefficients. Regressions include dummy variables for country-specific and (in the first three regressions shown above, year-specific) fixed effects. *$p \le .05$, ***$p \le .001$.

conserve space.) In three of the four decades we assess, the estimate of $MIXED_{ij}$ is negative and statistically significant, which indicates that the tendency for trade to be more open within democratic pairs than within mixed pairs is relatively stable over time. Also, it is interesting that any tendency for autocratic pairs to trade more extensively than their democratic counterparts has become attenuated over time, an issue that warrants attention in future research.

Our sample includes all countries for which we were able to obtain data for the variables in equation 2. For various countries, however, data on GDP, trade, or both are missing in certain years analyzed here. Since a number of these are autocracies that are unlikely to trade extensively due to their severely distorted economies (e.g., Albania, Cambodia, Cuba, Laos, Libya, North Korea, and Sudan), we ran a series of Heckman selection models to ensure that there was no bias in our earlier findings (Greene 1993, 706–14). We found no evidence of such a bias.[25] In addition to the countries in our sample with missing data for certain years, there are other countries for which we were unable to obtain any economic data. These (e.g., Afghanistan, Bangladesh, Burundi, Liberia, Rwanda, Somalia, Uganda, Yemen) were excluded from our sample altogether. Virtually all of them are autocracies with highly distorted economies. Such distortions are likely to hamper commerce, so there is ample reason to expect that our results understate the actual extent to which democratic dyads trade more freely and extensively than mixed dyads. Equally, the omission of these countries probably helps explain why, for example, the estimate of AUT_{ij} is positive in Table 1 when the Jaggers and Gurr measure of regime type is considered.

Finally, we address whether our results are robust with respect to the inclusion of various factors omitted from equation 2. Of chief importance in this regard are economic growth and the level of economic development. It is possible, for example, that democratic pairs conduct more trade than mixed pairs because democracies experience higher growth than autocracies, and growth promotes trade. Similarly, democracies may be more highly developed economically, and more highly developed states may engage in more trade than less developed countries. Our results do not accord with either of these possibilities; democratic pairs trade more extensively than mixed pairs, but so do autocratic pairs. Nonetheless, as a further test of the robustness of the results, we included in equation 2 the real per-capita GDP of both i and j in year $t - 1$. We then replace per-capita GDP with various other factors that have been used as measures of economic development in studies of international trade (e.g., Polachek 1980), including the number of highway vehicles per capita, per-capita school enrollment, per-capita university enrollment, and electrical production per capita. Finally, to examine the effects of growth, we include the change in per-capita GDP of both i and j between year $t - 6$ and year $t - 1$.[26] It should be noted that, for some of these variables, complete data are available for only a fraction of the states and years we analyzed, so the estimates generated after including them in equation 2 are not directly comparable to those in Table 1. But our findings indicate that including these variables has no substantive influence on the estimates in Table 1. Most important for present purposes, the estimate of $MIXED_{ij}$ is negative and statistically significant in each of these analyses.

Turning to the remaining variables in equation 2, the effects of GDP, population, and distance accord with expectations based on the gravity model. As shown in Table 1, the estimate of $\log(GDP_i \times GDP_j)$ is positive and statistically significant, and the estimates of both $\log(POP_i \times POP_j)$ and $\log(DIST_{ij})$ are negative and significant. In addition, the estimates of $ALLY_{ij}$, PTA_{ij}, MP_{ij}, $ALLY_{ij} \times PTA_{ij}$, and $ALLY_{ij} \times MP_{ij}$ are positive; and the estimate of $PTA_{ij} \times MP_{ij}$ is negative. All these estimates are statistically significant when the Jaggers and Gurr data are used, and all but the estimate of $ALLY_{ij} \times MP_{ij}$ is significant based on the Alvarez et al. data. These results indicate that alliances, PTAs, and the presence of a major power each promotes commerce. Moreover, countries that belong to the same alliance and the same PTA conduct more trade than countries that are either allies or parties to the same PTA, but not both. Alliances provide a much greater impetus to trade between states that include a major power than between other states. PTAs yield marginally more commerce between trading partners that include a major power than between other countries.

Our results also indicate that a former colonial relationship heightens bilateral trade flows, that states with command economies trade extensively with each

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[25] The estimate of ρ (which is the correlation between the error term in the selection equation and the error term in equation 2) is quite small, and we found no evidence that it is significantly different from zero.

[26] These data are taken from Banks 1995, Maddison 1995, and Summers and Heston 1991.

other, and that warfare depresses commerce. The estimates of COL_{ij} and COM_{ij} are positive, the estimate of WAR_{ij} is negative, and all these results are statistically significant. GATT membership, however, has a weaker effect on bilateral trade flows. The estimate of $GATT_{ij}$ is positive, which suggests that trade flows between parties to the GATT tend to be somewhat larger than trade flows between nonmember states. But this estimate is relatively small, and it is not statistically significant when the Jaggers and Gurr data on regime type are used.

In sum, the results of this empirical analysis support the central prediction of our formal model. Holding constant a large number of economic and political factors—including variables pertaining to the dynamics of the Cold War—we find that pairs of democracies have conducted considerably more trade than mixed pairs since World War II. Furthermore, although our model generates no definitive predictions about autocratic pairs, it is noteworthy that, based on our sample, no systematic difference exists in trade relations between these pairs and democratic dyads.

CONCLUSION

It is frequently argued that the foreign policies of democracies are distinctive, but few studies have focused on the trade policy choices made by such states. Moreover, most work on trade policy overlooks the effects of regime type. By addressing the effects of regime type on trade policy, this article contributes to the literature on the links between democracy and foreign policy as well as that on the political economy of trade policy.

The model we developed highlights the legislature's role in making trade policy in democracies. Having a legislature that ratifies the chief executive's trade proposals may create a credible threat that allows executives in democracies to arrive at freer trade outcomes than would otherwise occur. The possible veto of a trade deal by one or both legislatures in the dyad may lead the executives to search for lower mutually acceptable levels of trade barriers. This, in turn, may explain why pairs of democracies are better able to lower their trade barriers than mixed pairs.

Our analysis focuses on variations between democracies and autocracies, not on variations within either regime type. Both our model and the data analysis treat each type of regime as homogeneous. Democracies are distinct from autocracies because they have a legislature that exercises ratification power, regardless of its preferences. The differences among regime types rest on institutional features, not on the policy preferences of decision makers. Varying the trade policy preferences of the executive and legislature does not alter the degree of democracy present; it only changes the extent to which government is divided within democracies. Furthermore, whether a government is divided or unified has no bearing on the degree to which a country is democratic. Hence, examining the influence of such divisions (i.e., as the trade policy preferences of the executive and legislature diverge or converge) does not

facilitate comparisons between democracies and autocracies, only between more divided and less divided democracies. Our model is capable of deriving outcomes when such changes occur, but in this article we have neither the space nor the data to explore such variations within democracies. It is interesting to note, however, the finding of others that increasing divisions in the preferences of executives and legislatures may result in more protectionism for a single country and less possibility of trade-barrier-reducing agreements between countries (e.g., Lohmann and O'Halloran 1994; Milner and Rosendorff 1996). Our results differ from but are not inconsistent with those earlier findings. We show that having a protectionist legislature with ratification powers may help democracies arrive at lower levels of trade barriers in their dealings with one another.

Our theoretical model generates two central predictions. First, aggregate trade barriers will be lower between democracies than between a democracy and an autocracy. Since a trade war between two protectionist legislatures is worse than a trade war involving just one such legislature, two democratic executives will choose significant trade liberalization. Our empirical results accord with this proposition. They indicate that trade between democracies tends to be more extensive than commerce within mixed pairs. On average, dyads composed of a democracy and an autocracy engage in roughly 15% to 20% less commerce than those composed of two democracies. Interestingly, this result seems to strengthen over time. By the 1990s, as Table 3 shows, the average volume of trade between a democracy and an autocracy was roughly 40% less than that of democratic dyads.

Our data overlap the bipolar period extensively. To control for any Cold War influences that might account for the effects of regime type on trade, we analyzed various international political factors. The Cold War was marked by the existence of two camps, with democracies concentrated in one and autocracies in the other. It could be that democratic pairs trade more because they tend to be allies, because they belong to the same commercial institutions (the GATT or PTAs), or because they are not involved in military conflicts. Even when we control for these factors, however, we find that trade flows are significantly greater within democratic dyads than within mixed dyads.

Second, whether the level of aggregate trade barriers will be higher within autocratic pairs than within either democratic or mixed pairs depends on the relative trade preferences of the actors involved. Although it was not possible to incorporate the preferences of political actors directly into our empirical analysis, our results conform with this conclusion. By and large, no significant difference exists between the volume of trade conducted within autocratic pairs and within democratic pairs, which suggests that both domestic institutions and the preferences of decision makers help shape trade policy.

Our model uses a very general institutional characteristic to distinguish democratic and autocratic re-

gimes: the presence or absence of a legislature that can effectively constrain the executive. This simplified approach is appropriate given our purpose, but it may mask variations in trade policy within both democracies (e.g., among presidential and parliamentary systems) and autocracies (e.g., those governed by military leaders as opposed to those governed by hereditary monarchs). Examining the influence of such factors is an important step for future research. It is striking, however, that notwithstanding the institutional distinctions within each regime type, broadly defined differences across regime types exert a noticeable effect on trade relations. Exploring such broad institutional differences across autocracies and democracies, we believe, is an important and prior step toward examining the effect of differences within these two regime types.

Although our analysis hinges on one institutional feature assumed to be common among democracies (i.e., a legislature with the power to ratify executive proposals), it is obvious that many other institutional distinctions can be drawn between autocracies and democracies. These institutional differences may also influence international trade. Our empirical tests pick up the effect of the legislature as well as that of these other differences, so we cannot rule out the possibility that other elements of democracy are important factors. Measures of democracy that isolate the effect of the legislature simply do not exist, however, and given our large, longitudinal sample of countries, they would be prohibitive to construct. Moreover, our evidence and our model reinforce each other, lending credibility to our claims. Abstracting away from preferences and other institutional factors, the presence of popularly elected legislatures that must ratify policies may be an important difference between democracies and other regime types in international trade. Paradoxically, the protectionist threat provided by the legislature in democracies can result in more open trade, rather than less.

APPENDIX

Let the two executives who bargain internationally be identified as i and j.

LEMMA 1. *The Pareto frontier between i and j is* $t^* = -t(t_j^*/t_i) + t_j^*$.

Proof: Maximizing $U_i(t, t^*)$ subject to $U_j(t, t^*) \geq \bar{U}$ and $(t, t^*) \geq 0$ yields the result. Q.E.D.

The TILI Game with Home Offers

In the case of the democratic pair, we require the home executive to offer the foreign executive an agreement that lies on their Pareto frontier (as given by lemma 1).

LEMMA 2. *When two democracies negotiate under TILI, the agreement point is* $(-1/2\, t_C + 1/2\, t_P + 1/2 \sqrt{(t_C^2 + 2t_Ct_P - t_P^2)},$ $1/2\, t_P + 1/2\, t_C - 1/2 \sqrt{(t_C^2 + 2t_Ct_P - t_P^2)})$, *and aggregate barriers are* t_P.

Proof: The no-agreement point is $(t_C, t_{C^*}^*)$. Under TILI, with home making the offer, home's problem is max $U_P(t, t^*)$

subject to $U_C(t, t^*) \geq U_C(t_C, t_{C^*}^*)$, $U_{C^*}(t, t^*) \geq U_{C^*}(t_C, t_{C^*}^*)$, $U_{P^*}(t, t^*) \geq U_{P^*}(t_C, t_{C^*}^*)$, $t^* = t_{P^*}^* - t(t_{P^*}^*/t_P)$ and $t, t^* \geq 0$. The solution lies at point d in Figure 3, where foreign's indifference curve intersects the Pareto frontier. The second constraint binds; we solve $t^* = t_{C^*}^* - \sqrt{t_C^2 - t^2}$ and (from lemma 1) $t^* = t_{P^*}^* - t(t_{P^*}^*/t_P)$ for t, t^*. Recalling that we study only the symmetric case $t_P = t_{P^*}^*$, $t_C = t_{C^*}^*$ and solving, we get the solution above. Q.E.D.

In the case of the mixed pair, the home executive will offer the foreign autocrat a point on the Pareto frontier when such a point is ratifiable. If no such point exists, then P chooses the nearest point to its ideal point that is preferred by both A^* and C to the status quo.

LEMMA 3. *When a mixed pair negotiate under TILI, the agreement point is*

1. $(t_Pt_C/\sqrt{t_P^2 + t_{A^*}^{*2}}, t_{A^*}^*(\sqrt{t_P^2 + t_{A^*}^{*2}} - t_C)/\sqrt{t_P^2 + t_{A^*}^{*2}})$, *and aggregate barriers are* $t_{A^*}^* + t_C(t_P - t_{A^*}^*)/\sqrt{t_P^2 + t_{A^*}^{*2}}$ *when* $t_C^2 - t_P^2 < t_{A^*}^{*2}$.
2. $(t_P, 0)$ *and aggregate barriers are* t_P *when* $t_C^2 - t_P^2 \geq t_{A^*}^{*2} \geq (t_C - t_P)^2$.
3. $(t_C - t_{A^*}^*, 0)$ *and aggregate barriers are* $t_C - t_{A^*}^*$ *when* $t_{A^*}^{*2} < (t_C - t_P)^2$.

Proof: The no-agreement point is $(t_C, t_{A^*}^*)$. Under TILI, with home, the democracy, making the offer, home's problem is max $U_P(t, t^*)$ subject to $U_C(t, t^*) \geq U_C(t_C, t_{A^*}^*)$, $U_{A^*}(t, t^*) \geq U_{A^*}(t_C, t_{A^*}^*)$, and $t, t^* \geq 0$.

At point m in Figure 2A, the foreign indifference curve binds, as does the constraint that $t^* \geq 0$. We solve $t^* = t_{A^*}^* - \sqrt{t_C^2 - t^2}$ and (from lemma 1) $t^* = t_{A^*}^* - t(t_{A^*}^*/t_P)$ for t, t^*, and the condition that $t^* \geq 0$ is $t_C^2 - t_P^2 < t_{A^*}^{*2}$. Where $t_C^2 - t_P^2 \geq t_{A^*}^{*2} \geq (t_C - t_P)^2$ neither constraint binds, and the solution is at the point $(t_P, 0)$. When $t_{A^*}^{*2} < (t_C - t_P)^2$, the domestic legislature's constraint binds, leading to the solution at point $(t_C - t_{A^*}^*, 0)$. Q.E.D.

We assume that there is a meaningful difference between the ideal points of C and P (and C^* and P^*).

ASSUMPTION. $t_C > 2t_P$ *and* $t_{C^*}^* > 2t_{P^*}^*$.

PROPOSITION 1. *Under TILI (when home makes the offers), the mixed dyad has at least as high aggregate barriers as does the democratic dyad.*

Proof: Let B^D, B^M, and B^A denote the aggregate barriers for the democratic dyad, the mixed dyad, and the autocratic dyad, respectively. Then $B^D = t_P$, and

$$B^M = \begin{cases} \dfrac{t_C(t_P - t_{A^*}^*)}{\sqrt{t_P^2 + t_{A^*}^{*2}}} + t_{A^*}^* & \text{if } t_C^2 - t_P^2 < t_{A^*}^{*2} \\ t_P & \text{if } t_C^2 - t_P^2 \geq t_{A^*}^{*2} \geq (t_C - t_P)^2 \\ t_C - t_{A^*}^* & \text{if } t_{A^*}^{*2} < (t_C - t_P)^2 \end{cases}$$
(A-1)

Suppose $t_C^2 - t_P^2 < t_{A^*}^{*2}$ which implies $B^D - B^M = (t_P - t_{A^*}^*)((\sqrt{t_P^2 + t_{A^*}^{*2}} - t_C)/\sqrt{t_P^2 + t_{A^*}^{*2}})$. Now $t_C^2 - t_P^2 < t_{A^*}^{*2} \Rightarrow \sqrt{t_P^2 + t_{A^*}^{*2}} - t_C > 0$. By the assumption, $t_C > 2t_P > \sqrt{2}t_P \Rightarrow t_C^2 > 2t_P^2$. Then $t_C^2 - t_P^2 > t_P^2$. Now $t_C^2 - t_P^2 < t_{A^*}^{*2}$, so $t_P < t_{A^*}^*$, and $B^D - B^M < 0$. Suppose that $t_C^2 - t_P^2 \geq t_{A^*}^{*2} \geq (t_C - t_P)^2$. Then $B^D - B^M = 0$. If $t_{A^*}^{*2} < (t_C - t_P)^2$, then $t_{A^*}^* < t_C - t_P$ or $t_P < t_C - t_{A^*}^*$. Hence, $B^D - B^M = t_P - (t_C - t_{A^*}^*) < 0$. Q.E.D.

TILI When Foreign Makes the Offer

Once again we compare the democratic dyad case with the mixed case. Home is in both cases the democracy. Foreign in

the first case is a democracy and in the second an autocracy. We now let foreign make the offers. Foreign offers the home executive an agreement; if the home executive agrees, then the offer is put to the legislature for a possible veto.

PROPOSITION 2. *Under TILI (when foreign makes the offer), the mixed dyad has higher aggregate barriers as does the democratic dyad.*

Proof: In the democratic dyad the outcome is at point d^* in figures 3 and 5; $B^D = t_P$. In the mixed dyad the outcome is at m^* in Figure 2A and B and at point λ in Figure 2C.

$$B^M = \begin{cases} \begin{aligned} &-[-t_C t_P^2 - t_P t_{A*}^{*2} \\ &+ t_{A*}^*(t_P - t_{A*}^*)\sqrt{2t_C t_P + t_{A*}^{*2} - t_C^2} \\ &- t_P^2 t_{A*}^* + t_C t_{A*}^* - t_P]/(t_P^2 + t_{A*}^{*2}) \end{aligned} & \text{if } t_{A*}^{*2} > (t_C - t_P)^2 \\[2ex] t_C + t_{A*}^* \dfrac{t_C - t_{A*}^*}{\sqrt{t_C^2 + t_{A*}^{*2}}} & \text{if } t_{A*}^{*2} \le (t_C - t_P)^2 \end{cases}$$

$$\text{(A-2)}$$

Suppose $t_{A*}^2 > (t_C - t_P)^2$. Then $B^D - B^M = (t_P - t_{A*}^*)(t_P^2 - t_C t_P + t_{A*}^*\sqrt{2t_C t_P + t_{A*}^{*2} - t_C^2})/(t_P^2 + t_{A*}^{*2})$. Now $(t_P^2 - t_C t_P + t_{A*}^*\sqrt{2t_C t_P + t_{A*}^{*2} - t_C^2})/(t_P^2 + t_{A*}^{*2}) > 0$, and $t_{A*}^2 > (t_C - t_P)^2 = t_C(t_C - 2t_P) + t_P^2 > t_P^2$ by the assumption. Then $t_P < t_{A*}^*$ and $B^D - B^M < 0$. If $t_{A*}^{*2} \le (t_C - t_P)^2$ then $t_C - t_P \ge t_{A*}^* > t_{A*}^*(t_{A*}^* - t_C)/\sqrt{t_{A*}^{*2} + t_C^2}$ since $(t_{A*}^* - t_C)/\sqrt{t_{A*}^{*2} + t_C^2} < 1$. Then $t_P < t_C - t_{A*}^*(t_{A*}^* - t_C)/\sqrt{t_{A*}^{*2} + t_C^2}$, and $B^D - B^M < 0$.   *Q.E.D.*

PROPOSITION 3. $B^D \le B^A \Leftrightarrow t_P \le t_{A*}^*$.

Proof: This follows from $B^D = t_P$ and $B^A = t_{A*}^*$.   *Q.E.D.*

The Effect of More Divided Democracies

COROLLARY. *Irrespective of which country makes the first offer, as the legislatures become more protectionist (or less), the aggregate level of barriers to which a pair of democracies agree is unchanged.*

Proof: Aggregate barriers are always t_P in the joint democracy case which is unaffected by changes in t_C.   *Q.E.D.*

Comparing Barriers of Joint Autocracies and the Mixed Pair

The outcomes here are not independent of the preferences of the players.

PROPOSITION 4. *Under TILI, when home (foreign) makes the offer, $B^A \le B^M$ when $2t_A \le t_C (t_A \le t_C - t_P)$.*

Proof: Note that in the autocracy case, $t_A = t_{A*}^*$. (a) When home makes the offer, $B^A = t_A$, and B^M is as in equation A-1 above. If $2t_A \le t_C$, then $2t_A - t_C \le 0 < t_C - 2t_P$ (by the assumption), which means $t_A < (t_C - t_P)$ and equivalently $t_A^2 < (t_C - t_P)^2$. From equation A-1, $B^M = t_C - t_A$ when $t_A^2 < (t_C - t_P)^2$. Then $B^A - B^M = 2t_A - t_C \le 0$ when $2t_A \le t_C$. If $2t_A > t_C$, then either (1) $t_A^2 < (t_C - t_P)^2$, or (2) $t_C^2 - t_P^2 \ge t_A^2 \ge (t_C - t_P)^2$, or (3) $t_C^2 - t_P^2 < t_A^2$. In the first instance, $B^A - B^M = 2t_A - t_C > 0$; in the second instance, $B^A - B^M = t_A - t_P$. By the assumption that $2t_P < t_C$, we have $t_A^2 \ge (t_C - t_P)^2 > t_P^2$. So $B^A - B^M > 0$. In the third instance, $B^A - B^M = -[t_C(t_P - t_A)/\sqrt{t_P^2 + t_A^2}]$. Again, $t_A^2 \ge t_C^2 - t_P^2 > t_P^2$, so $B^A - B^M > 0$. (b) When foreign makes the offer, $B^A = t_A$ and B^M is as in equation A-2 above. If $t_A > t_C - t_P$, then $B^A - B^M = [(t_A - t_P)(t_A^2 + t_C t_P -$

$t_A\sqrt{t_A^2 + t_C t_P - t_C^2})]/(t_A^2 + t_P^2)$; it is straightforward to show that $t_A^2 + t_C t_P - t_A\sqrt{t_A^2 + t_C t_P - t_C^2} > 0$. By the assumption that $2t_P < t_C$, we have $t_A^2 > (t_C - t_P)^2 > t_P^2$. So $B^A - B^M > 0$. If $t_A \le t_C - t_P$, then $B^A - B^M = (t_A - \sqrt{t_A^2 + t_C^2})[(t_C - t_A)/\sqrt{t_A^2 + t_C^2}]$. Now $(t_A - \sqrt{t_A^2 + t_C^2}) < 0$, and $t_A \le t_C - t_P \Rightarrow t_A \le t_C$, and, hence, $B^A - B^M \le 0$.   *Q.E.D.*

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