

# Political Regimes and International Trade: The Democratic Difference Revisited

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*How do domestic political institutions affect the outcomes of international trade negotiations? Specifically, are the aggregate trade barriers agreed upon by a democratic pair lower than those by a pair composed of a democracy and an autocracy? I revisit these important questions by highlighting some problematic aspect of the analysis by Mansfield, Milner, and Rosendorff (2000). Contrary to their central conclusion, I find that whether the aggregate trade barriers are lower for a democratic pair than those for a mixed pair depends on the preferences of the decision makers involved. Thus, although domestic political institutions are important, they alone are insufficient to predict a higher level of cooperation among democracies.*

How do domestic political institutions affect trade policy? In particular, are groups of democracies better able to liberalize trade than groups of autocracies or groups composed of both democracies and autocracies? To address these questions, Mansfield, Milner, and Rosendorff (2000) analyze a take-it-or-leave-it (TILI) bargaining game, in which they compare the aggregate trade barriers agreed upon by democratic pairs with those by autocratic pairs and by mixed pairs.

To distinguish democracies from autocracies, Mansfield, Milner, and Rosendorff (2000) (hereafter MMR) argue that the chief executive in a democracy needs the approval of a legislative majority to enact a trade policy, while an autocrat does not. MMR accordingly solve the TILI games played by democratic pairs, by autocratic pairs, and by mixed pairs. Their central proposition is that, due to the institutional difference between democracies and autocracies, democratic pairs tend to agree upon lower trade barriers than mixed pairs regardless of the preferences of the decision makers.

I highlight some problematic aspect of MMR's analysis. When considering a TILI offer to a democracy (by either a democracy or an autocracy), MMR's solution is not optimal for the executive making the offer. I revise MMR's solutions for the TILI offers made to democracies and, accordingly, recalculate the aggregate trade barriers within democratic pairs, within autocratic pairs, and between a democracy and an autocracy. I find that the aggregate trade barriers within democratic pairs are always higher than what MMR predict. Accordingly, whether the aggregate trade barriers are lower for democratic pairs than those for mixed pairs depends on the preferences of the decision makers involved. This result contrasts with MMR's central proposition that, regardless of the preferences of the decision makers, democracies agree upon lower trade barriers than mixed pairs.

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I begin by summarizing the setup of the MMR model. I then explain how MMR's solutions for TILI offers to democracies are not best replies and I provide alternative solutions. Based on these solutions, I recalculate the aggregate trade barriers and conclude that no clear-cut comparison can be drawn without considering the preferences of the decision makers involved.

## ASSUMPTIONS IN THE MMR MODEL

MMR consider the setting of trade barriers between two countries, "home" and "foreign." Either country can be an autocracy, with only an executive  $A$ , or a democracy, with both an executive  $P$  and a legislature  $C$ . The notation  $*$  refers to the foreign country. The ideal level of trade barriers at home and abroad for each actor  $i$  is denoted  $(t_i, t_i^*)$ . All actors in one country prefer the elimination of trade barriers in the other country; that is,  $t_i^* = 0$  for  $i = P, C, A$ , and  $t_i = 0$  for  $i = P^*, C^*, A^*$ . Each actor's utility function is assumed to be a simple loss function, and thus the actors aim to minimize the distance between the TILI solution  $(t, t^*)$  and their own ideal point  $(t_i, t_i^*)$ .

$$U_i(t, t^*) = -(t - t_i)^2 - t^{*2},$$

for  $i = P, A, C$  in the home country; **(1)**

$$U_i(t, t^*) = -t^2 - (t^* - t_i^*)^2,$$

for  $i = P^*, C^*, A^*$  in the foreign country.

**(1\*)**

When there is no trade agreement, each country is free to set the trade barriers in its own country. In an autocracy, the executive sets the level of domestic trade barriers. In a democracy, the legislature is assumed to have the final say on the level of domestic trade barriers. Each actor simply maximizes his or her utility function as in Eqs. (1) and (1\*). The no-agreement equilibria are  $N_{AA^*} = (t_A, t_{A^*}^*)$ ,  $N_{DA^*} = (t_C, t_{A^*}^*)$ ,  $N_{A^*D} = (t_{A^*}^*, t_C)$ , and  $N_{DD^*} = (t_C, t_{C^*}^*)$ , respectively.

These no-agreement equilibria are not welfare maximizing. MMR thus consider a perfect information bargaining game in which countries coordinate their trade policies. MMR analyze two bargaining structures. In one, the home country makes a TILI offer to the foreign

country; in the other, the foreign country makes a TILI offer to the home country.

In the TILI game—suppose that the home country is the first mover—the sequence of moves is assumed to be as follows. First, the home executive makes an offer that specifies reduced levels of home and foreign trade barriers. Second, all relevant decision makers either accept the offer or reject it. If all relevant decision makers accept the offer, it becomes policy. If any relevant decision maker rejects the offer, policy remains at the no-agreement point.

Who are the relevant decision makers, after a TILI offer is made? Again, suppose that the home executive makes the TILI offer. If both countries are autocracies, the foreign executive alone decides whether to take the offer or not. If the home country is a democracy and the foreign country an autocracy, then both the home legislature and the foreign executive must decide whether or not to accept the offer. If the home country is an autocracy and the foreign country a democracy, then both the executive and the legislature in the foreign country must decide either to take the offer or to leave it. If both the home and the foreign countries are democracies, then the offer must be acceptable to the foreign executive as well as the two legislatures to avoid a trade war. All decision makers are assumed never to take any dominated strategy.

MMR further assume that the structure of preferences in countries with similar political regimes is symmetric. That is,  $t_A = t_{A^*}$ ,  $t_P = t_{P^*}$ , and  $t_C = t_{C^*}$ . Furthermore, in a democracy, the legislature is assumed to be more protectionist than the executive, i.e.,  $t_P < t_C$  and  $t_{P^*} < t_{C^*}$ .<sup>1</sup>

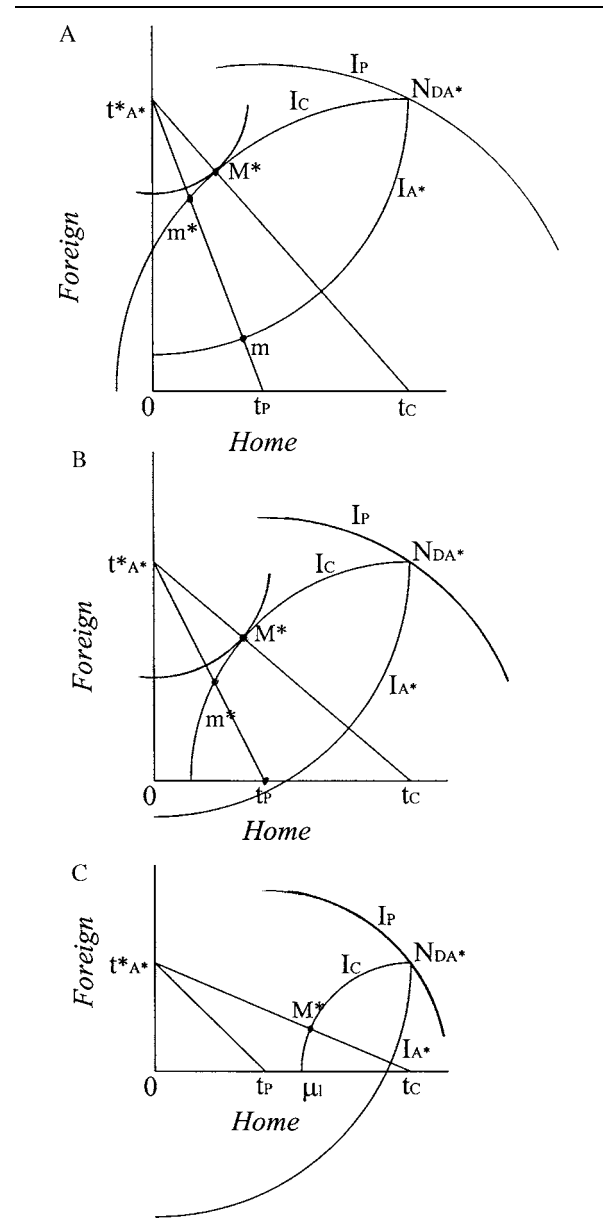
### SOLUTIONS FOR TILI OFFERS TO DEMOCRACIES

MMR’s solution for a TILI offer to a democracy is not the optimal strategy for the executive making the offer. MMR’s Figures 2 and 3, reproduced here as Figures 1 and 2, illustrate their key solutions. In these figures,  $I_C$ ,  $I_{C^*}$ ,  $I_A$ , and  $I_{A^*}$  are the indifference curves through the no-agreement points for actors C, C\*, A, and A\*, while  $I_P$  and  $I_{P^*}$  are the indifference curves through the no-agreement points for actors P and P\*.

In Figure 1, when the home democratic executive P makes a TILI offer to the foreign autocracy, MMR identify the optimal solutions. However, when the foreign autocrat A\* makes a TILI offer to the home democracy, MMR’s solution  $m^*$  is not optimal for the foreign autocrat. Rather, a TILI offer at  $M^*$  maximizes the utility of the foreign autocrat. Explanations follow.

Because both the home executive P and the home legislature C can veto an offer, an acceptable offer must lie within the win set formed by the indifference curves

**FIGURE 1. Trade Barriers Set by an Autocracy and a Democracy. (A) A protectionist autocracy:  $I_{A^*}$  binds. (B) A moderate autocracy:  $I_C$  binds. (C) A liberal autocracy:  $I_C$  binds.**

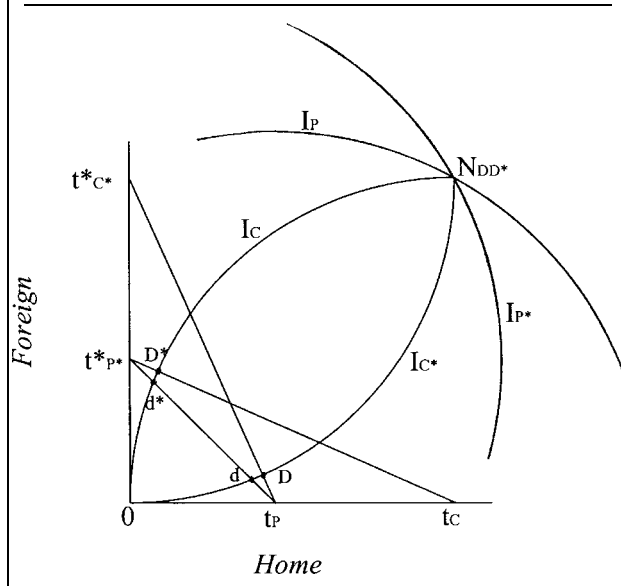


$I_P$  and  $I_C$  through the no-agreement point  $N_{DA^*}$ . The optimal strategy for the foreign autocrat  $A^*$  is thus to propose the point in the win set closest to his or her own ideal point  $(0, t_{A^*}^*)$ . This point is  $M^*$ , not  $m^*$ . At point  $M^*$ , the binding indifference curve  $I_C$  is tangent to the foreign autocrat’s indifference curve through  $M^*$ . Thus the distance from  $M^*$  to the foreign executive’s ideal point  $(0, t_{A^*}^*)$  is smaller than that from any other point in the win set (including point  $m^*$ ) to  $(0, t_{A^*}^*)$ .<sup>2</sup> In other

<sup>1</sup> To prove their propositions, MMR also require that  $t_C > 2t_P$  and  $t_{C^*} > 2t_{P^*}$ . I keep all their assumptions except these, because they are more constraining than necessary. Note, just the same, that the fact that my conclusion differs from MMR’s cannot be attributed to the relaxation of these assumptions. It is, rather, due to a mistake in MMR that I identify in the next section.

<sup>2</sup> Graphically,  $m^*$  is outside of the circle going through  $M^*$  with  $(0, t_{A^*}^*)$  as the center. Thus the distance from  $m^*$  to  $(0, t_{A^*}^*)$  is longer than the radius, which is the distance from  $M^*$  to  $(0, t_{A^*}^*)$ .

**FIGURE 2. Trade Barriers Set by Two Democracies**



words, a rational foreign autocrat can achieve a higher utility by proposing  $M^*$  rather than MMR’s solution  $m^*$ . Note also that a TILI offer at  $M^*$  is acceptable to both the home executive and the home legislature, for it provides both higher utilities than would no agreement.

Likewise, MMR’s solution for the TILI offer from a democracy to a democracy is not optimal for the democratic executive making the offer. In Figure 2, MMR’s solutions  $d$  and  $d^*$  for the TILI offers between democracies are both suboptimal for the executives making the offers, because alternative TILI offers at  $D$  and  $D^*$  actually maximize the executives’ utilities.

In sum, MMR’s solutions  $d$  and  $d^*$  in Figure 2 as well as  $m^*$  in Figure 1 are not best replies to the executive’s and legislature’s strategies of accepting any offer that gives at least as much as the status quo. A rational executive making the TILI offer to a democracy is in fact better off proposing  $D$ ,  $D^*$ , and  $M^*$ , respectively. Furthermore, the latter revised solutions will be accepted because all actors fare at least as well with them as with no agreement.

**TRADE BARRIER COMPARISONS**

How does this revision affect the main result in MMR? The most striking result in MMR is that, although the comparison of the aggregate trade barriers for the autocratic pair and those for either the democratic or the mixed pair depends on the preferences of the decision makers, the comparison of the aggregate trade barriers for the democratic pair and those for the mixed pair does not. In contrast, I find that the comparison of the aggregate trade barriers for the democratic pair and those for the mixed pair also depends on the preferences of the decision makers. That is, when the problematic aspect of MMR’s analysis is revised, their central proposition—that aggregate trade

barriers are lower within democratic pairs than within mixed pairs—no longer holds.

**PROPOSITION .** *Under TILI, whether the aggregate trade barriers are lower for the democratic pair than those for the mixed pair depends on the preferences of the decision makers involved.*

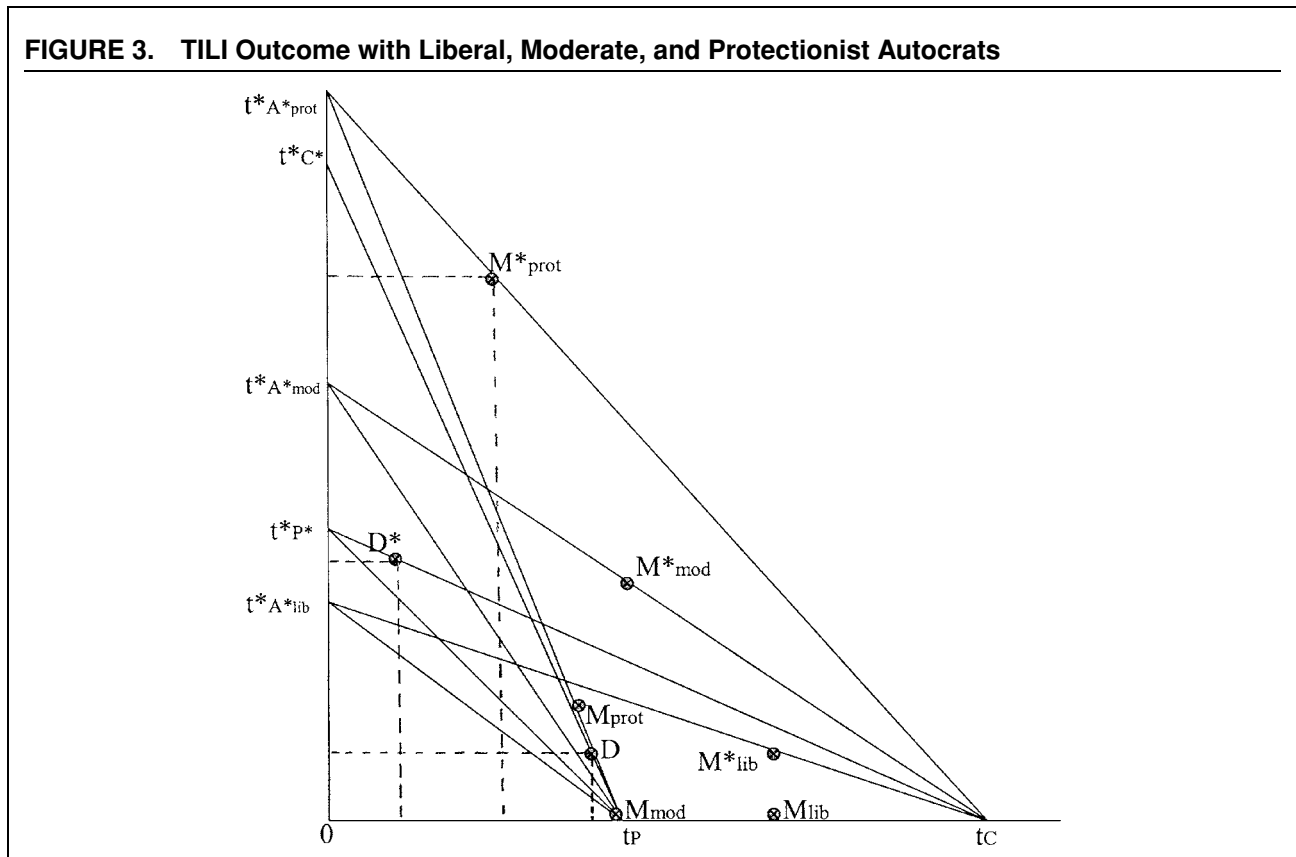
Figure 3 intuitively shows why this is the case.  $D$  and  $D^*$  mark the TILI solutions for two democracies.  $M_{prot}$ ,  $M_{mod}$ , and  $M_{lib}$  mark the solutions when a home democracy makes a TILI offer to a protectionist, a moderate, and a liberal foreign autocracy.  $M^*_{prot}$ ,  $M^*_{mod}$ , and  $M^*_{lib}$  mark the solutions when a protectionist, a moderate, and a liberal foreign autocracy make a TILI offer to a home democracy. Clearly, the aggregate trade barriers for the democratic pair at  $D^*$  are lower than those for the mixed pair at  $M^*_{prot}$ , because  $t + t^*$  at  $D^* < t + t^*$  at  $M^*_{prot}$ . On the other hand, the aggregate trade barriers for the democratic pair at  $D$  are higher than those for the mixed pair at  $M_{mod}$ , because  $t + t^*$  at  $D > t + t^* = t_p$  at  $M_{mod}$ . In short, the aggregate trade barriers for a democratic dyad are sometimes lower but sometimes higher than those for a mixed pair.

The reason that this result differs from MMR’s central proposition is as follows. Because the legislature is assumed to be more protectionist than the executive in a democracy, the optimal solution for the TILI offer made to a democracy lies on the contract curve between the executive making the offer and the legislature (not the executive) in the democracy receiving the offer. By stipulating, instead, that the TILI solution be on the contract curve between the two executives, MMR underestimate the aggregate trade barriers for the democratic pair invariably to be  $t_p$ . As I show in Lemma 2, the aggregate trade barriers for the democratic pair at either  $D$  or  $D^*$  are always higher than  $t_p$ .

I present a proof in the Appendix. Propositions 1 and 2 correspond to Propositions 1 and 2 in MMR’s Appendix. These propositions compare the aggregate trade barriers for the democratic pair and those for the mixed pair, with a home offer and a foreign offer, respectively. For both bargaining structures I identify the conditions under which the aggregate trade barriers for the democratic pair are higher than those for the mixed pair, and the conditions vice versa.

In Proposition 1, I compare the aggregate trade barriers reached by a pair of countries in two situations: when a home democracy makes a TILI offer to a foreign democracy (democratic pair) and when a home democracy makes a TILI offer to a foreign autocracy (mixed pair). I find that, only when the autocrat is either extremely protectionist (i.e.,  $t^*_{A^*} \geq t_c$ ) or extremely liberal (i.e.,  $t^*_{A^*} \leq [(t_c - t_p) / \sqrt{t_c^2 + t_p^2}] t_c$ ) are the aggregate trade barriers for the mixed pair as high as or higher than those for the democratic pair. Under all other conditions (i.e.,  $t_c > t^*_{A^*} > [(t_c - t_p) / \sqrt{t_c^2 + t_p^2}] t_c$ ), including when the autocrat is moderately protectionist, moderate, or moderately liberal, the aggregate trade

**FIGURE 3. TILI Outcome with Liberal, Moderate, and Protectionist Autocrats**



barriers for the democratic pair are actually higher than those for the mixed pair.

In Proposition 2, I compare the aggregate trade barriers reached by a pair of countries in the following two situations: when a foreign democracy makes a TILI offer to a home democracy (democratic pair) and when a foreign autocracy makes a TILI offer to a home democracy (mixed pair). The results are the following. When the autocrat is more protectionist than the democratic executive, the aggregate trade barriers for the mixed pair are higher than those for the democratic pair. However, when the autocrat is less protectionist than the democratic executive, the aggregate trade barriers for the democratic pair can be higher than those for the mixed pair.

Therefore, it is incorrect that “[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” (Mansfield, Milner, and Rosendorff 2000, 310). As in Figure 3, the home democratic executive proposes  $D$  to a foreign democracy but  $M_{prot}$  to a protectionist autocracy. In this case, the trade barriers for the home democracy are lower at  $M_{prot}$  with a foreign autocracy than at  $D$  with a foreign democracy. As the foreign autocracy gets more protectionist, the home democracy must lower its trade barriers even more in order to achieve a trade agreement. The preferences of the decision makers thus matter. Similarly, it is not true that “a protectionist legislature forces democracies to lower their trade barriers more than other-

wise” (Mansfield, Milner, and Rosendorff 2000, 311). Assuming for a moment that two democratic executives bargain as if they were autocrats without protectionist legislatures, then the level of aggregate trade barriers they can agree on is  $t_P$ , which is always lower than the actual trade barriers between two democracies with protectionist legislatures.

Of course, the protectionist legislature matters. For instance, it enables a democracy to resist the pressure to overcompromise and thus enables it to get more favorable deals. This is consistent with the key insight in the two-level games (Putnam 1988) where domestic constraints can be beneficial in international bargaining.

In general, democracies can extract better deals with autocracies than autocracies can with democracies. As in Figure 3, when the home democratic executive makes a TILI offer to the foreign autocrat, the home democracy can drive the foreign trade barriers very low. In fact, except when the foreign autocrat is sufficiently protectionist that his or her indifference curve through the no-agreement point binds, the level of foreign trade barriers is  $t^* = 0$ . Of course, this has to do with the first-move advantage, but there is more to it. When the foreign autocracy has the first-move advantage, it does not fare nearly as well. In fact, the foreign autocrat must compromise sufficiently for not only the home democratic executive but also the home democratic legislature to accept an offer. As the foreign autocrat gets less protectionist, the offer he or she makes is more favorable to the home democracy.

This democratic advantage in the sense of extracting favorable deals can also be understood from another perspective. Compare  $M_{mod}^*$  and  $D^*$ , as in Figure 3, the TILI offer from the foreign moderate autocracy to the home democracy and the TILI offer from the foreign democracy to the home democracy. The former is much more compromising than the latter, because the existence of a protectionist legislature in the foreign democracy prevents it from over compromising.

The ability of a protectionist legislature to extract favorable deals, however, does not mean that the aggregate trade barriers for a democratic pair are necessarily lower than those for a mixed pair. Simply compare  $M_{mod}$  with  $D$ , as in Figure 3, the TILI offer from a home democracy to a foreign moderate autocracy and the TILI offer from a home democracy to a foreign democracy. Given certain preferences, the home democracy can much more effectively drive down the trade barriers of the foreign autocracy than those of the foreign democracy. At times, the home democracy can drive the foreign autocracy's trade barriers so low that their joint trade barriers are lower than what two democracies can agree upon. The comparison of the aggregate trade barriers for democracies and for mixed pairs is thus sensitive to preferences.

Also contingent on preferences are the comparison of the aggregate trade barriers between the autocratic pair and the democratic pair as well as the comparison between the autocratic pair and the mixed pair, as MMR acknowledge. My Proposition 3 differs from the corresponding result of MMR in that the autocrats can be more protectionist than the democratic executives, up to a certain level, before the level of the aggregate trade barriers for the autocrats exceeds that for the democrats. In particular, when the autocrats are as protectionist as the democratic executives, the aggregate trade barriers for the autocrats are lower than those for the democrats. Compared to the corresponding result in MMR, Proposition 4 holds that, for a wider range of preferences, the aggregate trade barriers for the autocratic pair are lower than those for the mixed pair.

MMR also explore whether a more or less divided government affects the level of trade barriers among democracies. Contrary to MMR, I find that the trade barriers within a democratic pair depend on the preferences of the legislatures.

In sum, given the current setup of the model, regime types do exert an important influence on the level of trade barriers negotiated internationally. But regime types alone are insufficient to claim that pairs of democracies should trade more freely than mixed pairs regardless of preferences. Just as the comparison of the aggregate trade barriers for autocratic pairs and those for either democratic or mixed pairs is inconclusive, the comparison of the aggregate trade barriers for democratic pairs and those for mixed pairs, too, depends on the preferences of the decision makers.

## CONCLUSION

The central proposition derived by Mansfield, Milner, and Rosendorff (2000) from a TILI bargaining model is

striking. Regardless of the preferences of the decision makers, pairs of democracies tend to agree upon lower trade barriers than pairs comprised of a democracy and an autocracy. My analysis shows that the important impact that MMR identify regarding the institutional arrangements also depends on the preferences of the political leaders within these institutions. Specifically, whether the aggregate trade barriers are lower for a democratic pair than for a mixed pair depends on the preferences of the decision makers, just as the comparison of the aggregate trade barriers for the autocratic pair and for either the democratic or the mixed pair.<sup>3</sup>

This reformulation contributes to the fascinating debate on “democratic difference,” which is emerging from the sprawling literature on democratic peace. Although the theme of a “democratic difference” is increasingly being extended to a wide range of issue areas beyond international security, it is in some cases being sharply contested; for some interesting studies, see those by Morrow, Siverson, and Tabares (1998), Gowa (1999), Busch (2000), and Reinhardt (2000) on trade, Simmons (2000) on monetary commitments, Raustiala and Victor (1998) on environmental policies, and Slaughter (1995) and Alvarez (2001) on international law. The implication of this study is that domestic political institutions are important, but they alone are insufficient to predict a higher level of cooperation among democracies. To predict the impact of political institutions, it is also important to understand the preferences that go into the institutions.

## APPENDIX

Here I list my results that differ from MMR's. Each corresponds to the result in MMR's Appendix with the same label. More detailed proofs can be obtained directly from the author.

LEMMA 2. *When the home democracy makes a TILI offer to the foreign democracy, the agreement point is  $(t_P t_C / \sqrt{t_C^2 + t_P^2}, t_C - t_C^2 / \sqrt{t_C^2 + t_P^2})$ , and the aggregate trade barriers are  $t_C - [(t_C - t_P) / \sqrt{t_C^2 + t_P^2}] t_C$ . Furthermore, the level of the aggregate trade barriers for the democratic pair is higher than what MMR predict, i.e.,  $t_C - [(t_C - t_P) / \sqrt{t_C^2 + t_P^2}] t_C > t_P$ .*

*Proof.* In Figure 3, the home democratic executive  $P$  makes a TILI offer at  $D$  to the foreign democracy. To solve for the levels of trade barriers at  $D$ , we solve  $U_{C^*}(t, t^*) = U_{C^*}(t_C, t_C^*)$ , given  $t^* = -t(t_C^*/t_P) + t_C^*$ , and  $t, t^* \geq 0$ . Given  $t_P = t_P^*$  and  $t_C = t_C^*$ , we get the solution above.

Note that  $t_C - [(t_C - t_P) / \sqrt{t_C^2 + t_P^2}] t_C > t_P$ , given  $t_C > t_P$ .  $\square$

PROPOSITION 1. *Under TILI (when home makes the offer), the comparison of the aggregate trade barriers for the democratic pair and those for the mixed pair depends on the preferences of the decision makers involved. Except for extreme*

<sup>3</sup> MMR also provide an empirical test for their central proposition. The present paper does not directly address their test. Rather, it only demonstrates that the proposition that they support empirically does not hold analytically given their specified model.

cases, the aggregate trade barriers for the democratic pair are higher than those for the mixed pair.

*Proof.* Let  $B^D$  and  $B^M$  denote the aggregate barriers for the democratic pair and the mixed pair, respectively. With a home offer, from Lemma 2,  $B^D = t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ ; and from MMR's Lemma 3,  $B^M = t_A^* - [(t_A^* - t_P)/\sqrt{t_A^{*2} + t_P^2}]t_C$  if  $t_C^2 - t_P^2 < t_A^{*2}$ ,  $B^M = t_P$  if  $t_C^2 - t_P^2 \geq t_A^{*2} \geq (t_C - t_P)^2$ , and  $B^M = t_C - t_A^*$  if  $t_A^{*2} < (t_C - t_P)^2$ .

(1) If  $t_C^2 - t_P^2 < t_A^{*2}$ ,  $B^D - B^M = t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C - t_A^* + [(t_A^* - t_P)/\sqrt{t_A^{*2} + t_P^2}]t_C$ . There are two cases. When  $t_A^* \geq t_C$ , and accordingly  $t_A^* > t_P$ , then  $B^D - B^M \leq 0$ . When  $t_A^* < t_C$ , and from  $t_C^2 - t_P^2 < t_A^{*2}$  we have  $t_C < \sqrt{t_A^{*2} + t_P^2}$ , then  $B^D - B^M > 0$ .

(2) If  $t_C^2 - t_P^2 \geq t_A^{*2} \geq (t_C - t_P)^2$ , then  $B^D - B^M = t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C - t_P > 0$ .

(3) If  $t_A^{*2} < (t_C - t_P)^2$ ,  $B^D - B^M = t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C - t_C + t_A^*$ . There are again two possibilities. When  $t_A^* > [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ , then  $B^D - B^M > 0$ . When  $t_A^* \leq [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ , then  $B^D - B^M \leq 0$ .  $\square$

**PROPOSITION 2.** Under TILI (when foreign makes the offer), the comparison of the aggregate trade barriers for the democratic pair and those for the mixed pair again depends on the preferences of the decision makers involved.

*Proof.* We first calculate  $B^D$  and  $B^M$ , respectively. Then we compare them.

*Part 1.* When the foreign democracy makes a TILI offer to the home democracy, the agreement point is  $(t_C - t_C^2/\sqrt{t_C^2 + t_P^2}, t_C t_P/\sqrt{t_C^2 + t_P^2})$ , and the aggregate trade barriers are  $B^D = t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ .

As in Figure 3, the solution with the foreign offer is at point  $D^*$ . The trade barriers for home and foreign at  $D^*$  are reversed from those at  $D$ . By Lemma 2, this yields the result as in Part 1.

*Part 2.* When the foreign autocracy makes a TILI offer to the home democracy, the agreement point is  $(t_C - t_C t_A^*/\sqrt{t_C^2 + t_A^{*2}}, t_A^{*2}/\sqrt{t_C^2 + t_A^{*2}})$ , and the aggregate trade barriers are  $B^M = t_C - [(t_C - t_A^*)/\sqrt{t_C^2 + t_A^{*2}}]t_A^*$ .

As in Figures 2A–C, to solve for the levels of trade barriers at  $M^*$ , we solve  $U_C(t, t^*) = U_C(t_C, t_A^*)$ , given that  $t^* = -t(t_A^*/t_C) + t_A^*$ , and  $t, t^* \geq 0$ . This yields the result as in Part 2.

*Part 3.* With  $B^D$  and  $B^M$  both solved,  $B^D - B^M = [(t_C - t_A^*)/\sqrt{t_C^2 + t_A^{*2}}]t_A^* - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ .

First, suppose that  $t_A^* \geq t_P$ . Accordingly,  $[(t_C - t_A^*)/\sqrt{t_C^2 + t_A^{*2}}]t_A^* \leq \sqrt{\frac{1}{2}}(t_C - t_A^*)$ . Furthermore,  $t_P < t_C \implies [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C < -\sqrt{\frac{1}{2}}(t_C - t_P)$ . Therefore,  $B^D - B^M < 0$ .

Second, suppose that  $t_A^* < t_P$ . The sign of  $B^D - B^M$  is indeterminate. It is possible that  $B^D > B^M$ , when the democratic executive gets sufficiently protectionist and/or the autocrat gets sufficiently liberal. For an example, let  $t_A^* = 5$ ,  $t_P = 10$ , and  $t_C = 13$ ; then  $B^D - B^M = 0.49 > 0$ .  $\square$

**PROPOSITION 3.** Under TILI (regardless of foreign or home offer), the comparison of the aggregate trade barriers for the autocratic dyad and those for the democratic dyad depends on the preferences of the decision makers involved. When

the autocrats are equally protectionist as the democratic executives, the aggregate trade barriers for the autocrats are lower than those for the democrats.

*Proof.* Let  $B^D$  and  $B^A$  denote the aggregate barriers for the democratic dyad and the autocratic dyad, respectively. From Lemma 2 and Proposition 2,  $B^D = t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ . Given that  $t_A = t_A^*$ , it is straightforward that  $B^A = t_A$  as in MMR's Figure 1. Formally,  $B^A \leq B^D \iff t_A \leq t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ . Note that  $t_P < t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ . It is thus possible that  $t_A \in (t_P, t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C)$ . That is,  $B^A < B^D$  for some  $t_A > t_P$ . In particular, when  $t_A = t_P$ ,  $B^A < B^D$ .  $\square$

**COROLLARY.** The aggregate trade barriers for the democratic dyad change as the legislatures become more (or less) protectionist.

*Proof.* By Proposition 2,  $B^D = t_C - [(t_C - t_P)/\sqrt{t_C^2 + t_P^2}]t_C$ .  $B^D$  is a function of  $t_C$  and depends on  $t_C$ .  $\square$

**PROPOSITION 4.** Under TILI, the comparison of the aggregate trade barriers for the autocratic pair and those for the mixed pair depends on the preferences of the decision makers involved.

*Proof.* From Proposition 3,  $B^A = t_A^*$ . When a home democracy makes a TILI offer to a foreign autocracy, from MMR's Lemma 3,  $B^M = t_A^* - [(t_A^* - t_P)/\sqrt{t_A^{*2} + t_P^2}]t_C$ , if  $t_C^2 - t_P^2 < t_A^{*2}$ ,  $B^M = t_P$  if  $t_C^2 - t_P^2 \geq t_A^{*2} \geq (t_C - t_P)^2$ , and  $B^M = t_C - t_A^*$  if  $t_A^{*2} < (t_C - t_P)^2$ . When the foreign autocracy makes a TILI offer to the home democracy, by Proposition 2,  $B^M = t_C - [(t_C - t_A^*)/\sqrt{t_C^2 + t_A^{*2}}]t_A^*$ .

*Part 1.* With a home offer,  $B^A \leq B^M \iff t_A^* \leq t_P$ , if either  $t_C^2 - t_P^2 < t_A^{*2}$  or  $t_C^2 - t_P^2 \geq t_A^{*2} \geq (t_C - t_P)^2$ , and  $B^A \leq B^M \iff 2t_A^* \leq t_C$  if  $t_A^{*2} < (t_C - t_P)^2$ . This contrasts with MMR's corresponding result that  $B^A - B^M \leq 0 \iff 2t_A^* \leq t_C$ , which is sufficient but not necessary.

*Part 2.* With a foreign offer,  $B^A \leq B^M \iff t_A^* \leq t_C$ . This differs from MMR's corresponding result that  $B^A \leq B^M \iff t_A^* \leq t_C - t_P$ , which is again sufficient but not necessary.

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