

Vetoing Co-operation: The Impact of Veto Players on Preferential Trading Arrangements

EDWARD D. MANSFIELD, HELEN V. MILNER AND
JON C. PEVEHOUSE*

Since the Second World War, preferential trading arrangements (PTAs) have become increasingly pervasive features of the international economic system. A great deal of research has addressed the economic consequences of these arrangements, but far less effort has been made to identify the political factors leading states to enter them. In this article, the domestic political factors affecting whether countries enter PTAs are investigated, placing particular emphasis on the number of veto players within a state. It is argued that the probability of forming a PTA declines as the number of such players rises. The results, covering 194 countries from 1950 to 1999, strongly support this argument. Holding various political and economic factors constant, increasing the number of veto players within a country significantly reduces the probability of signing a PTA.

Since the Second World War, preferential trading arrangements (PTAs) have become increasingly pervasive features of the international economic system. Scores of these institutions have been formed since then and almost every country currently participates in at least one. PTAs are a broad class of international commercial agreements that include common markets, customs unions, free trade areas and economic unions, as well as other arrangements. All of these arrangements require members to adjust their trade policies towards one another (usually through domestic legislation), granting each member preferential access to the others' markets. A great deal of research has addressed the economic consequences of preferential arrangements, but far less effort has been made to identify the factors leading states to enter them, especially the domestic influences on PTA formation. Recently, a number of studies have started to fill this gap. Some have emphasized the role played by interest groups;¹ others have focused on the effects of a country's regime type.²

We argue, however, that the number of 'veto players' is an equally important influence on whether states enter PTAs. Preferential arrangements require countries to change their trade policies and existing theories of veto players suggest that the probability of such change depends on the number of these players, not just on interstate bargaining. Veto players are institutional or partisan actors whose consent is needed to alter policies. The

* Mansfield, Department of Political Science, University of Pennsylvania; Milner, Department of Politics, Princeton University; Pevehouse, Department of Political Science, University of Wisconsin. Earlier versions of this article were presented at the Annual Meeting of the American Political Science Association, Washington, D.C., 2006; and at the Annual Meeting of the Midwest Political Science Association, Chicago, 2005. For helpful comments, we are grateful to Regina Baker, Joanne Gowa, Witold Henisz, Robert Pahre, Robert Staiger, Ronald Rogowski, B. Peter Rosendorff, George Tsebelis, Hugh Ward, Beth Yarbrough and the anonymous referees.

¹ Giovanni Maggi and Andres Rodriguez-Clare, 'The Value of Trade Agreements in the Presence of Political Pressures', *Journal of Political Economy*, 106 (1998), 574–601; Gene M. Grossman and Elhanan Helpman, *Interest Groups and Trade Policy* (Princeton, N.J.: Princeton University Press, 2002).

² Edward D. Mansfield, Helen V. Milner and B. Peter Rosendorff, 'Why Democracies Cooperate More: Electoral Control and International Trade Agreements', *International Organization*, 56 (2002), 477–514.

impact of these actors on PTA formation has not been studied to date, but existing research on 'two-level games' indicates that it is difficult to forge international agreements when leaders confront an array of domestic groups with diverse preferences and the ability to block policy initiatives.³ Much of this research has focused on divided government, a situation where the majority party in the legislature differs from the executive party. Legislatures, however, are only one type of veto player. Moreover, whereas this literature has analysed the effects of whether or not government is divided, it has not addressed variations in the extent of legislative divisions. Conceptualizing veto players along a continuum has both theoretical and empirical advantages.

Although theories of veto players have been developed to explain aspects of comparative politics and foreign policy, we show that they also add to our understanding of international co-operation.⁴ All other things being equal, increasing the number of veto players never increases and usually decreases the range of agreements that countries involved in international negotiations to form a PTA will find acceptable, thereby reducing the prospect of co-operation between them. We also conduct the first systematic test of the relationship between veto players and the decision to enter preferential arrangements. The results strongly support our argument. Based on an analysis of all PTAs formed in the period 1950–99, we find that states are much less likely to enter a trade agreement as the number of veto players increases.

DOMESTIC POLITICS AND PREFERENTIAL TRADING ARRANGEMENTS

Central to our argument is the view that domestic politics bears heavily on the prospects of states entering a PTA. Thus, we depart from much of the work on international relations that treats the state as a unitary actor. Instead, we view the state as an aggregation of actors with varying preferences who share decision-making authority. The distribution of decision-making power among these actors and the extent to which their preferences diverge define the number of veto players in a country.

Theories of veto players focus attention on those agents who, because of their institutional role or partisanship, have the ability and desire to block policy change. Their

³ Jongryn Mo, 'The Logic of Two Level Games with Endogenous Domestic Coalitions', *Journal of Conflict Resolution*, 38 (1994), 402–22; Helen V. Milner and B. Peter Rosendorff, 'Trade Negotiations, Information, and Domestic Politics', *Economics and Politics*, 8 (1996), 145–89; Helen V. Milner, *Interests, Institutions, and Information: Domestic Politics and International Relations* (Princeton, N.J.: Princeton University Press, 1997); Ahmer Tarar, 'International Bargaining with Two-Sided Domestic Constraints', *Journal of Conflict Resolution*, 45 (2001), 320–40.

⁴ George Tsebelis, 'Decision Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism and Multipartyism', *British Journal of Political Science*, 25 (1995), 289–325; George Tsebelis, *Veto Players: How Political Institutions Work* (Princeton, N.J.: Princeton University Press, 2002); Mark Hallerberg and Scott Basinger, 'Internationalization and Changes in Tax Policy in OECD Countries: The Importance of Domestic Veto Players', *Comparative Political Studies*, 31 (1998), 321–52; Robert J. Franzese, 'The Positive Political Economy of Public Debt: An Empirical Examination of the OECD Postwar Debt Experience' (unpublished manuscript, Department of Political Science, University of Michigan, 1999); Witold J. Henisz, 'The Institutional Environment for Economic Growth', *Economics and Politics*, 12 (2000), 1–31; Witold J. Henisz, 'The Institutional Environment for Infrastructure Investment', *Industrial and Corporate Change*, 11 (2002), 355–89; Daniel Treisman, 'Decentralization and Inflation: Commitment, Collective Action or Continuity', *American Political Science Review*, 94 (2000), 837–57; Witold J. Henisz and Edward D. Mansfield, 'Votes and Vetoes: The Political Determinants of Commercial Openness', *International Studies Quarterly*, 50 (2006), 189–211.

assent is necessary to alter existing policies.⁵ The existence of institutions for sharing decision-making power creates the potential for veto players. In a highly influential theory, Tsebelis has shown that the difficulties of policy making grow as the number of veto players increases, as their preferences diverge and as the internal coherence of the actors declines.⁶ Policy stasis or adherence to the status quo becomes more likely as the number of veto players increases. ‘The size of the winset of the status quo’, Tsebelis argues, ‘has specific consequences on policymaking: significant departures from the status quo are impossible when the winset is small – that is, when veto players are many – when they have significant ideological distances among them, and when they are internally cohesive.’⁷

Conceptually, regime type and veto players are distinct and we treat them as such. Veto players exist in all types of regimes. Even in non-democratic countries, domestic politics is rarely a pure hierarchy with a unitary decision maker and no veto players. In a dictatorship, the support of the professional military or a political party is frequently necessary for the leader to retain power and implement policies. These groups often exercise veto power over the executive’s proposals and may help set the country’s policy agenda. Indeed, the existence of these domestic groups is central to an important body of literature on democratization that argues that inter-group competition in autocracies is an impetus for political liberalization.⁸ Thus, even in hierarchical states, autocrats are often unable to unilaterally dictate policy: domestic groups with varying preferences who have veto power can compete for influence over policy and dictators depend on them in making policy.

Democratic regimes are even more likely to have veto players than non-democratic regimes, although the number of such players varies considerably among democracies. In most democratic polities, the legislature and the executive vie for control over decision making. Sometimes two or more political parties or coalitions compete.⁹ Domestic political institutions determine how such control is distributed among the relevant actors. For example, constitutions often assign certain powers to the executive and others to the legislature. Domestic actors may either share control over the policy process or possess distinct powers. In the United States, for instance, both the president and Congress have the authority to make certain legislative proposals. These branches share ratification power since the president can veto a bill passed by Congress. In many parliamentary systems, legislatures do not initiate proposals; only the executive does and she cannot veto a proposal once the legislature amends and ratifies it. In both cases, decision-making powers are jointly held. In the former, both players share control over the same procedures, while in the latter, the players control different aspects of the process.

In most countries, the executive branch sets the agenda in foreign affairs and has the power to initiate foreign economic policy. To negotiate international trade agreements and

⁵ Tsebelis, ‘Decision Making in Political Systems’; Tsebelis, *Veto Players*, p. 2.

⁶ Tsebelis, ‘Decision Making in Political Systems’; Tsebelis, *Veto Players*, p. 2.

⁷ Tsebelis, *Veto Players*, p. 2.

⁸ Robert Kaufman, ‘Liberalization and Democratization in South America: Perspectives from the 1970s’, in Guillermo O’Donnell, Philippe Schmitter and Lawrence Whitehead, eds, *Transitions from Authoritarian Rule: Comparative Perspectives* (Baltimore, Md.: Johns Hopkins University Press, 1986), pp. 85–107; Guillermo O’Donnell and Philippe C. Schmitter, *Transitions from Authoritarian Rule: Tentative Conclusions About Uncertain Democracies* (Baltimore, Md.: Johns Hopkins University Press, 1986); Adam Przeworski, *Democracy and the Market* (Cambridge: Cambridge University Press, 1991).

⁹ In corporatist systems, three actors are important: the executive (‘the state’), organized labour and organized capital. They share control over the key elements of economic policy making, setting the agenda as well as devising, amending, ratifying and implementing policies.

to implement foreign economic policy, however, the executive needs the tacit or explicit support of other domestic groups. Sometimes trade policy requires a vote of support from the legislative branch. Frequently it requires the tacit support of groups like the military. Like domestic policy, trade policy is subject to the influence of domestic veto players. Such groups must ratify the policy choices made by the executive.

Interest groups affect trade policy but they are not the focus of our attention here. Trade policy has distributional consequences and so we expect certain coalitions to favour more open trade and others to favour protectionism.¹⁰ The composition and power of these distributional coalitions differ across countries, since states vary with respect to their comparative advantage and factor endowments. These groups are not the focus of this article for several reasons. First, in a cross-national context, it is hard to determine how to model and empirically specify the structure of interest groups in each country. We know that groups opposing and supporting trade liberalization exist in all countries, but their identity and relative influence will vary according to the specific national context. We abstract away from this diversity.

Secondly, we follow many existing models of veto player models in assuming that interest groups affect trade policy indirectly. On the one hand, these groups shape the preferences of the executive since she worries about retaining office and thus requires their support. The executive negotiates with interest groups over the choice of whether to proceed with a PTA and over its terms prior to engaging in international negotiations. Thus, the executive's position already reflects the influence of those interest groups who are important for the executive.

On the other hand, interest groups affect policy indirectly through their influence on the preferences of veto players. Trade policy creates distributional winners and losers within society, and thus generates pressure for interest groups to organize and press for their preferred policy. A primary way to do so is through political parties and their platforms. In the trade policy literature, there is a long tradition of associating parties with the trade policy preferences of different interest groups.¹¹ Preferences over trade policy often structure political cleavages that are represented in party systems. Hence, we expect interest groups to operate through parties, and leaders of such parties constitute the executive and legislature. In our model of veto players, the structure of the legislature and its partisan composition are key elements. In sum, interest groups are represented here indirectly by their impact on the preferences of the executive and the parties.

Consider the recent discussions over the Central American Free Trade Agreement (CAFTA). CAFTA was negotiated between the Central American countries and the United States and signed in 2004. By early 2006 it had not yet been ratified by all of its member states. Then, one of Costa Rica's presidential candidates, Otto Solis, representing the left-wing opposition Citizen's Action Party (PAC) threatened to veto CAFTA if he won,

¹⁰ Ronald Rogowski, *Commerce and Coalitions: How Trade Affects Domestic Political Alignments* (Princeton, N.J.: Princeton University Press, 1989); Ronald Rogowski, 'Political Cleavages and Changing Exposure to Trade', *American Political Science Review*, 81 (1987), 1121–37; Helen V. Milner, 'Resisting the Protectionist Temptation', *International Organization*, 41 (1987), 339–65; Michael J. Hiscox, *International Trade and Political Conflict: Commerce, Coalitions and Mobility* (Princeton, N.J.: Princeton University Press, 2002).

¹¹ Rogowski, *Commerce and Coalitions*; Helen V. Milner and Benjamin Judkins, 'Partisanship, Trade Policy and Globalization: Is there a Left–Right Party Divide on Trade Policy?' *International Studies Quarterly*, 48 (2004), 95–119.

claiming that the agreement would ruin the country's agricultural sector. Solis and his party could have won enough seats in the legislature (eighteen of fifty-seven) to prevent a qualified majority needed to ratify the treaty.¹² The PAC's potential power in the legislature could make them a potent veto player.

Our model makes no claim regarding the actual preferences of veto players. We are agnostic on this score and simply assume that some of them favour while others oppose trade liberalization. Consistent with Tsebelis, we show in the model that follows that a rise in the number of veto players never increases, and in most cases lowers, the probability of an agreement.¹³ Consequently, as the number of veto players increases, the space for a policy which departs from the status quo is reduced.

By definition, veto players must ratify policy change, such as joining a trade agreement. We employ a broad notion of ratification. Formally, the head of state in a democracy – whether the prime minister, president, chancellor or premier – is often required by the national constitution to obtain the approval of the legislature for international agreements, including PTAs. Hence, the chief executive must negotiate a preferential arrangement that is acceptable to a majority of the legislature, either a simple plurality or some supermajority depending on the issue-area and the country. In the United States, for example, any treaty negotiated by the president must be approved by two-thirds of the Senate. That the executive must obtain legislative approval will affect how she negotiates. Bringing home an unratifiable PTA is likely to be costly – domestically and internationally – for the executive. She will, therefore, need to anticipate the legislature's (or any other veto player's) reaction to the proposed arrangement and ensure it is domestically acceptable.

Ratification can also be less formal. In dictatorships, shifts in foreign economic policy often require the support of groups like the military or local leaders; implicitly these groups have ratified a trade agreement that is enacted if they had the ability to veto it and chose not to. Informal ratification also occurs in democracies. If a leader needs to change a domestic law, norm or practice in order to implement a PTA, even if no formal vote on the arrangement itself is required, a legislative vote on any necessary domestic change becomes a vote on the agreement.

This domestic ratification game is a central element of our argument. In the simplest case, the executive and a single veto player share power: the player must ratify the proposed PTA that the executive negotiates with a foreign country. The executive and the foreign country understand this in advance and realize that any proposed arrangement must survive this domestic test before it can be implemented. The veto player need not have the power to amend the proposed agreement. Hence, the executives bargain with each other and ultimately propose an agreement, anticipating the reaction of the veto player, which in turn accepts or rejects the PTA. Because of this ratification constraint, veto players influence international trade agreements.

A MODEL OF INTERNATIONAL CO-OPERATION IN TRADE POLICY

Our framework for analysing co-operation on international trade is closely tied to the literature on two-level games, which analyses domestic and international bargaining in

¹² Adam Thompson, 'Costa Rican hopeful vows to obstruct Cafta', *Financial Times*, 26 February 2006.

¹³ Tsebelis, 'Decision Making in Political Systems'; Tsebelis, *Veto Players*, p. 2.

tandem.¹⁴ We advance this literature by explicitly incorporating veto players into a two-level model. Existing research on two-level games has not only explored the impact of domestic constraints on international relations, but also the impact of domestic factors on bargaining power in world politics. Some of this work has addressed the domestic conditions under which international co-operation is possible; other parts of it have been more concerned with the (dis)advantages that domestic divisions (the so-called ‘Schelling conjecture’) can create at the international bargaining table.

Using a model developed by Milner and Rosendorff and by Milner, we model the effects on international economic co-operation of changes in the number of veto players.¹⁵ In this game, two chief executives – home and foreign – are joint agenda-setters; they propose an agreement over trade policy using the Nash Bargaining Solution.¹⁶ Figure 1 shows the results of a two-player international game without any domestic politics, where P is the executive negotiating in the home country (call her the president or prime minister) and F is the foreign country. No veto players exist in either country except the executives. This game assumes complete and perfectly symmetric information. The ideal points of P and F (p and f) are common knowledge, as is the position of the status quo (q). The payoffs to the players decline linearly as the distance of the outcome from each player’s ideal point rises. Each executive is a unitary, rational actor. We assume P and F have no domestic political considerations that are not factored into their ideal points; these ideal points maximize their political support.¹⁷ The horizontal axis depicts all the possible values of the status quo (q). The vertical axis represents a continuum of policy outcomes on a single issue. In the arena of trade policy, this could be the difference between the home country’s and the foreign country’s trade barriers. Negotiating a trade agreement means choosing a pair of trade barriers for each country that is different from the status quo and usually one in which the level of barriers for the members is lower than the status quo.

¹⁴ Robert Putnam, ‘Diplomacy and Domestic Politics: The Logic of Two-Level Games’, *International Organization*, 42 (1988), 427–60; Peter Evans, Harold Jacobsen and Robert Putnam, eds, *Double-Edged Diplomacy* (Berkeley: University of California Press, 1993); Keisuke Iida, ‘When and How Do Domestic Constraints Matter? Two Level Games with Uncertainty’, *Journal of Conflict Resolution*, 37 (1993), 403–26; Mo, ‘The Logic of Two Level Games with Endogenous Domestic Coalitions’; Jongryn Mo, ‘Domestic Institutions and International Bargaining: The Role of Agent Veto in Two-Level Games’, *American Political Science Review*, 89 (1995), 914–24; Milner and Rosendorff, ‘Trade Negotiations, Information, and Domestic Politics’; Eric Reinhardt, ‘Posturing Parliaments: Ratification, Uncertainty, and International Bargaining’ (Department of Political Science, Columbia University, 1996); Milner, *Interests, Institutions, and Information*; Robert Pahre, ‘Divided Government and International Cooperation in Austria–Hungary, Sweden–Norway, and the European Union’, *European Union Politics*, 2 (2001), 131–62; Tarar, ‘International Bargaining with Two-Sided Domestic Constraints’; Daniel Drezner, ed., *Locating the Proper Authorities: The Interaction of Domestic and International Politics* (Ann Arbor: University of Michigan Press, 2003).

¹⁵ Helen V. Milner and B. Peter Rosendorff, ‘Trade Negotiations, Information, and Domestic Politics’, *Economics and Politics*, 8 (1996), 145–89; Helen V. Milner and B. Peter Rosendorff, chap. 2 and Appendix, in Milner, *Interests, Institutions, and Information*.

¹⁶ See Milner and Rosendorff (as detailed in fn. 15) and Milner, *Interests, Institutions, and Information*, for a derivation of the results and discussion of the use of the Nash Bargaining Solution (NBS). We use the NBS because it imposes minimal structure on the bargaining game, which best replicates the international environment in contrast to the domestic one. In addition, when offers are made suitably fast, other bargaining games, such as Rubenstein’s, converge to the NBS.

¹⁷ We assume that the preferences of interest groups are contained in the ideal points of the political actors. These actors use the preferences of the interest groups that are important to them to construct their ideal points.

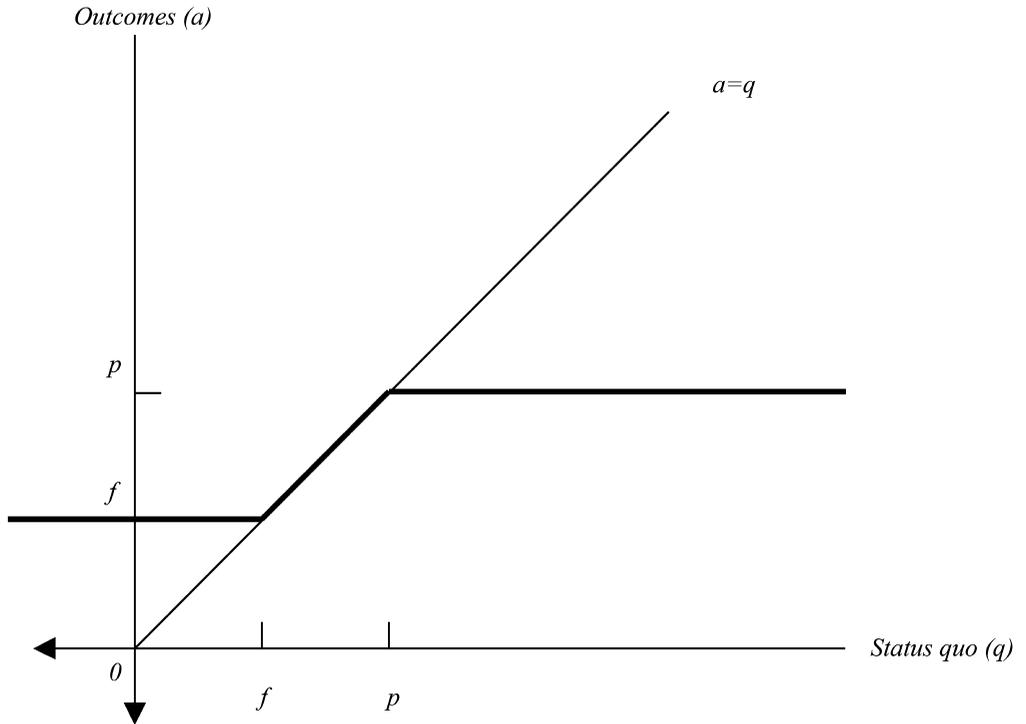


Fig. 1. A pure international game: no domestic veto players

The figure captures both the ideal points of the actors and the outcomes of the negotiations (a). The dark line represents the policies chosen given the value of the status quo, as shown along the horizontal axis. There is never a failure to agree in the complete information model analysed here. The figure is drawn to represent the outcomes of this game for all possible combinations of preferences and status quo.¹⁸ Failure to co-operate is represented by a continuation of the status quo.

What are the outcomes of the Nash Bargaining Solution in this simple model? When $f < q < p$, the status quo is always the outcome in Figure 1. No agreement is the result because a mutually profitable bargain is not possible. When q takes on any other range of values, mutually profitable bargains can be forged. This may mean, however, that one player ends up better off than the other. A rational player will accept gaining less than her counterpart if the bargain improves her position relative to the status quo. Figure 1 shows that when the status quo does not lie between p and f , agreement is possible. It also demonstrates that the co-operative outcome will always be located between the ideal points

¹⁸ The status quo or reversion point is assumed to be exogenous; it can lie anywhere in the policy space. This simplifying assumption turns out to be theoretically important, since veto players could also affect the status quo, as in Pahre, 'Divided Government and International Cooperation in Austria–Hungary, Sweden–Norway, and the European Union', pp. 145–53. Others, such as Kyle Bagwell and Robert W. Staiger, *The Economics of the World Trading System* (Cambridge, Mass.: MIT Press, 2002), apply a Nash equilibrium to the trade bargaining game between two executives as the sole reversion point.

of the two actors. Its exact position within this area is determined by the location of the status quo, q .¹⁹

As the difference between the countries (p and f) grows larger, two implications follow. First, the area of no agreement becomes larger ($f < q < p$), rendering co-operation less likely. Secondly, the constraint exercised by the status quo increases. As the difference between the actors ($p - f$) rises, they must accept more extreme outcomes. When $q < p < f$, then F will accept P's ideal point, which is now much farther away. These results coincide with conventional wisdom.

Now compare the unitary actor case described above with Figure 2, where we introduce veto players into the analysis. We assume a non-unitary state by adding a ratification game. We introduce a veto player, V, who must 'ratify' any agreement negotiated internationally; that is, the veto player must tacitly or explicitly agree to accept the proposed international agreement. For example, the veto player could be a legislature, which takes some kind of vote – on a new law, budget allocation or constitutional amendment, among other things – that allows it to accept or reject the executive's proposal. The veto player has his own ideal trade policy, which maximizes his political support. As before, his utility declines linearly as the outcome moves away from his ideal point. Interest groups enter into the calculation of all the veto players' ideal points to the extent that these political actors depend on interest groups for political support. V is portrayed as a unitary actor representing the median member of the veto group. Therefore, V's 'vote' decides the outcome of the ratification contest. The veto player here must either accept the proposal negotiated by P and F, or reject it and return to the status quo. The executives jointly propose a take-it-or-leave-it policy to the veto player. V does not have amendment powers.²⁰ We maintain the assumption of full and symmetric information: P, V and F know each others' preferences and the nature of the proposed agreement. The veto group, which must approve the agreement, knows the preferences of P and F and the nature of the agreement. P and F likewise recognize that the agreement they negotiate must be ratified by V and they understand exactly what terms V will accept. The two executives once again are joint proposers, using the Nash Bargaining Solution to fix a proposal.

Figure 2 shows the outcome of the ratification game when the executive's preferences are located closer to those of the foreign country than are the veto player's ($f < p < v$). The veto group here is very protectionist because its ideal point is furthest from the foreign executive's. In Figure 2, the vertical axis represents the ideal points of the players and the proposed agreement. The horizontal axis is the position of the status quo. The darkened line shows the agreement reached along the vertical axis, given the position of the status quo along the horizontal one. It demonstrates when co-operation is possible if the structure of preferences is such that the veto player is the most protectionist actor. Figure 3 shows the outcomes when the structure of preferences is altered, so that the home executive is most protectionist, $f < v < p$. The structure of domestic preferences affects the ratification game and hence the co-operative outcomes. Different countries will have veto players with different preferences; here we model the situation assuming that their preferences over trade policy can take any form.

¹⁹ If $q > p > f$, then p is the outcome. Conversely, when $q < f < p$, then f is the outcome. The player with the ideal point closest to the status quo, q , exerts greater influence. This is a fairly standard result in bargaining analysis since the actor with the best alternative to the agreement has greater leverage. See Howard Raiffa, *The Art and Science of Negotiation* (Cambridge, Mass.: Harvard University Press, 1982).

²⁰ We assume that the ratifier, V, plays only strategies that are not dominated and that the two international negotiators bargain using the NBS, whose structure is intentionally not modelled.

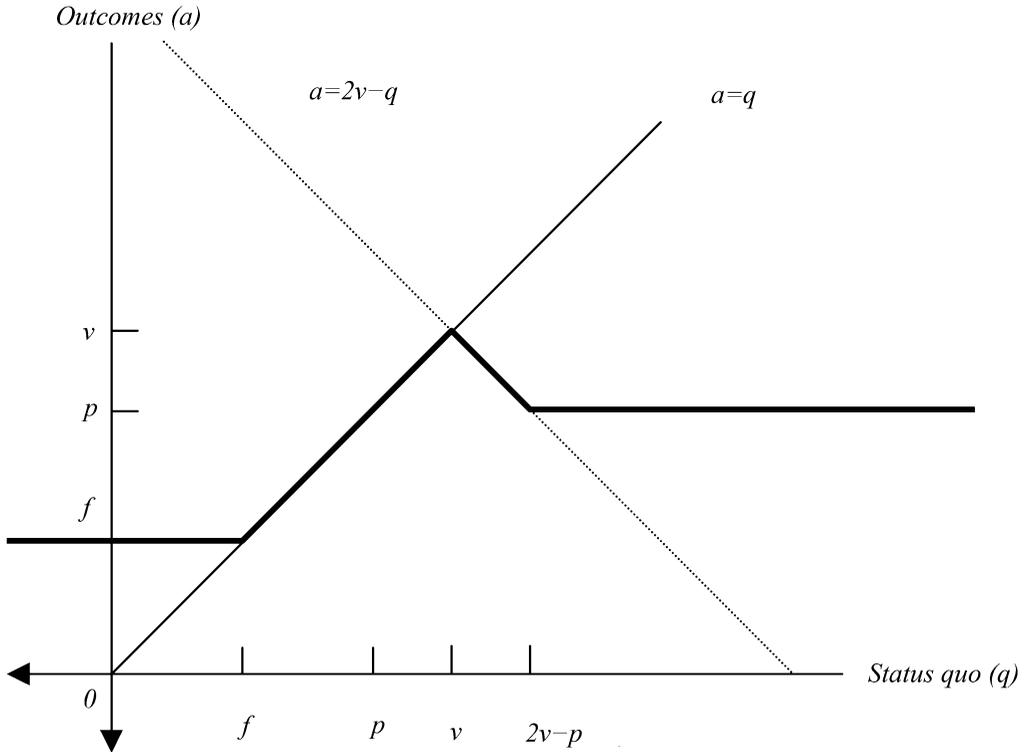


Fig. 2. Domestic politics and one veto player, $p > v$

When the executive is the more protectionist actor, as in Figure 3, domestic politics has no effect on international negotiations. This is evident since the outcomes in Figures 1 and 3 are exactly the same. In the domestic game, when $f < v < p$, the veto group cannot constrain the executive, even when the status quo is closest to the veto player's ideal point. The autonomy of the executive is maximized when she is very protectionist. For example, when the status quo lies between f and v , no agreement will occur since neither V nor P will move to F's side of the status quo, and vice versa. When the status quo is between P and V ($f < v < q < p$), the veto player is still impotent, since P will never accept any proposal from which it derives less than the status quo. In this case, which might occur when the veto player represents interest groups that gain from trade liberalization, the home executive becomes the binding constraint on co-operation.

Under what conditions do veto players matter? The answer involves a comparison of Figures 1 and 2. In this game, consider what happens when the status quo is between p and v in Figure 2. If P and F negotiate to point p , V will reject such an agreement and implement the status quo, q , since q is closer to v than is p . Hence, for P and F to induce ratification, they must offer q or better. The best ratifiable agreement, then, is q , which is offered and accepted. So no co-operation is the outcome in Figure 2 when the status quo lies between p and v . P and F are unable to co-operate to realize the joint gains available under the international game. In Figure 1, the outcome in the region to the right of p is a co-operative agreement at p . Adding a veto player to the game whose preferences lie to

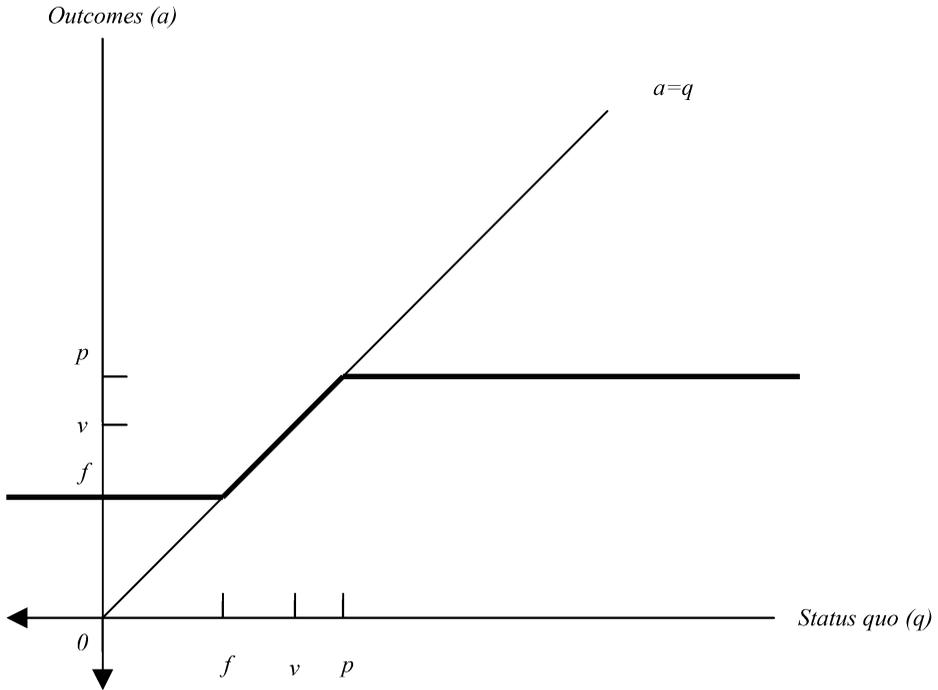


Fig. 3. Domestic politics and one veto player, $p > v$

the right of P and F creates a new zone of non-agreement when the status quo is also to the right of P. Holding P and F’s preferences constant, then, adding a veto player – as in Figure 2 – increases the region where movement from the status quo to a co-operative agreement is impossible.²¹ The range of acceptable agreements among the countries has declined as a protectionist veto player is included in the game. Note that, in this model, adding a free trade veto player has no effect on international co-operation.

Comparing the international game (Figure 1) to the domestic politics game (Figures 2 and 3) reveals the implications of introducing a single veto player. When the veto player and the executive share decision-making power in a ratification game, international agreement is never more likely, *ceteris paribus*. With this additional domestic veto player, there is a range ($p < q < v$) in Figure 2 where the status quo is the outcome, while mutual gains for the international negotiators simultaneously exist and remain unexploited. The range where q is the outcome expands when the veto player and executive ‘share’ decision-making power. Consequently, the presence of veto players makes international co-operation less likely than in the international game. It is not just the anarchic nature of

²¹ Consider also what happens in Figure 2 when the status quo is to the right of the veto group, V (that is, $f < p < v < q$), but not too extreme (that is, $v < q < 2v - q$). For every $q > v$, there is a point ($2v - q$) to the left of v that V finds indifferent to q . That is, the utility of the status quo for V is equal to the utility obtained at $2v - q$ (since the loss function is linear). Since V is indifferent between q and $2v - q$, we allow V to accept an offer of $2v - q$ if it is made. Now P and F both prefer $2v - q$ to q when $q > v$. So the executives P and F offer $2v - q$, a point that the veto group V will accept. In this region in Figure 2, domestic politics exercises a substantial constraint on the international negotiations. The negotiators will have to offer a co-operative agreement that is ratifiable, but it is one that they do not like as much as in Figure 1.

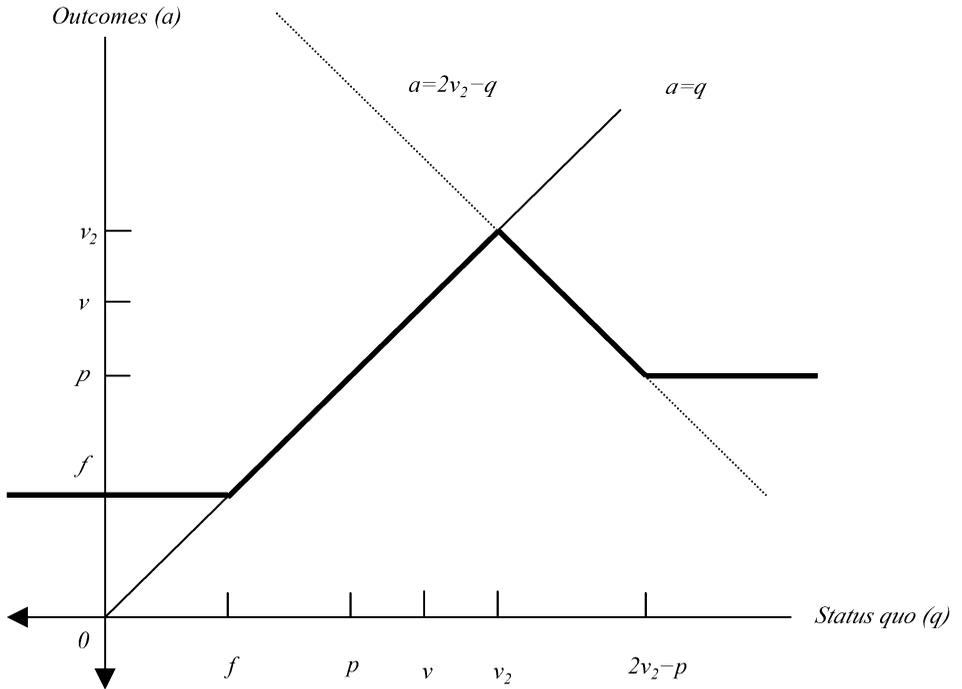


Fig. 4. Adding a second veto player, $p > v > v_2$

the international system, but also domestic politics, that renders co-operation difficult, suggesting that even realists may underestimate how hard it is to foster international co-operation.²²

The precise impact of adding more veto players depends on their preferences, but in no case does such an addition increase the likelihood of agreement. This claim implies that the other veto players remain the same; that is, Figure 4 simply adds a veto player to the game depicted in Figure 2. If another veto player, V_2 , is added to the game and its preferences lie to the right of V (that is, $f < p < v < v_2$), then as long as q is to the left of V ($f < p < q < v < v_2$) the outcome is not changed. But when q is between V and V_2 , the second veto player will oppose any change to the status quo that the other players prefer and a new region of non-agreement is created. Figure 4 shows this situation. The outcome when the status quo lies between V and V_2 is now confined to the status quo. No co-operation is possible in this zone, whereas it was possible before the additional veto player was introduced into the game. This result is identical to moving the first veto player, V , further away from P . Adding new veto players never makes co-operation more likely and often reduces its probability.²³

²² See, for example, Kenneth N. Waltz, *Theory of International Politics* (Reading, Mass.: Addison-Wesley, 1979). We note that adding a veto player here is not the same as adding another country to the game. Adding a country would be captured by the results of a Nash Bargaining Solution among three players, with the three being joint agenda-setters. Adding a domestic veto player introduces the ratification game.

²³ Tsebelis, *Veto Players*, shows that this result holds in a multidimensional space. His Proposition 1.1 is equivalent to our central hypothesis. Or, as in Milner and Rosendorff, 'Trade Negotiations, Information, and Domestic Politics' and Milner, *Interests, Institutions, and Information*, it is similar to making government more divided, as the preferences of the legislature and the executive diverge.

What if the executive could offer something valuable to a veto player to change his ratification vote? If bribery is allowed – that is, if P (or F) could transfer some of their utility to the veto groups in order to buy their acquiescence – a similar result holds. P (and F) will only transfer as much utility as they get from the agreement relative to the status quo, thereby limiting their ability to bribe. As more veto players are added, at best P (and F) has to bribe no more groups if all the new veto players are free traders; but at worst (that is, if their preferences are protectionist and far to the right of P's and F's), it will have to make ever larger bribes. At some point, it will not be able to transfer enough utility to make the bribe effective. Hence, adding more veto players tends to result in paying more bribes (and never results in paying fewer bribes), reducing the probability that an executive can bribe all the veto players. Our veto player result therefore does not depend on whether bribery is allowed.²⁴

Recall that failure of ratification never occurs in the variant of this model where there is complete information. Such failure only occurs in the presence of incomplete information. Our figures are drawn to represent the outcomes of this game for all possible combinations of preferences and status quos. Failure to co-operate is represented by a continuation of the status quo. The comparison across the figures, then, is between the sizes of the region where a move from the status quo to the co-operative outcome (that is, an agreement where both sides are better off) is possible with no veto players and with one veto player or more, *ceteris paribus*.

In the game where no veto players exist, this co-operative region is never smaller and usually bigger than where there is at least one veto player. Or there are more combinations of preferences and status quos in the game without veto players where co-operation results than in the game marked by one or more veto players. Since we do not know the combinations of preferences and status quos for each country (or pair of countries) at a given point in time, we assume a uniform distribution of such combinations of preferences and status quo. Hence, our results imply that the probability of drawing a country-pair with a set of preferences and status quos that leads to the conclusion of an agreement is never lower and is usually higher with no veto players than with one or more such players.

The model here makes a comparison between the outcomes possible given a prior structure of preferences and the addition of a new veto player to that structure. Adding a new veto player to an existing configuration of veto players and executives never increases the area where co-operation is possible. But our empirical analysis involves comparisons of countries at given points in time and of each country over time, where there is no equivalent comparison between a particular structure of preferences and that structure plus a new veto player. In the data, the preferences of existing actors vary as we change the number of veto players. Does changing the number of veto players without knowing the actors' preferences affect the results of our model? Is co-operation still relatively unlikely if the number of veto players increases, but the additional players' preferences are quite similar to the existing configuration of veto players? To address these questions, we run a set of simulations. We randomly generate 'countries' with different numbers and locations of veto players and then match them with all the other 'countries' to see if there

²⁴ Tsebelis's result that adding veto players in multidimensional issue space also reduces the ability to move from the status quo supports this claim, since bribery here is just like adding another issue dimension.

is a Nash Bargaining Solution equilibrium where co-operation occurs. We then run regressions on the simulated data to see if the probability of co-operation falls as the number of veto players increases, given that each country and pair has a randomly drawn set of preferences for its veto players and executives. The results of these regressions support our argument: the number of veto players is inversely related to the probability of co-operation even when the preferences of the players are not being held constant.²⁵ These findings suggest that our model might hold more generally, even if preferences are allowed to vary when making comparisons across different numbers of veto players.

The following tests of our model centre on the decision by states to enter PTAs, institutions which are prime examples of mutual policy adjustment and international co-operation. All parties to these agreements must lower their trade barriers so that the other members have improved market access. Such policy changes have domestic distributional consequences. Lowering trade barriers creates groups that gain from the policy ('winners') and groups that bear costs ('losers'). When these losing groups are not represented by a veto player(s) (even though they affect the ideal points of the political actors), co-operation may be more likely; if only the winners are represented by a veto player, then the situation most resembles Figure 3. However, when veto players exist that represent the preferences of the losers, changing policy and co-operating with other states in a PTA become much more difficult and unlikely, as in Figure 2 when compared to Figure 3. As the number of veto players rises, the probability that losers from trade liberalization are represented by one or more veto players also rises, and thus the chances of ratifying a PTA fall. Even if the winners from trade liberalization are added to the game, it may not make ratification easier. If the losers are represented by a veto player, such as v_2 as in Figure 4, then adding a pro-free trade veto player, such as v , has no effect on the likelihood of agreement.²⁶ Or, similarly, if the pro-free trade groups, v , already exist as veto players, but now the losers are added as a veto player, v_2 , then co-operation will become less likely.

PTAs do not exhaust the trade agreements to which our argument could be applied. However, they constitute a very large portion of the commercial agreements forged over the past half-century and data on other types of these agreements are in short supply. Equally, there is widespread agreement that preferential arrangements have been quite influential, exerting a substantial impact on the global trading system. It is also important to recognize that, although economists have engaged in longstanding debates

²⁵ The procedure for the simulations is as follows. First, using the uniform distribution, we randomly draw a number between one and six to express the number of veto players in a country for 500 such countries. Secondly, using the uniform distribution, we randomly draw for each country each veto player's ideal point from the uniform distribution between 0 and 1 inclusive. This gives us a dataset of 500 countries with veto players ranging in number from one to six. Label the first veto player the executive. Thirdly, we pair all of the 500 countries with each other in a dyadic dataset, creating more than 124,000 observations. Fourthly, using the uniform distribution, we randomly draw a number between 0 and 1 inclusive to represent the status quo for each pair of countries. Fifthly, if the status quo falls strictly outside the range of the maximal and the minimal veto player's ideal points in each pair, then co-operation occurs by the Nash Bargaining Solution and we code a new variable labelled co-operation equal to 1. If the status quo falls inside the interval defined by the range of the minimum and maximum veto player in a pair, then co-operation fails to occur by our model and co-operation equals 0. We create this new variable for each pair. Sixthly, we run a probit model to see whether, as the number of veto players in the pair increases, the probability of co-operation falls. These results hold when using the normal distribution as well. They also hold if we allow bribery among the players within a country.

²⁶ If the influence of domestic groups is simply felt through the location of the executive's ideal point (that is, that as free trade groups become more active the executive shifts her ideal point to the left), then the game does change. But it is important to distinguish changes in preferences from changes in the number of veto players.

about the effect of trade barrier reductions among PTA members on third parties, this issue is of little consequence for our purposes.²⁷ Such reductions are significant acts of economic co-operation involving the contracting parties, even if they are trade-diverting or otherwise adversely influence states outside a PTA. As Martin points out, ‘While cooperation improves the expected welfare of the cooperating states relative to the status quo *ex ante*, it is not necessarily a Pareto-improving (mutually beneficial) move for the world as a whole.’²⁸ Trade agreements are a form of co-operation, but they may primarily benefit the countries that are involved. Thus, a model of two-level games can be usefully extended by incorporating the theory of veto players.

THE STATISTICAL MODEL

To test our theory, we begin by estimating the following model:

$$\begin{aligned}
 PTA_{Onset_{ij}} = & \beta_0 + \beta_1 Veto\ Players_i + \beta_2 Veto\ Players_j + \beta_3 Regime\ Type_i + \\
 & \beta_4 Regime\ Type_j + \beta_5 Trade_{ij} + \beta_6 GDP_i + \beta_7 GDP_j + \beta_8 \Delta GDP_i + \\
 & \beta_9 \Delta GDP_j + \beta_{10} Dispute_{ij} + \beta_{11} Ally_{ij} + \beta_{12} Former\ Colony_{ij} + \\
 & \beta_{13} Contiguity_{ij} + \beta_{14} Distance_{ij} + \beta_{15} Hegemony + \beta_{16} GATT_{ij} + \varepsilon.
 \end{aligned} \tag{1}$$

The dependent variable is the log of the odds that a pair of states, i and j , enters a PTA in year $t + 1$, where we observe 1 if this occurs and 0 otherwise. We focus on reciprocal arrangements, which involve policy adjustment on the part of all members, and exclude non-reciprocal arrangements. In the latter, one state unilaterally grants another country preferential access to its market. Veto players are likely to play less of a role in the formation of these arrangements than reciprocal PTAs since the countries that are granted preferences need not change their trade policy. Nonetheless, we revisit this issue when assessing the robustness of our results.

Note that the observed value of $PTA_{Onset_{ij}}$ is 1 only when states initially join a PTA, not in subsequent years when the agreement is in force. We are interested in the initiation of co-operation, which depends on domestic ratification, and not its durability. We draw our sample of PTAs primarily from the World Trade Organization (WTO),²⁹ but also include arrangements that were not notified to either this organization or its predecessor, the General Agreement on Tariffs and Trade (GATT), since there is no reason to believe that veto players influence the decision to enter only those PTAs notified to these bodies.³⁰

From the standpoint of testing our theory, the central independent variables in Equation 1 are $Veto\ Players_i$ and $Veto\ Players_j$. These variables, measured in year t , indicate the extent of constitutionally mandated institutions that can exercise veto power over decisions

²⁷ Jacob Viner, *The Customs Union Issue* (New York: Carnegie Endowment for International Peace, 1950); Jagdish Bhagwati, ‘Regionalism and Multilateralism: An Overview’, in Jaime de Melo and Arvind Panagariya, eds, *New Dimensions in Regional Integration* (New York: Cambridge University Press, 1993), pp. 22–51; Richard Pomfret, *Unequal Trade: The Economics of Regional Trading Arrangements* (New York: Oxford University Press, 1997); Arvind Panagariya, ‘Preferential Trade Liberalization: The Traditional Theory and New Developments’, *Journal of Economic Literature*, 38 (2000), 287–331.

²⁸ Lisa L. Martin, *Democratic Commitments: Legislatures and International Cooperation* (Princeton, N.J.: Princeton University Press, 2000), p. 13. See also Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton, N.J.: Princeton University Press, 1984).

²⁹ World Trade Organization (WTO), *Regionalism and the World Trading System* (Geneva: WTO, 1995).

³⁰ We draw data on PTAs that were notified to neither GATT nor the WTO from Edward D. Mansfield and Jon C. Pevehouse, ‘Trade Blocs, Trade Flows, and International Conflict’, *International Organization*, 54 (2000), 775–808.

in states i and j as well as the alignment of actors' preferences between those institutions within each state. The data are taken from Henisz, who measures the presence of effective branches of government outside of the executive's control, the extent to which these branches are controlled by the same political party as the executive, and the homogeneity of preferences within these branches.³¹ As he notes, the measure 'draws from recent theoretical developments in positive political theory to develop a structurally derived and internationally comparable measure of the degree of constraints on policy change using data on the number of independent veto points in the political system ... and the distribution of political preferences both across and within these branches'.³²

Henisz's measure is well-suited to testing our theoretical model. His measure is theoretically derived from a spatial model of veto players. The theory underlying his measure is very similar to our model: it is a single dimensional, spatial model of policy choice that allows the status quo and the preferences of the actors to vary across the entire space. Since we are focused on trade policy, a single policy dimension is useful; preferences range from protectionist to free trade. His measure thus captures what our model represents as a veto player very naturally. Henisz's research reveals that:

(1) each additional veto point (a branch of government that is both constitutionally effective and controlled by a party different from other branches) provides a positive but diminishing effect on the total level of constraints on policy change and (2) homogeneity (heterogeneity) of party preferences within an opposition (aligned) branch of government is positively correlated with constraints on policy change.³³

The resulting measure is a continuous variable ranging from 0 to 1. When *Veto Players_i* or *Veto Players_j* equals 0, there is a complete absence of veto players in states i or j , respectively. Higher values indicate the presence of effective branches of government to balance the power of the executive. In cases where effective branches exist, the variables take on larger values as party control across some or all of these branches diverges from the executive's party. For example, in the United States, the value of this measure is larger during periods of divided government.³⁴ Because of this variable's theoretically-based construction and its attention to both domestic institutional arrangements and the preferences within those arrangements, it is especially appropriate for testing our hypothesis.³⁵

³¹ Henisz, 'The Institutional Environment for Infrastructure Investment'. Henisz has developed two measures of veto point, one that includes the judiciary and one that does not. We use the latter measure since there is little reason to believe that the judiciary would influence the decision to enter a PTA. However, our results are quite similar when we use the alternative measure.

³² Henisz, 'The Institutional Environment for Economic Growth', p. 5.

³³ Henisz, 'The Institutional Environment for Infrastructure Investment', p. 363.

³⁴ For more details concerning this measure of veto players, see Henisz, 'The Institutional Environment for Economic Growth', and Henisz, 'The Institutional Environment for Infrastructure Investment'.

³⁵ Henisz's measure has some advantages compared to alternative measures of veto players. For example, Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh, 'New Tools in Comparative Political Economy: The Database of Political Institutions', *World Bank Economic Review*, 15 (2001), 165–76, have developed a measure that emphasizes the electoral rules and the degree of electoral competition in a country, as well as the degree of partisan differences across these players. This measure, however, is available for fewer countries than Henisz's measure and it only covers the period from 1975 onward. Using the Beck *et al.* measure rather than Henisz's measure cuts the size of our sample in half, which is clearly undesirable. However, there is a good deal of agreement between Henisz's measure and Beck *et al.*'s measure where those samples overlap – the correlation between a country's annual score on Henisz's measure of veto players and its score on Beck *et al.*'s measure is about 0.75, suggesting that our results are not driven by the choice of measure.

For at least two reasons, we rely on Henisz's more general measure of veto players rather than constructing a measure of veto players that is specific to trade policy. First, constructing such a measure would require a great deal of detailed information that is simply unavailable for many countries. Equally, countries not missing this information at random are likely to be those with low numbers of veto players or unstable institutions, creating a potential source of bias. Secondly, it is not clear that a measure of veto players for trade policy would look much different from one for all policy, as developed by Henisz. Most changes in trade policy must endure the same institutional hurdles and ratification processes that all other policies face. In the United States, for example, trade policy initiatives have been contested by Congress and the president; both have the ability to block policy change. Fast track, the procedure often used to move trade legislation forward, simply reduces Congress's ability to amend a trade agreement. It does not change the fact that a majority in both houses must ratify that policy change. Veto players affect the ratification of changes in policy; trade agreements tend to require changes in policy in most countries and thus to invoke the usual institutional veto players.

We also include a number of variables that previous studies have linked to the formation of PTAs to ensure that any observed effect of veto players is not due to other international or domestic factors. A number of these variables also help us to control for the general differences in preferences between pairs of countries. For instance, countries without ongoing disputes, ones that are allies or that trade extensively, or those that share similar voting profiles at the United Nations may have much smaller differences in the preferences of their executives; that is, the distance between p and f will be smaller. Holding these factors constant is important for testing our argument about the effect of veto players.

Past research has found that democracies tend to join PTAs at a higher rate than non-democracies.³⁶ Consequently, we introduce *Regime Type_i* and *Regime Type_j*, which are 21-point indices of country i 's and country j 's regime type in year t . These variables are constructed using the Polity dataset. They range from 10 for the most democratic states to -10 for the most autocratic ones.³⁷ As such, we expect them to be directly related to the onset of PTAs.³⁸ It is essential to include these variables since they capture some of the same institutional features as *Veto Players_i* and *Veto Players_j* (for example, constitutionally mandated limitations on executive authority). We need to ensure that the influence of veto players is not simply an outgrowth of the effects of regime type.

Next, *Trade_{ij}* is the logarithm of the total value of trade (in constant 1995 US dollars) between countries i and j in year t .³⁹ Various observers argue that increasing economic exchange creates incentives for domestic groups that benefit as a result to press

³⁶ Mansfield, Milner and Rosendorff, 'Why Democracies Cooperate More'.

³⁷ Keith Jagers and Ted Robert Gurr, 'Tracking Democracy's Third Wave with the Regime Type III Data', *Journal of Peace Research*, 32 (1995), 469–82.

³⁸ We use Gleditsch's update of the Polity IV dataset (see Kristian Gleditsch, 'Modified Regime Type 4 Data', available online at <http://weber.ucsd.edu/~kgledits/Regime Type.html>, 2004). See also Monty Marshall, 'Regime Type 4 Data Set Codebook', <http://www.cidcm.umd.edu/inscr/Regime Type/index.htm>, 2004.

³⁹ We add 0.001 to all values of trade since some dyads conduct no trade in particular years and the logarithm of zero is undefined.

governments to enter PTAs, since these arrangements help to avert the possibility that trade relations will break down in the future.⁴⁰ Moreover, heightened overseas commerce can increase the susceptibility of firms to predatory behaviour by foreign governments, prompting firms to press for the establishment of PTAs that limit the ability of governments to behave opportunistically.⁴¹

Besides economic relations between countries, economic conditions within countries are likely to influence PTA formation. Particularly important in this regard is a state's economic size. Large states may have less incentive to seek the expanded market access afforded by PTA membership than their smaller counterparts. We therefore analyse GDP_i and GDP_j , the logarithm of country i 's and country j 's gross domestic products (in constant 1995 US dollars) in year t . Moreover, fluctuations in economic growth may affect whether states enter preferential arrangements. On the one hand, some research indicates that downturns in the business cycle lead states to seek membership in such arrangements.⁴² On the other hand, increased growth is likely to increase a country's demand for imports and supply of exports, creating an incentive to gain preferential access to overseas markets. To address this issue, we introduce ΔGDP_i and ΔGDP_j , the change in GDP_i and GDP_j from $t-1$ to t .⁴³

In addition, political relations between states may influence whether they join the same PTA, independent of their respective domestic political structures. In our model, co-operation also depends on the extent of differences in preferences between the countries' leaders. The further apart these preferences are, the less likely is co-operation. To hold these preferences constant, we include a number of variables that measure the foreign policy differences between states. Military hostilities between states signal large differences in preferences between countries and may discourage economic co-operation and thus their propensity to sign PTAs. Similarly, political-military co-operation may promote economic co-operation, as Gowa has argued.⁴⁴ $Dispute_{ij}$ is coded 1 if countries i and j are involved in a militarized interstate dispute (MID) during year t , 0 otherwise.⁴⁵ $Ally_{ij}$ equals 1 if countries i and j are members of a military alliance in year t , 0 otherwise. Since previous research on economic regionalism has found that a former colonial relationship between i and j increases the likelihood that they will enter the same PTA, we also include $Former\ Colony_{ij}$, which equals 1 if countries i and j had a colonial

⁴⁰ Joseph Nye, 'Neorealism and Neoliberalism', *World Politics*, 40 (1988), 235–51.

⁴¹ Beth V. Yarbrough and Robert M. Yarbrough, *Cooperation and Governance in International Trade* (Princeton, N.J.: Princeton University Press, 1992). Note that we use Gleditsch's data on trade flows (Kristian Gleditsch, 'Expanded Trade and GDP Data', *Journal of Conflict Resolution*, 46 (2002), 712–24). Gleditsch draws much of his data from the International Monetary Fund's (IMF's) *Direction of Trade Statistics*. Like the IMF data, however, Gleditsch's data are in current dollars. We deflate these data using the US consumer price index.

⁴² Walter Mattli, *The Logic of Regional Integration: Europe and Beyond* (New York: Cambridge University Press, 1999).

⁴³ Gross domestic product (GDP) data are also taken from Gleditsch, 'Expanded Trade and GDP Data' and are deflated using the US consumer price index.

⁴⁴ Joanne Gowa, *Allies, Adversaries, and International Trade* (Princeton, N.J.: Princeton University Press, 1994).

⁴⁵ For a description of the MIDs data, see Daniel Jones, Stuart Bremer and J. David Singer, 'Militarized Interstate Disputes, 1816–1992: Rationale, Coding Rules, and Empirical Patterns', *Conflict Management and Peace Science*, 15 (1996), 163–213. For a review of the updated MID data, see Faten Ghosn and Glenn Palmer, 'Codebook for the Militarized Interstate Dispute Data, Version 3.0', available online at <http://cow2.la.psu.edu>, 2003.

relationship that ended after the Second World War, 0 otherwise.⁴⁶ Adding these controls also allows us to hold constant to some extent the differences between the countries while focusing on the number of domestic veto players in explaining co-operation.

Geographic distance is another important influence on PTA membership. States often enter PTAs to obtain preferential access to the markets of their key trade partners. These partners tend to be located nearby, since closer proximity reduces transport costs and other impediments to trade. We introduce two variables to capture distance. *Contiguity_{ij}* is a dummy variable that is coded 1 if countries *i* and *j* share a common border. *Distance_{ij}* is the logarithm of the capital-to-capital distance between *i* and *j*. It is useful to include both variables since some states have distant capitals (for example, Russia and China) yet share borders, while other states do not share borders but are in relatively close proximity (for example, Benin and Ghana).⁴⁷

In addition, systemic conditions are likely to affect the prospects of PTA formation. Many studies have found that declining hegemony contributes to the proliferation of preferential arrangements.⁴⁸ We therefore include *Hegemony*, the proportion of global GDP produced by the state with the largest GDP (in our sample, the United States for each year) in year *t*. This variable, therefore, takes on the same value for each country in *t*.

Because the GATT and the WTO recognize and attempt to govern the establishment of PTAs, members of these global institutions may also be disproportionately likely to enter preferential arrangements.⁴⁹ To account for this possibility, we introduce *GATT_{ij}* in the model. It equals 1 if countries *i* and *j* are both members of GATT in each year, *t*, prior to 1995 or if they are both members of the WTO in years from 1995 on, and 0 otherwise.⁵⁰ Finally, ε is a stochastic error term.

Descriptive statistics for all of the variables are presented in Table 1. The sample in the following analyses is comprised of all pairs of states during the period from 1950 to 1999. Which state is *i* in each pair and which one is *j* is determined by random assignment. Because the observed value of the dependent variable is dichotomous, we use logistic regression to estimate the model. To account for temporal dependence in the formation of PTAs, we include a spline function of the number of years that have elapsed (as of *t*) since each dyad last formed a PTA.⁵¹ In the following tables, however, the estimates of this function are omitted to conserve space.

⁴⁶ Mansfield, Milner and Rosendorff, 'Why Democracies Cooperate More'. Data on former colonial relations are taken from George T. Kurian, *Encyclopedia of the Third World*, 4th edn, Vols. 1–3 (New York: Facts on File, 1992). Data on alliances are taken from the Correlates of War Project (Douglas M. Gibling and Meredith Sarkees, 'Measuring Alliances: The Correlates of War Formal Interstate Alliance Data Set, 1816–2000'), available online at <http://cow2.la.psu.edu>, 2003.

⁴⁷ Data on distance and contiguity are taken from John R. Oneal and Bruce Russett, 'Assessing the Liberal Peace with Alternative Specifications: Trade Still Reduces Conflict', *Journal of Peace Research*, 36 (1999), 423–42.

⁴⁸ Bhagwati, 'Regionalism and Multilateralism'; Paul Krugman, 'Regionalism versus Multilateralism: Analytical Notes', in Jaime de Melo and Arvind Panagariya, eds, *New Dimensions in Regional Integration* (New York: Cambridge University Press, 1993), pp. 58–79; Edward D. Mansfield, 'The Proliferation of Preferential Trading Arrangements', *Journal of Conflict Resolution*, 42 (1998), 523–43.

⁴⁹ Edward D. Mansfield and Eric Reinhardt, 'Multilateral Determinants of Regionalism: The Effects of GATT/WTO on the Formation of Preferential Trading Arrangements', *International Organization*, 57 (2003), 829–62.

⁵⁰ Data are taken from the WTO web site: <http://www.wto.org>.

⁵¹ Nathaniel Beck, Jonathan N. Katz and Richard Tucker, 'Taking Time Seriously: Time-Series–Cross-Section Analysis with a Binary Dependent Variable', *American Journal of Political Science*, 42 (1998), 1260–88.

TABLE 1 *Descriptive Statistics*

Variable	Mean	Standard Dev.	Min.	Max.
<i>PTAOnset</i>	0.007	0.081	0	1
<i>Veto Players_i</i>	0.175	0.213	0	0.674
<i>Veto Players_j</i>	0.177	0.213	0	0.708
<i>Regime Type_i</i>	-0.420	7.754	-10	10
<i>Regime Type_j</i>	-0.393	7.754	-10	10
<i>Trade*</i>	-1.350	4.918	-6.908	12.492
<i>GDP_i*</i>	17.178	1.797	13.099	22.870
<i>GDP_j*</i>	17.182	1.795	13.099	22.870
ΔGDP_i	5.56×10^6	2.43×10^7	-1.61×10^8	4.06×10^8
ΔGDP_j	5.59×10^6	2.43×10^7	-1.61×10^8	4.06×10^8
<i>Dispute</i>	0.005	0.071	0	1
<i>Ally</i>	0.073	0.261	0	1
<i>Former Colony</i>	0.004	0.063	0	1
<i>Contiguity</i>	0.038	0.190	0	1
<i>Distance*</i>	8.220	0.783	1.872	9.42
<i>Hegemony</i>	0.220	0.018	0.201	0.276
<i>GATT</i>	0.343	0.475	0	1
<i>Number of PTAs</i>	1,585.195	1,359.705	26	4,782
<i>GDP Ratio*</i>	2.027	1.510	0.00003	9.589
<i>Capability Ratio*</i>	2.015	1.504	0.00001	10.164
<i>tau_b</i>	0.189	0.294	-0.866	1

$N = 339,910$ for all variables except tau_b ($N = 277,360$).

*Variables are expressed in logarithms.

THE RESULTS

Table 2 presents the estimates of Equation 1. Consistent with our argument, the coefficient estimates of both *Veto Players_i* and *Veto Players_j* are negative, statistically significant and large, indicating that states are less likely to forge trade agreements as the number of veto players rises. Furthermore, as expected, there is virtually no difference in the size of the estimates of *Veto Players_i* and *Veto Players_j* ($\chi^2 = 0.08$; $p = 0.78$). Based on these results, an increase from the mean number of veto players in state *i* (or state *j*) to the maximum number yields more than a 50 per cent decrease in the predicted probability of PTA formation. Increasing both *Veto Players_i* and *Veto Players_j* from their respective means to their respective maximum values yields more than a 75 per cent dip in the likelihood of creating a PTA. Recall that we have held constant various factors which are likely to underlie differences in preferences between countries, improving our confidence that these results actually reflect the influence of domestic politics.

In addition to the predicted probability of PTA formation, we assess how veto players affect the predicted number of PTAs created in a given year. Figure 5 shows the predicted number of country-pairs forming a PTA annually for the observed values of *Veto Players_i* and *Veto Players_j*, based on 3,000 replications of the parameter estimates in the first column of Table 2.⁵² Increasing the mean value of either of these variables to its sample

⁵² This figure and the predicted probabilities have been generated using the CLARIFY program. All continuous variables are set to their sample means while the discrete variables are set at their modal category. See Gary King, Michael Tomz and Jason Wittenberg, 'Making the Most of Statistical Analyses: Improving Interpretation and Presentation', *American Journal of Political Science*, 44 (2000), 347-61.

TABLE 2 *The Effects of Veto Players on PTA Formation, 1950–99*

Variable	Base Model	Includes Hub and Spokes	FTAs/CUs/CMs/EUs	CUs/CMs/EUs
<i>Veto Players_i</i>	− 1.608** (0.244)	− 0.718** (0.174)	− 1.538** (0.252)	− 1.965** (0.331)
<i>Veto Players_j</i>	− 1.698** (0.244)	− 0.724** (0.170)	− 1.657** (0.250)	− 2.381** (0.320)
<i>Regime Type_i</i>	0.049** (0.006)	0.044** (0.005)	0.050** (0.006)	0.055** (0.008)
<i>Regime Type_j</i>	0.040** (0.006)	0.041** (0.004)	0.042** (0.006)	0.051** (0.007)
<i>Trade_{ij}</i>	− 0.006 (0.008)	0.047** (0.006)	− 0.007 (0.008)	− 0.012 (0.009)
<i>GDP_i</i>	− 0.208** (0.020)	− 0.201** (0.015)	− 0.215** (0.020)	− 0.286** (0.024)
<i>GDP_j</i>	− 0.183** (0.019)	− 0.179** (0.015)	− 0.199** (0.020)	− 0.241** (0.024)
<i>ΔGDP_i</i>	6.94×10^{-10} (1.14×10^{-9})	-1.63×10^{-9} (8.87×10^{-10})	9.11×10^{-10} (1.14×10^{-9})	$-6.94 \times 10^{-9**}$ (2.26×10^{-9})
<i>ΔGDP_j</i>	3.64×10^{-10} (1.01×10^{-9})	$-2.15 \times 10^{-9**}$ (7.97×10^{-10})	9.42×10^{-10} (9.56×10^{-10})	$-6.08 \times 10^{-9**}$ (1.47×10^{-9})
<i>Dispute_{ij}</i>	− 0.484 (0.274)	− 0.377 (0.248)	− 0.444 (0.281)	− 0.732* (0.337)
<i>Ally_{ij}</i>	1.269** (0.083)	0.726** (0.063)	1.210** (0.087)	1.203** (0.100)
<i>Former Colony_{ij}</i>	− 0.813 (0.717)	0.660** (0.192)	− †	− †
<i>Contiguity_{ij}</i>	− 0.170 (0.119)	− 0.383** (0.101)	− 0.231 (0.124)	− 0.193 (0.143)
<i>Distance_{ij}</i>	− 0.910** (0.050)	− 0.819** (0.036)	− 0.934** (0.053)	− 0.903** (0.061)
<i>Hegemony</i>	− 18.033** (1.989)	− 18.199** (1.361)	− 17.852** (2.103)	− 16.016** (2.253)
<i>GATT_{ij}</i>	0.326** (0.057)	0.387** (0.042)	0.389** (0.058)	0.626** (0.065)
Constant	11.404** (0.842)	12.064** (0.605)	11.768** (0.884)	12.601** (0.952)
Log-likelihood	− 11,389.03	− 16,869.78	− 10,824.14	− 7,662.21
<i>N</i>	339,910	341,073	339,774	339,091

Note: Parameters are estimated using logistic regression, after including a cubic spline function with no knots. Entries in parentheses are Huber standard errors clustered on the dyad.

** $p \leq 0.01$; * $p \leq 0.05$. All tests of statistical significance are two-tailed.

†There is no case where states with a former colonial relationship formed a reciprocal FTA, CU, common market or economic union.

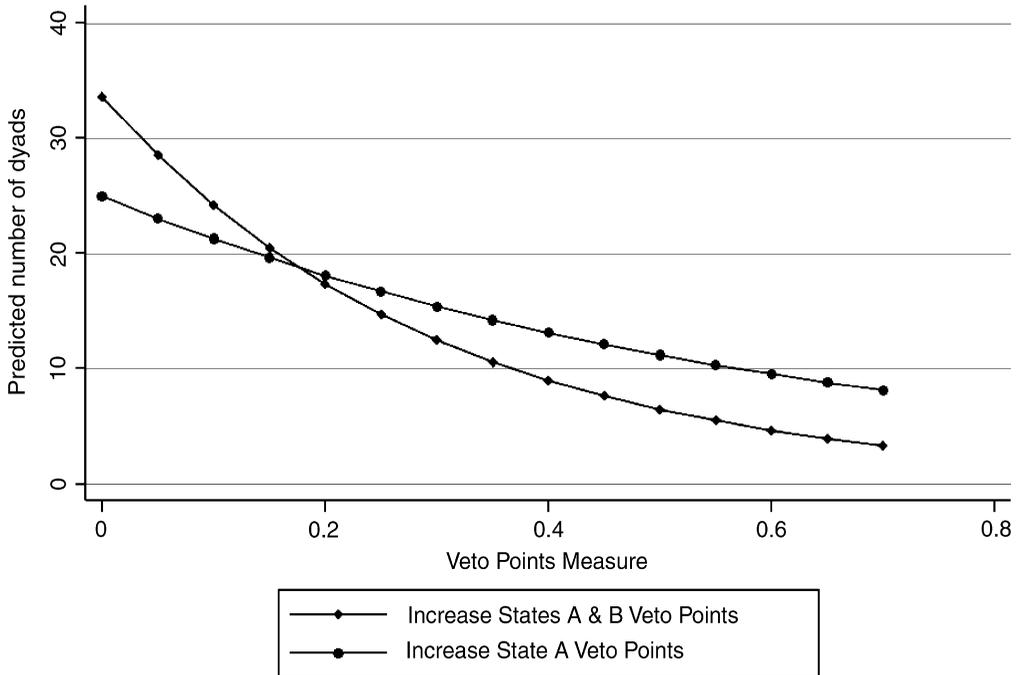


Fig. 5. Predicted annual number of dyads forming a PTA

Note: Simulated predicted probabilities based on estimates from Table 2, column 1. Simulations based on 3,000 replications of the parameter estimates using CLARIFY.

maximum yields a decrease of about ten dyadic arrangements (we show only an increase for state i since the coefficient estimates are virtually identical). Raising both variables simultaneously from their respective means to their maximum values reduces the number of PTAs formed each year by about fourteen. These results confirm that countries have greater difficulty engaging in international economic co-operation as the number of veto players grows.

Furthermore, the coefficient estimates for many of the control variables tend to be statistically significant and have the expected sign. First, political conditions within countries and political relations between them generally have a strong bearing on PTA formation. The positive and significant estimates of $Regime\ Type_i$ and $Regime\ Type_j$ confirm that democracies are more likely to enter such arrangements than other states. Equally, the estimate of $Ally_{ij}$ is positive and statistically significant, indicating that military allies are especially likely to accede to PTAs. Colonial relations and political disputes, however, have a weak effect on preferential arrangements. The estimates of $Dispute_{ij}$ and $Former\ Colony_{ij}$ are negative, but neither of them is statistically significant. Each of these findings, except the effect of former colonial ties, is consistent with past empirical work and we will address this exception later.

Secondly, systemic factors influence preferential arrangements. The coefficient estimate of $Hegemony$ is negative, that of $GATT_{ij}$ is positive, and both are statistically

significant. As hegemony wanes, states are more likely to form preferential arrangements, a finding that is consistent with existing research on economic regionalism.⁵³ Membership in the GATT and the WTO encourages membership in PTAs as well. Thirdly, states are more likely to enter a PTA as the distance between them declines, since the estimate of $Distance_{ij}$ is negative and significant. Controlling for the influence of distance, however, contiguity has little additional effect on the formation of preferential arrangements.

Fourthly, the coefficient estimates of GDP_i and GDP_j are negative and statistically significant, indicating that states with large economies are less likely to enter a trade agreement than their smaller counterparts. But neither the business cycle nor the flow of trade between states bears heavily on their prospect of joining a preferential grouping. Although the estimates of ΔGDP_i , ΔGDP_j and $Trade_{ij}$ are positive, none of them are statistically significant.

ASSESSING THE ROBUSTNESS OF THE RESULTS

Before concluding, it is important to assess the robustness of our results. First, we analyse whether our results depend on how PTAs are coded. Recall that we restrict attention to reciprocal PTAs – that is, arrangements that involve policy adjustment on the part of all members – and exclude non-reciprocal arrangements. Almost all of the latter are ‘hub and spoke’ arrangements, in which members of the European Community (EC)/European Union (EU) furnish certain less developed countries (LDCs) with preferential access to European markets without obtaining similar preferences in return (for example, the Lomé Convention). Excluding these arrangements is entirely appropriate for our purposes because the domestic politics underlying entry into arrangements of this sort are likely to differ from the politics underlying decisions to enter reciprocal PTAs, particularly for the LDC, which does not have to make any trade policy concessions. Nonetheless, we also estimate our model after including hub and spoke arrangements. The results in the second column of Table 2 show that the coefficient estimates of $Veto\ Players_i$ and $Veto\ Players_j$ remain negative and statistically significant, but that they are (in absolute value) less than half as large when we include such arrangements in the sample. Thus, as expected, veto players have a much more sizeable influence on the formation of reciprocal PTAs than non-reciprocal arrangements.

Most of the remaining coefficient estimates are unaffected by this change in the dependent variable. However, it is interesting that the estimate of $Former\ Colony_{ij}$ is positive and statistically significant, reflecting the fact that many hub and spoke arrangements were forged between LDCs and their past metropolises. Equally, the estimate of $Contiguity_{ij}$ is negative and significant, which probably stems from the tendency for hub and spoke arrangements to form between non-contiguous countries. Nonetheless, there is no evidence that the effects of veto players are affected in an unexpected way by our decision to exclude non-reciprocal arrangements between the EC/EU and developing countries.

Nor is there any indication that the EC/EU itself is driving our results, despite the fact that participants in these institutions have been especially active in forming PTAs. When we remove all country-pairs that belong to the EC/EU in each year, the coefficients of $Veto\ Players_i$ and $Veto\ Players_j$ remain negative, large and highly statistically significant.

⁵³ Mansfield, ‘The Proliferation of Preferential Trading Arrangements’.

While all reciprocal PTAs aim to improve and stabilize the access that each member has to the other participants' markets, there are crucial differences among these arrangements. Some cover only a small set of products; free trade areas (FTAs) involve the substantial reduction or elimination of trade barriers on many (if not all) products; customs unions (CU) entail the elimination of trade barriers within the arrangement and the establishment of a common external tariff on the products of third parties; common markets are customs unions in which members also implement similar product regulations and permit the free flow of factors of production between members; and economic unions are common markets in which members also use a common currency. These different arrangements attempt to achieve different degrees of economic integration: those covering a small set of products are the least integrative and economic unions are the most integrative.

It is useful to determine whether our results hold when focusing on arrangements that aim to achieve greater integration. To address this issue, we re-estimate our model after eliminating all observations in which states formed a preferential arrangement that is not an FTA, a CU, a common market, or an economic union. We then estimate the model again, focusing only on the establishment of CUs, common markets and economic unions. As shown in the third column of Table 2, removing arrangements that cover only a small group of products has virtually no bearing on the coefficient estimates of veto players. As shown in the fourth column, removing these arrangements and FTAs also has no effect on the sign and statistical significance of *Veto Players_i* and *Veto Players_j*.⁵⁴ However, the absolute value of these coefficient estimates is noticeably larger than when the dependent variable includes all PTAs. This result may reflect the tendency for more extensive integration to generate more pronounced distributional consequences within the participating countries, creating bigger gains for the distributional winners and bigger losses from the distributional losers. As the number of veto players increases, so does the likelihood that at least one such player will have a constituency that expects to suffer a loss in welfare due to a PTA. Consequently, this actor has particular incentive to block the formation of PTAs designed to achieve extensive integration.

Secondly, it is useful to examine whether our results hinge on how veto players enter the statistical model. Thus far, we have assumed that *Veto Players_i* and *Veto Players_j* have a linear effect on PTA formation. To analyse whether our results hold up if their effect is treated as non-monotonic, we replace *Veto Players_i* and *Veto Players_j* with their natural logarithms and with a logistic transformation of these variables.⁵⁵ In addition, we replace *Veto Players_i* and *Veto Players_j* with the sum of these variables. Finally, for each dyad-year, we include only the higher value for these two variables, a variant of the 'weak link' specification that has been used in various empirical studies of the liberal peace.⁵⁶ As reported in the first four columns of Table 3, the coefficient estimates of these variables are always negative, large and statistically significant.

In addition to the functional form of veto players, it is important to ensure that our results are not being driven by collinearity between regime type and veto players. These variables

⁵⁴ The results are unchanged if we code these observations as 0 rather than missing.

⁵⁵ There are some cases where the value of veto points is 0. Since the natural logarithm and the logistic transformation of 0 are undefined, we arbitrarily add 0.001 to each value of veto points, thereby retaining all of our original observations. Note, however, that our results are unchanged if we do not adopt this procedure.

⁵⁶ Bruce Russett and John Oneal, *Triangulating Peace: Democracy, Interdependence, and International Organization* (New York: W.W. Norton, 2001).

TABLE 3 *Alternative Ways of Modelling the Effects of Veto Players on PTA Formation, 1950–99*

Variable	Veto Players logged	Veto Players exponential	Veto Players additive	Veto Players weak link	Veto Players residual†
<i>Veto Players_i</i>	− 0.076** (0.020)	− 0.077** (0.018)	− 1.652** (0.183)	− 2.666** (0.232)	− 1.587** (0.244)
<i>Veto Players_j</i>	− 0.088** (0.197)	− 0.088** (0.018)	—	—	− 1.679** (0.244)
<i>Regime Type_i</i>	0.039** (0.008)	0.042** (0.007)	0.050** (0.005)	0.052** (0.004)	0.011** (0.003)
<i>Regime Type_j</i>	0.032** (0.007)	0.035** (0.007)	0.040** (0.005)	0.040** (0.004)	0.000 (0.003)
<i>Trade_{ij}</i>	− 0.010 (0.008)	− 0.009 (0.008)	− 0.006 (0.008)	− 0.007 (0.008)	− 0.007 (0.008)
<i>GDP_i</i>	− 0.222** (0.020)	− 0.221** (0.020)	− 0.207** (0.020)	− 0.210** (0.019)	− 0.208** (0.020)
<i>GDP_j</i>	− 0.195** (0.020)	− 0.194** (0.020)	− 0.184** (0.020)	− 0.187** (0.019)	− 0.184** (0.019)
ΔGDP_i	8.67×10^{-10} (1.18×10^{-9})	8.43×10^{-9} (1.17×10^{-9})	6.90×10^{-10} (1.14×10^{-10})	4.25×10^{-10} (1.14×10^{-9})	6.95×10^{-10} (1.14×10^{-9})
ΔGDP_j	4.90×10^{-10} (1.04×10^{-9})	4.68×10^{-9} (1.04×10^{-10})	3.66×10^{-10} (1.01×10^{-10})	1.25×10^{-10} (1.01×10^{-9})	3.62×10^{-10} (1.01×10^{-9})
<i>Dispute_{ij}</i>	− 0.477 (0.275)	− 0.478 (0.275)	− 0.484 (0.274)	− 0.428 (0.273)	− 0.483 (0.274)
<i>Ally_{ij}</i>	1.281** (0.084)	1.282** (0.084)	1.269** (0.083)	1.187** (0.083)	1.270** (0.083)
<i>Former Colony_{ij}</i>	− 0.763 (0.721)	− 0.769 (0.721)	− 0.812 (0.717)	− 0.622 (0.712)	− 0.814 (0.717)
<i>Contiguity_{ij}</i>	− 0.166 (0.120)	− 0.167 (0.119)	− 0.179 (0.119)	− 0.180 (0.117)	− 0.179 (0.119)
<i>Distance_{ij}</i>	− 0.901** (0.050)	− 0.902** (0.050)	− 0.910** (0.050)	− 0.901** (0.050)	− 0.910** (0.050)
<i>Hegemony</i>	− 18.886** (1.991)	− 18.777** (1.990)	− 18.033** (1.989)	− 17.629** (1.980)	− 18.042** (1.990)
<i>GATT_{ij}</i>	0.302** (0.056)	0.306** (0.056)	0.326** (0.057)	0.297** (0.056)	0.326** (0.057)
Constant	10.895** (0.894)	10.807** (0.888)	11.404** (0.842)	11.454** (0.824)	11.659** (0.841)
Log-likelihood	− 11,431.41	− 11,426.52	− 11,389.08	− 11,348.19	− 11,390.73
<i>N</i>	339,910	339,910	339,910	339,910	339,910

Note: Parameters are estimated using logistic regression, after including a cubic spline function with no knots. Entries in parentheses are Huber standard errors clustered on the dyad.

** $p \leq 0.01$; * $p \leq 0.05$. All tests of statistical significance are two-tailed.

† *Veto Players_i* is the residual of a regression of *Veto Players_i* on *Regime Type_i*. *Veto Players_j* is the residual of a regression of *Veto Players_j* on *Regime Type_j*. Since the values of these variables are estimated, the standard errors of their coefficients are biased. To address this issue, the standard error of each of these coefficients is bootstrapped.

are both analytically and empirically distinct, but they are also highly correlated.⁵⁷ We therefore regress *Veto Players_i* on *Regime Type_i* and *Veto Players_j* on *Regime Type_j*. The residuals of these regressions are that portion of veto players that is not explained by a state's regime type. Thus, the bivariate correlation between these residuals and regime type is virtually zero. We then replace *Veto Players_i* and *Veto Players_j* with these residuals and re-estimate the model. The results shown in the final column of Table 3 indicate that the coefficient estimates of these variables are negative, statistically significant and large.⁵⁸ Most of the other estimates are essentially unchanged as well. Thus, our results are not unduly influenced by collinearity between regime type and veto players.

Thirdly, we analyse whether the results are sensitive to our modelling decisions. As noted earlier, the observed value of our dependent variable is 1 in years ($t + 1$) when states i and j enter a PTA, 0 otherwise. We do not remove observations after the pair signed a PTA from the dataset because many country-pairs formed more than one PTA during the period covered here. In various cases, they established a second arrangement without abolishing the first. Nonetheless, it is important to assess the implications of this modelling strategy. For any pair of states that form a PTA, we therefore eliminate all yearly observations after the arrangement is established and then re-estimate the model. As reported in the first column of Table 4, the effects of veto players do not depend in any substantial way on whether we include or exclude these observations.

To further address this issue, we rely on event history analysis, after redefining the dependent variable as the number of years until states i and j form a PTA.⁵⁹ Since we have no theoretical expectations concerning the shape of the baseline hazard rate, we use a Cox proportional hazard model. The results, which are in the second column of Table 4, provide additional support for our argument. The coefficient estimates of *Veto Players_i* and *Veto Players_j* are negative, large and statistically significant. Consequently, as the number of veto players rises, the hazard rate declines, indicating that the length of time until states i and j establish a PTA increases. Thus, signing a preferential arrangement is forestalled by a heightened number of veto players.

In Equation 1, the dependent variable is dyadic; it measures whether a pair of states entered the same PTA in a given year. However, many of the independent variables in the model – including veto players – are monadic. Some studies have analysed data of this sort using 'directed dyads' rather than the undirected dyads that we have examined thus far. In a directed dyad approach, each pair of states generates two observations per year – one where each state in the pair is country i . For example, in the case of France and Russia in 1995, there is one observation where France is country i and a second observation where Russia is i . Each monadic variable enters Equation 1 once and corresponds to whichever state is designated as country i . To ensure that our results do not hinge on whether we utilize

⁵⁷ The bivariate correlation between *Veto Players_i* and *Regime Type_i* and between *Veto Players_j* and *Regime Type_j* is roughly 0.8.

⁵⁸ Because the coefficient estimates of each residual are second-stage estimates, we bootstrap the standard errors 1,500 times and add the resulting estimate of bias to the original standard error estimate.

⁵⁹ For an overview of this technique, see Janet Box-Steffensmeier and Bradford Jones, *Event History Modeling: A Guide for Social Scientists* (New York: Cambridge University Press, 2004). We start counting years at the beginning of our time series (1950).

TABLE 4 *Alternative Specifications of PTA Formation, 1950–99*

	First PTA only	Event history	Directed dyads	BKP trade data	Eliminating zeros in trade data
<i>Veto Players_i</i>	-1.794** (0.299)	-1.644** (0.296)	-1.559** (0.149)	-0.728* (0.330)	-1.085** (0.280)
<i>Veto Players_j</i>	-1.892** (0.302)	-1.750** (0.295)	—	-1.310** (0.322)	-1.219** (0.279)
<i>Regime Type_i</i>	0.050** (0.007)	0.047** (0.007)	0.040** (0.004)	0.015 (0.008)	0.031** (0.007)
<i>Regime Type_j</i>	0.039** (0.007)	0.037** (0.007)	—	0.023** (0.008)	0.028** (0.007)
<i>Trade_{ij}</i>	-0.009 (0.010)	-0.016 (0.009)	-0.032** (0.005)	-0.006 (0.012)	-0.059** (0.016)
<i>GDP_i</i>	-0.259** (0.025)	-0.246** (0.024)	-0.076** (0.010)	-0.154** (0.025)	-0.122** (0.025)
<i>GDP_j</i>	-0.246** (0.025)	-0.237** (0.024)	—	-0.122** (0.024)	-0.120** (0.025)
<i>ΔGDP_i</i>	6.27×10^{-10} (1.27×10^{-9})	2.58×10^{-10} (1.06×10^{-9})	2.60×10^{-9} ** (6.71×10^{-10})	-3.00×10^{-9} (2.21×10^{-9})	-3.78×10^{-10} (1.23×10^{-9})
<i>ΔGDP_j</i>	1.23×10^{-9} (1.10×10^{-9})	1.81×10^{-9} (1.02×10^{-9})	—	-6.74×10^{-9} ** (1.76×10^{-9})	-7.74×10^{-11} (1.03×10^{-9})
<i>Dispute_{ij}</i>	-1.013** (0.378)	-0.789* (0.357)	-0.197 (0.215)	-0.224 (0.273)	-0.285 (0.288)
<i>Ally_{ij}</i>	1.622** (0.090)	1.515** (0.086)	1.116** (0.062)	1.313** (0.010)	1.257** (0.093)
<i>Former Colony_{ij}</i>	-0.417 (1.069)	-0.252 (1.049)	0.974 (0.689)	0.685 (0.706)	-0.844 (0.710)
<i>Contiguity_{ij}</i>	-0.266 (0.178)	-0.386* (0.165)	-0.193* (0.083)	0.087 (0.119)	0.042 (0.120)
<i>Distance_{ij}</i>	-1.112** (0.053)	-1.088** (0.043)	-0.791** (0.041)	-0.758** (0.062)	-0.809** (0.060)
<i>Hegemony</i>	-17.088** (2.445)	-16.979** (2.326)	-37.132** (1.534)	-12.228** (2.248)	-12.405** (2.197)
<i>GATT_{ij}</i>	0.509** (0.074)	0.420** (0.074)	0.367** (0.043)	0.200** (0.075)	0.353** (0.066)
Constant	14.289** (0.961)	—	10.982** (0.523)	7.663** (0.973)	7.284** (0.969)
Log-likelihood	-7,774.03	-10,660.00	-26,211.04	-6,170.15	-7,927.61
<i>N</i>	302,324	300,473	781,007	179,508	211,413

Note: Parameters are estimated using logistic regression, after including a cubic spline function with no knots. Entries in parentheses are Huber standard errors clustered on the dyad.

** $p \leq 0.01$; * $p \leq 0.05$. All tests of statistical significance are two-tailed.

undirected or directed dyads, we re-estimate the model after reconfiguring the data as a series of directed dyads.⁶⁰

The results presented in the third column of Table 4 indicate that our results do not hinge on this decision. The coefficient estimate of *Veto Players_i* is negative and statistically significant. In addition, the estimates of the control variables do not depend much on whether we analyse directed or undirected dyads.

It is also important to consider the implications of using logistic regression to analyse PTA formation, in light of the rarity with which such arrangements are established in our sample. King and Zeng contend that using logistic regression to analyse rare events can produce biased estimates.⁶¹ To guard against this possibility, we re-estimate Equation 1 using King and Zeng's rare event logit procedure. The resulting estimates (which are not presented to conserve space) are nearly identical to those generated by the traditional logit model. Thus, we are confident that our estimates do not suffer from a rare event bias.

Fourthly, we address whether our results depend on the trade data used in the analysis. We have used data on bilateral trade flows compiled by Gleditsch. Recently, however, a different trade dataset has been developed by Barbieri, Pollins and Keshk.⁶² To begin, we re-estimate the model after using this alternative compilation. Then we remove all observations from our original dataset in which a dyad was coded as conducting no trade in a given year, since such dyads could be considered unimportant to the international trading system and particularly unlikely to form a PTA. The results shown in the final two columns of Table 4 indicate that the coefficient estimates of *Veto Players_i* and *Veto Players_j* remain negative, large and statistically significant.

Fifthly, we analyse a set of variables that are not included in Equation 1 but that could influence the establishment of PTAs. Because of strategic interaction among states competing in the international economy, PTAs tend to form in reaction to one another.⁶³ As a result, a given country-pair may be more likely to form a PTA as these arrangements become increasingly ubiquitous. To address this possibility, we include in Equation 1 the number of dyads throughout the world that are members of a PTA in year *t* (*Number of PTAs*). In addition, power relations between states might affect their likelihood of establishing a PTA. We therefore include two variables: (1) the logarithm of the ratio of the larger state's GDP to the smaller state's GDP in each dyad-year, and (2) the logarithm of the ratio of the stronger state's military capabilities to the weaker state's capabilities. To measure each state's military capabilities, we rely on the Correlates of War Project's national military capabilities index, which is made up of total population, urban population, energy consumption, iron and steel production, military manpower and military expenditures.⁶⁴

⁶⁰ Since including each dyad-year twice artificially depresses the standard errors in our statistical analysis, we cluster the standard errors on the undirected dyad, eliminating any efficiency gains that stem from including each observation twice.

⁶¹ Gary King and Langche Zeng, 'Explaining Rare Events Bias in International Relations', *International Organization*, 55 (2001), 693–715.

⁶² On the Gleditsch data, see fn. 41. See also Katherine Barbieri, Brian M. Pollins and Omar Keshk, 'The Correlates of War Trade Data Set: A Progress Report' (paper presented at the Annual Meeting of the Peace Science Society (International), Ann Arbor, Michigan, 2003).

⁶³ Raquel Fernández and Jonathan Portes, 'Returns to Regionalism: An Evaluation of Non-traditional Gains From RTAs', *World Bank Economic Review*, 12 (1998), 197–220; Mansfield, 'The Proliferation of Preferential Trading Arrangements'.

⁶⁴ J. David Singer, Stuart Bremer and John Stuckey, 'Capability Distribution, Uncertainty, and Major Power War, 1820–1965', in Bruce Russett, ed., *Peace, War, and Numbers* (Beverly Hills, Calif.: Sage Publications, 1972), pp. 37–74; J. David Singer and Melvin Small, 'National Material Capabilities Dataset', Study No. 9903 (Ann Arbor: Inter-University Consortium for Political and Social Research, 1993).

TABLE 5 *The Effects of Potentially Omitted Variables on PTA Formation, 1950–99*

	Num. global PTAs	GDP ratio	Capability ratio	Tau-B	Country fixed effects
<i>Veto Players_i</i>	-1.636** (0.232)	-1.598** (0.242)	-1.619** (0.244)	-1.757** (0.276)	-0.656** (0.234)
<i>Veto Players_j</i>	-1.708** (0.232)	-1.689** (0.241)	-1.708** (0.243)	-1.911** (0.277)	-0.723** (0.232)
<i>Regime Type_i</i>	0.045** (0.006)	0.050** (0.006)	0.050** (0.006)	0.053** (0.007)	0.082** (0.007)
<i>Regime Type_j</i>	0.035** (0.006)	0.041** (0.006)	0.041** (0.006)	0.043** (0.006)	0.072** (0.006)
<i>Trade_{ij}</i>	0.000 (0.008)	-0.006** (0.008)	-0.007 (0.008)	-0.024** (0.009)	0.036** (0.009)
<i>GDP_i</i>	-0.214** (0.019)	-0.203** (0.021)	-0.206** (0.020)	-0.244** (0.022)	0.073 (0.073)
<i>GDP_j</i>	-0.191** (0.019)	-0.176** (0.020)	-0.181** (0.020)	-0.198** (0.021)	0.104 (0.072)
<i>ΔGDP_i</i>	5.08×10^{-10} (1.08×10^{-9})	2.31×10^{-9} (1.13×10^{-9})	1.16×10^{-9} (1.15×10^{-9})	3.17×10^{-10} (2.40×10^{-9})	2.17×10^{-9} (1.64×10^{-9})
<i>ΔGDP_j</i>	3.48×10^{-10} (9.49×10^{-10})	1.97×10^{-9} (9.86×10^{-10})	8.30×10^{-10} (1.01×10^{-9})	-3.54×10^{-9} (2.00×10^{-9})	1.32×10^{-9} (1.63×10^{-9})
<i>Dispute_{ij}</i>	-0.471 (0.272)	-0.473 (0.272)	-0.486 (0.273)	-0.052 (0.271)	-0.183 (0.262)
<i>Ally_{ij}</i>	1.256** (0.083)	1.243** (0.082)	1.259** (0.082)	0.889** (0.082)	2.008** (0.089)
<i>Former Colony_{ij}</i>	-0.798 (0.716)	-0.609 (0.713)	-0.776 (0.716)	0.360 (0.716)	-1.792* (0.854)
<i>Contiguity_{ij}</i>	-0.182 (0.117)	-0.179 (0.117)	-0.180 (0.118)	-0.126 (0.126)	-0.611** (0.100)
<i>Distance_{ij}</i>	-0.910** (0.050)	-0.896** (0.048)	-0.905** (0.050)	-0.880** (0.051)	-1.161** (0.048)
<i>Hegemony</i>	-8.159** (2.026)	-18.710** (1.998)	-18.107** (1.987)	-24.333** (2.115)	27.375** (3.054)
<i>GATT_{ij}</i>	0.295** (0.056)	0.315** (0.056)	0.324** (0.056)	0.271** (0.062)	-0.186* (0.073)
<i>Constant</i>	9.254** (0.858)	11.459** (0.841)	11.384** (0.840)	12.833** (0.839)	-18.376** (3.750)
<i>Number of PTAs</i>	0.0002** (0.0001)	–	–	–	–
<i>GDP Ratio</i>	–	-0.125** (0.022)	–	–	–
<i>Capability Ratio</i>	–	–	-0.038 (0.021)	–	–
<i>Tau_b</i>	–	–	–	2.047** (0.102)	–
Log-likelihood	-11,322.85	-11,364.19	-11,386.61	-9,449.17	-9,729.16
<i>N</i>	339,910	339,910	339,910	277,360	309,917

Note: Parameters are estimated using logistic regression, after including a cubic spline function with no knots. Entries in parentheses are Huber standard errors clustered on the dyad. ** $p \leq 0.01$; * $p \leq 0.05$. All tests of statistical significance are two-tailed.

In addition, we would like to account for the similarity of states' and leaders' (P and F in our spatial model) foreign policy preferences, since similar preferences of this sort may promote international economic co-operation, regardless of domestic politics. Recall that to address this issue, we included in Equation 1 a number of variables that are likely to tap the similarity of such preferences, especially alliance relations and political-military conflict. Although more direct measures of foreign policy preferences are notoriously difficult to construct, we also follow a number of previous studies in using the $\tau_{i,j,t}$ correlation between the United Nations (UN) voting patterns of states i and j in year t for this purpose.⁶⁵ This variable can range from -1 to 1 and increases as states' voting records become increasingly similar.⁶⁶

As shown in Table 5, three of the four aforementioned variables strongly influence PTA formation. Country-pairs are more likely to enter a preferential arrangement if a large number of other dyads have recently formed such an arrangement, if their national incomes are asymmetrically distributed, and if they have similar UN voting records. These relationships, however, have no bearing on the effects of veto players, which continue to affect the creation of PTAs strongly.

Finally, there are various historical, political and economic factors that are specific to the countries in our sample that are not included in our model, but which could influence whether the states opt to enter a PTA. One way to account for any unmeasured heterogeneity of this sort is to include country-specific or pair-specific fixed effects in the model. Various observers argue that in situations like ours, where the dependent variable is dichotomous and has a highly skewed distribution, a fixed-effects specification introduces more problems than it resolves.⁶⁷ However, these observers maintain that if researchers are committed to estimating a fixed-effects model when analysing such a dependent variable, it is preferable to include country-specific rather than pair-specific effects. To assess the robustness of our results, we therefore re-estimate Equation 1 after including country-specific fixed effects.

The results presented in the final column of Table 5 show that the coefficient estimates of *Veto Players_i* and *Veto Players_j* continue to be negative and statistically significant. Equally, these estimates are only marginally smaller (in absolute value) when a fixed-effects specification is used. Taken together, the results in this section therefore demonstrate that our earlier findings are quite robust.

CONCLUSIONS

The recent proliferation of PTAs has stimulated rising interest in the consequences of these arrangements. Far less effort has been made to assess the factors prompting states to enter PTAs, especially factors operating in the domestic political arena. In this article, we have addressed this issue by incorporating domestic veto players into a model of two-level

⁶⁵ Erik Gartzke, 'Kant We All Just Get Along? Opportunity, Willingness, and the Origins of the Democratic Peace', *American Journal of Political Science*, 42 (1998), 1–27.

⁶⁶ Data for this variable are taken from Gartzke, 'Kant We All Just Get Along?' Some studies of international relations have recently begun to use a different measure of preference similarity, referred to as S . See Curtis S. Signorino and Jeffrey M. Ritter, 'Tau-b or Not Tau-b: Measuring the Similarity of Foreign Policy Positions', *International Studies Quarterly*, 43 (1999), 115–44. Our results do not depend on which measure is used.

⁶⁷ See, for example, Nathaniel Beck and Jonathan N. Katz, 'Throwing Out the Baby With the Bath Water: A Comment on Green, Kim, and Yoon', *International Organization*, 55 (2001), 487–95.

games. Our model suggests that it becomes increasingly difficult for states to forge PTAs as the number of veto players rises. A series of empirical tests, based on an analysis of PTA membership from 1950 to 1999, support our argument. Countries are much less likely to sign trade agreements as the number of veto players increases.

These results are substantively as well as statistically significant. An increase in the number of domestic veto players can cut the probability of forming a PTA by as much as 50 per cent. Moreover, these results do not stem from the effects of regime type on PTA formation. We find that democracies are more likely to sign trade agreements than other countries, but that the number of veto players exerts an independent influence on the prospects of establishing a preferential arrangement. Neglecting any of these domestic factors in studies of PTAs is, therefore, a risky strategy.

Although our focus has been on the formation of PTAs, our argument has implications for the duration of PTAs as well. More specifically, heightened veto points inhibit policy change. Hence, while veto players reduce the likelihood of entering a PTA, they also are likely to enhance the durability of any PTA in which a state participates. This topic could be fruitfully addressed in future research.

Furthermore, our results bear on various other issue-areas in the field of international relations, particularly the politics of international co-operation. PTAs are simply one type of international co-operation, involving the mutual adjustment of trade policy. Our results thus imply that international co-operation of any type becomes harder to achieve when the number of veto players rises in the participating countries. In addition, the number of domestic veto players may also affect the likelihood of international conflict. Our findings accord with earlier research indicating, for example, that divided government influences trade policy,⁶⁸ the escalation of military disputes,⁶⁹ and in the US context, the use of military force abroad.⁷⁰ More generally, they imply that domestic politics may exert a strong influence on the decision to co-operate. Indeed, domestic politics may be a greater obstacle to international co-operation than political or military relations among states.⁷¹ It has certainly been a more neglected influence. Although we provide only one empirical test of this proposition, the strong association between domestic veto players and PTA formation supports our hypothesis and points to the promise of future research in this area. Extending theories of international politics by including domestic variables like veto players can be a fruitful exercise; we have shown that theories of two-level games can be usefully expanded by incorporating a theory of veto players.

⁶⁸ Susanne Lohmann and Sharyn O'Halloran, 'Divided Government and US Trade Policy: Theory and Evidence', *International Organization*, 48 (1994), 595–632; Richard Sherman, 'Delegation, Ratification, and US Trade Policy: Why Divided Government Causes Lower Tariffs', *Comparative Political Studies*, 35 (2002), 1171–97.

⁶⁹ Paul Huth and Todd Allee, *The Democratic Peace and Territorial Conflict in the Twentieth Century* (Cambridge: Cambridge University Press, 2003).

⁷⁰ William G. Howell and Jon C. Pevehouse, 'Presidents, Congress, and the Use of Force', *International Organization*, 59 (2005), 209–32.

⁷¹ Milner, *Interests, Institutions, and Information*.