

Votes, Vetoes, and Preferential Trading Agreements

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October 18, 2010

ABSTRACT

Preferential trading agreements (PTAs) are proliferating rapidly. By 2006, according to the World Trade Organization (WTO), nearly 300 PTAs were in force, covering approximately half of the overseas trade conducted worldwide. Although just about every country now belongs to a PTA, some states have rushed to join many of these arrangements, whereas others have joined very few of them. What explains these variations? Some studies have emphasized that states enter PTAs to generate economic gains. There is considerable evidence that PTAs have ambiguous welfare implications, which sheds doubt on the claim that countries join them for economic reasons alone. Instead, we emphasize the domestic political benefits and costs for leaders contemplating membership. Two domestic political factors—the nature of the regime and the number of veto players—play a significant role in determining whether countries sign a PTA. The results of our statistical tests furnish considerable support for these arguments. Based on an analysis of all PTAs formed since World War II, more democratic states are more likely to establish PTAs than their less democratic counterparts. We also find that states are less likely to enter a trade agreement as the number of veto players increases.

Prepared for the WTO workshop on PTAs in the New Era, Geneva, Nov. 4, 2010. For research assistance, we are grateful to David Francis, Raymond Hicks, Rumi Morishima, and Stephan Stohler.

Preferential trade agreements (PTAs) are proliferating rapidly. Scores of these institutions have formed over the past half-century and almost every country currently participates in at least one. By 2006, according to the World Trade Organization (WTO), nearly 300 PTAs were in force, covering approximately half of the overseas trade conducted worldwide (Lamy 2009). Why states have chosen to enter such arrangements and what bearing the spread of PTAs will have on international affairs are issues that have generated considerable controversy. Some observers fear that these arrangements have adverse economic consequences and have eroded the multilateral system that has guided international economic relations during the post-World War II era. Others argue that such institutions are stepping stones to greater multilateral openness and stability. This debate has stimulated a large body of literature on the economic and political implications of PTAs. Surprisingly little research, however, has analyzed the factors giving rise to these arrangements. The purpose of this article is to help fill that gap.

Although just about every country now belongs to a PTA, some states have rushed to join many of these arrangements, whereas others have joined very few of them. Moreover, states have entered them at different points in time. What explains these variations? Some studies have emphasized that states enter PTAs to generate economic gains. Taken as a whole, however, there is considerable evidence that preferential arrangements have ambiguous welfare implications, which sheds doubt on the claim that countries join them for economic reasons alone (Baldwin and Venables 1995; Hine 1994; Viner 1950).

Instead, we emphasize the domestic political benefits and costs for leaders contemplating membership in such an arrangement. First, leaders cannot credibly commit to ignore special interest pleading for trade protection. Consequently, voters may hold heads of state responsible for bad economic times even if these economic conditions were not caused by policies stemming

from the demands of special interests. Leaders can help address this problem by entering a PTA. Since this problem is more severe in more competitive electoral systems, democratic chief executives are especially likely to join preferential arrangements. Second, we argue that leaders face transaction costs when making a trade agreement. The domestic ratification process contributes heavily to the magnitude of these costs. As the number of “veto players” expands, domestic ratification of an international agreement becomes more difficult. These two different domestic political factors—the nature of the regime and the number of veto players—play a significant role in determining whether countries are willing and able to establish a PTA.

The results of our statistical tests furnish considerable support for these arguments. Based on an analysis of all PTAs formed since World War II, we find that more democratic states are more likely to establish PTAs than their less democratic counterparts. We also find that states are less likely to enter a trade agreement as the number of veto players increases.

What are Preferential Trading Arrangements?

PTAs are international agreements that aim to promote economic integration among member-states by improving and stabilizing the access that each member has to the other participants’ markets. There are five different types of PTAs (see generally: Bhagwati and Panagariya 1996; de Melo and Panagariya 1993; Pomfret 1988). First, some arrangements grant each participant preferential access to select segments of the other members’ markets. Second, a free trade area (FTA) is marked by the elimination of trade barriers on many (if not all) products within the arrangement. Third, customs unions (CUs) are arrangements in which members eliminate trade barriers on other participants’ goods and impose a common external tariff (CET) on the goods of third parties. Fourth, a common market is a CU that is augmented by similar

product regulations and the free flow of factors of production among members. Fifth, an economic union is a common market whereby members also coordinate fiscal and monetary policies. Despite the differences among these institutions, empirical studies generally analyze PTAs as a group. We will do likewise since the argument we advance is focused primarily on why states join a PTA rather than on the particular type that they enter.¹

The Effects of Regime Type and Veto Players on PTA Formation

All political leaders depend on the support of constituents to stay in power. However, the means by which leaders retain office depends on the type of political regime. In democracies, leaders must stand for office in regular and competitive elections. In autocracies, by contrast, they must maintain the allegiance of small, select groups within the country, often including the military, labor unions, key members of the ruling party, or economic elites. Autocracies may hold elections, but such contests are much less likely to lead to leadership turnover than those held in democracies. The greater political competition for office spurs democratic leaders to sign international trade agreements.

Leaders in many polities are caught between the pressures exerted by special interest groups and the preferences of voters. Special interests often press for policies—such as protectionist trade policies—that adversely affect the economy. Leaders may want to satisfy some interest groups in order to generate benefits like campaign contributions. But giving in to all interest group demands would have very harmful economic consequences and could imperil their hold on office. Leaders face a credibility problem. They have a hard time convincing the

¹In other research, we disaggregate the types of PTAs and ask whether deeper trade agreements are more likely to be signed by more democratic countries and ones with fewer veto players. We also examine whether PTAs with DSMs are more likely to be signed by more democratic countries since they too provide a more credible reassurance mechanism. We find some evidence for these conjectures.

public that they will not accede to special interest demands. When elections take place in combination with poor economic circumstances, voters may blame incumbents for economic problems and vote them out of office. Leaders prefer to remain in office and to do less for interest groups if they can credibly convince voters of their actual behavior.

Trade agreements provide such a mechanism. They allow leaders to commit to a lower level of protectionism than they might otherwise desire, but to signal to voters that they will not allow trade policy to be guided solely by special interests. Voters, if reassured that leaders are generally abiding by the terms of the agreement, have reason to believe leaders who claim that their policies did not cause bad economic times. In turn, leaders are more likely to remain in office since voters will choose to reelect them even during economic downturns. The more electoral competition there is, the more leaders have to worry about being ejected from office and the greater the problems they face from their inability to reassure their publics about trade policy.

Of course, voters do not display much interest in many policy issues, but economic policy and performance are typically of great concern (see, e.g., Fiorina 1981; Kiewiet 1983; Lewis-Beck 1988; Fair 2009). Voters may not know much about trade policy, but we do expect them to know something about economic conditions. When the economy sours, voters will be more likely to reject incumbents, unless leaders can furnish information that the downturn was due to circumstances beyond their control rather than rent seeking or incompetence. PTAs can provide such information, either by directly monitoring and reporting on members' behavior or because the participating countries have reason to publicize any deviation from the arrangement by a member. Hence, we argue that democracies—where the voting public determines whether the incumbent retains office—should be more likely to sign such agreements than other regime

types.

For autocracies, the calculations differ. Interest group pressures for protectionism in autocracies vest leaders of these countries with an incentive to resist entering PTAs that reduce the rents they can provide to supporters. Equally, electoral competition is less likely to determine their fate. Consequently, autocrats have less incentive to enter into agreements than their democratic counterparts.

Like most international agreements, PTAs do not have direct effects in signatory countries. In order for the terms of the arrangement to take hold, it has to be ratified by some set of domestic veto players (Yarbrough and Yarbrough 1992). We argue that the number of veto players in a country affects the transaction costs that governments bear when ratifying a PTA. More veto players increase these costs, thereby reducing the incentives of leaders to try to negotiate and ratify PTAs.

Veto players have the ability to block policy change and their assent is necessary to alter existing policies (Tsebelis 1995, 2002). 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 constraints on the leaders. Domestic groups with varying preferences who have veto power often compete for influence over policy, and dictators depend on them in making policy and retaining office. Democratic regimes are even more likely to have veto players than non-democratic regimes, although the number of such points varies considerably among democracies. Generally, the legislature and the executive vie for control over decision-making in democracies. Sometimes two or more political parties or coalitions compete. Domestic political institutions determine how such control is distributed among the relevant actors.

In most countries, the executive branch sets the agenda in foreign affairs and has the power to initiate foreign economic policy. However, veto players must ratify policy choices made by the executive, such as joining a trade agreement. Formally, the head of state in a democracy—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. He or she will therefore need to anticipate the legislature’s (or any other veto point’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 frequently require the support of groups like the military or local leaders; implicitly, these groups ratified a trade agreement 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.

Because of this ratification constraint, veto players affect the formation of PTAs. As the number of veto players increases, so does the likelihood that at least one such point will have a constituency that is adversely affected by the PTA and therefore will block its ratification. To ratify an agreement when many veto players exist is costly for political leaders. They either have to modify the agreement to fit the preferences of the veto groups or they have to bribe the veto groups into accepting it. These means of securing ratification pose transaction costs for leaders. The greater these transaction costs, the less likely leaders are to enter into trade agreements and the more difficult it will be to secure ratification.

One might argue that leaders could simply craft an agreement in ways to purchase the acquiescence of veto players. That is, a government could build enough flexibility into an

agreement that its terms would be weakened where domestic groups opposed it, or the government could exclude all sensitive sectors which affected veto players. In this way a government could negotiate any agreement so that its veto players did not oppose it. Research has suggested that governments do indeed respond to domestic conditions when designing international agreements (Downs et al. 1996; Koremenos et al. 2001; Rosendorff and Milner 2001). However, there are several constraints on such behavior. First, the government cannot expect to successfully negotiate whatever terms its domestic veto players want, since foreign countries have to sign on to the agreement. They are likely to want exactly those concessions that the domestic veto players oppose most fiercely. Second, as the number of veto players increases, the demands of these groups for exclusions or flexibility must also grow, making it more difficult for the executive to find an acceptable agreement with its foreign partners. Hence, as the number of veto players rises, the transaction costs of concluding an international agreement are likely to grow, and the possibility of forming a PTA falls.

In addition to regime type and veto players, various studies have identified interest groups as key influences on PTA formation (see, e.g., Chase 2005; Gilligan 1997; Milner 1997; Grossman and Helpman 1995; Krishna 1998). These groups, however, are not the focus of our attention. PTAs have distributional consequences and so we expect certain coalitions to favor freer trade and others to favor protectionism. Determining the composition and power of these distributional coalitions across the range of countries and the time period covered in this study is extremely difficult. Instead, we follow many existing models of veto players in assuming that interest groups affect trade policy indirectly (Henisz 2000a; Kono 2006; Mansfield et al. 2007, 2008). One way they do so is by shaping the preferences of the executive, since he or she requires their support to retain office. The executive communicates with interest groups about

whether to enter into international negotiations and the terms of any prospective PTA prior to sitting down with foreign governments. By lobbying the government, interest groups can influence the government's bargaining position in negotiations over a PTA. The executive's position *ex ante* already reflects the influence of politically important interest groups.

Besides influencing the preferences of heads of state, interest groups have indirect effects through veto players. The distributional consequences of PTAs generate pressure for interest groups to organize and lobby for or against membership. In the trade policy literature, there is a long tradition of associating parties with the trade policy preferences of different interest groups (Rogowski 1989; Milner and Judkins 2004). 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. The structure of the legislature and its partisan composition are key elements of the measure of veto players that we use in the following analysis. Thus, interest groups are represented here indirectly by their impact on the preferences of the executive and the parties.

Empirical Tests of the Hypotheses

In the remainder of this article, we conduct a set of statistical tests of our two hypotheses. Our empirical analysis centers on explaining whether, in a given year, a pair of countries enters a PTA. More specifically, we examine whether the regime type of, and the number of veto players in, each state comprising the pair affect the likelihood that they will conclude a preferential arrangement. In addition, certain economic and international factors are also likely to influence the probability that countries sign and ratify a trade agreement. We will account for these factors in our empirical analysis.

We begin by estimating the following model:

$$\begin{aligned}
 (1) \quad \text{PTA RATIFICATION}_{ij} = & \beta_0 + \beta_1 \text{REGIME TYPE}_i + \beta_2 \text{VETO PLAYERS}_i + \\
 & \beta_3 \text{EXISTING PTA}_{ij} + \beta_4 \text{TRADE}_{ij} + \beta_5 \text{GDP}_i + \beta_6 \Delta \text{GDP}_i + \beta_7 \text{DISPUTE}_{ij} + \\
 & \beta_8 \text{ALLY}_{ij} + \beta_9 \text{FORMER COLONY}_{ij} + \beta_{10} \text{CONTIGUITY}_{ij} + \beta_{11} \text{DISTANCE}_{ij} + \\
 & \beta_{12} \text{HEGEMONY} + \beta_{13} \text{GATT}_{ij} + \beta_{14} \text{POST-COLD WAR} + \beta_{15} \% \text{DYADS} \\
 & \text{RATIFYING PTA} + \beta_{16} \text{GDP RATIO}_{ij} + \beta_{17-23} \text{REGIONAL FIXED EFFECTS}_i \\
 & + \varepsilon_{ij}
 \end{aligned}$$

The Dependent Variable: PTA Ratification

Our dependent variable, $\text{PTA RATIFICATION}_{ij}$, is the log of the odds that state i ratifies a PTA in year t with state j , where we observe 1 if this occurs and 0 otherwise. Our analysis covers the period from 1950 to 2005. We focus on reciprocal arrangements, which involve policy adjustment on the part of all members, and exclude non-reciprocal arrangements. The observed value of $\text{PTA RATIFICATION}_{ij}$ is 1 only when states initially ratify a PTA, not in subsequent years when the agreement is in force. It takes on this value if the country is joining an existing PTA or if it is forming a new one with other partners. It also equals one for an existing member of a PTA when a new country enters the arrangement.

If the exact year of ratification could not be determined, we rely on the date that state i signed the PTA with state j . Since most agreements are ratified relatively soon (on average, slightly less than a year) after they are signed and since we are missing ratification dates in fewer than 30 percent of the cases where a PTA was signed, this is reasonable approach. Because states i and j need not—and, indeed, often do not—ratify a preferential arrangement in the same year, our unit of analysis is the annual “directed dyad.” Thus, for each dyad in each year, there is

one observation corresponding to state i and a second observation corresponding to state j . For example, in the case of the United States-Canada dyad in 1985, we include one observation where the US is i and Canada is j , and a second observation where Canada is i and the US is j . Each monadic variable, as we explain below, is included in this model only once, for the country listed as i in each particular observation. Of course, analyzing directed dyads doubles the number of observations in the sample, thereby producing standard errors that are too small. To address this issue, we cluster the standard errors over the undirected dyad.

The Key Independent Variables: Regime Type and Veto Players

We focus on two main independent variables. First, we examine country i 's regime type in year t , REGIME TYPE $_i$. To measure each state's regime type, we rely on a widely-used index constructed by Gurr, Jagers, and Moore (Gurr et al. 1989; Jagers and Gurr 1995). This index combines five factors that help to capture the institutional differences between democracies and autocracies that we emphasized earlier: the competitiveness of the process for selecting a country's chief executive, the openness of this process, the extent to which institutional constraints limit a chief executive's decision-making authority, the competitiveness of political participation within a country, and the degree to which binding rules govern political participation within it. Following Gurr, et al. and Jagers and Gurr, these data are used to create an 11-point index of each state's democratic characteristics (DEMOCRACY) and an 11-point index of its autocratic characteristics (AUTOCRACY) (Gurr et al. 1989; Jagers and Gurr 1995). The difference between these indices, REGIME TYPE = DEMOCRACY - AUTOCRACY, yields a summary measure of regime type that takes on values ranging from -10 for a highly autocratic state to 10 for a highly democratic country. In order to ease interpretation, we convert this scale by adding

11 to each value, resulting in a range from 1 (highly autocratic) to 21 (highly democratic).

There are three principal reasons to rely on this measure in our empirical analysis. First, our argument treats regime type as a continuous variable, with the competitiveness of elections ranging from perfectly competitive to completely uncompetitive. As noted above, the index developed by Jagers and Gurr has a range of 21 points, unlike some other measures that treat regime type as a categorical variable (Przeworski et al. 2000). Second, Jagers and Gurr's index highlights a number of institutional dimensions of regime type that we stress. The ability of voters to choose the chief executive, which is central to our theory, is expected to rise as the process for selecting the executive becomes more competitive; as that process becomes more open; and as political participation becomes increasingly competitive. Jagers and Gurr's index captures each of these three institutional elements, whereas various alternative measures do not (Gastil 1980 and 1990). Third, their index covers more countries during the period since World War II than most other measures of regime type (Gastil 1980 and 1990; Bollen 1980; Gasiorowski 1996).

From the standpoint of testing our theory, the second major independent variable in equation (1) is $VETO\ PLAYERS_i$. This variable, which is measured in year t , indicates the extent of constitutionally mandated institutions that can exercise veto power over decisions in state i as well as the alignment of actors' preferences between those institutions within the state. The data are taken from Henisz (2000a, 2002), 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.²

² We use the most recent version of these data, which were updated in 2006. Henisz has developed two measures of

Henisz's measure is well-suited to testing our theoretical model. The index is theoretically derived from a spatial model of veto players. The theory underlying his measure is very similar to our theory: 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 focus on trade policy, a single policy dimension is useful; preferences range from protectionist to free trade. His measure thus captures nicely what our argument represents as a veto point. Henisz (2002, 363)'s research reveals that:

- (i) 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 (ii) homogeneity (heterogeneity) of party preferences within an opposition (aligned) branch of government is positively correlated with constraints on policy change.

The resulting measure is a continuous variable ranging from 0 to 1. When $VETO\ PLAYERS_i$ equals 0, there is a complete absence of such points in state i . Higher values indicate the presence of effective political institutions that can balance the power of the executive. In cases where effective institutions exist, the variables take on larger values as party control across some or all of these institutions diverge from the executive's party. For example, in the US, the value of this measure is larger during periods of divided government. Because of this variable's theoretically-based construction and its attention to both domestic institutional arrangements and

veto players, 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.

the preferences within those arrangements, it is appropriate for testing our hypotheses.

Control Variables

We also include a number of variables that previous studies have linked to the formation of PTAs to ensure that any observed effects of regime type or veto players are not due to other international or domestic factors. All of these variables except former colony, distance, and Post Cold War are lagged one year. Some of these variables also help us to control for differences in preferences between countries. For instance, countries without ongoing disputes and ones that are allies or that trade extensively may be much more likely to make agreements since they tend to share political and economic interests. Holding these factors constant is important for testing our argument about the effect of domestic political factors. We also need to account for a set of systemic factors that previous studies have linked to PTA formation.

First, TRADE_{ij} is the logarithm of the total value of trade (in constant 2000 US dollars) between countries i and j in year $t-1$.³ Various observers argue that increasing economic exchange creates incentives for domestic groups that benefit as a result to press governments to enter PTAs, since these arrangements help to avert the possibility that trade relations will break down in the future (Nye 1988). Moreover, heightened overseas commerce can increase the susceptibility of firms to predatory behavior by foreign governments, prompting firms to press for the establishment of PTAs that limit the ability of governments to behave opportunistically

³ We add .001 to all values of trade since some dyads conduct no trade in particular years and the logarithm of zero is undefined. Note that we use the International Monetary Fund's (IMF's) *Direction of Trade Statistics*, available at: <http://www2.imfstatistics.org/DOT/> as the main source for the trade data. Missing data on trade flows are filled in with data by Kristian Skrede Gleditsch (2002). Both the IMF data and Gleditsch's data are expressed in current dollars. We deflate these data using the US gross domestic product (GDP) deflator.

(Yarbrough and Yarbrough 1992).

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 analyze GDP_i , the logarithm of country i 's gross domestic product (in constant 2000 US dollars) in year $t-1$. 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 (Mattli 1999). 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 , the change in GDP_i from year $t-2$ to year $t-1$.⁴

In addition, political relations between states may influence whether they join the same PTA, independent of their respective domestic political structures. Commercial cooperation also depends on the extent of differences in preferences between countries' leaders. The further apart are these preferences, the less likely is cooperation. We therefore include a number of variables that tap the foreign policy differences between states. Military hostilities between states signal large differences in preferences between countries and may discourage them from signing a PTA. As such, we include $DISPUTE_{ij}$, which is coded 1 if countries i and j are involved in a dispute during year $t-1$ and 0 otherwise. Many studies of political disputes rely on the militarized interstate disputes (MIDs) dataset (Jones et al. 1996; Ghosn and Palmer 2003). However, these data do not extend beyond 2000. To analyze the longest possible time frame, we

⁴ GDP data are also taken from Gleditsch (2002).

therefore use the PRIO data on interstate armed conflict, which covers the period from 1950 to 2005.⁵ Just as disputes may inhibit PTA formation, close political-military relations may promote it (Gowa 1994; Mansfield 1993). We therefore analyze $ALLY_{ij}$, which equals 1 if countries i and j are members of a military alliance in year $t-1$, 0 otherwise. We code this variable using the Alliance Treaty Obligations and Provisions (ATOP) data (Leeds et al. 2002).⁶ To ensure that our results are robust to the measures of disputes and alliances that are used, however, we conduct some additional tests after using the MID's data to measure disputes and the Correlates of War (COW) data to measure alliances. Since previous research 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 relationship that ended after World War II, 0 otherwise (Mansfield et al. 2002, 499-501; Mansfield and Reinhardt 2003, 849-852).⁷ Adding these variables allows us to account for some international factors that affect interstate commercial relations while analyzing the domestic

⁵ We use v4-2008 of the data, *available at*: <http://www.prio.no/CSCW/Datasets/Armed-Conflict/UCDP-PRIO/old-versions/4-2007/>. Their data includes four types of conflict: (1) extra-systemic armed conflict occurs between a state and a non-state group outside its own territory; (2) interstate armed conflict occurs between two or more states; (3) internal armed conflict occurs between the government of a state and one or more internal opposition group(s) without intervention from other states; and (4) internationalized internal armed conflict occurs between the government of a state and one or more internal opposition group(s) with intervention from other states (secondary parties) on one or both sides. The third type of conflicts was dropped. We retained the other three types and expanded the data so that all possible dyads between the countries on side A and those on side B of each conflict were included (Gleditsch et al. 2002, 7).

⁶ For the ATOP data, we use version 3.0, specifically the `atop3_0ddyr.dta` file. Because the data end in 2003, we use data from 2003 to fill in 2004.

⁷ Data on former colonial relations are taken from Kurian (1992).

political sources of international economic cooperation.

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 transportation 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 or are separated by 150 miles of water or less. $DISTANCE_{ij}$ 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).⁸

Further, 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 (see, e.g., Bhagwati 1993; Krugman 1993; Mansfield 1998). 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 $t-1$. In addition, we include $POST-COLD\ WAR$, which equals 0 from 1950 to 1988 and 1 thereafter, to account for the spike in PTAs after the Berlin Wall's collapse (Mansfield and Milner 1999). These variables take on the same value for each country in t . We also examine whether power disparities influence the establishment of preferential arrangements. To address this issue, we include $GDP\ RATIO_{ij}$, which is the natural logarithm of the ratio of the country GDPs for each dyad in year $t-1$. In computing this variable, the larger GDP is always in the numerator; hence, a negative sign on the coefficient of this variable would indicate that a greater disparity between the countries decreases the likelihood of

⁸ Data on distance and contiguity are taken from Bennett and Stam (2000).

PTA ratification.

Various studies have concluded that PTA formation is marked by a diffusion process, whereby the decision by one set of countries to join a preferential arrangement may lead others to do likewise (de Melo and Panagariya 1993, 5-6; Oye 1992; Pomfret 1988; Yarbrough and Yarbrough 1992; Fernández and Portes 1998; Mansfield 1998). If a set of states joins a PTA, their economic rivals (outside the bloc) may fear that preferential access to an expanded market will furnish them with a competitive advantage, thus inducing their rivals to join other PTAs to obtain similar benefits. In the same vein, the appearance that a PTA is benefitting members can lead third parties to join existing arrangements or form new ones in an attempt to realize similar gains (Pomfret 1988; Yarbrough and Yarbrough 1992).

To address the possibility of diffusion in PTA formation, we include several variables. First, we add the percent of all dyads in the system that ratified a PTA in year $t-1$, $\%DYADS$ RATYFING PTA. This variable is intended to tap global pressures for the diffusion of PTAs. We also include $EXISTING\ PTA_{ij}$ to indicate whether countries i and j are already in a PTA, since there is reason to expect that participating in one is likely to affect a state's proclivity to create or join another arrangement with the same partner.

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 (Mansfield and Reinhardt 2003). Consequently, we introduce $GATT_{ij}$ in the model. It equals 1 if countries i and j are both members of GATT in each year, $t-1$, prior to 1995 or if they are both members of the WTO in years from 1995 on, and 0 otherwise.⁹ we include a variable indicating whether a GATT/WTO negotiating round is ongoing in year t .

⁹ Data are taken from the WTO web site.

Some have claimed that countries are more likely to sign these before a round begins rather than during to increase their bargaining leverage (Crawford and Fiorentino 2005, 16; OECD 2001, 7). Others suggest that it is during the round itself that signing a PTA is most useful in this regard (Mansfield and Reinhardt 2003). We also explore whether the length of time since the last GATT/WTO round concluded might affect PTA formation. Some have argued that a long time between rounds might induce countries to seek PTAs (e.g., Fiorentino et al. 2007; Katada and Solis 2008).

We also include regional fixed effects, using the eight regional categories identified by the World Bank.¹⁰ Finally, ε_{ij} is a stochastic error term.

Descriptive statistics for all of these 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 2005. Because the observed value of the dependent variable is dichotomous, we use logistic regression to estimate the model. Tests of statistical significance are based on robust standard errors clustered on the dyad to address any heteroskedasticity in the data, as well as other problems associated with the directed dyad research design. 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, with knots at years 1, 4 and 7, as suggested by Beck, Katz and Tucker (1998). In the following tables, however, the estimates of this function are omitted to conserve space.

¹⁰ The World Bank does not give a region for advanced industrial countries, such as those in Western Europe, as well as the United States, Canada, and Japan. We assign them to their appropriate geographic regions. We also deviate from the World Bank in distinguishing South America from Central America and the Caribbean.

Results of the Empirical Analysis

In Table 2, we report some initial estimates of the parameters. The first column shows our baseline results. In the second column, we include dyad-specific fixed effects to account for any unobserved heterogeneity across the many country-pairs included in our data. The results in the third column are generated after including both dyad-specific and year-specific fixed effects. Adding year-specific effects helps to address the effects of systemic factors that affect all dyads at a given point in time and that are not included in the model. In the fourth column, we measure *Regime Type_i* and *Veto Players_i* in year $t-1$, rather than year t . Our argument is that these factors should exert a contemporaneous rather than a lagged effect on PTA ratification. Furthermore, there is little chance that the observed effects of these variables are compromised by any simultaneity bias: after all, it seems highly unlikely that the decision to form a PTA, much less the ratification of such an agreement, would influence either a state's regime type or the number of domestic veto players. Nonetheless, measuring these variables in $t-1$, along with the other control variables in our model, should enhance the confidence in our results. In the final column of Table 2, we replace the ATOP alliance data and the PRIO disputes data with the COW Project's alliance and MIDs. As we described earlier, the COW data covers less of the 21st century than the ATOP and the PRIO data; but analyzing the COW data provides a useful way of assessing the stability of our findings.

[Table 2 about here]

As expected, the odds of ratifying a PTA rise as countries become more democratic and as the number of veto players falls. In each model, the estimated coefficient of *Regime Type_i* is positive, the estimated coefficient of *Veto Players_i* is negative, and both of them are statistically significant. The magnitude of these effects is greatest when we identify the model dyad-specific

fixed effects, indicating that within dyad variation in regime type and veto players has an especially potent impact on PTA ratification. The size of these effects is smallest when these variables are measured in year $t-1$, rather than year t . As we mentioned earlier, this is to be expected since our argument is that both factors should have an immediate effect on PTA ratification. Furthermore, whether we measure alliances and disputes using the ATOP and PRIO data or the COW data has little bearing on the estimated effects of regime type and veto players. Figures 1 and 2 show the effects of regime type and veto players, respectively, on the probability of PTA ratification based on the results in the first column of Table 2 (holding constant the remaining variables in the model).

To further illustrate the magnitude of these effects, we initially calculated the “relative risk” of state i ratifying a PTA with state j if the former state is democratic or if it is autocratic. More specifically, this risk is the predicted probability of state i entering a PTA with state j if state i is democratic (which we define here as *Regime Type* _{i} = 19) divided by the predicted probability of state i entering a PTA if it is autocratic (which we define here as *Regime Type* _{i} = 3), holding constant the remaining variables in the model.¹¹ If we focus on the first column of estimates in Table 2, a democracy is about 55 percent more likely to enter a PTA than an autocracy. Figure 1 shows the effects of regime type on the predicted probability of ratification. As democracy rises, the probability of a PTA grows and the number of PTAs ratified rises rather quickly. Put differently, holding other continuous variables at their medians and evaluating the dichotomous variables at their modal values, in fact, holding the other variables constant, a global system composed of autocracies would yield about 63 dyads ratifying PTAs per year. In a system composed of democracies, this predicted number is nearly 100.

¹¹ The continuous variables are held constant at their median values and the dichotomous variables are held constant at their modal values.

[Figures 1 and 2 about here]

Next, we compare the predicted probability of state i forming a PTA when it has few veto players – which we define as the 10th percentile in the data – to the predicted probability when it has many such players – which we define as the 90th percentile in the data, holding constant the remaining variables in the model. Based on the results in the first column of Table 2, a state with few *Veto Players_i* is about 35 percent more likely to ratify a PTA than one with more *Veto Players_i*. These results clearly indicate that domestic politics plays an important role in shaping the decision to enter preferential arrangements.

Not surprisingly, however, various economic and international factors are also important in this regard. States that trade extensively and those that are economically large tend to form PTAs: in each case, the estimated coefficients of *Trade_{ij}* and *GDP_i* are positive and statistically significant. There is also evidence that recessions prompt states to ratify PTAs since the coefficient estimate of ΔGDP_i is negative in each case and is statistically significant in all but one.

In a variety of cases, it is not possible to estimate a coefficient when dyad-specific (*Former Colony_{ij}*, *Distance_{ij}*, and the regional fixed effects) or year-specific (*Hegemony*, *% Dyads Ratifying PTAs*, and *Post-Cold War*) fixed effects are included because they are time invariant or perfectly correlated with the year effects. For the most part, the effects of these variables are consistent across the remaining model specifications. States are unlikely to join PTAs with their former colonies and with geographically distant countries. In comparing different regions of the world, our results indicate that African countries have been most likely to ratify PTAs, followed by South American and Caribbean countries, Middle Eastern countries, and North and Central American countries. Countries in Asia (including both East Asia and

South Asia) tend to be least likely to enter PTAs, although a few of these differences are not statistically significant. This finding is not unexpected since most Asian countries did not participate in PTAs until after 1998. Since then, however, PTAs have blossomed across Asia (Ravenhill 2003; Katada and Solis 2008). As such, we expect that this regional difference has probably attenuated of late.

Perhaps the most surprising cross-regional finding is that European states – both Eastern and Western – have formed PTAs less frequently than countries in various other regions. However, it is important to recognize that Eastern European countries were part of the Warsaw Pact for most of the time period examined in this study. They only began seeking out other PTA partners after the Soviet Union collapsed. Equally, various Western European countries have granted unilateral preferences to their former colonies through agreements such as the Lomé Convention. These PTAs are not included in our data, since our theory pertains to agreements in which all of the participants make trade concessions. This also helps to explain why our results indicate that states are less likely to form PTAs with their former colonies than other states (since the estimated coefficient of *Former Colony_{ij}* is always negative and statistically significant).

Turning to the systemic variables, which cannot be estimated when we include year-specific effects in the model because they are perfectly predicted by these effects, there continues to be evidence of the diffusion of PTAs and that the odds of ratifying such an arrangement rose in the Cold War's aftermath. The estimated coefficient of *Post-Cold War* is positive and statistically significant in each instance. So too is the coefficient of *% Dyads Ratifying PTAs*, which indicates that PTA formation tends to cluster over time. This implies a global diffusion process. States may be either strategically conditioning their behavior on what their counterparts do or simply following the herd, an issue that we return to later.

PTAs are especially likely to form when hegemony erodes. The estimated coefficients of *Hegemony* are negative and statistically significant, indicating that the odds of ratifying a preferential arrangement rise as the portion of the world's output accounted for by the leading economy declines, except when dyad-specific fixed effects are introduced in the model. This result tends to give support to theories of hegemonic stability (Krasner 1976; Gilpin 1981). These results are interesting because many observers argue that the bipolar structure of the international system that marked the Cold War gave way to a unipolar system once the Soviet Union imploded (Wohlforth 1999), yet hegemony seems to inhibit PTA formation. One possibility is that our measure of hegemony reflects economic rather than political power and that economic hegemony inhibits PTAs whereas political-military hegemony promotes them. Another possibility, though, is that the effects of *Post Cold War* reflect the efforts by countries that were part of the Soviet orbit to become more tightly integrated into the global (especially the Western European) economy once the Berlin Wall fell and the Soviet Union collapsed. One way that these countries tried to accomplish this goal was by forming PTAs with each other and with the advanced industrial countries of Western Europe. Another international factor affecting PTAs is alliance relations. As expected, allies are more likely to form preferential arrangements than other states, and neither the size nor the strength of this relationship depends on whether we rely on the ATOP or the COW data.

In addition, our results in table 4 indicate that GATT/WTO membership promotes the ratification of preferential arrangements. That members of the multilateral regime are more likely to form PTAs than other states might seem surprising at first blush since this institution was intended to combat regionalism and bilateralism. However, the GATT's Article XXIV made specific provisions for such agreements and PTAs have flourished among members of this

regime. As shown in Table 4, the estimated coefficients of GATT Round and Time since last GATT Round are also positive and statistically significant. Consequently, states tend to form preferential arrangements during GATT/WTO rounds and long after they end. Taken together, these results suggest that PTAs are used strategically by GATT/WTO members. They form PTAs during rounds and on the eve of rounds (after some time has elapsed since the last one ended) to improve their bargaining position in GATT/WTO negotiations. It is often argued, for instance, that the US negotiated what became the NAFTA agreement due to frustration about the slow pace of the Uruguay Round; the US hoped that NAFTA would pressure other countries to advance the global trade agreement (Whalley 1993, 352). Features of the multilateral regime, in sum, have clear and important effects on the proliferation of PTAs. However, including these features has no influence on the observed effects of regime type or veto players.

It also might seem surprising that countries that already participate in the same PTA are more likely to form another one than states that are not PTA partners. But in 2005, for example, 1,126 country pairs were parties to two preferential agreements; 415 pairs to three PTAs; 82 pairs to four PTAs; 27 dyads to five PTAs; and three pairs to six PTAs. In 1976, for instance, Papua New Guinea and Australia inked a bilateral agreement, followed by both countries joining the South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA) in 1980. Singapore and New Zealand signed a bilateral agreement in 2000, after which both countries entered the Trans-Pacific Strategic Economic Partnership Agreement in 2005. In 1997, the Greater Arab Free Trade Agreement (GAFTA) was signed. Among the members were three countries (Morocco, Tunisia, and Libya) that were also in the Arab Maghreb Union, as well as six members (Iraq, Egypt, Syria, Yemen, Kuwait, and the United Arab Emirates) that were already joined under the Council of Arab Economic Unity (CAEU).

The results also show that contiguous states are unlikely to form PTAs. In combination with the observed effects of $Distance_{ij}$, this suggests that PTAs are most likely to form between states that are nearby but do not share a border. Finally, while many observers assume that PTAs are formed between a large, rich country and a small, poor one, our results indicate otherwise. The coefficient estimate of $GDP\ Ratio_{ij}$ is negative and statistically significant, implying that greater imbalances in national income discourage the ratification of PTAs. Since countries that are equally powerful may be better able to conclude agreements that involve reciprocal concessions, this result may not be that surprising. But the idea that most small countries are forced into PTAs with larger ones against their will does not seem to be borne out (Gruber 2000).

The effects of alliances, GATT/WTO membership, existing PTA membership, contiguity, hegemony, and the GDP ratio change in key ways when we introduce fixed effects in the model. This undoubtedly reflects the fact that the vast bulk of dyads (fully 84 percent of the country-pairs in our sample) never form a PTA. These dyads are not used to generate the parameter estimates because introducing fixed effects leads us to assume that none of the independent variables in our model except for the fixed effects influences the probability of these dyads ratifying a PTA. It is for this reason that Beck and Katz (2001, 487-99; King et al. 2001) warn that using fixed-effects models to analyze time-series cross-section data with a binary dependent variable is “pernicious” and yields “estimates that are so far off as to be completely useless.” This problem is exacerbated in our case because some independent variables – such as alliances and contiguity – display little change over time, even among the dyads that do form PTAs. These dyads are also excluded when estimating the coefficients of such variables. The upshot is that, given the sparseness of our data, very few dyads are used to estimate the model’s parameters when including fixed effects, and fewer still are used to estimate some coefficients.

There is no reason to expect that these few pairs are a representative sample of the population of all dyads. Consequently, while we have included some results based on a fixed-effects specification because certain studies advocate this modeling strategy (Green et al. 2001), we think it is prudent to view the results in columns three and four only with the greatest caution and to place primary emphasis on the remaining results in Table 2.

Our analysis shows that a wide variety of factors influence PTA formation. Yet, even after accounting for domestic economic conditions, regional factors, and international influences, we find strong evidence that regime type and veto players shape the political calculus of governments contemplating PTAs. Our argument is not that the effect of domestic politics is larger than that of all these other influences. In fact, some international factors have a more sizable impact than either regime type or veto players. Countries were almost three times as likely to enter a PTA after the Cold War, for example, as during this era. Equally, if the geographical distance between a pair of states is at the 90th percentile found in our data set, then they are about eight times less likely to form a preferential agreement than a pair whose distance is at the 10th percentile in the data. On the whole, however, the effects of GATT/WTO membership, alliances, trade, GDP, the change in GDP, conflict, existing PTA membership, and hegemony are roughly the same or smaller than those of regime type and veto players. Moreover, in light of the short shrift that the existing literature on PTAs has given domestic politics, the strong and fairly sizable impact of regime type and veto players is important.

Robustness Checks

At this point, we turn to a battery of supplemental tests that are intended to assess the robustness of our initial findings. First, it is important to determine whether our results are sensitive to the particular measure of veto players that is used. Thus far, we have analyzed

Henisz's (2000b, 2002) data and his measure of these players. As we discussed earlier, Beck et al. (2001, 2005) have developed an alternative measure, *Checks_i*, which emphasizes the extent of electoral competition, the number of domestic institutions that can check the chief executive, and the partisan differences across these institutions. To assess the robustness of our findings with respect to the measure of veto players, we replace *Veto Players_i* with *Checks_i*. As a result, this analysis spans the period 1975-2004 since Beck et al. do not provide data prior to 1975. In the first row of Table 3, we present the estimates of *Checks_i* and *Regime Type_i* based on this analysis. The remaining variables from the baseline model were included in this analysis, but are not presented in the table to conserve space and because there are few differences between their coefficient estimates in Table 2 and based on this analysis.

[Table 3 about here]

The results continue to indicate that states are increasingly unlikely to ratify PTAs as the number of veto players rises, since the estimated coefficient of *Checks_i* is negative and statistically significant. However, the quantitative influence of this variable is even larger than that of *Veto Players_i*. We again compare the predicted probability of state *i* forming a PTA when it has few veto players – which we define as the 10th percentile in the data – to the predicted probability when it has many such players – which we define as the 90th percentile in the data, holding constant the remaining variables in the model. Based on this analysis, a state with few *Checks_i* is about 55 percent more likely to ratify a PTA than one with more *Checks_i*.

Second, it is useful to address whether our results are sensitive to the particular measure of regime type that we are using. While *Regime Type_i* is particularly well-suited to testing our argument, the Polity Project has also developed an indicator of whether a given state holds competitive elections (Marshall and Jaggers 2005, 22). It is this feature of democracy that is

central to our argument because such elections increase the risk that leaders will be removed from office because of economic conditions that are actually beyond their control, thereby contributing to their interest in entering a PTA. We therefore replace *Regime Type_i* with *Competitive Elections_i*, which equals 1 if state *i* is coded by the Polity Project as holding competitive elections as of year *t*, 0 otherwise.¹² As shown in the second row of Table 3, the estimated coefficient of this variable is positive and statistically significant. It is also large. Holding constant the remaining variables in the model, states with competitive elections are approximately 27 percent more likely to join a PTA than other countries. Furthermore, as shown in the third row of this table, the estimated coefficient of *Competitive Elections_i* remains positive and significant (albeit smaller) even if we also include *Regime Type_i* and both dyad-specific and year-specific fixed effects. These results provide a very strong support for our argument that it is competitive elections that underlie the decision by democracies to enter preferential arrangements.

To further address the effects of regime type, we undertake a number of analyses. We begin by recoding *Regime Type_i* after excluding the constraints on the chief executive – which is one of the institutional features used to measure it – because these constraints may be closely related to the veto players that exist in a country. We would like to avoid including factors related to veto players in our measure of regime type. Next, we recode *Regime Type_i* as a dichotomous variable. Consistent with various studies, we consider state *i* to be democratic in year *t* and assign it a score of 1 if *Regime Type_i* ≥ 17 . Otherwise, we consider the state to be non-democratic and assign it a value of 0. We also analyze a different dichotomous measure of regime type developed by Adam Przeworski and his colleagues (Przeworski et al. 2000). The

¹² Formally, this variable equals 1 if the regulation of executive recruitment is coded as “regulated,” if the competitiveness of executive recruitment is coded as “elections,” and if the openness of executive recruitment is coded “open.”

results of these analyses are presented in the fourth, fifth, and sixth row of Table 3. They continue to provide strong evidence that democracy promotes the ratification of PTAs since the coefficient estimates of *Regime Type_i* remain positive and statistically significant.

Third, we analyze whether our results are being driven by the European Community (EC) and the European Union (EU), institutions that are composed of democratic members. We find, however, that excluding members of the EC/EU in the seventh row of Table 3 has little bearing on the estimated coefficients of *Regime Type_i* or *Veto Players_i* (or the remaining variables in the model). Fourth, we examine whether the rarity of PTAs affect our findings. As shown in the eighth row of this table, our results are virtually unchanged when we estimate the baseline model using a rare events logit specification (King and Zeng 2001). Fifth, we analyze whether the results are sensitive to our decision to include all instances in which a given pair of state form a PTA. As we explained earlier, the observed value of our dependent variable is 1 only in those years t when states i and j enter a PTA. We do not remove observations after the pair signed an agreement because various dyads established more than one arrangement during the period we analyze. In many cases, they formed a second PTA without terminating the first. Nonetheless, it is important to assess the implications of this modeling strategy. For any pair of states that form a PTA, we therefore eliminate every observation after the arrangement is established and then re-estimate the model. As shown in the ninth row of Table 3, the influence of regime type and veto players does not depend on whether we include or exclude these observations.

Sixth, we have analyzed all dyads for which data on the variables in the baseline model are available. However, it is useful to assess whether our results hold up after excluding cases where the flow of bilateral trade is reported as zero in a given year. We have relied on data on bilateral trade flows compiled by the IMF (*Direction of Trade Statistics*). That data set does not

distinguish between situations in which no trade was conducted by a pair of countries and cases where the pair did not report any trade to the IMF. As such, it is not clear how to interpret situations in which the flow of trade is zero in the data set. Moreover, those dyads that actually did not conduct any trade in a given year could be considered unimportant to the international trading system and particularly unlikely to form any type of PTA. In the tenth row of Table 3, we report the estimated coefficients of *Regime Type_i* and *Veto Players_i* after excluding dyad-years in which the value of bilateral trade is zero. Clearly, omitting these observations has little bearing on our earlier findings.

Seventh, the World Trade Institute (WTI) has compiled a data set on PTAs covering the period 1948-2007 (World Trade Institute 2009; Hufbauer and Schott 2009). There is a very high degree of agreement between this data set and ours. However, it includes a number of arrangements that are excluded from our list of preferential groupings, particularly partial scope agreements, which we do not consider PTAs. Nonetheless, we analyze whether adding the PTAs listed by the WTI that are not included in our data influences our results. As shown in the final row of Table 3, there is no evidence that including these arrangements has an effect.

Eighth, in our baseline model we found that the coefficient of *% Dyads Ratifying PTAs* was positive and statistically significant, indicating that PTAs may be marked by a global diffusion process. To further address this issue, we analyze the three other measures of diffusion described earlier. In Table 5, we report the results of tests in which *Regional PTA_i* (which is the number of PTAs in country *i*'s geographical region – excluding those arrangements country *i* is in – divided by the total number of countries in that region) and *Trade Partner PTA_i* (which is the total number of PTAs that the top ten trading partners of country *i* belong to, excluding those in which country *i* is a member) are added to the baseline model. We present the estimated

coefficients of these variables in table 5, as well as the coefficients of *Regime Type_i* and *Veto Players_i*; but we do not report the coefficients of the remaining variables to conserve space. The results provide further evidence that PTA formation is guided by diffusion. As a country's regional neighbors form PTAs (*Regional PTA_i*), the likelihood rises that it will enter one too, suggesting that diffusion pressures exist at the regional level. Furthermore, as a country's major trading partners sign more PTAs (*Trade Partner PTA_i*), the country grows more likely to ratify such an arrangement.

[Table 5 about here]

To further analyze this issue, we follow Baldwin and Jaimovich (2010) by including *Contagion_{ij}* and *Contagion_{ij}²* in our model. They find evidence of an inverted U-shaped relationship between their measure of contagion and PTA formation. As shown in the fourth column of Table 5, we find that this relationship is U-shaped since the estimated coefficient of *Contagion_{ij}* is negative and the estimated coefficient of *Contagion_{ij}²* is positive. The differences between Baldwin and Jaimovich's results and ours may stem from the fact that their study covers fewer (113) countries and a shorter time frame (1977-2005). It may also stem from collinearity between *Contagion_{ij}*, on the one hand, and *Trade_{ij}*, *Alliance_{ij}*, and *Distance_{ij}*, on the other. When these three variables are dropped from the model, we find that the relationship between *Contagion_{ij}* and PTA ratification has an inverted U-shape.

Furthermore, although there seems to be some indication of diffusion pressures through trade competition, it is important to interpret these results cautiously. The trade shares that help to make up both *Trade Partner PTA_i* and *Contagion_{ij}* are likely to be affected by PTA formation. Even though the effects of these variables on *PTA Ratification_{ij}* are lagged by a year, trade flows tend to be relatively sticky and to change only gradually from one year to the next. This, in turn,

raises the specter of a simultaneity bias that complicates any effort to draw firm conclusions about the effects of diffusion and contagion pressures on the formation of preferential groupings (Baldwin and Jaimovich 2010, 12). Of central importance for present purposes, however, is that adding these three measures of diffusion has no bearing on the observed effects of regime type or veto players. Regardless of which measure is analyzed, the estimated coefficient of *Regime Type_i* is positive, that of *Veto Players_i* is negative, and both of them are statistically significant.

Ninth, we include a variable indicating whether state *i* was a post-Communist regime, as of year *t*-1. Various countries in Eastern Europe and the former Soviet Union rushed to enter PTAs during the 1990s and 2000s and we want to ensure that these states are not driving our results. However, this is not the case. The estimated coefficient of *Communist_i* is not statistically significant and including this variable has very little bearing on our other results (Kornai 1992; US Central Intelligence Agency ; US Department of State).

Tenth, we examine whether accounting for the similarity of foreign policy preferences between states *i* and *j* affects our results. Signorino and Ritter (1999) argue that the *S score_{ij}*, which is a measure of the similarity of UN voting patterns between states *i* and *j*, provides a reliable estimate of the extent of such similarity. As such, it is not surprising that the coefficient of this variable is positive and statistically significant, indicating that states with more similar foreign policy preferences are especially likely to enter into PTAs. But adding this variable has no impact on the observed effects of regime type and veto players.

Thus far, we have treated the effects of regime type and veto players as linear. Finally, we analyze whether these factors have an interactive effect on PTA ratification. In fact, we find no evidence of this sort. When we add *Regime Type_i × Veto Players_i* to the baseline model, its estimated coefficient is neither large nor statistically significant. The results indicate that

regardless of the number of veto players, more democratic countries have a greater probability of ratification than less democratic states. Regardless of the country's regime type, a rising number of veto players always reduces the probability of ratification. As such, treating the effects of regime type and veto players as linear seems reasonable.

Conclusions

Preferential trading arrangements have become increasingly important features of the international economy. In this article, we have argued that domestic politics plays a central role in the formation of these arrangements.

First, a country's regime type affects its propensity to enter a PTA: democracies are more likely to accede to these arrangements than other states. National leaders face the prospect of being turned out of office when the economy performs badly because voters think that the head of state is either incompetent or engaged in excessive rent seeking when the downturn is actually due to factors beyond his or her control. Leaders lack domestic instruments that allow them to reassure voters that they are not captured by special interests and to provide information to voters about their economic policy. However, entering a trade agreement helps leaders to address these problems. Further, the PTA itself and member-countries have incentives to publicize deviations from the trade accord. Thus, some leaders have political reasons to enter such arrangements. Equally, leaders are more likely to rely on trade agreements to address these domestic political problems in more competitive political settings, where they can be turned out of office fairly easily. In other work, we show that political leaders in competitive systems last longer in office if they have signed a PTA. As such, chief executives of more democratic countries are particularly likely to sign PTAs. PTAs may then have a lot to do with political benefits, rather than just

economic ones, for leaders.

Second, one of the domestic impediments to entering a PTA is the transaction costs associated with ratifying the agreement. Trade accords involve the exchange of market access among countries. Some agreements also aim to coordinate members' trade regimes. These policy changes have domestic consequences. Certain groups gain from these barrier reductions; other groups lose. If these distributional losers have political clout, they can delay or block such policy change.

Veto players represent political interests other than the leader's party and have the institutional capacity to prevent change. Assuaging these groups can be time consuming and expensive. Leaders may have to alter the trade policy changes they would prefer and they may have to bribe veto players to gain their acquiescence. The more veto players that exist, therefore, the greater are the potential costs for leaders and the harder it is to gain the ratification of a PTA.

Based on a battery of tests covering all country pairs from 1950 to 2005, we find strong support for our hypotheses. States become more likely to ratify PTAs as they become more democratic and as the number of veto players shrinks. Both factors have a statistically significant and substantively important impact. Moreover, these results are quite robust.

Clearly, we need to be cautious in interpreting these findings. There could be variables that we did not include in our statistical models that influence either regime type or the number of veto players, on the one hand, and PTA formation, on the other. However, we have tried to account for as many of these variables as possible. Alternatively, PTA ratification may be affecting regime type or the number of veto players. Some scholars have argued that joining an international institution can help a country become more democratic (Pevehouse 2005). Yet it is hard to think of more than a small handful of cases where a PTA had an influence on a country's

domestic political institutions. Even in these cases, such change is likely to happen over a long period of time, not the short time periods that we analyze in this study.

In addition to domestic politics, economic conditions and international factors guide PTA formation. Eroding hegemony and the end of the Cold War have prompted states to form PTAs. Very distant states are unlikely to form PTAs, but so are states that are contiguous. States with a former colonial relationship seldom form (reciprocal) PTAs, but allies tend to form such arrangements. GATT/WTO members tend to enter PTAs, and countries tend to be more likely to ratify agreements with equals than with those of much greater or smaller capability. Global diffusion pressures are evident. But in addition to these influences, we find strong evidence that domestic politics has a strong and sizable impact on the proliferation of PTAs since World War II.

Table 1: Summary Statistics

| | N | Mean | Std. Dev. | Min | Max |
|--|---------|--------|-----------|---------|--------|
| PTA Ratification | 1246407 | 0.008 | 0.088 | 0 | 1 |
| Regime Type | 1077348 | 11.126 | 7.507 | 1 | 21 |
| Veto Players | 1178204 | 0.199 | 0.216 | 0 | 0.71 |
| Checks* | 822886 | 2.445 | 1.688 | 1 | 18 |
| Democracy (Polity >= 17) | 1077348 | 0.374 | 0.484 | 0 | 1 |
| ACLP democracy | 1126239 | 0.426 | 0.494 | 0 | 1 |
| Competitive election | 1041036 | 0.383 | 0.486 | 0 | 1 |
| Polity (excluding executive constraints) | 1041036 | -0.289 | 5.000 | -7 | 6 |
| Trade (logged) | 1212889 | -2.404 | 4.978 | -6.908 | 12.923 |
| GDP (logged) | 1185246 | 16.888 | 2.099 | 9.397 | 23.046 |
| Δ GDP (in \$100 billion) | 1171772 | 0.058 | 0.368 | -18.627 | 4.815 |
| Dispute (PRIO) | 1212889 | 0.001 | 0.031 | 0 | 1 |
| Dispute (MID) (COW) | 1136005 | 0.004 | 0.065 | 0 | 1 |
| Alliance (ATOP) | 1212889 | 0.097 | 0.296 | 0 | 1 |
| Alliance (COW) | 1048468 | 0.070 | 0.255 | 0 | 1 |
| Former Colony | 1246407 | 0.006 | 0.076 | 0 | 1 |
| Contiguity | 1170650 | 0.033 | 0.178 | 0 | 1 |
| Distance (logged) | 1203572 | 8.254 | 0.781 | 1.609 | 9.421 |
| Hegemony | 1212889 | 0.222 | 0.019 | 0.204 | 0.287 |
| GATT/WTO | 1212889 | 0.340 | 0.474 | 0 | 1 |
| GDP ratio | 1158018 | 2.374 | 1.792 | 0.000 | 13.635 |
| Existing dyadic PTA | 1246407 | 0.061 | 0.240 | 0 | 1 |
| % dyads ratifying PTA | 1246407 | 0.008 | 0.008 | 0 | 0.031 |
| Regional PTA | 1212889 | 0.624 | 0.785 | -0.053 | 4.759 |
| Trade partner PTA | 1212889 | 52.902 | 38.144 | 0 | 210 |
| Post-Cold War (1989-2004) | 1246407 | 0.457 | 0.498 | 0 | 1 |
| GATT round in progress | 1212889 | 0.553 | 0.497 | 0 | 1 |
| Time since last GATT round | 1212889 | 5.506 | 3.871 | 0 | 14 |
| UN S score | 1021264 | 0.703 | 0.274 | -0.714 | 1 |
| Contagion | 1056857 | 0.002 | 0.015 | 0 | 2.152 |
| Contagion squared | 1056857 | 0.000 | 0.010 | 0 | 4.632 |

* Data for this variable is only available from 1975-2004.

Table 2: The Estimated Effects of Regime Type, Veto Players, and other factors on PTA Ratification, 1951-2004.

| | Base model | Dyadic fixed effects | Dyad&year fixed effects | All variables lagged t-1 | COW alliance/MID |
|------------------------|----------------------|-------------------------|----------------------------|-----------------------------|----------------------|
| Regime Type | 0.028*** (0.003) | 0.051*** (0.004) | 0.032*** (0.004) | 0.008*** (0.003) | 0.029*** (0.003) |
| Veto Players | -0.575*** (0.095) | -1.115*** (0.114) | -0.977*** (0.120) | -0.240*** (0.088) | -0.578*** (0.101) |
| Existing PTA | 0.156*** (0.048) | -0.762*** (0.046) | -0.581*** (0.049) | 0.229*** (0.047) | 0.114** (0.054) |
| Trade (logged) | 0.016*** (0.003) | 0.013** (0.006) | 0.015** (0.006) | 0.018*** (0.003) | 0.011*** (0.004) |
| GDP (logged) | 0.027** (0.013) | 0.137** (0.055) | 0.541*** (0.064) | 0.024* (0.013) | 0.053*** (0.015) |
| ΔGDP (in 100 billion) | -0.065** (0.030) | -0.066** (0.031) | -0.035 (0.031) | -0.074** (0.030) | -0.100*** (0.020) |
| Dispute (PRIO) | 0.154 (0.253) | -0.228 (0.295) | -0.124 (0.302) | 0.158 (0.252) | |
| Dispute (MID) (COW) | | | | | -0.878*** (0.242) |
| Alliance (ATOP) | 0.491*** (0.062) | -0.642*** (0.057) | -0.405*** (0.059) | 0.465*** (0.060) | |
| Alliance (COW) | | | | | 0.468*** (0.069) |
| Former colony | -1.262*** (0.339) | | | -1.278*** (0.339) | -1.122*** (0.340) |
| Contiguity | -0.648*** (0.065) | 0.335 (0.401) | 0.651* (0.392) | -0.673*** (0.063) | -0.554*** (0.071) |
| Distance (logged) | -1.124*** (0.057) | | | -1.105*** (0.056) | -1.179*** (0.058) |
| Hegemony | -6.415*** (1.085) | 6.002*** (1.580) | | -6.051*** (1.070) | -6.546*** (1.104) |
| Post Cold War | 0.807*** (0.032) | 0.625*** (0.045) | | 0.804*** (0.032) | 0.821*** (0.033) |
| GDP ratio | -0.156*** (0.010) | 0.038 (0.048) | 0.011 (0.049) | -0.155*** (0.010) | -0.174*** (0.011) |
| % dyads ratifying PTA | 35.788*** (1.349) | 39.013*** (1.385) | | 37.232*** (1.310) | 45.173*** (1.383) |
| GATT/WTO | 0.139*** (0.030) | 0.059 (0.045) | 0.054 (0.048) | 0.161*** (0.029) | 0.063** (0.032) |
| South Asia | 0.040 (0.134) | | | -0.093 (0.130) | -0.218 (0.138) |
| Middle East & N Africa | 0.601*** (0.091) | | | 0.381*** (0.085) | 0.630*** (0.101) |

| | | | | | |
|------------------------|---------------------|------------|------------|---------------------|---------------------|
| Sub-Saharan Africa | 1.465*** (0.076) | | | 1.265*** (0.070) | 1.634*** (0.089) |
| Europe & Central Asia | 0.220** (0.086) | | | 0.130 (0.080) | 0.043 (0.106) |
| South America & Carib. | 0.817*** (0.094) | | | 0.759*** (0.089) | 0.871*** (0.108) |
| North/Central America | 0.399*** (0.085) | | | 0.337*** (0.079) | 0.391*** (0.100) |
| Western Europe | 0.062 (0.088) | | | 0.023 (0.083) | 0.080 (0.105) |
| Clusters | 32307 | | | 32322 | 32154 |
| Log-likelihood | -39109.006 | -20778.351 | -18117.637 | -40541.243 | -34020.249 |
| N | 1003363 | 182146 | 182146 | 1032040 | 915589 |

Note: Entries are logistic regression estimates with robust standard errors (clustered by dyad) in parentheses. Statistical significance is indicated as follows: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. All tests of statistical significance are two-tailed.

Table 3: Supplemental Tests of the Effects of Regime Type and Veto Players on PTA Ratification, 1951-2004.

| | Regime Type | | Veto Players | |
|--|-------------|---------|--------------|---------|
| | b | se | b | se |
| Checks (1975-2005) | 0.029*** | (0.003) | -0.109*** | (0.012) |
| Competitive Election | 0.239*** | (0.038) | -0.221*** | (0.082) |
| Competitive Election + Polity ^a | 0.324*** | (0.076) | -0.830*** | (0.125) |
| Polity (excl. XCONST) | 0.027*** | (0.005) | -0.335*** | (0.095) |
| Dem Dummy (Polity >= 17) | 0.384*** | (0.040) | -0.487*** | (0.088) |
| ACLP democ.dummy | 0.131*** | (0.043) | -0.265*** | (0.089) |
| No EC/EU | 0.027*** | (0.003) | -0.578*** | (0.095) |
| Rare Events | 0.028*** | (0.003) | -0.575*** | (0.095) |
| Only 1st PTA in Dyads | 0.034*** | (0.004) | -0.695*** | (0.117) |
| Exclude Zero Trade | 0.021*** | (0.004) | -0.273** | (0.116) |
| WTI RTAs | 0.026*** | (0.003) | -0.479*** | (0.093) |

Note: Entries are logistic regression estimates with robust standard errors (clustered by dyad) in parentheses. Statistical significance is indicated as follows: *** $p < 0.01$; ** $p < 0.05$. The remaining variables in model (4.1) are included when generating these estimates, but are omitted from the table to conserve space.

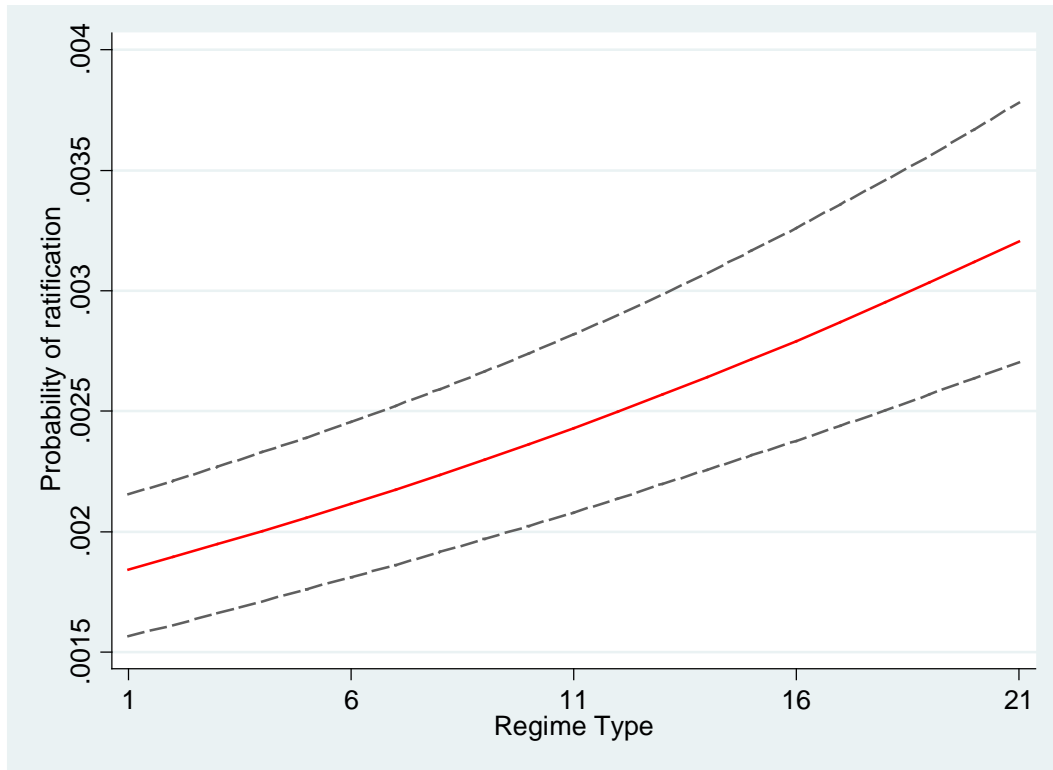
^a This model includes both Competitive Election and Polity, as well as both dyad-specific and year-specific fixed effects. The estimated coefficient listed in the column labeled Regime Type is that of Competitive Election. The estimated coefficient of Polity is 0.011, and the corresponding standard error is 0.006.

Table 4: Effects of Regime Type and Veto Players on PTA Ratification, Controlling for Regional Diffusion, Features of the GATT/WTO, and UN Voting, 1952-2004.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Regime Type | 0.028*** (0.003) | 0.029*** (0.003) | 0.027*** (0.003) | 0.026*** (0.003) | 0.032*** (0.003) | 0.027*** (0.003) | 0.036*** (0.004) |
| Veto Players | -0.594*** (0.096) | -0.637*** (0.095) | -0.540*** (0.095) | -0.431*** (0.094) | -0.449*** (0.095) | -0.582*** (0.095) | -0.625*** (0.125) |
| Region PTA | 0.055*** (0.021) | | | | | | |
| Trade partner PTA | | 0.002*** (0.000) | | | | | |
| GATT round in progress | | | 0.155*** (0.024) | | | | |
| Time since last GATT round | | | | 0.052*** (0.003) | | | |
| S score UN | | | | | 2.186*** (0.086) | | |
| Communist | | | | | | -0.098 (0.081) | |
| Contagion | | | | | | | -3.540** (1.753) |
| Contagion ² | | | | | | | 3.075*** (0.866) |
| Constant | 3.293*** (0.537) | 3.058*** (0.546) | 3.262*** (0.535) | 2.116*** (0.535) | -0.382 (0.586) | 3.448*** (0.533) | 5.488*** (0.570) |
| Clusters | 32307 | 32307 | 32307 | 32307 | 31689 | 32307 | 29422 |
| Log-likelihood | -39106.107 | -39091.591 | -39089.960 | -38966.679 | -35982.393 | -39107.227 | -24686.882 |
| N | 1003363 | 1003363 | 1003363 | 1003363 | 888357 | 1003363 | 875295 |

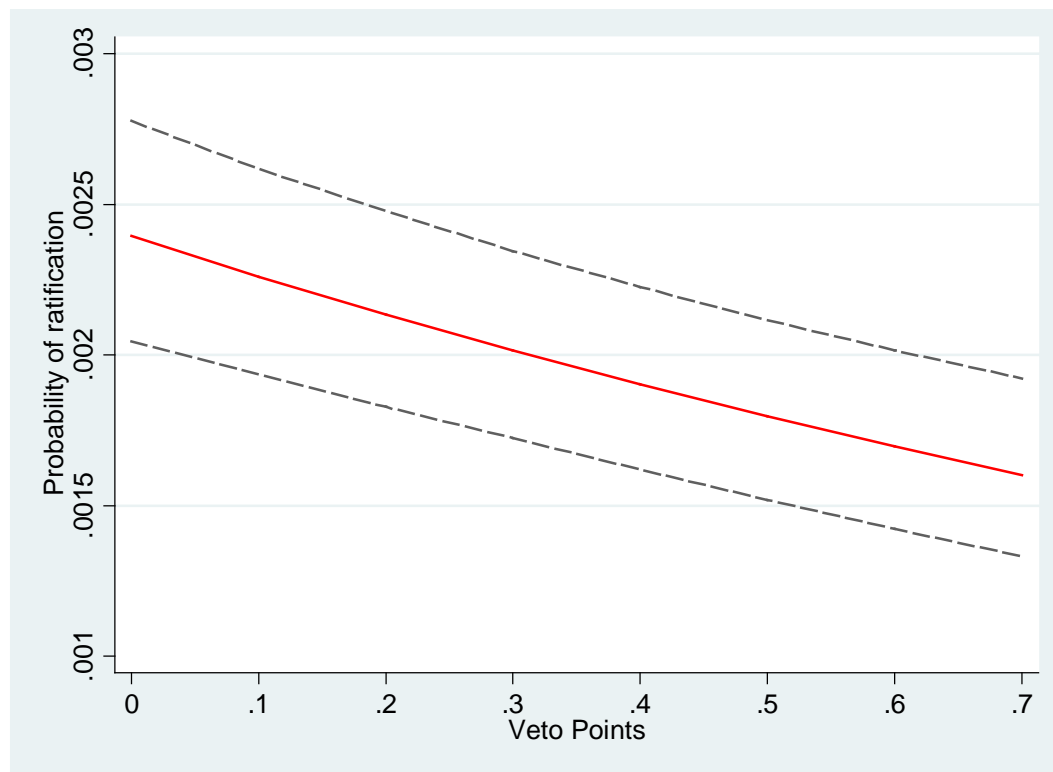
Note: Entries are logistic regression estimates with robust standard errors (clustered by dyad) in parentheses. Statistical significance is indicated as follows: *** $p < 0.01$. The remaining variables in model (4.1) are included when generating these estimates, but are omitted from the table to conserve space.

Figure 1: The Effect of Regime Type on the Probability of PTA Formation



Note: To compute these predicted probabilities, we use the estimates in the first column of Table 2. The continuous variables are set to their medians. *Post-Cold War* is set to 1 and the remaining dichotomous variables are set to 0.

Figure 2: The Effect of Veto Players on the Probability of PTA Formation



Note: To compute these predicted probabilities, we use the estimates in the first column of Table 2. The continuous variables are set to their medians. *Post-Cold War* is set to 1 and the remaining dichotomous variables are set to 0.

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