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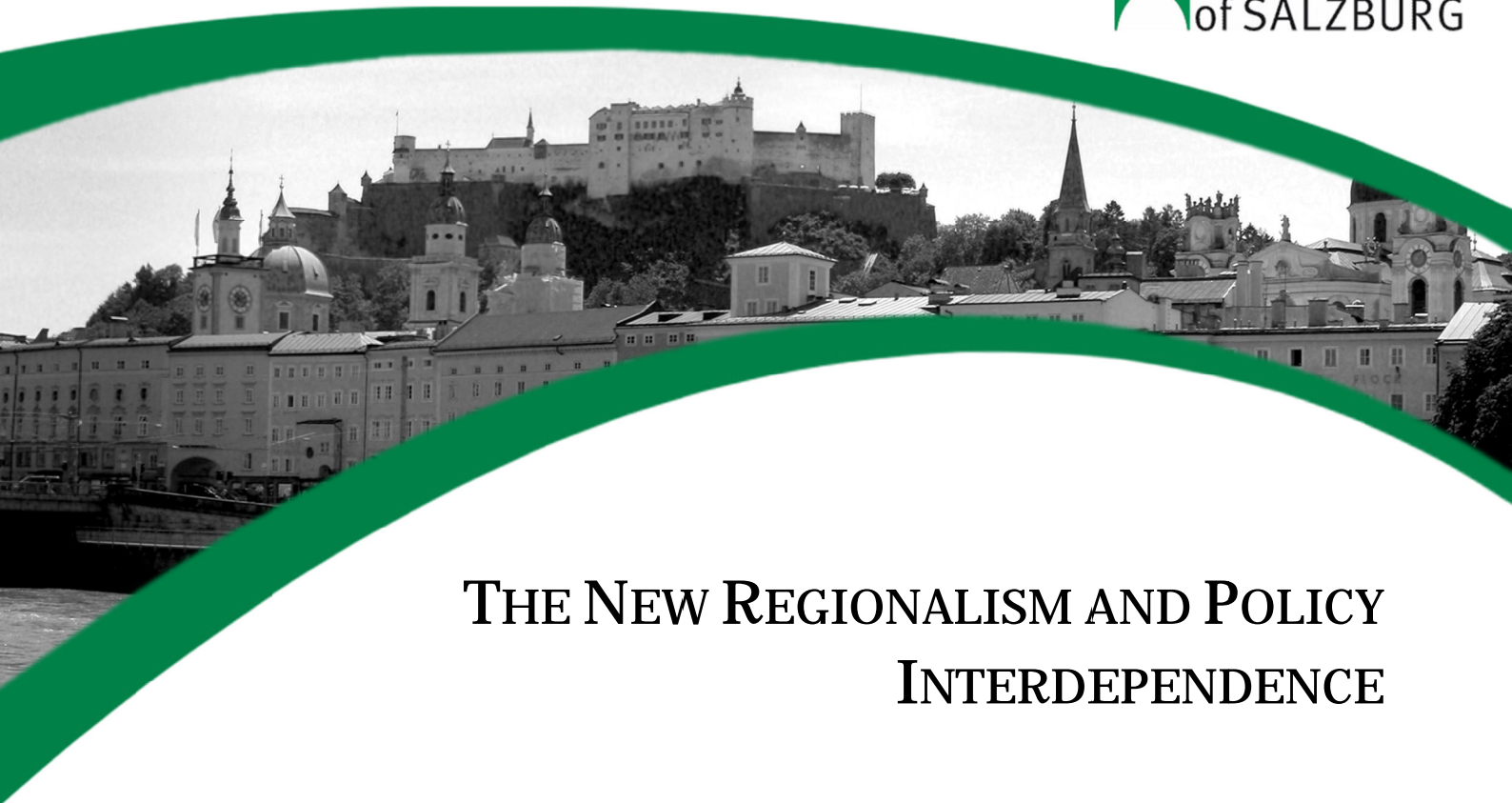
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# THE NEW REGIONALISM AND POLICY INTERDEPENDENCE

LEONARDO BACCINI AND ANDREAS DÜR

WORKING PAPER No. 2010-08

**WORKING PAPERS** IN  
**ECONOMICS AND FINANCE**

# **The New Regionalism and Policy Interdependence**

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## **Abstract**

Since 1990 the number of preferential trade agreements has increased rapidly. Our argument explains this phenomenon, known as the new regionalism, as a result of competition for market access. Exporters that face trade diversion because of their exclusion from a preferential trade agreement concluded by foreign countries push their governments into signing an agreement with the country in which their exports are threatened. We test our argument in a quantitative analysis of the proliferation of preferential trade agreements among 167 countries between 1990 and 2007. The finding that competition for market access is a major driving force of the new regionalism is a contribution to the literature on regionalism and to broader debates about global economic regulation.

## INTRODUCTION

Since the early 1990s, the world trading system has witnessed a sharp increase in the number of preferential trade agreements, leading to a phenomenon that is known as the “new regionalism”.<sup>1</sup> Although the exact number of preferential trade agreements that currently exist is disputed, most observers agree that roughly 350 of them have been signed over the last half century. The importance of this development for participating as well as excluded countries has stimulated a substantial scholarly literature that explains the spread of agreements with reference to a large number of factors. Among them are the stagnation of the process of multilateral trade liberalization, the search for economies of scale, the desire to signal commitment to specific trade and economic policies, and the protection of foreign direct investments. Some agreements are also seen to have been driven by the geopolitical interests of the participating countries.

We offer an explanation for the new regionalism that sees preferential trade agreements mainly as response to the preferential trade policies of other countries. In this view, countries excluded from an agreement try to avoid the negative consequences of trade diversion by signing new agreements.<sup>2</sup> The specific argument that we propose,

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<sup>1</sup> Edward D. Mansfield and Helen V. Milner, “The New Wave of Regionalism”, *International Organization*, 53(3) (1999), 589-627.

<sup>2</sup> See also: Kenneth Oye, *Economic Discrimination and Political Exchange: World Political Economy in the 1930s and 1980s* (Princeton: Princeton University Press, 1992). Richard E. Baldwin, “A Domino Theory of Regionalism”, NBER Working Paper No. 4465. Walter Mattli, *The Logic of Regional Integration: Europe and Beyond* (Cambridge: Cambridge University Press, 1999). Robert Pahre, *Politics and Trade Cooperation in the Nineteenth Century: The "Agreeable Customs" of 1815-1914* (Cambridge: Cambridge University Press, 2008).

which we label the protection-for-exporters argument, builds on the assumption that exporters lobby more against *certain* losses of foreign market access than in favour of *potential* opportunities.<sup>3</sup> Given this differential propensity to lobby, discrimination abroad is expected to lead to a shift in the balance between exporters and import-competitors in a country. A shift in the balance between these two interests, in turn, brings about changes in the trade policies pursued, that is, governments are now expected to implement trade policies to protect exporter interests. One way of doing so is to sign preferential trade agreements with countries that already form part of such agreements.

We test the protection-for-exporters argument against alternative explanations in a quantitative analysis of the proliferation of preferential trade agreements among 167 countries between 1990 and 2007. In carrying out this analysis, we introduce several improvements with respect to data and method to the quantitative literature on preferential trade agreements. For one, we have designed a test of the protection-for-exporters argument that captures the causal logic of countries responding to trade diversion as directly as possible. Second, we have established a new list of trade agreements, which represents an improvement on the datasets used in previous studies in terms of completeness and inclusion of recent agreements (up to and including 2007). Finally, we have exercised particular caution in controlling for alternative explanations to avoid overestimating the explanatory power of our own argument. The findings provide strong support for our argument. The choice by different countries to enter preferential

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<sup>3</sup> For this term, see Andreas Dür, *Protection for Exporters: Discrimination and Liberalization in Transatlantic Trade Relations, 1930-2010* (Ithaca: Cornell University Press, 2010).

trade agreements is indeed interdependent; and the degree of interdependence increases the larger the negative externalities from existing agreements.

Beyond speaking to the literature on regionalism in the world economy, we also strive to make a contribution to a growing number of studies on policy diffusion and policy interdependence.<sup>4</sup> Increasingly, scholars of international relations realize that dyads do not act in isolation, and try to model the interdependence among them.<sup>5</sup> For example, policy interdependence has been shown to be a driving force of the diffusion of bilateral investment treaties.<sup>6</sup> We add to this literature by taking seriously a recent call to accept that “space is more than geography” when operationalizing the impact that a dyad’s decision to pursue a trade agreement has on other dyads.<sup>7</sup> In particular, we pay attention to extra-dyadic relationships when calculating the degree of dependence between two observations.

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<sup>4</sup> Kristian S. Gleditsch and Michael D. Ward “War and Peace in Space and Time: The Role of Democratization”, *International Studies Quarterly*, 44(1) (2000), 1-29. Dietmar Braun and Fabrizio Gilardi “Taking ‘Galton’s Problem’ Seriously: Towards a Theory of Policy Diffusion”, *Journal of Theoretical Politics*, 18(3) (2006), 298-322. Robert J. Franzese and Jude C. Hays, “Spatial Analysis”, in Janet M. Box-Steffensmeier, Henry E. Brady and David Collier, eds, *Oxford Handbook of Political Methodology* (Oxford: Oxford University Press, 2008), pp. 570-604.

<sup>5</sup> Thomas Plümper and Eric Neumayer “Model Specification in the Analysis of Spatial Dependence”, forthcoming in *European Journal of Political Research*, (2010).

<sup>6</sup> Zachary Elkins, Andrew T. Guzman and Beth A. Simmons, “Competing for Capital: The Diffusion of Bilateral Investment Treaties, 1960-2000”, *International Organization*, 60(4) (2006), 811-46.

<sup>7</sup> Nathaniel Beck, Kristian Skrede Gleditsch and Kyle Beardsley, “Space Is More Than Geography: Using Spatial Econometrics in the Study of Political Economy”, *International Studies Quarterly*, 50(1) (2008), 27-44.

Our paper also is of relevance for broader debates about the governance of international economic relations. In fact, preferential trade agreements are far more than agreements that regulate trade in goods. Many of the more recent agreements encompass hundreds of pages of detailed rules on a variety of topics such as intellectual property rights, investments and standard setting. That such far-reaching agreements are often signed in reaction to the agreements concluded by other countries is a significant finding. It shows that governments tie their hands on a large number of topics because the country's dependence on foreign markets compels them do so. Our assessment of the new regionalism hence is far less benign than the one reached by scholars in the neoliberal institutionalist tradition that see the spread of trade agreements as an expression of functional international cooperation.

#### THE PROTECTION-FOR-EXPORTERS ARGUMENT

Over the last twenty years, the number of dyads forming part of a preferential trade agreement has increased sharply (see Figure 1). While in 1990 only 244 pairs of countries had a preferential trade agreement between them, the number stood at 2160 in 2007.<sup>8</sup> With 13,861 dyads in our dataset in 2007, this means that 15.6 percent of all dyads have a preferential trade link.<sup>9</sup> In terms of number of actual agreements, we consider 228 trade agreements that were signed between 1990 and 2007. This number is composed of 167 bilateral, 59 plurilateral, and two inter-regional (the Andean Community-Mercosur agreement signed in 2004 and the European Free Trade Association-Southern African

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<sup>8</sup> Below we provide a detailed explanation of how we arrive at these numbers.

<sup>9</sup> Since some countries, for example states in the area of the former Soviet Union, enter the dataset later than 1990, the number of dyads varies between 10,296 and 13,861.

Customs Union agreement signed in 2006) agreements. Among the plurilateral agreements, we coded 40 agreements between a regional trading entity and an individual country. These are agreements signed by trading entities such as the Caribbean Community, the European Free Trade Association (EFTA), the EU, and Mercosur with third countries. Finally, we coded accessions by countries to existing agreements such as the EU, the Common Market of Eastern and Southern Africa, and the Central European Free Trade Agreement.

#### FIGURE 1 APPROXIMATELY HERE

Owing to its large number of member countries and agreements concluded with third countries (we have 23 such agreements in the database, some of which have been superseded by accession agreements), the European Union (EU) accounts for a sizeable number of the dyads with trade agreements. While the EU's increasing membership and continued attractiveness as partner for preferential trade agreements is itself support for our argument, the process that we aim to explain is not limited to the EU. Our data show that across the world, the number of agreements being signed has increased over the last two decades. In particular, a growing number of South-South agreements and agreements involving Asian countries have come into existence over the last few years.

What explains this proliferation of preferential trade agreements across the world? The protection-for-exporters argument that we set out to respond to this question builds



on a series of studies on the external effects of preferential trade agreements.<sup>10</sup> Common to these studies is the assumption that preferential trade policies hurt outsiders by way of trade diversion.<sup>11</sup> When witnessing the costs, outsiders react, either by joining a preferential trade agreement or by setting up an alternative one. Over time, this leads to the spread of preferential trade agreements. While so far most studies that developed this argument have treated states as unitary actors, our explanation provides domestic underpinnings for this logic. As will become evident, basing the argument in domestic politics changes expectations about policy outcomes. Following a statist approach, an excluded country reacts to a preferential trade agreement between foreign countries whenever the costs from trade diversion exceed the gains that it may reap from the agreement, for example because of accelerated economic growth in the preferential trading area. By contrast, following our political economy argument, an excluded country reacts even if it gains in the aggregate, as long as the costs are large enough for a group of exporters to engage in political activity.

The protection-for-exporters argument starts with the assumption that trade policy-making is shaped by competition between two constituencies, namely exporters and import-competitors. Exporters benefit from better foreign market access and import-

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<sup>10</sup> See, for example, Oye, *Economic Discrimination and Political Exchange*. Baldwin, 'A Domino Theory of Regionalism'. Mattli, *The Logic of Regional Integration*.

<sup>11</sup> For the concept of trade diversion, see Jacob Viner, *The Customs Union Issue* (New York: Carnegie Endowment for International Peace, 1950). A more recent discussion of trade diversion and other economic consequences of the creation of a preferential trade agreement is provided by Arvind Panagariya, "Preferential Trade Liberalization: The Traditional Theory and New Developments", *Journal of Economic Literature*, 38(2) (2000), 287-331.

competitors from continued protection of their sector against foreign competition. While potentially both trade policy constituencies can engage in lobbying, asking politicians to consider their interests when implementing trade policies, we assume that exporters often fail to become politically active. Exporters are likely to face uncertainty with respect to the potential benefits from engaging in lobbying for better foreign market access because they tend to not only have little information about, but also underestimate the potential opportunities they may be missing in a foreign market.<sup>12</sup> Moreover, even if they are aware of a missed opportunity, they face uncertainty about the willingness of a foreign government to reduce its trade barriers in exchange for concessions.<sup>13</sup> The uncertainty is even further enhanced by the fact that trade negotiations tend to take place over a substantial period of time, making it difficult to know the competitive situation of an exporter at the time the agreement enters into effect. As a result, for an exporter it is difficult to predict whether she or rather another exporter from the same country will reap the potential benefits of better foreign market access. In the case of plurilateral or multilateral agreements, the benefits of trade liberalization may even go to an exporter from another country.<sup>14</sup> In short, it can be expected that uncertainty inhibits exporters'

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<sup>12</sup> T.N. Srinivasan and Jagdish Bhagwati "Outward-Oriented and Development: Are Revisionists Right?", in Lal Deepak and Richard H. Snape, eds, *Trade Development and Political Economy. Essays in Honor of Anne O. Krueger* (Houndmills: Palgrave, 2001), 3-26, p. 14.

<sup>13</sup> There is also the uncertainty of whether they will be able to convince their own government to pursue their preferences, but this uncertainty is shared by import-competitors.

<sup>14</sup> Judith Goldstein and Lisa Martin "Legalization, Trade Liberalization, and Domestic Politics: A Cautionary Note", *International Organization* 54(3) (2000), 603-32, pp. 607-08.

lobbying for gains. Only few exporters will manage to become politically active, ensuring that the balance of domestic interests is biased in favour of import-competing interests.

Exporters' incentives to mobilize are substantially different when facing losses, caused, for example, by the creation of a preferential trading arrangement among foreign countries that leads to trade diversion.<sup>15</sup> In this situation, rather than having to invest in monitoring foreign markets to gather information about export opportunities, they can simply react in a fire-brigade manner to any losses they experience from the trade policy choices of foreign countries. Moreover, they can be quite certain about the consequences of their lobbying activity. If they manage to achieve the re-establishment of the market conditions that existed before the creation of the preferential trade agreement, they should be able to regain their share of that market. Exporters' uncertainty of lobbying against losses, consequently, should be lower than the uncertainty of lobbying for gains. The expectation derived from this reasoning, then, is that a stronger lobby effort by exporters should be visible in response to losses than in pursuit of potential gains.<sup>16</sup>

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<sup>15</sup> This effect does not depend on trade diversion exceeding trade creation, since the benefits from trade creation will accrue to a set of actors within the preferential trade agreement, and not to exporters in excluded countries.

<sup>16</sup> The same expectation of mobilization against losses can be derived from prospect theory. See Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk", *Econometrica* 47(2) (2004), 263-91; and Maria Fanis, "Collective Action Theory meets Prospect Theory: An Application to Coalition Building in Chile", *Political Psychology*, 25(3) (2004), 363-88. According to prospect theory, actors are more willing to engage in risky behaviour if they expect losses. While in this paper we cannot empirically test prospect theory against our uncertainty-based argument for lobbying against losses, we find the latter approach theoretically more appealing in the context of other actors (governments) that are assumed to act rationally.

Ample evidence exists for such changes in the balance of domestic interests in response to discrimination abroad. For example, in Japan, import-competing interests, which oppose preferential trade agreements, dominated trade politics throughout the 1990s. Their influence was only broken when Japanese exporters mobilized in response to losses abroad.<sup>17</sup> In particular, they became active in lobbying against discrimination in Mexico and Chile, two countries that had signed agreements with both the United States (U.S.) and the EU. In Mexico, similarly, while import-competing interests dominated throughout the 1980s, this changed in response to the discrimination that emanated from the conclusion of the U.S.-Canada Free Trade Agreement in 1988.<sup>18</sup>

What effect does such a shift in the balance of domestic interests have on trade policy choices? We assume that a government, independent of whether it is democratically legitimized or not, will take into account the balance of domestic interests when formulating its trade policy, even if domestic interests do not perfectly translate into government policies.<sup>19</sup> The balance of domestic interests is an important

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<sup>17</sup> Mireya Solis “Japan’s Competitive FTA Strategy: Commercial Opportunity versus Political Rivalry”, in Mireya Solis, Barbara Stallings and Saori N. Kafada, *Competitive Regionalism: FTA Diffusion in the Pacific Rim* (Houndsmills: Palgrave, 2009). Mark Manger, *Investing in Production: The Politics of Preferential Trade Agreements Between North and South* (Cambridge: Cambridge University Press, 2009).

<sup>18</sup> Lloyd Gruber, *Ruling the World: Power Politics and the Rise of Supranational Institutions* (Princeton: Princeton University Press, 2000), pp. 95-121.

<sup>19</sup> This assumption is common to a large number of studies in the field of International Political Economy. See, for example, Helen V. Milner, *Resisting Protectionism: Global Industries and the Politics of International Trade* (Princeton: Princeton University Press, 1988); Michael J. Gilligan, *Empowering Exporters: Reciprocity, Delegation and Collective Action in American Trade Policy* (Ann Arbor: The

consideration for decision-makers because organized interests that are dissatisfied with government policy may reduce their support for government and/or increase their backing for the opposition, thus threatening decision-makers' hold on office. Among the many tactics open to interest groups to influence election campaigns are reducing or increasing campaign contributions and policy-relevant information. They can also make use of outside lobbying that aims at alerting public opinion to a specific issue, which in turn may shape a candidate's chances of re-election. In 2010, for example, U.S. business lobbies such as the Business Roundtable or the National Association of Manufacturers engage in public campaigns that stress the loss of jobs resulting from the U.S. failure of ratifying trade agreements with South Korea and Colombia.

The expectation hence is for governments to pursue policies that satisfy import-competing interests in the absence of foreign discrimination. By contrast, in the presence of foreign discrimination, the government is no longer only attentive to the interests of import competitors, but also concerned about the protection of exporter interests. In this situation, the country should enter into negotiations for a trade agreement with the country in which exporters face losses of market access. In the cases presented above, Japan concluded preferential trade agreements with Mexico (2004) and Chile (2007), and Mexico joined the U.S. and Canada in the creation of the North American Free Trade Agreement (1992).

The strength of the protection-for-exporters effect depends on the amount of trade diversion that an agreement between two countries causes for an excluded country. The

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University of Michigan Press, 1997); Kerry A. Chase, *Trading Blocks: States, Firms and Regions in the World Economy* (Ann Arbor: The University of Michigan Press, 2005).

larger the trade diversion, the more politically active we expect exporters to be, and the more eager the government of an excluded country should be to sign an agreement with the member country in which it faces discrimination. To clarify, the likelihood of an agreement between two countries is not simply a function of the *number* of agreements that these countries have signed with third countries but of the agreements' cumulative *discriminatory effect*. In other words, preferential trade agreements should *not* have an effect on the trade policy choices of excluded countries *unless* they generate trade diversion. If we were to see that preferential agreements spread to countries that do not suffer from trade diversion, this would be an indication that an alternative diffusion mechanism is at play, a question that we take up below.

While so far we have only explained changes in *individual* countries' preferences with respect to signing a preferential trade agreement, the successful conclusion of trade negotiations requires the *agreement between at least two countries*. Why would a member country of a preferential agreement accept the conclusion of a trade agreement with an excluded country? Our argument is that the member country will accept an agreement only if its exporters face discrimination in the excluded country and hence are also politically active (the inverted logic). Following this logic, for example, the EU-Mexico agreement (2000) came about because both the EU faced discrimination in Mexico and Mexico in the EU.<sup>20</sup> The argument thus can be formulated in form of the following hypothesis:

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<sup>20</sup> The Chile-U.S. example provided in the section on operationalization below further illustrates this idea.

*Hypothesis:* The more discrimination that countries A and B face in each other's markets, the higher the probability of a preferential trade agreement between them.

Any explanation relying on such a snowball or domino effect begs the question of why the initial event comes about, in this case, why the initial agreement was signed. In line with the protection-for-exporters argument, we suggest that in some cases governments may be able to design an agreement that imposes costs on third countries rather than domestic import-competing interests.<sup>21</sup> In such a case, in the absence of opposition from import-competitors, governments may find it beneficial to conclude an agreement. An initial agreement may also come about between adjacent countries, since here exporters' uncertainty about the potential benefits of trade liberalization is likely to be at its most minimal. For some of the initial agreements, an explanation may also require consideration of factors exogenous to the argument, such as the geopolitical interests of countries.

Countries could also be expected to conclude preferential trade agreements in a pro-active manner because they expect to benefit from the external effect that we describe here. In fact, there are some historical examples of countries using preferential trade agreements to put pressure on third countries. Some evidence suggests that the U.S. used the threat of preferential liberalization as part of the Asia Pacific Economic Cooperation

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<sup>21</sup> Gene M. Grossman and Elhanan Helpman, "The Politics of Free Trade Agreements", *American Economic Review*, 85(4) (1995), 667-90, p. 680.

(APEC) to force the EU into accepting the conclusion of the Uruguay Round.<sup>22</sup> The empirical record, however, suggests that in most cases decision-makers do not anticipate the external consequences of a preferential trade agreement. In some cases, they even were surprised by these effects. Few observers, for example, predicted that the deepening of European integration in the 1980s would have a pull effect on third countries.<sup>23</sup>

Although we have formulated our argument using the example of *bilateral* agreements, the logic also applies to *plurilateral* preferential agreements. For exporters in third countries, the effects of plurilateral and bilateral agreements are similar, with the only major difference being that a plurilateral agreement threatens access to several markets at the same time. The larger the pull effect of an agreement between countries A, B, C, and D on excluded country E, the larger the number of markets in which E faces discrimination. The precise reaction of country E to this plurilateral agreement will depend on its export interests. If it only faces discrimination in one country, it will conclude a bilateral agreement with that country.<sup>24</sup> If it faces discrimination in more than one market, however, it may decide to join the existing agreement.

In solely concentrating on the probability of a negotiated agreement between an excluded and a member country, we ignore three alternative courses of action that an aggrieved country could pursue. For one, it may threaten retaliation against countries that engage in preferential trade policies. When the European Union moved towards a

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<sup>22</sup> Michael Richardson, "Pacific Leaders Are Urged Push EC in GATT Talks", *The International Herald Tribune*, 2 November 1993.

<sup>23</sup> Brian T. Hanson, "What Happened to Fortress Europe? External Trade Policy Liberalization in the European Union", *International Organization*, 52(1) (1998), 55-85.

<sup>24</sup> This option is not available if the existing agreement is a customs union, as is the case for the EU.



deepening of integration in the late 1980s, the U.S. responded with threats to all proposals that had the potential of imposing costs on its exporters. The Deputy Secretary of State, John C. Whitehead, for example, referred to the U.S.'s "potent retaliation ability", to counter discrimination in the EC.<sup>25</sup> However, only structurally powerful countries can make use of such threats. Weaker countries responded to the Single Market Program with requests for bilateral agreements, a response that we capture with the argument presented here.

A second possible reaction to discrimination is a call for multilateral trade liberalization. Again, the U.S. response to European integration best illustrates this tactic. The creation of the European Economic Community in the late 1950s caused concern among American exporters. Instead of signing a preferential agreement with the new trading entity, the U.S. used the Kennedy Round of world trade negotiations (1964-67) to reduce discrimination resulting from the European move. Finally, a government may decide to compensate exporters that face costs from trade diversion by way of a subsidy. World trade rules, however, impose strict limits on the use of subsidies; moreover, governments violating these rules have to fear the imposition of countervailing duties, which are explicitly allowed by World Trade Organization (WTO) rules.<sup>26</sup> Disregarding these alternative tactics, which may all be driven by the aim of protecting exporter interests in the face of foreign discrimination, leads us to underestimate the external effect of preferential trade agreements.

## DATA AND OPERATIONALIZATION

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<sup>25</sup> *National Journal*, 29 October 1988, 2729.

<sup>26</sup> Countervailing duties can also be imposed by, and against, countries that are not members of the WTO.

Several qualitative case studies have shown the plausibility of the argument that countries respond to discrimination from preferential trade agreements. By contrast, only few studies have tried to quantitatively test the idea.<sup>27</sup> While these studies provide interesting insights, they are characterized by a series of shortcomings. Early quantitative studies, for example, did not explicitly model the spatial interdependence at the heart of the theoretical argument. More recent studies that do so either restrict the analysis to a small sample of countries or use a very rough proxy for the potential trade diversion caused by an earlier agreement.<sup>28</sup> Our aim is both to build on and to go beyond this literature by designing a test that captures the trade diversion logic that underlies our argument as closely as possible, establishing an up-to-date list of trade agreements, and controlling for alternative diffusion mechanisms.

Our database of preferential trade agreements covers 167 countries and all years from 1990 until 2007. Three reasons made us limit the analysis to agreements concluded from 1990 onwards: first, as is evident from Figure 1 above, relatively few agreements

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<sup>27</sup> Among the few quantitative studies are Edward D. Mansfield, “The Proliferation of Preferential Trading Agreements”, *The Journal of Conflict Resolution*, 42(5) (1998), 523-43; Mark Manger, “The Political Economy of Discrimination: Modelling the Spread of Preferential Trade Agreements”, paper prepared for presentation at the inaugural meeting of the International Political Economy Society, 17-18 November 2006; Roland Rieder, “Playing Dominoes in Europe: An Empirical Analysis of the Domino Theory for the EU, 1962-2004”, *HEI Working Paper* No. 11/2006; and Peter Egger and Mario Larch “Interdependent Trade Agreement Memberships: An Empirical Analysis”, *Journal of International Economics*, 76(2) (2008), 384-99.

<sup>28</sup> Rieder, “Playing Dominoes in Europe”, restricts the analysis to 25 developed countries. Manger, “The Political Economy of Discrimination”, and Egger and Larch, “Interdependent Trade Agreement Memberships”, rely on distance as a proxy for trade diversion.

were signed between 1945 and 1990. By including these years, we would capture little additional variation in our dependent variable. Second, if the dataset were to be extended to the years prior to 1990, we would most likely overestimate the degree of spatial interdependence. This is so because, as explained below, in our measure of spatial interdependence we include the dependent variable, lagged by one year. As the other two variables that are included in this measure (namely, trade and trade competition) vary little over time, we would potentially face a serious problem of auto-correlation if we considered a longer time period. Third, our decision to limit the time period was also driven by the practical problems of calculating spatial weights in a dataset that would increase to more than 500,000 observations if we considered all years since the 1950s and of finding reliable data (in particular, dyadic and sectoral trade data) for all countries in earlier years.

With respect to country coverage, we have tried to include as many countries as possible in our analysis. Nevertheless, we have had to exclude some (mostly small) countries owing to data restrictions, for example in the Caribbean region (Antigua and Barbuda, Saint Kitts and Nevis) but also the Republic of China (Taiwan). This leads to the elimination of a few dyads with preferential trade agreements. We also exclude Montenegro as it only came into existence in 2006 and, hence, would have been in the database for only two years. A few other countries that became independent after 1990 enter the database in the year of their independence. In total, we consider up to 13,861 dyads per year for a total number of 235,007 observations. The dyads included in the analysis are non-directional, that is, we do not distinguish between the country pair Albania-Argentina and the reverse country pair Argentina-Albania. Doing so makes sense

since we expect that an agreement only comes about if there is an incentive for both sides to engage in and conclude trade negotiations. Even if there is significant pressure on one side a preferential trade agreement may not be signed if the other side feels no pressure to do so.

For each dyad, we coded whether or not it signed a trade agreement in a specific year. Opting for the year of signature rather than the year of entry into force of an agreement makes sense as signing an agreement is an important indication that governments respond to exporter lobbying. The year of signature is also important for the effect that agreements have, since it is in this moment that we expect exporters in third countries to start worrying about the expected negative consequences for them. We invested substantial effort in establishing a comprehensive and up-to-date list of trade agreements signed between 1990 and 2007. Largely (but not solely) relying on three different databases, namely the list of regional trade agreements notified with the WTO, the Tuck Trade Agreements Database, and the McGill Faculty of Law Preferential Trade Agreements Database, but excluding agreements that do not include concrete steps towards the establishment of a preferential trading area, we find that 1,916 dyads formed a preferential trade agreement between 1990 and 2007.<sup>29</sup> This data on membership in

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<sup>29</sup> These databases are available at [http://www.wto.org/english/tratop\\_e/region\\_e/summary\\_e.xls](http://www.wto.org/english/tratop_e/region_e/summary_e.xls); <http://www.dartmouth.edu/~tradedb/>; and <http://ptas.mcgill.ca/>. We also relied on other sources, such as [www.bilaterals.org](http://www.bilaterals.org), to get a full list of agreements signed more recently [all pages last accessed on 12 February 2010]. It should be noted that we coded countries joining the EU as signing up to all trade agreements that the EU forms part of at the time of accession. This is legally correct and appropriate in the context of our study; however, it biases results *against* our argument as a country such as Hungary that joined the EU in 2004 may have had little interest in an agreement with Mexico or Chile.

preferential agreements is significantly more comprehensive than that used in similar studies.<sup>30</sup>

We do not consider new agreements signed between two countries that already have a preferential link.<sup>31</sup> This is a significant restriction especially for European dyads, many of which have participated in a stepwise deepening of integration. In addition, many bilateral agreements between the European Union and third countries across Europe were later converted into accession treaties. All Central and Eastern European countries, for example, signed bilateral free trade agreements with the EU in the 1990s. Our decision to limit ourselves to the analysis of the first agreement between two countries leads us to disregard the accession of twelve of these countries to the EU between 2004 and 2007. While such a deepening of integration can have effects similar to those captured by our theoretical argument (and can be a reaction to preferential trade agreements among third countries), we decided to exclude these cases from our analysis to secure unit homogeneity, as the political economy of deepening an agreement may be different from the political economy of an initial agreement.

The decision to limit ourselves to the analysis of the first agreement between two countries also requires us to drop country pairs from the analysis that already formed part

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<sup>30</sup> Egger and Larch, “Interdependent Trade Agreement Memberships”, p. 389, for example, only distinguish 127 agreements over a period of 50 (1955 to 2005) years, while we were able to identify 228 agreements for the period 1990 to 2007 alone.

<sup>31</sup> Edward D. Mansfield, Helen V. Milner and B. Peter Rosendorff, “Why Democracies Cooperate More: Electoral Control and International Trade Agreements”, *International Organization*, 56(3) (2002), 477-513, p. 494 (FN 27) took the same approach of excluding “agreements strengthening or superceding an existing PTA”.

of an effective preferential trade agreement in 1990. The agreements that we consider to have been effectively implemented as of 1 January 1990 are: the EU (with twelve member countries); the EFTA; the agreements between the EU and EFTA countries; the agreements between the EU and Cyprus, Israel, and Malta; the agreements between the U.S. and Canada and Israel; the agreements between Australia and New Zealand and Papua New Guinea; the Caribbean Community; and the South African Customs Union. The 244 dyads that participated in these agreements are excluded from the analysis. We did not drop dyads that formed part of agreements such as the Latin American Integration Association (LAIA, 1980) and the Economic Community of Central African States (ECCAS, 1983) even though they were formally in existence in 1990. The reason for doing so is that these agreements never were effectively implemented. The LAIA, for example, did not lead to any significant preferential tariff reductions and ECCAS was suspended right after having been signed because of military conflict in the area.<sup>32</sup> Such agreements, which only exist on paper, should neither contribute to the domino effect we are interested in nor keep participating countries from signing new agreements among them.

### **Operationalizing Trade Diversion and Policy Diffusion**

We capture the external competitive effect of preferential trade agreements by way of a spatial weight matrix. A spatial weight matrix measures the impact of a policy change in

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<sup>32</sup> For the LAIA, see Mattli, *The Logic of Regional Integration*, p. 142, and Karl Kaltenthaler and Frank O. Mora “Explaining Latin American Economic Integration: The Case of Mercosur”, *Review of International Political Economy*, 9(1) (2002), 72-97, pp. 72-3. For the ECCAS, see Jacob W. Musila, “The Intensity of Trade Creation and Trade Diversion in COMESA, ECCAS and ECOWAS: A Comparative Analysis”, *Journal of African Economies*, 14(1) (2005), 117-41, p. 121.

a dyad on all other dyads. It uses specific factors, such as spatial proximity or degree of economic interdependence, to weigh the importance of a policy change in one unit for other units.<sup>33</sup> In our case, the policy change is whether a dyad signed an agreement between one and five years ago. The variable is lagged by one year to avoid simultaneity bias. This may lead to an underestimation of the spatial effect, if countries already react to other countries' announcement of negotiations of preferential trade agreements. An example of this would be Bolivia and Ecuador, which, at the time of writing, are displaying reluctance to sign a free trade agreement with the EU, but may still jump on the bandwagon if Colombia and Peru sign trade agreements with the EU as they fear that these agreements discriminate against their exporters. With our operationalization, if the EU signs agreements with all four Andean countries at the same time, we fail to capture the policy interdependence that shaped the outcome. The reason for the five-year cut-off point is that the external effect of a preferential trade agreement should disappear after some time, because exporters either are successful in convincing their government to reach an agreement with the members of a preferential trade agreement or adapt to the new situation.<sup>34</sup>

We weigh the influence of the policy change on other dyads in a way that as closely as possible approximates the theoretical logic underlying the protection-for-exporters argument. Our hypothesis leads us to the expectation that the pressure on excluded country B to respond to the preferential trade agreements signed by country A

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<sup>33</sup> Ward and Gleditsch, *Spatial Regression Models*.

<sup>34</sup> The five-year cut-off point is consistent with the operationalization chosen by Egger and Larch, "Interdependent Trade Agreement Memberships". Below we assess the robustness of our findings to variation in the cut-off point.

depends on the potential for trade diversion it faces in that country. What we want to capture is the *potential* for trade diversion, as the actors at the time do not have access to *post hoc* estimates of trade diversion. The potential for trade diversion, in turn, is mainly determined by the amount of exports from B to A and the degree of competition between the exports of B and those of the countries that have a preferential agreement with country A.<sup>35</sup> On the one hand, the impact of a preferential agreement will be particularly severe for countries with major export interests in one of the member countries. The reason is that the greater the share of exports concerned, the greater the potential costs, and the greater also the political power of the exporters concerned. We use the share of B's total exports going to A to capture this effect. A potential problem with this operationalization is that export shares are partly endogenous to our argument. The share of B's exports going to A will decrease in the aftermath of the latter signing a preferential trade agreement with country C if B's exports compete with those of C. We deal with this potential endogeneity problem by lagging the trade data by one year.

On the other hand, the extent to which the exports of the excluded country B directly compete with those from C in the market of A is an important determinant of trade diversion. For example, the EU should have reacted to the North American Free Trade Agreement by signing an agreement with Mexico, as it exports similar goods to that country as does the U.S. In fact, this is what happened in March 2000. That it did not

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<sup>35</sup> Trade diversion also depends on the height of trade barriers in the countries participating in the preferential trade agreement. Preferential trade agreements should impose higher costs on exporters in third countries, and thus lead to a stronger mobilization of export interests, the larger the difference between the trade barriers faced by insiders and outsiders. As trade barriers are difficult to measure, we omit this variable in the present analysis.



sign an agreement with the U.S. also supports our logic, as the EU's exports to the U.S. do not compete with those from Mexico. To capture this effect, we disaggregated trade flows to the sector level and then assessed whether countries export the same basket of goods.<sup>36</sup>

In form of a formula, the spatial weight for the undirected dyad AB is:<sup>37</sup>

$$k_{BA} = \sum_{C,D,\dots} \left[ \text{Export share}_{BA} * \text{Competition}_{B,C,D} * \text{PTA}_{A,C,D,\dots} \right] \quad (1)$$

$$k_{AB} = \sum_{C,D,\dots} \left[ \text{Export share}_{AB} * \text{Competition}_{A,C,D} * \text{PTA}_{B,C,D,\dots} \right] \quad (2)$$

$$k_{AB} = \min(k_{AB}, k_{BA}) \quad (3)$$

where  $k_{AB}$  and  $k_{BA}$  are the competitive distances for the two directed dyads. *PTA* is a dummy variable that takes the value of 1 if country A (B) signed an agreement with countries C, D, and so on between one and five years ago. The competitive distances are zero if there is no connection between countries A and B. Equation (3) shows that we

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<sup>36</sup> We used data from the World Bank's World Development Indicators database, which allows disaggregating exports by 12 sectors (agricultural raw materials, arms, communications equipment, food, fuel, high-technology goods, insurance and financial services, international tourism, ores and metals, other commercial services, transport services, and travel services). We then correlated the export mix of all countries, which allowed us to arrive at an index of export similarity. For a similar approach, see Elkins *et al.*, "Competing for Capital", p. 830.

<sup>37</sup> The spatial matrices have been calculated using the software MATLAB 7.0 employing a program designed by the authors for this purpose. Although frequently done in the literature (see Franzese and Hays, "Spatial Analysis", p. 580), we do *not* row-standardize our weighting matrix because of theoretical reasons (we are interested in the absolute pressure on a dyad, independent of the pressure on another dyad) and because row-standardization may impact inference. See Plümer and Neumayer, "Model Specification in the Analysis of Spatial Dependence", p. 16-20.

take the smaller of the two pressures for the directed dyads AB and BA to arrive at the score for the undirected dyad. Doing so captures the idea that an agreement will only come about if exporters from both countries are discriminated against in the other's market. The mean value across all dyads of this variable increases from 0 in 1990 to 0.0013 in 2007.<sup>38</sup>

Figure 2 provides a schematic representation of how this variable may change for a dyad by looking at the country pair Chile-U.S. (the figure is an abstraction and does not show all the agreements signed by the two countries in this period). Initially, the signature of the U.S.-Canada agreement (1988) and, in particular, of NAFTA (1992) should have increased the pressure on Chile to sign an agreement with the U.S. In fact, shortly after the conclusion of NAFTA, there was talk of Chile becoming a member of that agreement.<sup>39</sup> At that time, however, the U.S. felt hardly any pressure to sign an agreement with Chile. The agreements between a series of Latin American countries (among them Bolivia, Colombia, and Venezuela in 1993) and Chile only had a small impact on the U.S., because these countries exported little to Chile and because their exports did not compete with those from the U.S. in the Chilean market. Our counterfactual expectation is that if Chile had signed a trade agreement with a direct competitor

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<sup>38</sup> We use the natural logarithm of this variable as it is characterized by occasional large observations.

<sup>39</sup> Stephan Haggard, "The Political Economy of Regionalism in Asia and the Americas", in Edward D. Mansfield and Helen V. Milner, eds, *The Political Economy of Regionalism* (New York: Columbia University Press, 1997), 20-49, p. 40.

of the U.S., a Chile-U.S. trade agreement would have come about already in the 1990s.<sup>40</sup> In the absence of such an agreement, the U.S. only became willing to sign an agreement with Chile in 2003, one year after that country signed a trade agreement with the EU, a major competitor of the U.S.

FIGURE 2 APPROXIMATELY HERE

### **Alternative Diffusion Mechanisms**

Besides reaction to trade diversion, several alternative causal mechanisms could drive the diffusion of trade agreements. In the empirical analysis below, we control for the possibility that diffusion is a result of either emulation or security externalities. Emulation, which is defined as ritualistically “following or doing oppositely of others”<sup>41</sup>, results from a demonstration effect.<sup>42</sup> Such an effect is most likely among countries that are culturally close, because there is more communication between such countries and because it is easier to relate to the experiences of culturally close actors. The expectation

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<sup>40</sup> The exporter lobbying that our argument predicts for such a case either could have facilitated passage of fast track legislation in the U.S. or could have allowed ratification of an agreement as an international treaty, similar to what happened in the case of the U.S.-Jordan agreement.

<sup>41</sup> Franzese and Hays, “Spatial Analysis”, p. 572.

<sup>42</sup> The literature on policy diffusion distinguishes between rational learning and emulation. See Beth A. Simmons, Geoffrey Garrett and Frank Dobbin, “Introduction: The International Diffusion of Liberalism”, *International Organization*, 60(4) (2006), 791-810; Elkins *et al.*, “Competing for Capital”, p. 831-32. We do not follow this practice, as a clear measure of the “success” of preferential trade agreements, which is necessary for an evaluation of the learning argument, is missing.

thus is that the probability of a preferential trade agreement between countries A and B increases, the higher the number of preferential agreements that A and B participate in and the smaller the cultural distance between the two. Building on work by Zachary Elkins, Andrew Guzman and Beth Simmons, we construct three different spatial weight matrices to capture this effect.<sup>43</sup> Each of the matrices uses a different proxy for cultural distance: whether two countries share the same predominant language, predominant religion, and a common colonial past.

Diffusion of trade agreements could also result from security externalities. Neorealist International Relations theory argues that the anarchic structure of the international system makes states apprehensive of increases in the power of other states, as these states may use their new capabilities to attack and defeat them.<sup>44</sup> Whenever preferential trade agreements stimulate trade flows between two countries, they lead to a more efficient allocation of resources and thus free up some resources for military use.<sup>45</sup> The increasing wealth and power of member countries should be of concern to excluded countries that are military rivals. An agreement between two countries may thus force other dyads to follow suit, with the aim of retaining their current relative position vis-à-vis these countries. According to this view, what we should witness is the development of rival trade blocs that mirror security alliances. To capture this effect, we calculate a

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<sup>43</sup> Elkins *et al.*, “Competing for Capital”, p. 831. For all of these alternative diffusion mechanisms, we use the smaller of the two directed values to represent the undirected dyad. We use the natural logarithm of the variables to deal with outliers.

<sup>44</sup> The classic statement is Kenneth N. Waltz, *Theory of International Politics* (New York: Random House, 1979).

<sup>45</sup> Joanne Gowa, *Allies, Adversaries, International Trade* (Princeton: Princeton University Press, 1994).

spatial weight matrix that increases the probability of countries A and B signing an agreement if country C, with which A (B) had a military conflict in the period since World War II, signed a preferential trade agreement with another country (D, E,...) in the last five years.

### **Control Variables**

We also control for a series of characteristics of the dyad under analysis that could influence the probability of two countries signing an agreement and the context in which a dyad considers concluding an agreement. Doing so is vital to avoid overestimating the effect of the spatial lags, as parallel policy choices may be a result not only of spatial interdependence, but also of correlated unit-level factors or exogenous shocks that are common to various dyads.<sup>46</sup> In line with previous studies in the field, we hence include several economic, geographical, and political control variables in our model. Most of these variables are lagged by one year to avoid endogeneity problems.<sup>47</sup>

Concerning the variables capturing the economic condition at the time when a pair of countries considers signing an agreement, we first control for the amount of trade between them (*TRADE*). An increase in trade may boost the probability of two countries forming a preferential trade agreement because large trade flows are likely to be accompanied by investments that are relation-specific, making traders dependent on access to each other's markets. These traders then may ask for a preferential trade agreement to lock in the existing situation and forestall protectionist trade policies by

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<sup>46</sup> Franzese and Hays, "Spatial Analysis".

<sup>47</sup> Univariate summary statistics and data sources for all of these variables are available in the Appendix.

either side.<sup>48</sup> Trade may also matter as the positive welfare effects of a preferential trade agreement should be larger for country pairs with large trade flows before conclusion of the agreement.<sup>49</sup>

We also take into account the size of the economy of the two countries to capture the idea that the larger the countries participating in a preferential trade agreement, the larger the economic gains. As Scott Baier and Jeffrey Bergstrand argue, a preferential agreement between two large economies increases the volume of trade in more varieties than one between two small economies.<sup>50</sup> In addition, the more sizeable increase in trade among two large countries causes a larger net expansion of demand and hence a larger rise in real income. We capture this idea by including the GDP of the smaller of the two countries in a dyad (*GDP*). A further economic factor that potentially influences the likelihood of an agreement between a pair of countries is their level of development. The more developed the two countries, the easier they should find it to conclude an agreement. Two reasons support this expectation. First, a country with a highly developed economy is less dependent on tariff revenues. Second, a developed country is in a better position to compensate societal groups that face adjustment costs arising from trade

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<sup>48</sup> Beth V. Yarbrough and Robert M. Yarbrough, *Cooperation and Governance in International Trade: The Strategic Organizational Approach* (Princeton: Princeton University Press, 1992).

<sup>49</sup> Jagdish N. Bhagwati, "Regionalism and Multilateralism: An Overview", in Jaime de Melo and Arvind Panagariya, eds, *New Dimensions in Regional Integration* (Cambridge: Cambridge University Press, 1993).

<sup>50</sup> Scott L. Baier and Jeffrey H. Bergstrand, "Economic Determinants of Free Trade Agreements", *Journal of International Economics*, 64(1) (2004), 29-63, p. 45.

liberalization.<sup>51</sup> The variable that captures this argument is the GDP per capita of the less developed of the two countries (*GDP PER CAPITA*).

Two control variables capture domestic and international political conditions. At the international level, the expectation is for military allies to be more likely to sign an agreement than other pairs of countries (*ALLIANCE*). At the domestic level, previous research has shown that democratic pairs of countries tend to sign more preferential trade agreements than non-democratic or mixed pairs.<sup>52</sup> We use the seven point Freedom House scale of democracy to measure this variable.<sup>53</sup> The advantage of the Freedom House index over others is that it covers all of the countries in our dataset and the full time period.<sup>54</sup> We invert the values provided by Freedom House so that 1 is the value for a completely oppressive regime and 7 the value for a completely free regime (*DEMOCRACY*).

Moreover, we include three variables that capture the geographic position of the two countries. For one, since trade costs increase with distance, geographically closer countries are more likely to form a preferential trade agreement.<sup>55</sup> We thus incorporate

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<sup>51</sup> John Gerard Ruggie, "International Regimes, Transactions, and Change: Embedded Liberalism in the Postwar Economic Order", *International Organization* 36(2) (1982): 379-415.

<sup>52</sup> Mansfield *et al.*, "Why Democracies Cooperate More".

<sup>53</sup> Freedom House, *Freedom in the World* (Washington, D.C.: Freedom House, 2007).

<sup>54</sup> The results reported below do not change when using other data sources, such as the Polity IV score (Monty G. Marshall *et al.*, "Political Regime Characteristics and Transitions, 1800-2007").

<sup>55</sup> Paul Krugman, "The Move toward Free Trade Zones", in Lawrence H. Summers, ed., *Policy Implications of Trade and Currency Zones* (Kansas City: Federal Reserve Bank, 1991), pp. 7-42.

<sup>55</sup> Baier and Bergstrand, "Economic Determinants of Free Trade Agreements".

the (natural logarithm of the) distance in kilometres between the two capitals of the pair of countries in our model (*DISTANCE*). In addition, neighbouring countries can be expected to have a higher probability of signing an agreement. Not only are there on average closer economic links between adjacent countries, but also the political links tend to be stronger. Following this reasoning, we expect countries that share a common border to be more likely to sign an agreement (*CONTIGUITY*). Finally, we control for whether at least one of the two countries is an island, as the specific geographical circumstances of such countries may influence their likelihood of signing an agreement (*ISLAND*).

Four control variables account for the position of the countries in, and the general state of, the international trading system. Since members of the WTO tend to have more similar trade policies than countries that do not form part of this international organization, dyads in which both countries are WTO members should be more likely to conclude an agreement (*WTO*). Furthermore, we consider the possibility that during WTO-sponsored multilateral trade negotiations countries' propensity to conclude preferential trade agreements increases (*WTO ROUND*). We also control for the argument that involvement in trade disputes may influence a pair's likelihood to conclude a trade agreement. Having a trade dispute with the other side should decrease the probability of an agreement (*TRADE DISPUTE*), while having a dispute with a third party should increase it (*TRADE DISPUTE THIRD PARTY*).<sup>56</sup>

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<sup>56</sup> Edward D. Mansfield and Eric Reinhardt, "Multilateral Determinants of Regionalism: The Effects of GATT/WTO on the Formation of Preferential Trading Agreements", *International Organization*, 57(4) (2003), 829-62.



Furthermore, we use three proxies to capture the cultural distance between the two countries, as culturally similar countries may find it easier to negotiate an international agreement. These proxies are common principal language, same religion, and common colonial heritage (*LANGUAGE*, *RELIGION*, and *COLONY*). Finally, we include the (natural log of the) sum of the number of agreements signed by the two countries prior to time  $t$  to control for potential endogeneity resulting from the inclusion of a lagged dependent variable as an independent variable in our model.<sup>57</sup>

## FINDINGS

We use survival analysis, and more concretely a Cox proportional hazards model with standard errors adjusted for clustering on dyads, to examine our argument.<sup>58</sup> The advantage of using the Cox model, among the various survival models on offer, is that it does not require us to make assumptions about the shape of the underlying survival

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<sup>57</sup> For this approach, see Plümper and Neumayer, “Model Specification in the Analysis of Spatial Dependence”, p. 7.

<sup>58</sup> Survival analysis is the appropriate approach because our data is right-censored. See also Nathaniel Beck, “Time-Series—Cross-Section Methods”, in Janet M. Box-Steffensmeier, Henry E. Brady and David Collier, eds, *Oxford Handbook of Political Methodology* (Oxford: Oxford University Press, 2008), 475-93. The study by Elkins *et al.*, “Competing for Capital” on the diffusion of bilateral investment agreements is also based on the Cox model. David Darmofal, (“Bayesian Spatial Survival Models for Political Event Processes”, *American Journal of Political Science*, 53(1) (2009), 241-57) provides an extensive analysis of the use of survival models with spatial effects. A different approach is taken by Xun Cao, “Networks as Channels of Policy Diffusion: Explaining Worldwide Changes in Capital Taxation, 1998-2006”, *International Studies Quarterly* (2010), who uses network analysis.

distribution.<sup>59</sup> As described above, our model includes a spatial lag to capture the external competitive effect of the decision by two countries to sign an agreement, several alternative spatial lags, and control variables for both the dyad under consideration and potential external shocks.<sup>60</sup> We thus estimate the following equation:

$$h_{ij,t} = h_0(ij,t)\exp[\beta_1 w_{ij,t-1} y_{ij,t} + \beta_2 x_{ij,t-1} + \varepsilon_{ij,t}] \quad (4)$$

where  $h_{ij,t}$  is the hazard rate for two countries  $i$  and  $j$  at time  $t$ ,  $h_0$  is the baseline hazard,  $\beta_1$  and  $\beta_2$  are vectors of coefficients,  $x_{ij,t-1}$  is a vector of control variables that are lagged by a year, and  $w_{ij,t-1} y_{ij,t}$  is a vector of spatial lag terms that are temporally lagged as described above. As is common practice in recent research on the statistical analysis of panel data with a binary dependent variable, we base significance tests on Huber (robust) standard errors.<sup>61</sup> These standard errors can take account of possible heteroskedasticity (serial correlation) or *intra-group* correlation of the data.

The findings are very supportive of our argument (see Model 1 in Table 1). The coefficient for the trade and competition variable has the right sign and is highly statistically significant. By contrast, only one of the four variables capturing the

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<sup>59</sup> Jonathan Golub, “Survival Analysis”, in Janet M. Box-Steffensmeier, Henry E. Brady and David Collier, eds, *Oxford Handbook of Political Methodology* (Oxford: Oxford University Press, 2008), 530-46, makes a strong case for the advantages of the Cox model as compared to parametric models such as Weibull and Gompertz.

<sup>60</sup> As recommended by Michael D. Ward and Kristian Skrede Gleditsch, *Spatial Regression Models* (London: SAGE, 2008), we checked whether the inclusion of spatial lags is appropriate by calculating the Moran index, using the total number of agreements signed by each country. The result confirms that there is statistically significant spatial correlation among countries.

<sup>61</sup> Beck, “Time-Series—Cross-Section Methods”, p. 486.

alternative diffusion mechanisms is statistically significant. Countries seem to be influenced in their decision to conclude agreements by the agreements concluded by other countries with the same language. Of particular interest, the geopolitical rivalry argument is not supported by the empirical analysis. In the post-Cold War world, it seems, countries do not react to agreements concluded by countries that may pose a military threat.

#### TABLE 1 APPROXIMATELY HERE

Turning to the remaining variables, many of those that have been emphasized in previous research also turn out to be significant in this model, giving added plausibility to our findings. Looking first at the variables capturing economic conditions, as expected, a pair of countries with a strong trade link is more likely to form a trade agreement. The economic size of two countries also has an impact on the likelihood of them signing an agreement. By contrast, the level of economic development of the two countries considering the conclusion of a trade agreement does not play a role. Security concerns equally have an effect on the probability of signing a preferential trade agreement, as countries that form part of the same alliance are more likely to sign a trade agreement. Democracy, moreover, is statistically significant, which is in line with previous research. As the original study on the role of democracy in the conclusion of trade agreements only had data up until 1992, whereas our database covers agreements until 2007, our findings provide important support for this earlier study.<sup>62</sup> The finding that distance reduces the

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<sup>62</sup> Mansfield *et al.*, “Why Democracies Cooperate More”.

likelihood of an agreement between two countries is intuitive. The same applies to the result that country pairs of which at least one is an island are less likely to conclude an agreement. By contrast, the strongly statistically significant negative sign of the estimated coefficient for contiguity is somewhat surprising. A potential explanation for this result is that contiguity does not add anything to the likelihood of two countries signing an agreement that is not already captured by distance, trade flows, and often similar culture of neighbouring countries.<sup>63</sup>

With respect to the variables capturing the influence of the international trading system on two countries' decision to conclude an agreement, dyads in which both countries are members of the WTO are more likely to sign trade agreements. Moreover, countries are more likely to sign an agreement in tandem with negotiating at the WTO level. The effect of a trade dispute between the pair of country on their proneness to sign an agreement has the right sign and is statistically significant. Surprising, given the findings reported in a study by Mansfield and Reinhardt, is the result that two countries are *less* likely to sign an agreement if they have a trade dispute with third countries.<sup>64</sup> Moreover, two of the three variables capturing the cultural distance between two countries are statistically significant, with the unexpected finding that a common language reduces the likelihood of an agreement. Finally, the temporal lag variable that controls for potential endogeneity is also statistically significant.

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<sup>63</sup> In fact, when distance is excluded from the model, contiguity is positive and highly statistically significant.

<sup>64</sup> Mansfield and Reinhardt, "Multilateral Determinants of Regionalism".

Figures 3a and 3b illustrate the magnitude of the effects that we estimate.<sup>65</sup> Figure 3a shows the effect of an increase in the value of the trade and competition variable from the 5<sup>th</sup> to the 95<sup>th</sup> percentile. At the 5<sup>th</sup> percentile level, a dyad's survival rate only falls from 1 to 0.92 over the 18 year period. At the 95<sup>th</sup> percentile level, by contrast, the drop is from 1 to 0.45. This sizeable difference is an indication of the strength of the effect that we find. Figure 3b plots the substantive effect of the language spatial variable. Contrary to the effect of the competition measure, this one is very weak, with the survival probability falling from 1 to 0.87 for the country pair for which this variable takes the 95<sup>th</sup> percentile value.

FIGURES 3a and b APPROXIMATELY HERE

A comparison of the predicted probabilities of a dyad signing an agreement for low and high values on the trade and competition variable provides a further illustration of the size of the effect of this variable. Taking the mean predicted probability for all dyads with a value larger than zero on the trade and competition variable, the overall prediction is for 86 dyads forming a preferential trade agreement each year. By contrast, when using the mean predicted probability for those dyads with a zero value on the trade and competition variable, only 49 dyads are expected to sign an agreement each year. The expected number of preferential agreements thus nearly doubles for dyads that face at

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<sup>65</sup> These graphs are drawn after rescaling the distance, GDP, and GDP per capita variables so that they have a mean of 0.

least some trade diversion as a result of preferential trade agreements between other countries.

### **Robustness Checks**

We undertook a series of tests to examine the robustness of these results to changes in operationalization.<sup>66</sup> First, we estimated models in which we assume that preferential trade agreements have an impact on third countries for, respectively, between one and three (Model 2 in Table 1) and between one and seven years (Model 3) after their signature. These changes control for the robustness of our initial hunch of a five-year effect. In the three-year model, the coefficient is statistically significant and very similar in size to the one estimated for the five-year model. In the seven-year model, the coefficient is smaller and only weakly statistically significant ( $p=0.06$ ). Since the coefficient is highly statistically significant in a six-year model (results not shown), our expectation that preferential trade agreements have a pull effect on third countries for some time, with this effect declining after about five years, is borne out by the empirical analysis. The findings from these models also reveal that endogeneity is not a major problem for our analysis. If endogeneity was driving our results, the coefficient should be larger, the longer the time period included in the spatial lag variable. A further important result of these models is that the estimated coefficients for all other variables are not affected by these changes in our independent variable of interest. The model thus is highly robust.

Second, following the suggestion of Thomas Plümper and Eric Neumayer we include year controls in the model, which did not change our findings (Model 4 in Table

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<sup>66</sup> All of the results that are not listed in Table 1 are available upon request from the corresponding author.

1).<sup>67</sup> The coefficient on the trade and competition variable barely changes (2.10 instead of 2.14). Interestingly, the spatial language variable is no longer statistically significant in this model. By contrast, several of the year controls turn out to be statistically significant. Third, we made sure that our results are not influenced by the decision to log the spatial variables (Model 5 in Table 1). Again, the main results reported in Model 1 are not affected by this change. The only change that stands out is that the coefficient for the spatial effect of having the same religion becomes statistically significant but with a negative sign. Finally, we omitted the three variables capturing cultural distance between two countries (language, religion, and colony) to check whether this influences the findings for the alternative diffusion mechanisms (results now shown). Even in this model, however, the spatial lag capturing diffusion via a common language is the only of the alternative diffusion mechanisms with a statistically significant effect on the signing of new preferential trade agreements.

## CONCLUSION

We have argued that exporters increase their level of political activity in response to trade diversion resulting from the creation of preferential trade agreements from which they are excluded. The mobilization of exporters, in turn, brings about a change in the balance of domestic interests that encourages the government to pursue a preferential trade agreement with the country in which exporters face discrimination. The new regionalism, in this reading, can be seen as a process driven by countries responding to trade diversion.

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<sup>67</sup> Plümpner and Neumayer, “Model Specification in the Analysis of Spatial Dependence”, p. 7. Since with year controls our model would contain 40 covariates, in this test we dropped the variables that capture cultural distance.

The main contribution of this paper is the design and execution of a quantitative test of this argument that captures the trade diversion logic as directly as possible. The empirical results are very supportive; the formation of preferential trade agreements is indeed an interdependent process and seems to be largely driven by countries responding to the negative externalities of existing agreements. This finding of preferential trade agreements as largely defensive instruments is in line with the conclusion of a related study, namely that such agreements may “benefit members as much by locking in the status quo as by improving it.”<sup>68</sup>

In future research, the present analysis could be extended by considering that preferential trade agreements, and especially those that include investment provisions, threaten both trade and foreign direct investment flows. The North American Free Trade Agreement, for example, not only created problems for Japanese companies exporting to Mexico, but also for Japanese companies interested in investing in that country.<sup>69</sup> Two extensions of the empirical analysis presented here would capture this effect. On the one hand, by looking at investment flows, it should be possible to calculate the potential for investment diversion resulting from a preferential trade agreement. On the other hand, since investment diversion is most likely in cases in which an agreement includes an investment chapter, being able to specify exactly which agreements do so would help tackle this point. A future study thus may provide an even more comprehensive examination of the argument presented here.

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<sup>68</sup> Edward D. Mansfield and Eric Reinhardt, “International Institutions and the Volatility of International Trade”, *International Organization*, 56(3) (2008), 621-52, p. 649.

<sup>69</sup> Manger, *Investing in Protection*.



The paper has broader implications for the study of International Relations and International Political Economy. It presents a causal mechanism that explains how the policies of one country can influence the balance of domestic interests in another country. An analogous effect could be hypothesized to be at work whenever the policies of a group of countries have negative externalities for an excluded country. More specifically, cooperation between two or among a few countries that discriminates against third countries should have a pull-effect that is comparable to that captured in this paper for the case of preferential trade agreements. The European Higher Education Area, which aims at making European higher education more attractive, provides an illustration of this point. In this case, a cooperation effort that started with four countries in 1998 has grown to encompass no fewer than 47 members in 2010. One reason for the pull effect may be that the cooperation made some university systems more attractive for international students than others. Also outside of the trade realm, the spread of international agreements thus may be driven by a similar logic to the one espoused here.

Figure 1: The proliferation of preferential trade agreements, 1990-2007

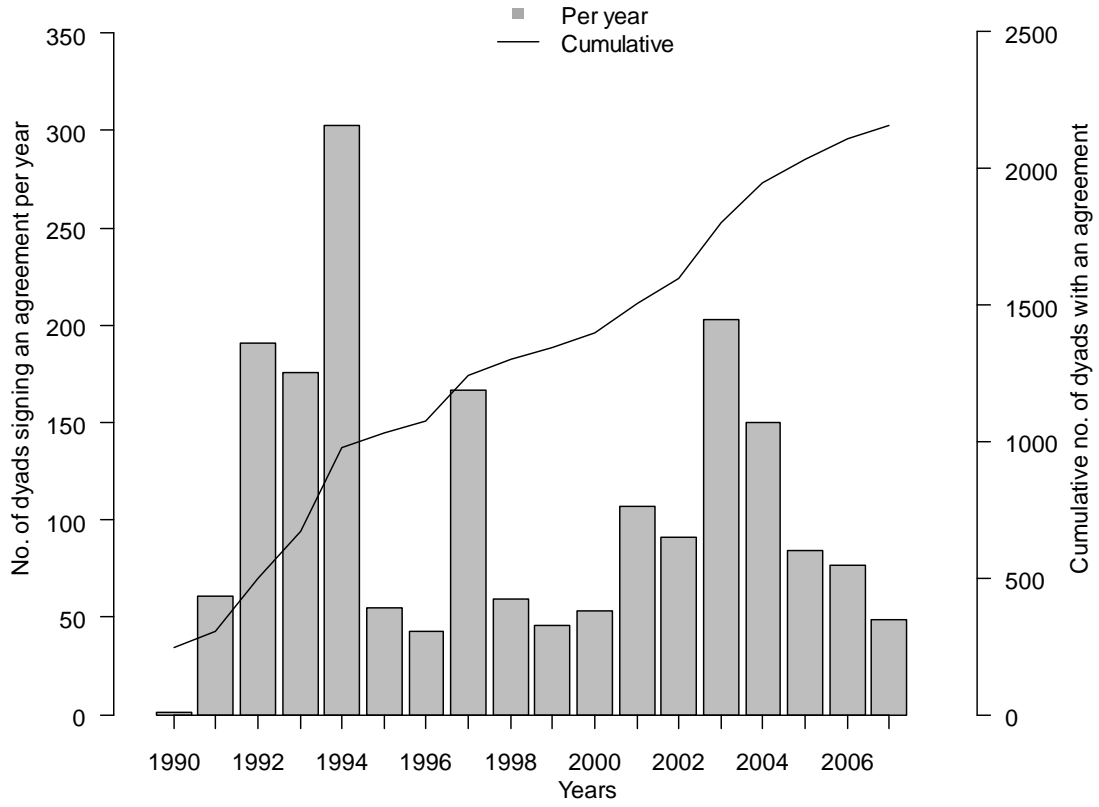
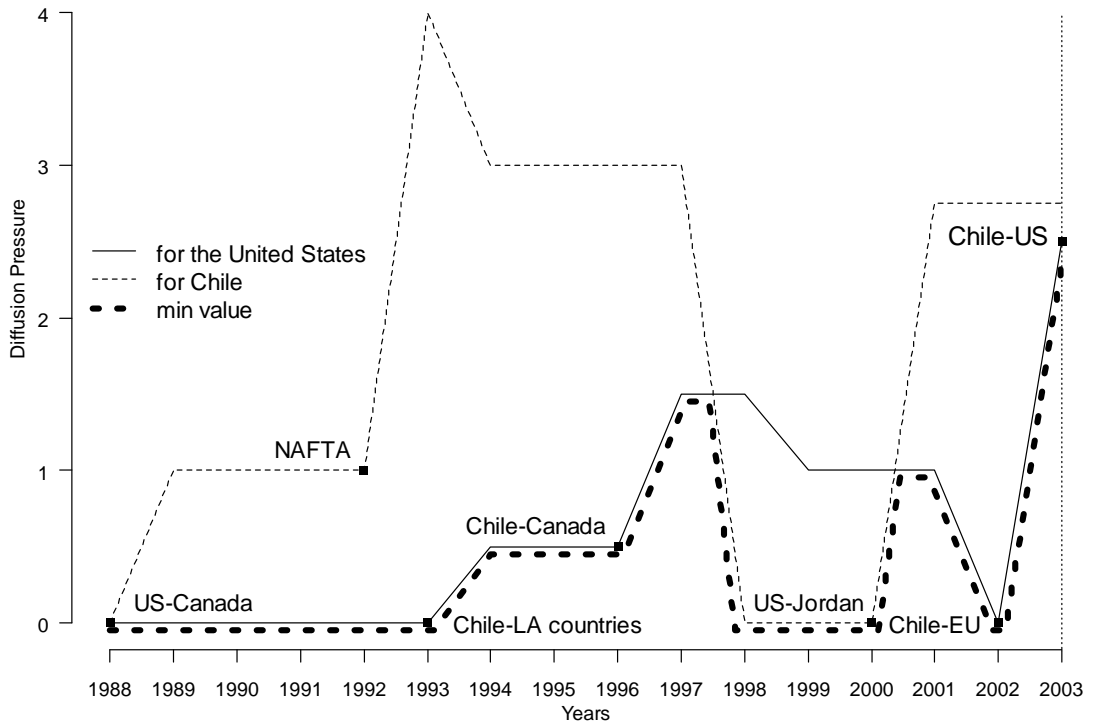
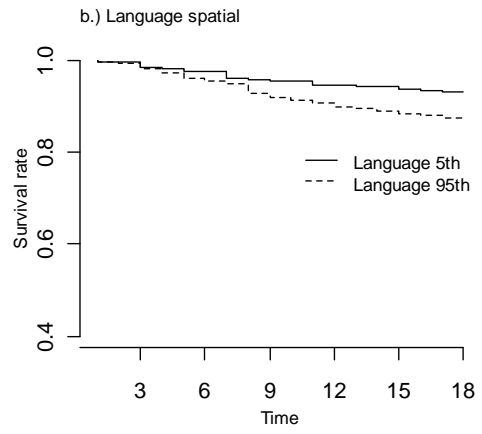
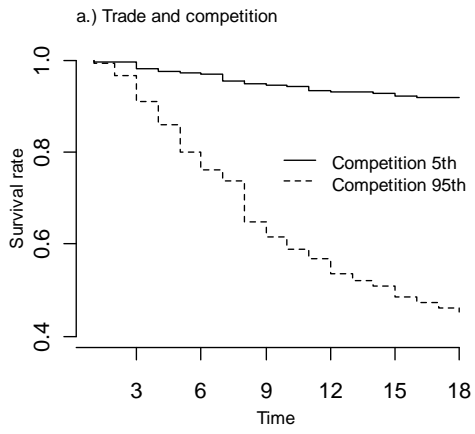


Figure 2: The spatial weight for the dyad Chile-U.S. (schematic representation)



Figures 3a and b: The substantive effect



*Table 1: Cox regression with robust standard errors adjusted for clustering on dyads*

Covariates	Model 1	Model 2	Model3	Model 4	Model 5
<i>Competition effect</i>					
<i>TRADE &amp; COMPETITION</i>	2.14** [0.59, 3.70]	2.19* [0.03, 4.35]	1.24 [-0.07, 2.55]	2.10** [0.53, 3.66]	1.01* [0.22, 1.81]
<i>Competing diffusion variables</i>					
<i>SPATIAL LANGUAGE</i>	0.19** [0.13, 0.24]	0.19** [0.13, 0.24]	0.19** [0.13, 0.24]	0.07 [-0.01, 0.14]	0.03** [0.02, 0.04]
<i>SPATIAL COLONY</i>	-0.02 [-0.08, 0.03]	-0.02 [-0.08, 0.03]	-0.02 [-0.08, 0.03]	0.06 [-0.01, 0.13]	0.00 [-0.01, 0.01]
<i>SPATIAL RELIGION</i>	0.02 [-0.03, 0.07]	0.02 [-0.03, 0.07]	0.02 [-0.03, 0.07]	0.03 [-0.01, 0.08]	-0.01* [-0.01, 0.00]
<i>GEOPOLITICAL RIVALRY</i>	0.08 [-0.05, 0.21]	0.08 [-0.06, 0.21]	0.08 [-0.06, 0.21]	0.08 [-0.06, 0.21]	0.07 [-0.06, 0.20]
<i>Dyadic controls</i>					
<i>TRADE</i>	0.04** [0.02, 0.07]	0.05** [0.02, 0.07]	0.05** [0.02, 0.07]	0.04** [0.02, 0.07]	0.04** [0.02, 0.06]
<i>GDP</i>	0.21** [0.17, 0.26]	0.21** [0.17, 0.26]	0.21** [0.17, 0.26]	0.22** [0.18, 0.26]	0.21** [0.17, 0.26]
<i>GDP PER CAPITA</i>	0.04 [-0.06, 0.13]	0.04 [-0.06, 0.13]	0.04 [-0.06, 0.13]	0.07 [-0.03, 0.17]	0.05** [-0.04, 0.15]
<i>ALLIANCE</i>	0.56** [0.43, 0.69]	0.56** [0.43, 0.69]	0.56** [0.43, 0.69]	0.57** [0.45, 0.69]	0.57** [0.45, 0.70]
<i>DEMOCRACY</i>	0.10** [0.07, 0.13]	0.10** [0.07, 0.13]	0.10** [0.07, 0.13]	0.10** [0.07, 0.13]	0.10** [0.06, 0.13]
<i>DISTANCE</i>	-1.14** [-1.28, 0.99]	-1.14** [-1.28, -0.99]	-1.14** [-1.28, -0.99]	-1.13** [-1.29, -0.96]	-1.15** [-1.30, -1.01]
<i>CONTIGUITY</i>	-0.77** [-1.11, -0.42]	-0.77** [-1.11, -0.42]	-0.77** [-1.11, -0.43]	-0.77** [-1.14, -0.4]	-0.78** [-1.12, -0.44]
<i>ISLAND</i>	-0.34** [-0.52, -0.16]	-0.34** [-0.52, -0.16]	-0.34** [-0.52, -0.16]	-0.34** [-0.52, -0.17]	-0.35** [-0.53, -0.18]
<i>WTO</i>	0.25** [0.10, 0.39]	0.24** [0.10, 0.39]	0.25** [0.10, 0.39]	0.29** [0.13, 0.45]	0.26** [0.12, 0.40]
<i>MULTI-ROUND</i>	1.13** [0.91, 1.34]	1.12** [0.91, 1.34]	1.12** [0.91, 1.34]	-2.49* [-4.76, -0.23]	1.14** [0.93, 1.36]
<i>TRADE DISPUTE</i>	-3.16** [-5.18, -1.15]	-3.15** [-5.16, -1.14]	-3.14** [-5.15, -1.13]	-3.30** [-5.32, -1.28]	-3.16** [-5.17, -1.15]
<i>TRADE DISPUTE THIRD PARTY</i>	-0.20** [-0.31, 0.09]	-0.20** [-0.31, -0.09]	-0.20** [-0.31, -0.09]	-0.16** [-0.26, -0.05]	-0.18** [-0.29, -0.07]
<i>LANGUAGE</i>	-0.46** [-0.75, 0.17]	-0.46** [-0.75, -0.17]	-0.46** [-0.75, -0.17]		-0.52** [-0.83, -0.21]
<i>COLONY</i>	0.47** [0.23, 0.71]	0.47** [0.23, 0.71]	0.47** [0.23, 0.71]		0.41** [0.13, 0.69]
<i>RELIGION</i>	0.13 [-0.02, 0.28]	0.13 [-0.02, 0.28]	0.13 [-0.02, 0.28]		0.38** [0.20, 0.56]
<i>TEMPORAL LAG</i>	-0.09* [-0.16, -0.02]	-0.09* [-0.16, -0.02]	-0.09* [-0.16, -0.02]	-0.11** [-0.18, -0.04]	-0.09** [-0.16, -0.02]
<i>YEAR FIXED EFFECTS</i>	No	No	No	Yes	No
<i>Observations</i>	220,727	220,727	220,727	220,727	220,727
<i>Number of dyads</i>	13,618	13,618	13,618	13,618	13,618
<i>PTAs signed</i>	1,916	1,916	1,916	1,916	1,916
<i>Log likelihood</i>	-16,196.35	-16,196.97	-16,196.89	-15,995.37	-16,191.89

Notes: 95 percent confidence intervals are in parentheses. Coefficients for year controls are not shown in Model 4. \*\* Statistically significant at 1%, \* statistically significant at 5%.

## Data Appendix (Model 1)

	Variables	Mean	Std. deviation	Minimum	Maximum	Data sources
Competition	<i>TRADE &amp; COMPETITION (LOGGED)</i>	0.001	0.01	0	1.42	(1) (2) (3)
Competing arguments	<i>SPATIAL LANGUAGE (LOGGED)</i>	1.14	1.30	0	3.61	(1) (4)
	<i>SPATIAL COLONY (LOGGED)</i>	1.83	1.34	0	3.97	(1) (4)
	<i>SPATIAL RELIGION (LOGGED)</i>	1.80	1.26	0	4.04	(1) (5)
Controls	<i>GEOPOLITICAL RIVALRY</i>	0.16	0.42	0	4	(1) (6)
	<i>TRADE (LOGGED)</i>	1.99	2.37	0	12.46	(2)
	<i>GDP (LOGGED)</i>	1.79	1.26	0.10	8.57	(2)
	<i>GDP PER CAPITA (LOGGED)</i>	0.72	0.65	0.03	4.16	(2)
	<i>ALLIANCE</i>	0.15	0.37	0	1	(6)
	<i>DEMOCRACY</i>	-4.97	1.87	-7	-1	(7)
	<i>DISTANCE (LOGGED)</i>	8.71	0.75	2.44	9.89	(4)
	<i>CONTIGUITY</i>	0.02	0.13	0	1	(4)
	<i>ISLAND</i>	0.13	0.33	0	1	(4)
	<i>WTO</i>	0.54	0.50	0	1	(8)
	<i>MULTI-ROUND</i>	0.66	0.47	0	1	(8)
	<i>TRADE DISPUTE</i>	0.01	0.07	0	1	(9)
	<i>TRADE DISPUTE THIRD PARTY</i>	0.29	0.46	0	1	(9)
	<i>LANGUAGE</i>	0.09	0.29	0	1	(4)
	<i>RELIGION</i>	0.16	0.37	0	1	(5)
<i>COLONY</i>	0.16	0.37	0	1	(4)	
	<i>TEMPORALLY LAGGED VARIABLE (LOGGED)</i>	2.58	1.30	0	4.79	(1)

Sources: (1) see Note 28; (2) IMF, *The World Economic Outlook* (IMF Data and Statistics, 2008). <<http://www.imf.org/external/pubs/ft/weo/2009/02/weodata/index.aspx>>; (3) World Bank, *World Development Indicators* (World Bank Data&Statistics, 2009). <<http://publications.worldbank.org/WDI/>>; (4) CEPII, Dataset (2006). <<http://www.cepii.fr/anglaisgraph/bdd/bdd.htm>>; (5) Encyclopedia Britannica, *Encyclopedia Britannica Book of the Year* (Chicago: Encyclopaedia Britannica, 2001); (6) Correlates of War dataset; (7) Freedom House, *Freedom in the World* (Washington, D.C.: Freedom House, 2007); (8) World Trade Organization, Members and Observers (2008). <[http://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/org6\\_e.htm](http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm)>; (9) Horn, Henrik and Petros C. Mavroidis, WTO Dispute Settlement Database (2006). <<http://go.worldbank.org/X5EZPHXJY0>>.