

RESEARCH ARTICLE

Strategic choices of bilateral and multilateral preferential trade agreements: empirical analysis

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Abstract

The rapid proliferation of preferential trade agreements (PTAs) has prompted numerous studies on why states seek PTAs. However, very little research examines why states vary in choosing different forms of PTAs, while states' decisions to enter bilateral or multilateral PTA affect the global, regional, and national political economies. This paper thus finds global patterns regarding which pairs of states are more likely to enter bilateral or multilateral PTAs. Based on a wide range of existing research, the paper begins with hypothesizing different effects of economic and political factors that give rise to these PTAs during the last two decades. The empirical analysis then tests these hypotheses. The result shows stark differences in pairs of states joining the two types of PTAs. Bilateral PTAs are more likely to develop between democratic states with a large market size and the World Trade Organization (WTO) membership. Multilateral PTAs tend to form between less democratic states with greater political affinity.

1. Introduction

In the past two decades, preferential trade agreements (PTAs) have rapidly proliferated across the world and changed the landscape of the global political economy.¹ While economic studies have largely focused on the effects of PTAs on trade relations between states, political research has examined why states seek to liberalize trade in goods and services. The existing literature suggests that various factors give rise to PTAs, including market size, economic development, geographic proximity, regime types, and political relations between states (Mansfield *et al.*, 2002; Baier and Bergstrand, 2004; Mansfield and Milner, 2012; Drury *et al.*, 2014; Yamamoto Rosenbaum and Kriekhaus, 2016).

However, very little research has suggested why states vary in choosing different forms of PTAs, namely bilateral and multilateral agreements. Bilateral agreements form between two states or two negotiating units. Examples include Japan–Peru, Canada–Korea, USA–Jordan, and China–ASEAN (the Association of Southeast Asian Nations) PTAs.² This is the fastest growing type of trade agreement in the twenty-first century. Since recent liberal trade negotiations at the World Trade Organization (WTO) have stalled, bilateral agreements emerged as a ‘dominant method of regulating international economic relations’ (Mansfield and Milner, 2012: 1). Multilateral agreements form between more than two negotiating actors. Examples include North American Free Trade Agreement (NAFTA), European Free Trade Agreement (EFTA), Southern African Customs Union (SACU), and Gulf Cooperation Council (GCC). This type of trade agreement has steadily increased over time since the end of World War II (Mansfield and Pevehouse, 2013).

The major approach to analyze the relationship between bilateral and multilateral PTAs has been the stumbling–building block thesis. This thesis focuses on why some PTAs ‘build’ or expand by

¹PTAs include Partial Agreements (PAs), the most popular Free Trade Agreements (FTAs), Customs Unions (CUs), Common Markets (CMs), and Economic Unions (EUs). These institutions vary based on the depth of integration and items that they regulate (Mansfield and Pevehouse, 2013).

²China–ASEAN PTA is considered as a semi-bilateral FTA since the ASEAN negotiates as a single unified actor.

adding new members as well as increase the degree of trade liberalization, while others ‘stumble’ or remain between a couple of members. Kono (2002) has empirically examined the case of the EFTA and found that similar comparative advantage between states increases the possibility of PTA expansions. A recent research by Mansfield and Pevehouse (2013) shows similarities in trade openness, market size, and regime types between existing members as well as between existing and new members to affect the expansion of PTAs across cases. These studies are very insightful to understand different natures of existing PTAs. However, the stumbling–building block thesis is still insufficient to show how bilateral and multilateral PTAs arise as ‘strategic choices’ of states. This is partly because the thesis assumes bilateral PTAs to ‘proceed in stages’ for ultimately achieving broader liberalization among many members (Levy, 1997: 506). There is a silent nuance in the thesis that bilateral PTAs are preliminary agreements for multilateral trade treaties and may not be the optimal outcomes (Corning, 2007).

The view of bilateral and multilateral PTAs being calculated choices of states is much more apparent in case studies of PTAs. For instance, Manger (2008) demonstrates that the Japan–Mexico PTA was signed in 2004 to offset competitive disadvantages in market access and capital flows created against Japanese automotive firms in the North American market due to NAFTA and the European Union (EU)–Mexico PTA. The bilateral form of the trade agreement was never meant to expand or be integrated into the frameworks of NAFTA or the EU treaty but rather served as a strategic response to these PTAs. Krieckhaus (2017: 61) argues a PTA between South Korea and the USA, known as KORUS, as an act of ‘active hedging’. This bilateral agreement not only provided the Asian nation with strong political and economic ties with the North American ally but also enabled Seoul to gain a strong bargaining position against China ‘with less fear of being subsumed’ by it (Krieckhaus, 2017: 65). The KORUS has also been a part of the grand strategy of Korea to employ a series of bilateral PTAs to re-boost the export-oriented economy after the Asian Financial Crisis of 1997 (Drury *et al.*, 2014).

On the other hand, the EU, which emerged out of the Single European Act of 1986, and the PTA among the ASEAN members (AFTA) in 1992 are examples of multilateral trade agreements being deliberate choices of states. Prior to the rise of these institutions, the European and Southeast Asian countries both confronted financial difficulties and witnessed the rise of new economic rivals: Japan in the 1970s and China in the 1990s. They thus began to desire the regional integrations in order to increase the size of the shared markets and their competitiveness against those newly rising economies at the time (Yoshimatsu, 2008). Simultaneously, the EU and AFTA formed due to political reasons. Spolaore (2013: 2) argues that the European integration was a ‘way to make it plain that any war between France and Germany becomes not merely unthinkable, but materially impossible’. The ASEAN members had a similar interest in using a PTA for healing the capitalism–communism divide that existed during the Cold War (Yoshimatsu, 2008). Hence, these cases illustrate states’ strategic choices on bilateral and multilateral PTAs in an effort to satisfy their varying interests, rather than to achieve the single common goal of trade liberalization among many members.

This paper seeks to enhance the perspective of bilateral and multilateral PTAs being strategic choices of states. It specifically does so by identifying global patterns as to which pairs of states are more likely to enter bilateral or multilateral PTAs during the last two decades. The paper first hypothesizes how certain economic and political factors surrounding states contribute to the global patterns. A subsequent empirical analysis tests the hypotheses. Ultimately, this paper makes a contribution to the research of PTAs, by providing empirical support for the existing case studies, which again highlight deliberate decisions of states to enter the two different forms of PTAs. In addition, this paper advances empirical knowledge of PTAs by being the first analysis to observe different effects of various factors on the development of bilateral and multilateral PTAs.

2. Theory

2.1 Economic factors

This section draws upon mainstream economic and political theories to hypothesize what prompts the formation of bilateral and multilateral PTAs in the modern age. This paper develops seven

propositions regarding economic and political factors surrounding states. It begins with economic factors, since the ‘most obvious reason to form an PTA is the economic benefits’ (Drury *et al.*, 2014: 43). In economics, determinants of which country benefits through PTAs are usually considered in the context of the gravity model. This model is an econometric approach to examine factors that increase trade flows between states. The main three factors analyzed in the gravity models are (1) market size, (2) per capita income, and (3) distance.

Market size is often measured with gross domestic product (GDP) of two trading countries. Larger market size indicates greater national abilities to increase exports as well as purchase goods (import). Numerous studies have then found such market size to increase trade flows (Baier and Bergstrand, 2004; Sohn, 2005; Souva *et al.*, 2008; Kepaptsoglou *et al.*, 2010). Studies in the field of political economy have also identified that a large market size between a pair of states encourages the development of PTAs, since the benefits states can receive through PTAs are expected to be greater for large economies (Mansfield *et al.*, 2002; Liu, 2008; Mansfield and Milner, 2012; Drury *et al.*, 2014). However, these studies do not differentiate the effect on bilateral and multilateral PTAs. The previous empirical literature tells us that a PTA, whether it is bilateral or multilateral, is likely to occur with a larger market size of a pair of countries.

Existing case studies can extend the argument by suggesting that a pair of larger economies may be more prone to joining a bilateral PTA rather than a multilateral one. The prominent reason is the preferences of large economies in bilateral PTAs. Davis (2012) demonstrates that the USA has favored bilateral PTAs because this style of negotiation is ‘easier to control and favors the strong’ (Davis, 2012: 124). A bilateral form allows a powerful economy like the USA to manipulate trade negotiation since it possesses financial resources to leverage against smaller states. A powerful nation also has a so-called outside option. Since it does not necessitate liberal trade agreements to sustain its economy, the state can simply exit a process if bargaining goes against its favor (Davis, 2012; Mansfield and Milner, 2012). Japan is another example. As seen in the case of Japan–Mexico PTA, the nation tends to pursue PTAs for stimulating capital flows through foreign direct investment and increasing market access. As a result, Tokyo has primarily sought a bilateral form in order to assert the particular interest in the context of PTAs. In exchange, the nation usually provides partner countries with developmental assistance and other programs to accommodate their needs (Dent, 2005; Yamamoto, 2012, 2013).

Other studies more broadly argue the involvement of large economies such as the USA, China, Japan, and the EU to be one of the driving forces of the spread of bilateral PTAs in the recent decades (Manger, 2008; Baldwin and Jaimovitch, 2012). These nations are engaged in the so-called north–north or north–south PTAs. There is a tendency that more bilateral PTAs have been forming between developed countries or the so-called ‘northern’ countries as well as between a developed and less developed countries (LDC) labeled as a ‘southern’ state. Considering these previous studies, this article proposes that a pair of states with a large market size is likely to enter bilateral PTAs. When large economies are involved, a combined market size of a pair of PTA partners is expected to be greater. Even in the case of north–south PTAs, the ‘southern’ states are not necessarily the smallest economies in the word but rather medium-size economies such as Chile and Thailand, which sustain the combined market size to be relatively large.

Another variable from the gravity model is GDP per capita. This measure is not as common as market size to be used in the gravity models or studies on PTAs (Sohn, 2005). This is partly due to the variation in interpreting the factor. Some researchers consider it as a capital–labor ratio of countries. The higher value indicates that the states are more capital-intensive, whereas the lower value suggests the states to be more labor-intensive (Souva *et al.*, 2008; Molders, 2012). Milner and Kubota (2005) observe GDP per capita as an indicator for varying levels of economic development while claiming the tendency of LDCs to have higher trade barriers. Others treat the per capita variable as a proxy for the purchasing powers of states, which is very similar to what market size accounts for (Kepaptsoglou *et al.*, 2010; Drury *et al.*, 2014). Hence, there is a less sufficient theoretical ground to hypothesize how this measure affects bilateral and multilateral PTAs. Nevertheless, this paper

includes this variable, since some research did employ it by arguing trade and PTAs to depend not only on national income but also on per capita income.

Geographic proximity is perhaps the most undisputed factor. It is used to estimate the cost of transporting goods and services and is consistently found to have inverse relationships with trade flows and PTAs (Mansfield *et al.*, 2002; Baier and Bergstrand, 2004; Kepaptsoglou *et al.*, 2010; Drury *et al.*, 2014; Yamamoto Rosenbaum and Kriekhaus, 2016). The logic is simple. When states are far apart from each other, transportation cost becomes high. The expensive transportation then makes intensive trade difficult. Consequently, the pair of these states is unlikely to consider PTAs. Given the concrete evidence, this paper expects the greater distance to reduce the possibility of both bilateral and multilateral PTAs.

While the previous literature suggests a wide array of economic factors to influence PTAs, this paper adds two more factors that have been discussed by several prior studies. The first one is a joint membership of a pair of countries in the WTO. This international organization plays an important role in setting the global standard for trade and providing legal mechanism for trade disputes. Thus, the WTO membership can signal member states' adherence to the rules of market and trade that are nearly universal across the world (Molders, 2012). Accordingly, the shared membership between states can serve as a sign of states' credible commitments to PTAs (Mansfield and Pevehouse, 2013).

This paper contends the WTO membership to particularly help increase the rise of bilateral PTAs rather than multilateral PTAs due to structural difference. Multilateral PTAs tend to come with tighter enforcement mechanism (Kono, 2002; Mansfield and Pevehouse, 2013). For instance, Customs Union requires all member states to agree on the imposition of jointly optimal tariffs against external countries. More 'deeply integrated' multilateral PTAs such as Common Markets and Economic Unions go even further to regulate the factors of production and monetary relations of member countries (Plummer *et al.*, 2010). This kind of a structure is necessary because multilateral PTAs are more complex by nature. They usually involve the large numbers of states and trade items to be negotiated (Molders, 2012). As a result, the development of multilateral PTAs necessitates fewer signals of the state commitments, namely the WTO membership. Credible commitments of states would naturally follow the signature of such highly institutionalized PTAs.

By contrast, the structure of bilateral PTAs tends to be exactly opposite. These trade agreements are 'self-enforced' while covering a much narrower range of members' interests in trade and investment (Mansfield and Pevehouse, 2013). In doing so, one of the common outcomes is the limited use of PTAs. For instance, the Japanese External Trade Organization has found that <50% of eligible users have utilized Japan's bilateral PTAs over the last decade. It is due to the offset benefits of PTAs through the voluntary application process for using the agreements, floating exchange rates, complicated rules of origin and other mechanisms that allow firms to trade 'freely' without the agreements (Ravenhill, 2010; Yamamoto, 2012). Hence, this article expects joint WTO membership between states to stimulate bilateral PTAs. The membership is likely to serve as a key indicator of states' commitments to more loosely structured PTAs between couple of states.

The last economic factor explored in this research is the level of states' exposures to free trade. This factor can be interpreted in two ways. First, it reflects states' openness to liberal trade. While PTAs are essentially agreements for the liberalization of trade, higher degrees of trade openness between countries are likely to lead to the greater probability of a PTA (Liu, 2008). The level of exposures to free trade also gauges states' capacities for trade negotiation. Countries with existing PTAs can attract potential partners much more than non-experienced countries. For instance, South Korea signed a bilateral PTA with Chile in 1999 without liberalizing agricultural trade. This PTA led Japan to pursue a bilateral PTA with the Latin American state, as the Korean PTA became a precedent of a semi-liberal trade agreement, which solved Tokyo's similar concern over agricultural trade (Yamamoto Rosenbaum and Kriekhaus, 2016).

This so-called 'chain effect' also emerges out of states' fears for being discriminated from liberal trade networks developed elsewhere (Baldwin and Jaimovitch, 2012). PTAs provide benefits

exclusively to members and therefore worry non-member states for the reduction in flows of trade and capital. This was evident from the discussed case of Japan–Mexico PTA, where NAFTA and EU–Mexico PTA disadvantaged Japanese firms in market competition in North America. In addition, Kim (2008: 56) argues that the Korean national strategy to utilize PTAs was implemented partly as a ‘matter of survival’, while many states across the globe began to pursue liberal policies. Furthermore, empirical studies confirm these arguments, or specifically the contagious effect of PTAs, regardless of bilateral and multilateral forms (Chen and Joshi, 2010; Baldwin and Jaimovitch, 2012). They show that pre-existing PTAs generate stronger incentives for non-member countries to join PTAs and thereby create a linkage with those pre-existing agreements. Based on these existing literatures, this paper expects the level of states’ exposures to liberal trade to have a positive bearing on both types of PTAs.

2.2. Political factors

Research in the field of political economy also indicates considerable roles played by political factors in shaping the global development of PTAs. This paper analyzes two major factors examined in previous studies: (1) regime types and (2) political relationships. Regime type, or level of democracy, has been widely observed as the most common type of political feature. Democracy, often measured with ‘Polity’ score, refers to a political system with competitive and transparent processes of selecting leaders, political participations by the people, and institutional constraints imposed on decision-makers (Mansfield and Milner, 2012). Political scientists argue that nations under democratic systems are more likely to sign PTAs with each other. The median voter theorem particularly explains that democratic leaders prefer liberal trade policies or namely PTAs because these policies benefit the majority of consumers, who are also voters to choose those leaders (Mansfield *et al.*, 2002; Milner and Kubota, 2005; Liu, 2008).

In addition, Levy (1997: 506) contends that democracies may prefer bilateral PTAs if these agreements offer ‘disproportionately large gains to key agents in a country’. In fact, such a significant gain through PTAs is more feasible in a bilateral form. With only a couple of members involved, bilateral treaties allow member states to more freely customize the context of the PTAs (Mansfield and Pevehouse, 2013). Democracies also tend to involve a large number of actors in government with an ability to influence policy-making. With a massive presence of the so-called veto players, it is easier for democratic nations to ratify PTAs whose benefits are customized to these nations (Mansfield and Milner, 2012; Molders, 2012). Moreover, political studies demonstrate that this regime functions similarly to the WTO membership. Since democratic institutions decrease uncertainty in policy-making process with less likelihood of volatile changes in policies, the democratic regime can signal states’ commitments to international liberal trade agreements (Drury *et al.*, 2014). Thus, this paper proposes democratic regime to have a positive impact on bilateral PTAs rather than multilateral PTAs.

Another important political factor is political relations between states. Gowa and Mansfield (1993) show that allies are more likely to trade with each other than with adversaries because trading with hostile states would only provide the adversaries with a better financial capacity to build military against the opposing states. Based on the same logic, subsequent studies found the tendency for political allies to enter PTAs together than with non-allies (Mansfield *et al.*, 2002; Mansfield and Milner, 2012). Liu (2008) also observed the presence of militarized disputes to decrease the probability of PTAs between states. As such, an important point to realize is that these empirical results do not simply indicate the effects of an alliance or militarized disputes on PTAs but more broadly suggest the significance of political relations in terms of similarities in foreign policy preferences between states. While states with fewer common preferences can limit success of a possible PTA, an alliance or conflict represent some of the most distinctive national interests which open or close such trade prospects (Mansfield and Milner, 2012). In addition, many political relations today cannot simply be categorized as allied friends or fighting foes (Kastner and Kim, 2008; Davis and Meunier, 2011). For instance, solely focusing on alliance would neglect Japan’s close relationship with Thailand. By contrast, an

exclusive look at militarized disputes does not capture the post-World War II political tensions between Japan and China, which is often characterized with disagreements over various policy issues and negative public sentiments between the two countries (Davis and Meunier, 2011). Therefore, the effect of political relations on PTAs is better understood through similarities in policy preferences between states.

This paper expects the degree of such similarities to contribute much more to the global patterns in the rise of multilateral PTAs for two reasons. First, this argument relates back to the structure of multilateral PTAs. While these PTAs implement strong measures to regulate a wide range of trade items among multiple states, the possibility of the so-called distributional problems increases (Mansfield and Pevehouse, 2013). These problems include possible tensions rising between member states who are dissatisfied with the new status quo created under the enforced multilateral PTA. Hafner-Burton and Montgomery (2012) also show that PTAs may develop conflicts between members if these states benefit from the liberal trade agreement unequally. Thus, states in political affinity are more likely to join multilateral PTAs because countries with a suspicion of upcoming distributional problems would avoid committing to the well-regulated agreements. Political affinity can also help directing negotiations to reduce the possibility of distributional issues in the post-signature period (Mansfield and Pevehouse, 2000).

Second, the link between multilateral PTAs and political relations in terms of similarities in policy preferences can be derived through the studies of regional PTAs. Mansfield and Milner (2012) argue that PTAs tend to emerge between countries in a region, since these states are more likely to be some of the most important trading partners with a relatively cheaper transportation cost. Mansfield and Pevehouse (2013) also found that PTAs tend to expand as multilateral PTAs within regions rather than between regions. This is because states in a region tend to share more than economic interests and issues, such as political motives that are seen in the discussed cases of the EU and ASEAN. Another well-studied case is the NAFTA, which evolved from the PTA between the USA and Canada signed in 1987 and completed with the addition of Mexico in 1994. Hufbauer and Schott (2005) point out that the USA and Mexico saw NAFTA to offer mutually beneficial opportunities for expanding American export, solidifying Mexican market reforms, and improving political relations.

The ongoing yet sluggish negotiation on a trilateral PTA between China, Japan, and South Korea (CJK) is an alternative instance explaining the importance of political affinity. Many observers and scholars agree that the CJK is potentially the most profitable PTA among other Asian-Pacific trade treaties (Jianping, 2006; Corning, 2011). However, the researchers also recognize a political tension between Japan and the other two nations as an obstacle. This tension has specifically affected the East Asian states' behaviors in a way that these nations see regional cooperation primarily as a means to increase their own benefits 'relative to' others (Yoshimatsu, 2008). This realist type behavior makes it difficult for these nations to work toward the CJK-PTA with an equal distribution of benefits. Consequently, the implementation of the CJK has been difficult 'without a sound political foundation, no matter how important the economic relationship is' (Jianping, 2006: 33). Just like the 'successful' cases, this example highlights the significance of political relations in the development of PTAs. Given these arguments, this paper expects political relations between states to affect the rise of multilateral PTAs.

3. Research design

The remainder of this paper runs three logistic regression (logit) models to test the seven propositions developed in the theory section.³ The first model created in this analysis is called a general model. Just

³These logit models include Cubic Polynomials, which are a set of three variables to account for temporal dependence: the time elapsed since the last event (states' entry into PTA) as well as squared and cubed values of the first variable (Liu, 2008; Carter and Signorino, 2010).

like the previous studies, this model finds driving forces of PTAs regardless of bilateral or multilateral form. The second logit model is named a bilateral model, which evaluates the effects of factors that specifically give rise to bilateral PTAs. The third or multilateral model estimates the effects of the same factors on the rise of multilateral PTAs.

Three logit models are analyzed based on a dyadic dataset. Scholars concur that decisions made by states to enter PTAs, even for multilateral arrangements, are fundamentally made on a bilateral basis (Liu, 2008). Any multilateral coordination can be ‘infeasible’ without resolving bilateral issues between states (Yongtao, 2010: 88). For instance, Stone (2011: 96) shows that a trade negotiation at the WTO called the Uruguay Round stalled due to an issue of ‘bilateralism in a multilateral process’. Among over a hundred members present, the negotiation halted because of the disagreement over agricultural trade between two actors: the USA and the EU. The discussed case of CJK-PTA is another example. Negotiation among Northeast Asian nations has prolonged partly because of Japan’s tense bilateral relations with the two other nations, South Korea and China, which already possess a bilateral PTA since 2014. The dyadic dataset used in this paper includes the data of 194 countries during the last two decades, or particularly the time period ranging from 1992 to 2013. The initial year was set as 1992 to reflect a current landscape of the world political economy with a unified Germany, the EU, and Russia. This paper is also primarily interested in the rise of PTAs in the ‘modern age of globalization’, where many countries across the world have rushed to search bilateral and multilateral PTAs.⁴

For the general model, a dependent variable (denoted as PTA) equals 1 if a pair of states enters either bilateral or multilateral PTA at a given year and 0 otherwise. The variable has the positive value only for the year when the trade agreement goes into effect or is enforced. The bilateral model uses a dependent variable, which records 1 for a pair of countries entering a bilateral PTA and 0 otherwise. For the multilateral model, a dependent variable is equal to 1 if a pair of countries joins a multilateral PTA and 0 otherwise. These measures are created based on the WTO dataset.

The following independent variables are included to test the propositions developed in the previous section. The descriptions of these variables are kept concise since the last section provided substantial discussions as to why and how certain economic and political factors matter to the rise of bilateral and/or multilateral PTAs. Market size is measured with the product of logged GDP of a dyad, denoted as ‘LN(GDP)’. Another variable derived from the gravity model is the product of logged GDP per capita, denoted as ‘LN(PC)’. The data of GDP and GDP per capita are retrieved from the World Bank. The ‘distance’ variable is measured with distance between capital cities in miles. It serves as a proxy for transportation cost. The ‘exposure’ variable measures the varying levels of states’ exposure to free trade. It counts the total number of PTAs owned by each country of a dyad, while excluding the enforced PTA between the dyad itself. The ‘WTO’ variable equals 1 if a pair of countries shares membership to the WTO and 0 otherwise. To evaluate the link between democracy and PTAs, the ‘Polity’ score is included. This variable created by Marshall *et al.* (2015) initially measures a level of democratic development (or maturity of a democratic regime) in a single country in a scale of –10 to 10 based on several factors.⁵ The consensus is that a value of 6 and above refers to a country being highly democratic, while a value of –6 or below indicates a country being highly autocratic. The ‘Polity’ score used here simply calculates the sum of these original polity scores between the pairs of countries, ranging from –20 (for a pair of completely autocratic states) to 20 (for a pair of fully democratic states).

Three variables are included to measure political relations in terms of similarities (or differences) in states’ policy preferences. First, this research includes the ‘alliance’ variable because the presence of an

⁴While states continue to seek PTAs, the dataset up to 2013 may not be optimal. However, it should be sufficient enough to analyze the patterns on PTAs in the current age of globalization. Moreover, recent data tend to come with missing values since temporal and financial constraints prevent institutions from collecting and publishing ‘complete’ data covering up to the very latest year.

⁵The score considers the competitiveness of executive recruitment, openness of executive recruitment (election), constraint on chief executive, and competitiveness of political participation (Marshall *et al.*, 2015).

alliance reflects the most similar policy preferences between states (Mansfield *et al.*, 2002).⁶ The measure is created based on the Correlates of War (COW) data. It observes 1 if a dyad shares defense, entente, neutrality, or non-aggression pact with each other and 0 otherwise (Gibler, 2009). The second measure is called ‘affinity’ score, which proxies the degree of political climate between states based on voting patterns between nations at the United Nations General Assembly. The value ranges from –1 to 1 and shows the least (–1) and most (1) similar voting patterns (Voeten *et al.*, 2013). This measure is important to capture ‘general interest similarity’ between countries, whereas alliances mainly concern security interests of states (Kastner and Kim, 2008: 13). In addition, the previous section has discussed that most relationships today fluctuate ‘below the threshold of militarized conflicts’ and of political alliance (Gartzke *et al.*, 2001: 405; Davis and Meunier, 2011: 630). The third measure of political relations is named *Shared Region*, since states in the same region tend to share political, economic, and social issues. This variable equals 1 if the pair of states shares a region and 0 otherwise based on the categorization of regions by the COW: Europe, Middle East, Africa, Asia, North and South America.

4. Empirical results

This section begins with reporting the results of running the three logic models listed in Table 1.⁷ The first column reports the result of the general model. The second column shows the result of the bilateral model, and the third column exhibits the result of the multilateral model. A couple of points can be mentioned by quickly looking at this table. First, impacts of discussed factors clearly vary between bilateral and multilateral PTAs. In addition, the general model exhibits a different pattern as to which states are likely to enter PTAs when PTAs are not categorized. Thus, this table suggests insufficiency of the general model or previous empirical records to demonstrate how certain pairs of states tend to choose certain types of PTAs. The rest of this section looks at each finding from the bilateral and multilateral models, which are the main interests of this paper.

First, the bilateral model shows the estimated coefficient of GDP to be positive and statistically significant. This supports the first proposition discussed in the theory section. That is, a pair of countries with a large market is more likely to enter a bilateral PTA with each other. The estimated coefficient of GDP per capita varies between the second and third models. The variable has a negative impact on bilateral PTAs while it shows positive bearing on multilateral PTAs. A feasible explanation for the former result is the rapid increase in the number of the so-called north–south PTAs between developed economies and LDCs (Manger, 2008; Baldwin and Jaimovitch, 2012). As mentioned earlier, the asymmetric form of trade agreement has become popular since rich nations can take advantage of differences in the levels of economic development to pursue their specific interests in PTAs. LDCs also benefit from such bilateral PTAs by deepening economic relations with capital-rich economies (Kono, 2008; Liu, 2008). Hence, the result can serve as an empirical evidence for the spread of north–south PTAs. The result from the multilateral model can suggest a smaller difference in economic development to stimulate the formation of multilateral PTAs. This is consistent with the work of Mansfield and Pevehouse (2013), which shows a tendency of a more economically similar pair to join ‘building-block’ PTAs or namely multilateral PTAs.

The ‘distance’ variable is inversely associated with the rise of both bilateral and multilateral PTAs. This was expected through the third proposition developed in the previous section. Put differently, there is an indisputable pattern that higher transportation cost discourages states to enter PTAs regardless of types. The estimated coefficient of a shared WTO membership between states is positive and statistically significant in the bilateral model but not in the multilateral model. This result

⁶The presence of militarized conflicts is used previously since it reflects the most distinctive preferences of states. Yet due to a limited availability of the data in terms of time period, this measure is not included in this research.

⁷All of these models are estimated with cubic polynomial variables in order to account for temporal dependence (see Research design section). To save space, the estimated coefficients of these variables are not reported in the table.

Table 1. Results of logistic regression models

Variables	(1) General	(2) Bilateral	(3) Multilateral
LN(GDP)	0.15*** (0.03)	0.26*** (0.01)	0.099 (0.07)
LN(PC)	0.29*** (0.05)	-0.09*** (0.02)	0.42*** (0.13)
Distance	-0.0003*** (0.00)	-0.0003*** (0.00)	-0.0003*** (0.00)
Exposure	0.081** (0.035)	0.04 (0.03)	0.08 (0.07)
WTO	0.56*** (0.16)	0.41*** (0.05)	0.42 (0.29)
Polity	-0.03*** (0.01)	0.038*** (0.001)	-0.07*** (0.01)
Alliance	0.89*** (0.18)	-0.06 (0.12)	1.2*** (0.4)
Shared region	1.25*** (0.26)	-0.4* (0.24)	3.07*** (0.4)
Affinity	0.5 (0.34)	-0.62*** (0.23)	1.98*** (0.75)
Number of observations	220746	231,047	225,335

(1) *** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$. (2) Standard errors in parentheses. (3) Standard errors are clustered in regional organizations such as the EU and ASEAN that pursue FTAs as a single actor. We do this by following the idea that errors should be clustered at the highest level in which correlation of residuals occurs. While some researches cluster errors on dyads, the results presented here are robust to the specification using dyad-based clustered errors.

confirms the fourth proposition of this paper. A joint membership in the international trade organization plays an important role in signaling states' commitments to PTAs that are more necessary for bilateral PTAs to form. The estimated coefficient of the level of states' exposure to liberal trade is only statistically significant in the general model. This outcome can suggest that states' greater exposures to free trade are generally important for the global rise of PTAs. However, this feature does not critically affect the decisions as to which form of PTA states are likely to enter, failing to confirm the fifth proposition. Democracy measured with the 'Polity' score yields different effects on bilateral and multilateral PTAs. First, the result from the bilateral model supports the sixth proposition. More democratic countries are prone to enter bilateral PTAs with each other. On the other hand, pairs of less democratic countries appear to have a higher chance of joining multilateral PTAs. One possible account for the result is that less democratic countries tend to be smaller in market size and therefore are more willing to utilize multilateral PTAs as a way to improve their economic performances. In fact, discussed cases of the EU and ASEAN do suggest that relatively small economies in these regions saw creations of these organizations as solutions for boosting their bargaining powers in the international community (Yoshimatsu, 2008; Spolaore, 2013).

The empirical analysis also provide support for the last proposition built in the previous section – that is – a tendency for political relations to matter more for the rise of multilateral PTAs. All of the estimated coefficients of the 'alliance', 'affinity', and 'shared region' are statistically significant and positive in the multilateral model. This suggests that greater similarities in policy preferences between states are much more important for multilateral PTAs to form than bilateral PTAs. In other words, political affinity is much more necessitated in the development of multilateral PTAs, in order to overcome a complex and exhausting process of entering the highly institutionalized PTAs and avoid the future rise of tensions between members over the distribution of benefits under the enforced PTAs. On the other hand, the coefficients of the 'affinity' and 'shared region' variables are negative and statistically significant in the bilateral model. These results can be reasoned with the loose structure of bilateral PTAs. First, the theory section has discussed that bilateral PTAs are usually self-enforced and less likely to restructure economic relations of states (Mansfield and Pevehouse, 2013). Thus, this type of PTA is more desirable for states to pursue particular interests in trade and investment without worrying too much of their political relations or altering their economic relations entirely.⁸

⁸One example of such a bilateral PTA is China–Taiwan trade agreement. Nakagawa and Liang (2011) argue that this PTA was signed despite long-lasting political tension over the issue of sovereignty because the agreement is fundamentally a 'low quality and economically less meaningful' (19–20). Many items 'that may be difficult to deal with in the short time' are excluded from the Chinese PTA so that trade relations with others namely Taiwan would not have to be re-structured against the will of the government in Beijing (Nakagawa and Liang 2011: 20).

Table 2. Predicted probabilities and annual numbers of dyads joining PTAs

Characteristics of dyads	Predicted probabilities of a dyad forming a PTA		Predicted annual numbers of a dyad forming a PTA	
	Bilateral	Multilateral	Bilateral	Multilateral
Highest affinity	0.0005	0.0003	5.5	3.21
Lowest affinity	0.0037	0	40.7	0
Alliance	0.0005	0.0004	5.5	4.3
No alliance	0.0008	0.0002	8.8	2.14
Alliance, affinity, shared region	0.0002	0.009	2.2	96.6
No alliance, affinity, shared region	0.0043	0	47.3	0

For predicted probabilities, all remaining variables in these models are evaluated at their means.

In addition, while states from different regions share a fewer set of economic, political, and social issues, bilateral PTAs are more favorable for achieving a ‘narrow range’ of specific interests (Mansfield and Pevehouse, 2013: 594).

The remainder of this section briefly discusses Table 2. This table displays predicted probabilities for a pair of countries forming bilateral and multilateral PTAs. It is a standard practice for researchers to assess predicted probabilities since the estimated coefficients of logit models tell us little about the magnitudes of the effects of variables reported. In order to conserve space, this paper only discusses the predicted probabilities of states entering PTAs based on political relations.⁹

Table 2 also lists predicted numbers of dyads among 230,000 pairs entering PTAs given a year based on political climate between states. These numbers help shed light on the substantive meaning of the values of predicted probabilities, which fluctuate below 1% and ‘seemingly’ suggest insignificant importance of political relations on the rise of bilateral and multilateral PTAs. To calculate the annual numbers, this paper follows a method created by Mansfield *et al.* (2002). The predicted probabilities of the pair of countries joining a PTA are multiplied by the total number of observations (231,047 for the bilateral model and 225,335 for the multilateral model) and then divided by the number of the observed years (21).

The predicted probability of allies (where the ‘alliance’ variable = 1) joining multilateral PTAs is 0.0004, and the probability of non-allies (where the ‘alliance’ variable = 0) joining multilateral PTAs is 0.0002. These values can be translated into the annual predicted numbers of 4 and 2. In other words, there would be four pairs of allies and two pairs of non-allies to enter multilateral PTAs in a given year. The predicted probability of pairs of countries with the highest ‘affinity’ score (1) is 0.0003. The value suggests that about three pairs of countries would join multilateral FTAs annually. This estimation is not trivial, especially since the predicted probability of dyads with the lowest ‘affinity’ score (−1) is zero. There would be virtually no chance of dyads with the exactly opposite interests in foreign policies to enter multilateral PTAs together. It is also worthwhile noting that this pattern is significantly different from the pattern shown in the case of bilateral PTAs. There would be 40 pairs of states with a lowest affinity score (−1) to enter bilateral PTAs, whereas the highest political affinity leads to only five pairs of states doing so.

Moreover, when combined with the influence of the ‘shared region’, the table shows stark differences in patterns between bilateral and multilateral PTAs. In the case of multilateral PTAs, the annual predicted number increases to 96, meaning that nearly a hundred pairs of allied states with the highest political affinity from the same region would sign multilateral FTAs annually. On the other hand, there would be no multilateral trade agreement between pairs of states without alliance, political affinity, and shared region. The case of bilateral PTAs shows an exact opposite pattern. While 47 pairs of states without similarities in policy preferences join bilateral PTAs, there would be only two pairs with

⁹The result of generating predicted probabilities based on other variables, which is not reported here, did suggest considerable effects of these variables on the rise of bilateral and multilateral PTAs.

such similarities to join the PTAs. In short, the analysis on predicted probabilities and annual numbers reinforces distinctive patterns as to which pairs of states are likely to join bilateral and multilateral PTAs.

5. Conclusion

Many scholars and observers saw the rapid proliferation of PTAs at the turn of millennium. This new phenomenon has prompted a wide range of economic and political studies to understand why states seek PTAs and the welfare effects of PTAs on these states. Surprisingly or not, very little systematic research has examined why states enter bilateral PTAs while other times they choose to join multilateral PTAs. This is an important inquiry to understand how states use PTAs as strategic policy choices, which have affected the global, regional, and state political economies. The view of PTAs as calculated choices has largely been apparent in case studies of bilateral and multilateral PTAs. Previous qualitative works on the EU, ASEAN, NAFTA, and other trade agreements have demonstrated multilateral and bilateral forms of PTAs to serve particular interests of states. As such, this paper strived to enhance the view of PTAs as strategic choices with cross-case evidence. It has derived and empirically tested hypotheses as to which pairs of countries are more likely to enter bilateral or multilateral PTAs during the last two decades. The analysis has provided empirical support for all developed hypotheses; a bilateral PTA is more likely to develop between states with large market size, joint WTO membership, and higher democratic development. A multilateral PTA tends to form between less democratic countries but with greater similarities in policy preferences or better political climate. Both types of PTAs are generally more possible in states with cheaper transportation cost. Ultimately, these findings not only reinforce the validity of case studies on PTAs but also bring the qualitative and quantitative studies closer. This research has utilized both types of researches to derive the hypotheses. Nevertheless, as states continue to pursue and develop bilateral and multilateral PTAs, further research should follow to examine how newly developing PTAs would change or conform to the observed patterns and why.

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