Democratization and trade policy: an empirical analysis of developing countries

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Democratization and Trade Policy: An Empirical Analysis of Developing Countries[1]

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Introduction

The impact of domestic institutions and trade policy remains a controversial subject. Indeed, despite empirical and historical evidence that democracies are more likely to implement trade liberalization (Milner and Kubota, 2005; Verdier, 1998), several authors (Haggard, 1993; Rodrik, 1995b) have challenged this argument. Moreover, the external validity of the claim that democratic regimes are keener on trade openness than autocracies is contradicted by several important cases. For instance, why was autocratic France more open to trade than the democratic US in the first half of the nineteenth century? For that matter, why were autocratic Asian countries, such as South Korea and Taiwan, more open than India, the largest democracy in the world, during the 1980s?

My paper contributes to the vibrant debate on changes in type of regime and trade policy by focusing on *preferential trade agreements* (henceforth PTAs). PTAs are international arrangements under which each member grants special market access to all the other members' products (Anderson and Blackhurst 1993; Bhagwati and Panagariya 1996; de Melo and Panagariya 1993; Pomfret 1988). The key element of a PTA is that members set lower trade barriers on goods produced within the preferential grouping than on those produced elsewhere (Viner, 1950). PTAs include free trade areas (*e.g.* the Asean Pact), common markets (*e.g.* NAFTA), customs unions (*e.g.* CARICOM), and economic monetary unions (*e.g*. the EU). I define and use the concept of PTAs in the broadest sense possible to include all these types of preferential instruments without distinction between bilateral and regional agreements.[2]

In this paper I ask the following research question: how does democratization affect the formation of preferential trade agreements? During the past 20 years, PTAs have proliferated dramatically. The number of agreements in force now is around 400, having increased eight-fold in the last two decades. The WTO counted 30 new PTAs in 2003 and 2004 alone. Thus, PTAs are currently among the most important instruments of international economic policy (Limao, 2007). As Figure 1 shows, the fact that the sudden rush to regionalism closely followed the third wave of democratization, which raised the number of democratic regimes from approximately 30 in 1975 to 120 in 2002 (Huntington, 1991), suggests that the two types of reform may be related.[3] Surprisingly, the impact on economic integration of large-scale changes in political institutions, especially in the direction of democratization, has been given little consideration in the IR literature.[4]

FIGURE 1 ABOUT HERE

Using a political economy perspective, I fill this gap in the field. The argument developed in this paper is that the process of democratization in developing countries (henceforth, LDCs) constitutes an important factor in the formation of PTAs.[5] However, and in line with recent findings in international trade literature (Kono, 2008; O'Rourke, 2007), democratizing LDCs are more likely to form a PTA with richer countries, whereas there is little evidence that democratic transition affects the probability of an LDC joining a PTA with other LDCs. This result follows naturally from median voter preferences and the Heckscher-Ohlin and Stolper-Samuelson theorems (henceforth, H-O-M) theorems. Put simply, the median voter gains from trading with the richer states and loses from trading with the other poor states. Thus, assuming that democratization forces political leaders to implement trade liberalization to please the median voter, PTA formation is an appealing trade policy that allows an LDC to decrease tariffs with developed economies without having to do the same with other LDCs. I test this argument by using a battery of

econometric tools and an original dataset that covers 135 developing countries from 1990 to 2007.

My main contribution is to show that democratization does not uniformly promote trade liberalization. Democratic transitions in LDCs increase the risk of "hub-and-spoke" trading relations. Specifically, democratizing LDCs are tempted to decrease tariffs with developed countries, but not with other LDCs. Somewhat paradoxically, the spread of political franchise could become a burden for those poorer countries that face the trade diversion created by the proliferation of PTAs. Echoing Kono's findings (2008), I suggest that there might be a tension between domestic political equality and international economic equality. Moreover, this ambiguous relationship between type of regime and free trade helps to explain the reasons why the number of north-south PTAs has grown so fast in this current wave of globalization (Ethier, 1998).[6] PTAs respond effectively to the need for democratizing LDCs to integrate their economies into the global system while discriminating against direct competitors with regard to labor-intensive goods.

This paper is structured as follows. The following section describes the theoretical framework that constitutes the basis of the discussion and develops a testable hypothesis. The second part introduces the model and explains the methodology that has been used to test the hypotheses. The third section shows the empirical results of the econometric analysis. The fourth section provides some robustness checks. Finally, some conclusions are drawn.

1. Theory and Hypothesis

One of the most important trends in the world economy since 1980 has been the progressive trade liberalization among countries across the globe (Milner, 1988: 91). In order to explain this tendency, three main arguments that focus on domestic politics have been made. First, several scholars focus on the preferences among domestic groups

(Rogowski, 1989; Grossman and Helpman, 1994; Haggard and Kaufmann, 1995). Specifically, domestic groups lobby their own governments to implement protectionist or liberalization policies in relation to their economic interests. Second, other scholars argue that political and economic institutions are central to explaining trade liberalization (Mansfield and Busch, 1995; Rodrik, 1995a; 1995b; Verdier, 1998). In particular, in opposition to studies that claim that the preferences of actors play the decisive role, this part of the literature argues that institutions aggregate such preferences and that different institutions do so differently, thereby leading to distinct outcomes. Finally, a few studies have tried to combine domestic preferences and political institutions (Gilligan, 1997; Milner, 1997).

This paper focuses mainly on the role of political institutions in trade liberalization. My argument is similar in spirit to those of Milner and Kubota (2005) and Kono (2008). In particular, I move from the assumption that the third wave of democratization has contributed to the movement toward free trade among countries. Several n-large studies have corroborated the hypothesis that democratization leads to trade liberalization (Costa Tavarez, mimeo; Milner and Kubota, 2005), including several works focused on specific regions, such as Latin America (Murillo, 2001; Weyland, 2002). The mechanism that supports this argument is based on the H-O-M, which explains the effects of free trade on income distribution among productive factors. Moreover, the thesis put forward by Bueno de Mesquita *et al.* (1999) that democratization involves the expansion of the winning coalition links the previous two theorems to policymakers' decisions. Generally speaking, the size of the winning coalition is negatively related to the optimal level of protectionism for political leaders (Milner and Kubota, 2005). More specifically, in developing countries, which are the main targets of democratization, workers tend to benefit from liberalization through increase in their income and reduction in the prices they have to pay for products and services (Acemoglu and Robinson, 2001; 2005).

These two mechanisms are clearly related to one another. As Mayer (1984) and Yang (1995) posit, political leaders respond to voters' preferences vis-à-vis trade policy. Developing countries are usually well endowed with labor but poor in capital and usually

trade with developed countries that are rich in capital but less so with regard to labor. Thus, according to the H-O-M, in developing countries a protectionist trade policy benefits the few individuals who are well endowed with the relatively scarce factor (capital) and penalizes the vast majority of people who are well endowed with the relatively abundant factor (labor). Voter preference as a motivating factor in politicians' trade policy decision-making does not likely apply to autocracies, in which the selectorate is quite restricted and elections never occur or, when they do occur, are not fair. However, when democratization occurs, electoral competition may modify the strategies of political elites. In fact, in order to keep office, political leaders are forced to remunerate the vast majority of voters and to gain the support of a larger selectorate. As a regime becomes more democratic, trade liberalization may become an appealing tool to gain electoral consensus. Indeed, lowering tariffs increases the income of workers employed in export-oriented firms, which produce labor-rich goods, and decreases the prices of imported capital-rich commodities.[7]

Kono (2008) develops the dyadic implications of Mayer's model. Specifically, the H-O-M theorem states that a country *i* will import labor-intensive goods from country *j* if the latter is relatively labor-abundant, but will import capital-intensive goods from country *j* if the latter is relatively capital-abundant. Thus, labor-rich median voters should seek protection against labor-abundant countries and liberalization with capital-rich countries. In other words, median voters of LDC *i* should agree with liberalizing trade with a richer (developed) country and should oppose trade liberalization with other LDCs. Hence, since the process of democratization leads to the "median voter's dictatorship" (Hinich, 1977), in which governments that want to stay in power are forced to take these preferences into account in setting trade policy. In sum, the dyadic implication of the H-O-M is that democratizing LDCs are likely to liberalize trade with developed countries, but not with other LDCs.

1.1 Why Preferential Trade Agreements?

If the H-O-M suggests that democratizing LDCs are under pressure to liberalize trade with richer countries, why choose to form PTAs? What are the advantages of signing a PTA rather than implementing a unilateral reduction of tariffs, *e.g.* Chile during Pinochet's dictatorship, or multilateral trade liberalization through the GATT/WTO? I advance the argument that PTAs allow LDCs to waive the "most-favored nation" (MFN) clause included in the GATT/WTO and thus discriminate against other LDCs.[8] The principle of MFN as articulated in GATT Article 1 states that countries cannot normally discriminate between their trading partners. If country *i* grants country *j* a lower customs duty rate for one of its products, country *i* has to do the same for all other WTO members. As Grossman and Helpman note (1995: 668-669), PTAs represent an important exception to the principle of MFN. Specifically, country *i* may enter into a PTA and decrease tariffs only with country *j* if they eliminate "duties and other regulations of commerce" on "substantially all trade" among themselves.

Since the median voter in an LDC benefits from trading with richer countries but not with poor ones, forming a PTA is a valid policy to bolster trade with developed economies without having to decrease tariffs with other LDCs.[9] This argument is firmly grounded in the trade literature. Ethier (1998: 1150-51) argues that the "new regionalism" (Mansfield and Milner, 1999) typically involves one or more developing countries signing a PTA with a developed country. His justification for this claim is that developing countries have abandoned anti-market policies and are now trying to join the international trade system. Krueger (1999: 118) notes that a PTA allows member countries to liberalize beyond the extent that can take place multilaterally. What I add and show here is that in presence of democratic transition this further trade liberalization takes place only with a selected number of countries, *i.e.* developed countries. Finally, my argument is symmetric to that developed in Levy's model (1997). Levy's model explains the reasons why countries may block multilateral liberalization in the presence of bilateral agreements. Conversely, my argument shows the reasons why LDCs want to form a PTA even in the presence of, and in fact due to, multilateral liberalization.[10]

A further element must be taken into account along this line of reasoning. Rich markets are limited in number. Since several LDCs have experienced a democratic transition in the past 30 years, political elites in such countries face strong competition among other LDCs seeking to sign PTAs with developed countries. In this scenario of "competitive liberalization" (Bergsten, 1996; 2002; 2005), LDCs seek PTAs with developed economies also to secure their market access in rich countries against direct competitors (Perroni and Whalley, 2000: 2). For instance, Krueger (1999: 117) reports plants migrating from the Caribbean (where tariff-free entry into the United States had been granted under the Caribbean Basin Initiative) to Mexico when NAFTA came into force. In addition, PTAs help to stabilize trade relationships between countries in the north and south (Mansfield and Reinhardt, 2008). In particular, a PTA between an LDC and a developed country reduces the probability that the latter will impose a form of contingent protection, such as antidumping, still possible in the GATT/WTO (Hoekman and Djankov, 1996).

A good example of such dynamics is the trade liberalization that took place in former communist countries. As Hoekman and Djankov note (1996: 12), the reduction of tariffs implemented by East European states with the EU countries went far beyond the reduction of tariffs agreed in the WTO. This was possible because virtually every Eastern European country formed a PTA with the EU in the early 1990s. Whereas only 29 percent of East European countries exports went to the EU in 1989, that proportion rose to over 60 percent in 1994 and continued to increase in the following year. In sum, during the transition from communism to democratic institutions, political elites in East Europe used the opportunity to export labor intensive goods to Western European countries, discriminating toward other competing LDCs. Moreover, the formation of a PTA in this case contributed to building a stable and strong relationship with the other European partners, easing future access the EU.

1.2 Hypothesis

The previous section explored the main reasons why a process of democratization encourages PTA formation between north-south countries. On the one hand, the H-O-M implies that democratizing poor countries are likely to liberalize trade with richer partners but not with poorer ones. This arises due to the need to remunerate the median voter who is rich in labur. On the other hand, PTAs are an instrument for democratizing poor countries to liberalize trade with richer partners without violating GATT/WTO rules. Indeed, the GATT/WTO prohibits such discrimination, except in the special case of PTA formation, in which case it is legal under Article XXIV. With these insights in hand, a testable hypothesis can be formulated as follows.

Hypothesis: As countries implement a process of democratization, the probability that they will join preferential trade agreements with richer countries increases.

Notably, I am not arguing that democratization uniformly promotes liberalization. Following the H-O-M there is no reason to expect that a democratic transition would increase the probability of forming a PTA with poor countries. Thus, the positive impact of democratization on PTA formation is limited to north-south dyads. Moreover, I am agnostic as to the relationship between the formation of a PTA and the implementation of multilateral or unilateral liberalization. Demonstrating whether PTAs are "building blocks" or "stumbling blocks" is beyond the scope of this paper.[11] As far as my argument goes, these different types of trade liberalization are complementary and do not exclude one another. For instance, Eastern European countries liberalized their markets unilaterally in the Uruguay Round during the 1990s. However, using PTA formation as trade policy, this liberalization was more pronounced with the rich Western European countries than with other LDCs. Finally, there might be several reasons as to why developed economies want to form a PTA with LDCs, although this runs against the H-O-M, *e.g*. politically stabilizing a neighboring region, decreasing immigration, or geo-strategic reasons. For one, Manger (2009) argues that developed countries sign PTAs with developing countries for two main reasons. On the one hand, they may try to gain an edge over other developed countries by creating discrimination against foreign investments from these countries. On the other hand, they may sign such agreements to

re-establish a playing field for their own multinational companies after another developed country signed a trade agreement with an emerging economy.

2. Research Design

In order to test the previous hypotheses, the following model was built:

$$y_{ij,t} = \beta_1 \text{ Democratization}_{ij,t-1} + \beta_2 Z_{ij,t-1} + \varepsilon_{ij,t} \qquad (1)$$

Where Y is the dependent variable, Democratization is my main independent variable, Z is the vector of control variables, and ε is an i.i.d. error term with a constant mean and finite variance.

2.1 Dependent Variable

To arrive at my dependent variable, for each dyad I coded whether it signed a trade agreement in a specific year. Specifically, the dependent variable, PTA, equals 1 if two countries join the same PTA in given year *t*, 0 otherwise. This allows me to calculate the time in terms of years that a dyad goes without signing an agreement, that is, the hazard rate. In line with previous studies (Mansfield et al., 2002; 2008), I opted for the year of signature rather than the year of entry into force of an agreement. I analyze the first PTA as well as the following PTA(s) signed by the same dyads.[12] Hence, pairs of countries are not dropped from the dataset after forming a trade bloc. However, since forming a PTA and deepening or widening an existing one might be seen as distinct processes, I run separate analyses for the first PTA signed by a dyad and for any subsequent PTAs to check the robustness of my results (see the section "Robustness Check").

To establishing the list of trade agreements used to test my hypothesis I have largely relied on three different databases, namely the list of PTAs notified to the WTO, the Tuck Trade Agreements Database, and the McGill Faculty of Law Preferential Trade Agreements Database. Excluding partial-scope agreements and agreements that envisage no preferential treatment, I find that 257 preferential trade agreements were signed and that 2227 dyads score 1 between 1990 and 2007. Specifically, 1771 dyads signed a PTA and, amongst these, 456 dyads signed more than one PTA. Importantly for my argument, 699 dyads formed a north-south PTA during the period of investigation, whereas 1528 dyads former a south-south PTA.

2.2 Democratization

To test my central hypotheses, I include variables measuring regime change. These variables are derived using two widely used datasets: Freedom House (2009) and Polity IV (2008). Both datasets include annual information on various institutional attributes of a large number of countries in the international system. Moreover, since each dataset contains a component that measures the level of political competition, they both allow testing of the causal mechanism described above.

Freedom House includes the component "political rights" (henceforth, PR), which includes three subcategories: Electoral Process, Political Pluralism and Participation, and Functioning of Government. This variable ranges between 1 and 7, with 1 representing the highest and 7 the lowest level of freedom. Polity IV includes the component "XRCOMP" that refers to the competitiveness of executive recruitment. This variable scores 1 if chief executives are determined by hereditary succession, 2 in the presence of dual executive in which one is chosen by hereditary succession and the other by competitive election and 3 if chief executive are chosen through competitive elections matching at least two parties or candidates. As a robustness check, I used also the component "XRREG", *i.e.* regulation of chief executive recruitment.

To operationalize regime change, I follow previous works in the IPE/IR literature (Gleditsch and Ward, 2000; Mansfield and Pevehouse, 2008). Specifically, the variable Democratization equals 1 if state *i* changes from a non-democratic polity, *i.e.* PR>2 and XRCOMP<3, to a democracy, PR=1=2 and XRCOMP=3, between years t−5 and t; 0 otherwise.[13] I take a conservative approach in defining democratic transition, since my causal mechanism is very much built upon the presence of electoral competition, as said. Thus, moving from a "non free status" (autocracies) to a "partially free status" (or anocracies) is not expected to trigger my mechanism if electoral competition is still weak and so there is no need to please the median voter. In the Robustness Check section I relax this strict operationalization and show that my results still hold.

In this dataset, about 43 percent (Freedom House) and 23 percent (Polity IV) of the dyads implement a process of democratization. Since I work with indirect dyads, *i.e.* there is the dyad *ij* but not the dyad *ji*, I take the minimum value of Democratization between the two countries in the dyads, if they are both LDCs. Conversely, I *always* take the value of Democratization scored by the LDC in case of north-south dyads. I do this because my argument focuses entirely on the development world in which the median voter is rich in labor. Note: taking the minimum value between the two countries score seems to be the appropriate way to go, since forming a PTA requires that *both countries* agree on that.[14] For instance, if the Czech Republic democratizes, but Zimbabwe does not, from the way in which I described the causal mechanism above, there is no reason to believe that the latter country would agree to form a PTA with the former.

2.3 Control Variables

Since other factors are likely to influence the chances of two countries signing a PTA, I include a series of characteristics of the dyad under analysis and the context in which a dyad considers concluding an agreement. Doing so is vital in order to avoid overestimating the effect of the main explanatory variables, as parallel policy choices may be a result of correlated unit-level factors or exogenous shocks that are common to various dyads. In line with previous studies in the field, I hence include several

economic, geographical, and political control variables in my model. Most of these variables are lagged by one year to avoid endogeneity problems. Moreover, in line with the indirect dyads setting, I use always the minimum of the two countries' values. Again, I chose the minimum value to capture the fact that a necessary condition for having a PTA is that both countries agree on forming it.

Concerning the variables capturing the economic conditions under which the pair considers signing an agreement, I control for the amount of trade between the two countries, as an increase in trade may boost the probability of the two forming a PTA (Trade). Large trade flows are likely to be accompanied by investments that are relation-specific, making traders dependent on access to each other's markets. They then may ask for a PTA to lock in the existing situation and forestall protectionist trade policies from either side (Yarbrough and Yarbrough, 1992). The variable Trade may also be an important driver since the positive welfare effects of a PTA should be more significant for countries with large trade flows already existing before the conclusion of the agreement (Bhagwati, 1993). Furthermore, it can be hypothesized that signing an agreement between two economies of a relatively equal size should be easier than signing one between a large and a small economy. Among the reasons for this is that a small country may fear becoming overly dependent on a large country and that for a large country the economic benefits of an agreement with a small country are likely to be minor. The welfare gains from an agreement may also increase as the parties to an agreement become more similar in economic size (Baier and Bergstrand, 2004). The measure that I use for this variable is the absolute difference in GDP between the two countries (SIM).

I also include a measure of 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 Baier and Bergstrand (2004: 45) argue, a preferential agreement between two large economies increases the volume of trade in more ways than an agreement between two small economies. In addition, a more sizeable increase in trade between two large countries causes a larger net expansion of demand and, hence, a larger

rise in real income. I capture this idea by including GDP (GDP). A further 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 liberalization (Ruggie, 1982). The variable that captures this argument is the GDP per capita (GDP Per Capita). The final economic variable that I include is economic growth, labeled GDP Growth, as a downturn in the business cycle in at least one of the two countries may increase the probability of a preferential trade agreement being formed (Mattli, 1999).

At the international level, it is quite straightforward to assume that military allies should be more likely to sign an agreement than other pairs of countries (Alliance). Moreover, I include three variables that capture the geographic position of the two countries. For one, neighboring 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, I expect countries that share a common border to be more likely to sign an agreement with one another (Contiguity). In addition, since trade costs increase with distance, geographically proximate countries are more likely to form a preferential trade agreement (Krugman, 1991; Baier and Bergstrand, 2004). I thus include the (natural logarithm) distance in kilometers between the two capitals of the pair of countries in my model (Distance). Finally, I control for whether at least one of the two countries is an island, as the specific geographical circumstances of such countries may influence the likelihood of their signing an agreement (Island).

I also include three control variables to 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, I consider the possibility that during WTO-sponsored multilateral trade negotiations countries' propensity to conclude PTAs increases (WTO Round). I also control for the argument that having a dispute with a third party should increase the probability of forming a PTA (Mansfield and Reinhardt, 2003). This last variable is labeled Trade Dispute Third Party.

I 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 language, same religion, and common colonial heritage (Language, Religion, and Colony). Moreover I include the variable Diffusion that calculate for each country-year *i* the (natural logarithm of) number of PTAs to which the country *i* is member prior time *t*. This is another proxy for the domino effect (Mansfield and Reinhardt, 2003). Finally, I include the dummy South-South, which scores 1 if countries *i* and *j* are LDCs; 0 otherwise. Univariate summary statistics and data sources for all of these variables are available in Table 1.

TABLE 1 ABOUT HERE

2.4 Model and Case Selection

The unit of observation consists of all undirected dyads of 167 countries. More precisely, in the dataset there are 132 developing countries and 35 developed economies. Dyads between north-north countries have been dropped (around 7700), since this study deals only with the process of democratization of LDCs. Distinguishing between north-south dyads and south-south dyads is crucial for the purposes of testing my hypothesis. The analysis involves 18 years from 1990 to 2007.

To estimate the model described in Equation 2, I use a Cox proportional hazard model. Regarding the use of survival analysis, there are important reasons to give preference to

this approach over the ordinary logistic regression. Since "time is of the essence" (Box-Steffensmeier and Jones, 1997) in the formation of PTAs, the event history model appears to fit perfectly in this kind of analysis. Indeed, the main interest of this paper is to determine how the duration spent in one social state, *i.e.* absence of trade arrangements, affects the probability that some dyads will make a transition to another social state, *i.e.* forming an PTA. In other words, and more intuitively, assuming that countries that sign a PTA "die" in this setting, I argue that democratization makes them die quicker than autocratization.

Since the process of formation of a PTA is dynamic, a dynamic model is needed. Among several history models, the Cox Proportional Hazard model (1972) has been chosen because of its elegance and computational feasibility and because it makes no assumption about the shape of the hazard over time.[15] Since there are no *a priori* reasons to make any reasonable assumptions about the shape of the hazard in the case of the formation of PTAs, this latter feature of the Cox model is particularly welcome in this study. Since I analyze recurrence of PTAs in the same dyad, I use a Cox model with the inverse Gaussian Frailty extension.[16] Indeed, Monte Carlo simulations have shown the advantage of this model (Box-Steffensmeier and DeBoef, 2007; Svolik, 2008).[17]

Finally, due to panel heteroskedasticity or serial correlation, tests of statistical significance for the parameter estimates may be biased. In some recent research on the statistical analysis of time-series cross-section data with a binary dependent variable, Beck and Tucker (1996) and Beck *et al.* (1998) argue that one solution to this problem is to base significance tests on Huber standard errors, since they take account of any heteroskedasticity and the grouped nature (by dyad) of the data. Consequently, robust standard errors are used in all of the following analyses.

3. Empirical Findings

Table 2 and Table 3 show the results of the econometric analysis for the Cox proportional hazard model. Let us first start discussing the two models with the entire sample of countries, *i.e.* both north-south dyads and south-south dyads. In Model (1) and Model (4) the positive sign of the Democratization (both PR and XRCOMP) coefficients provides preliminary evidence that the intuition that democratic transition is a driver of PTA formation is correct. Although this analysis is not a test for my hypothesis, the take away point here is that north-south dyads *are not* more likely to sign a PTA. If anything, they are less likely to do so. Indeed, the coefficient of the variable South-South positive and statistically significant at 90 percent level. This is not surprising given that the number of south-south PTAs is larger than the number of north-south PTAs.

TABLE 2 ABOUT HERE

TABLE 3 ABOUT HERE

Model (2) and Model (5) show the results for the sub-sample of north-south dyads, whereas Model (3) and Model (6) show the results for the sub-sample of south-south dyads. This is the crucial test for my hypothesis. Democratization (both PR and XRCOMP) is positive and statistically significant at 99 percent only among north-south dyads, whereas it is not statistically significant among south-south dyads. In other words, the impact of democratization on the probability of forming a PTA is substantially higher for north-south dyads than for south-south dyads. This confirms the first hypothesis, *i.e.* when countries move towards democracy, the probability of forming a PTA increases, but only with richer countries not with other LDCs. Note: it is democratization that triggers the formation of north-south PTAs, since Model (1) and Model (4) show that north-south dyads are not more likely to sign a PTA in the first place.

There are two main explanations as to why democratization increases the probability of PTAs formation only among north-south dyads. The first explanation is that median voters of LDCs, who are well endowed in labor, fear trade liberalization with other LDCs, since the latter states have the same comparative advantage in producing labor-

rich goods. Thus, implementing free trade with other LDCs jeopardizes median voter salary and in turn, the term of LDCs' governments. Hence, LDCs' governments avoid implementing liberalization during democratic transition. My findings complement those of Kono (2008) and O'Rourke (2007): whereas the former analyzes the combined effect of type of regime and level of development on unilateral trade liberalization, I examine the effects of democratization and PTA formation. Second, recent studies (Mansfield and Pevehouse, 2008) argue that during a democratic transition political leaders face a credibility problem, since they can benefit from reversing political reforms. Thus, joining an international organization helps to enhance the credibility of leaders' commitments to democratic reforms. However, as Mansfield and Pevehouse (2008) note, not all international organizations, and, similarly, not all PTAs, play this role. In particular, due to the imbalance of power, forming a PTA with developed economies such as the EU and the US ties the hands of political leaders more than joining a PTA with another LDC. In turn, the credibility of commitments is stronger in the former case than in the latter. This provides a further explanation as to why political elites seek PTAs with developed economies during a process of democratization.

Figure 2 and Figure 3 shows the impact of both operationalizations of democratization using a survival curve. In the process of a democratization process, *i.e.* Democratization equals 1, the probability of forming a PTA increases from 1990 to 2007, respectively by 8 percent for PR and by 15 percent for XRCOMP. A comparison of the predicted probabilities for the values of the Democratization variable provides a further illustration of the magnitude of the effect of our main independent variable. Taking the mean predicted probability, based on Model (2), for the dyads in which the value equals one on the Democratization variable, the prediction is 18 dyads forming a PTA every year. By contrast, when using the mean predicted probability for the dyads in which the value on the Democratization variable equals zero, only 11 dyads are expected to sign an agreement every year. For Model (5) results are even larger. Taking the mean predicted probability for the dyads in which the value equals one on the XRCOMP variable, the prediction is 35 dyads forming a PTA every year. By contrast, when using the mean predicted probability for the dyads in which the value on the XRCOMP variable equals

zero, only 9 dyads are expected to sign an agreement every year.[18] Overall, therefore, this model provides major support for our theoretical reasoning in which LDCs sign trade agreements with developed economies when the LDCs experience a democratic transition.

FIGURE 2 ABOUT HERE

FIGURE 3 ABOUT HERE

Finally, all the control variables have a coefficient sign in line with previous studies, adding plausibility to my results. The only statistically significant variable that has the opposite sign than that expected is Contiguity. The result shows that the new regionalism is not really *regional*. Indeed, 75 percent of PTAs signed in the current wave of regionalism are bilateral trade agreements and the majority of these PTAs are between a developed economy and a developing country not usually located in the same region.

4. Robustness Checks

I performed a series of tests to examine the robustness of the findings shown in the previous section. Robustness checks are performed on both Model (2) and Model (5). However, since results are very similar between the two models, I report relevant tables only for Model (2). Results for Model (5) are available upon request.

4.1 Endogeneity

First and foremost, results presented above may be hampered by endogeneity. Indeed, several works have examined the impact of economic liberalization on democracy (Lopez-Cordoba and Meissner, 2005). Although the majority of the recent studies seem

to show that the effect of globalization on democracy is largely insignificant (Wu and Otto, 1999; Grosjean and Senik, 2007) and that the chain of causality is more likely to run from political to economic liberalization (Person, 2004; Giavazzi and Tabellini, 2005), I tackle this crucial issue using two different econometric tools.

First, I run a bivariate probit model in which two binary response variable vary jointly: the formation of a PTA and the occurrence of democratization. This model is also known as a seemingly unrelated bivariate probit and in this case the equations are not independent since they are computed on the same set of subjects.[19] The first model has been previously analyzed (Equation 1), whereas the second model has Democratization as dependent variable. To explain Democratization, I use GDPpc, GDP growth, and Trade Openness (trade/GDP). To account for the duration dependence of *both dependent variables*, natural cubic splines (with three knots) are included (Beck and Tucker, 1996; Beck *et al*., 1998). Specifically, I created two time counter variables that measure the time from the last recorded in both PTA and Democratization. Then, I calculated cubic splines with three knots for each of these counter variables. In the interest of brevity, splines are reported in the econometric analysis.

Second, since PTA formation and democratization generate interdependence across duration, I run a generalized parametric simultaneous equations model that incorporates these two kind of interdependent duration processes. A simultaneous equations approach allows explicit modeling of the dependency among outcomes (Hays and Kachi, 2009: 4). This model developed by Hays and Kachi (2009) derives the corresponding full information maximum likelihood function estimator based on the Weibull distribution.[20] Monte Carlo simulation shows that this model outperforms alternative models. Since this model is computationally very demanding and convergence is difficult to achieve, I used a baseline with only few control variables, similarly to Baier and Bergstrand's model (2004).

TABLE 4 ABOUT HERE

Table 1 shows the descriptive statistics of Trade Openness, whereas Table 4 reports the analysis of the bivariate probit and the simultaneous equations model based on the Weibull distribution. Regarding the bivariate probit (Model 7), results suggest that there is no evidence of endogeneity between PTA formation and democratization. Indeed, ρ is not statistically significant and has a negative sign. Conversely, regarding the simultaneous equations model (Model 8), α_1 and α_2 are positive and statistically significant at a 99 percent level. This implies a positive and reinforcing interdependence between PTA formation and democratization. In both estimations, the variable Democratization is statistically significant at a 99 percent level and with the expected sign in both models.[21] Thus, after endogeneity is controlled properly for, there is still full support for my hypothesis.

4.2 Further checks on Democratization

Since the concept of democratization is intrinsically problematic to operationalize, I checked the robustness of my results by changing the original variables. First, I used an ordinal measurement of democratization (labeled Democratization Ordinal). Specifically, Democratization Ordinal measures the total amount of change in level of democracy in the previous five years, using Political Rights from the Freedom House dataset. This variable ranges now between -6 and +6. Second, I transformed Democratization Ordinal into a variable that scores -1 if Democratization Ordinal is smaller than 0, 0 if Democratization Ordinal equals 0, and 1 if Democratization Ordinal is smaller than +1. I labeled this variable Democratization Weak. There are two reasons for this. On the one hand, in doing so I am able to relax the coding decision that only a democratic transition leading to a full democracy matters in the PTA formation. In other words, a country that moves from being an autocracy to being an anocracy is coded as a democratizing country in this operationalization. On the other hand, I am able to capture the process of autocratization, which was not originally incorporated in my model, since my theory does not generate predictions regarding this event. Third, I used XRREG (regulation of the

chief executive recruitment), which also captures some aspects of the electoral competition in the selection of political leaders. Finally, from the Database of Political Institutions (*Beck et al*., 2010) I borrowed the variable EIEC, which measures the executive indices of electoral competitiveness. Similarly to above, this variable Democratization EIEC equals 1 if state *i* changes from a non-democratic polity, *i.e.* EIEC<6, to a democracy, EIEC=6=7, between years t−5 and t; 0 otherwise. In all these cases, results are similar to those shown above (Table 5).

TABLE 5 ABOUT HERE

4.3 Other Checks

Finally, I made some further controls. I included the level of democracy (using both Freedom House and Polity IV), since previous research has shown that democratic pairs of countries tend to sign more PTAs than non-democratic or mixed pairs (Mansfield *et al*., 2002). I labeled this variable Type of Regime. Note: I did not originally include this variable to avoid influencing the value of Democratization, since this is the main variable of interest. Moreover, I dropped Trade since this variable might create an endogeneity problem and in addition is not statistically significant in the north-south analysis. Furthermore, to account for common external shocks, *e.g*. financial crises inside and outside the region, time dummies have been added as well. In both cases, results obtained are very close to those shown in previous tables, as from Table 6. Finally, I implemented the previous analysis differentiating between the formation of the first PTA in a dyad and the formation of the second, third, and so on PTA in the same dyad. The variable Democratization is positive and statistically significant at a 99 percent level for the formation of the first PTA, whereas is positive and statistically significant at a 90 percent level in the case of the deepening or the widening of an existing PTA. This latter result might be explained by the low number of PTAs in the dependent variable, *i.e.* 154. Interestingly, the magnitude of the two coefficients is quite similar.

TABLE 6 ABOUT HERE

5. Conclusion

My paper represents a further step towards understanding the impact of democratization on trade policy. It does this by looking at democratic transition, *i.e.* the dynamic movement toward a democracy, rather than by looking statically at the type of regime. Moreover, it does so by limiting the analysis to LDCs that have specific economic features in terms of factors of production endowment. The argument I have advanced herein is that during a process of democratic transition LDCs governments must remunerate the median voter to stay in power. One way of doing this is to export labor-intensive goods, thereby increasing the salary of people rich in labor, *i.e.* the median voter. However, the median voter in LDCs benefits from trading with developed economies that are capital-rich, but is harmed by trading with other LDCs that are labor-rich. I have applied this framework to PTA formation and have shown that democratization is an important driver in explaining the proliferation of north-south PTAs. Conversely, there is no evidence that democratization affects the probability of an LDC forming a PTA with other LDCs.

The take away point of my paper is that the relationship between trade liberalization and type of regime is ambiguous. Dani Rodrik's (1994: 69) claims that "historically sharp changes in trade policy have almost always been preceded (or accompanied) by change in the political regime". I have demonstrated this to be true. What is not true is that changes in trade policy go always in the direction of free trade; sometimes these changes go in the direction of trade discrimination. Since PTAs allow countries to wave the MFN principle, the need for both trade openness and protectionism against competitors might explain why PTAs constitute one of the main features of the current wave of globalization. Finally, the extension of political franchise could create an unappealing paradox. Indeed,

in line with Kono (2008), my findings suggest that it could be more challenging than expected to combine domestic political equality with international economic equality.

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Variable	Mean	Std. Dev.	Min	Max	Number of Obs.	Source
PTA	0.01	0.10	0	1	234,258	(1)
Democratization (PR)	0.43	0.49	0	1	234,258	(5)
Democratization (XRCOMP)	0.23	.17	0	1	181,042	(5)
Trade Openness	7.54	8.27	0.91	69.94	234,258	(2) (3)
Ln(Trade)	8.87	1.33	0	13.68	234,258	(3)
GDPpc	2.04	4.27	0.10	72.77	234,258	(2)
Ln(GDP)	1.82	1.29	0.10	8.57	234,258	(2)
GDP Growth	0.43	6.50	-52.6	35.2	234,258	(2)
SIM	3.69	2.08	0	9.49	234,258	(2)
Alliance	0.17	0.38	0	1	234,258	(4)
Democracy	4.91	1.92	1	7	234,258	(5)
Trade Dispute	0.30	0.46	0	1	234,258	(7)
WTO	0.54	0.50	0	1	234,258	(6)
WTO Round	0.66	0.47	0	1	234,258	(7)
Ln(Distance)	8.68	0.78	2.44	9.89	234,258	(9)
Contiguity	0.02	0.14	0	1	234,258	(4)
Island	0.13	0.33	0	1	234,258	(9)
Colony	0.16	0.37	0	1	234,258	(9)
Language	0.09	0.29	0	1	234,258	(9)
Religion	0.16	0.37	0	1	234,258	(9)
Diffusion	2.05	1.22	0	4.54	234,258	(9) (11)
South_South	0.69	0.46	0	1	234,258	(10) (11)

Table 1 Descriptive statistics of the main variables. Sources: (1) World Trade Organization, the Tuck Trade Agreements Database, and the McGill Faculty of Law Preferential Trade Agreements Database; (2) Energy Information Administration - International Energy Annual (Shackman, 2005); (3) IMF dataset (2005); (4) COW dataset; (5) Freedom House Dataset (2006); (6) WTO website; (7) Horn and Mavroidis dataset (2006); (8) Economic Freedom Word index (2007); (9) CEPII dataset (2005); (10) The World Bank; (11) Compiled by the author.

Covariates	Model (1) All dyads	Model (2) North-South dyads	Model (3) South-South dyads
Democratization (PR)	.020***	0.52***	0.08
	(.05)	(.08)	(.05)
Ln(Trade)	0.03	0.02	0.05**
	(.02)	(.03)	(.02)
GDPpc	-0.02*	-0.03**	-0.02
	(.01)	(.01)	(.01)
Ln(GDP)	0.24***	0.36***	0.15***
	(.02)	(.03)	(.03)
GDP Growth	-0.001*	-0.02**	-0.002
	(.003)	(.01)	(.004)
SIM	-0.03*	-0.03	-0.01
	(.01)	(.01)	(.02)
Alliance	0.43***	.38**	0.43***
	(.05)	(.05)	(.06)
Ln(Distance)	-1.02***	-1.17***	-0.97***
	(.02)	(.02)	(.03)
Trade Dispute	0.04	0.16	-0.16
	(.06)	(.10)	(.09)
WTO	0.26***	0.73**	0.12
	(.05)	(.11)	(.06)
WTO Round	0.85***	-0.09	1.32***
	(.10)	(.16)	(.13)
Contiguity	-0.61***	-0.57**	-0.35**
	(.08)	(.05)	(.10)
Island	-0.19**	0.06	-0.26**
	(.10)	(.14)	(.11)
Colony	0.22***	-0.72***	0.40***
	(.06)	(.18)	(.06)
Language	0.16**	-0.95***	0.18**
	(.07)	(.38)	(.07)
Religion	0.12**	0.12	0.09
	(.05)	(.09)	(.06)
Diffusion	0.13***	0.20***	0.14***
	(.002)	(.06)	(.02)
South-South	0.10*		
	(.06)		
No. Observations	233,719	72,342	161,916
No. of PTAs	2227	699	1528

Table 2 The impact of Democratization (PR) on the formation of preferential trade agreements. Frailty Cox Proportional Hazard Model (multi spells) clustered by dyads. Notes: robust standard errors are in parentheses. *** significant at 1 percent, ** significant at 5 percent, * significant at 5 percent.

Covariates	Model (4) All dyads	Model (5) North-South dyads	Model (6) South-South dyads
Democratization (XRCOMP)	.072***	0.92***	0.17
	(.08)	(.10)	(.20)
Ln(Trade)	0.05**	0.04	0.10**
	(.02)	(.04)	(.03)
GDPpc	-0.03**	-0.04*	-.02
	(.01)	(.02)	(.01)
Ln(GDP)	0.20***	0.35***	0.10**
	(.02)	(.05)	(.03)
GDP Growth	-0.0003	-0.03*	-0.01
	(.004)	(.01)	(.01)
SIM	-0.02	-0.02	-0.01
	(.02)	(.03)	(.02)
Alliance	0.43***	0.22**	0.46***
	(.05)	(.10)	(.07)
Ln(Distance)	-1.03***	-1.14***	-1.02***
	(.02)	(.05)	(.03)
Trade Dispute	0.001	0.13	-0.17
	(.06)	(.11)	(.10)
WTO	0.28***	0.46***	0.23**
	(.06)	(.11)	(.07)
WTO Round	0.80***	0.20	1.32***
	(.09)	(.16)	(.13)
Contiguity	-0.64***	-1.67***	-0.47**
	(.09)	(.27)	(.10)
Island	-0.38***	-0.10	-0.49**
	(.12)	(.19)	(.16)
Colony	0.20***	-0.85***	0.39***
	(.06)	(.20)	(.07)
Language	0.29***	-1.15***	0.21**
	(.07)	(.59)	(.08)
Religion	0.12**	0.13	0.12
	(.05)	(.10)	(.07)
Diffusion	0.08***	0.02	0.12***
	(.002)	(.06)	(.02)
South-South	0.20**		
	(.07)		
No. Observations	233,719	72,342	161,916
No. of PTAs	2227	699	1528

Table 3 The impact of Democratization (XRCOMP) on the formation of preferential trade agreements. Frailty Cox Proportional Hazard Model (multi spells) clustered by dyads. Notes: robust standard errors are in parentheses. *** significant at 1 percent, ** significant at 5 percent, * significant at 5 percent.

Covariates	Model (7)	Model (8)
Democratization (PR)	0.25***	-0.08***
	(.07)	(.01)
Ln(Trade)	0.02**	0.03***
	(.01)	(.001)
GDPpc	-0.003	-0.01***
	(.004)	(.005)
Ln(GDP)	0.16***	0.01
	(.01)	(.01)
GDP Growth	-0.003	0.02***
	(.002)	(.004)
SIM	-0.004	0.03***
	(.01)	(.001)
Alliance	0.12***	-0.04***
	(.04)	(.005)
Ln(Distance)	-0.57***	0.06***
	(.02)	(.003)
Trade Dispute	0.01	
	(.04)	
WTO	0.36***	
	(.04)	
WTO Round	0.25***	
	(.05)	
Contiguity	-0.80***	
	(.15)	
Colony	-0.29***	
	(.08)	
Language	-0.31**	
	(.13)	
Religion	0.09**	
	(.04)	
Diffusion	0.08**	
	(.02)	
Constant	0.81***	1.22***
	(.20)	(.03)
GDPpc	-0.02***	.03***
	(.001)	(.001)
GDP Grwoth	-0.02***	.02***
	(.001)	(.005)
Trade Openness	-0.003***	-.003**
	(.001)	(.0005)
Constant	0.36***	0.57***
	(.02)	(.01)
Rho	-.03 (.04)	
Rho $\geq \chi^2$	0.54 (.46)	
α_1		0.01*** (.003)
α_2		0.33*** (.003)
No. Observations	72,342	72,342
No. of PTAs	699	699

Table 4 The impact of democratization on the formation of preferential trade agreements and the impact of trade liberalization on democratization. Bivariate Probit and SEQ (based on Weibull) clustered by dyads. Notes: robust standard errors are in parentheses. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

	Model (9)	Model (10)	Model (11)	Model (12)
Democratization Ordinal	0.262***			
	0.028			
Democratization Weak		0.378***		
		0.059		
EIEC			0.745***	
			0.072	
XRREG				0.892***
				0.099
GDPpc	-0.022**	-0.028***	-0.025**	-0.032***
	0.01	0.01	0.011	0.01
GDP	0.375***	0.359***	0.356***	0.357***
	0.027	0.027	0.027	0.029
GDP Growth	-0.016***	-0.021***	-0.026***	-0.027***
	0.006	0.006	0.005	0.007
SIM	-0.024	-0.023	-0.026	-0.015
	0.022	0.022	0.022	0.027
Trade	0.001	0.01	0.004	-0.045
	0.029	0.028	0.028	0.029
Distance	-1.121***	-1.143***	-1.137***	-1.137***
	0.051	0.05	0.049	0.057
Trade Dispute	0.133	0.133	0.136	0.179
	0.096	0.096	0.095	0.112
Island	0.061	0.046	-0.013	-0.085
	0.128	0.129	0.13	0.175
WTO	0.718***	0.718***	0.667***	0.466***
	0.097	0.096	0.096	0.109
Contiguity	-1.766***	-1.777***	-1.748***	-1.715***
	0.409	0.379	0.36	0.406
WTO Round	0.023	-0.102	-0.053	0.09
	0.17	0.174	0.173	0.196
Alliance	0.132	0.183**	0.150*	0.134
	0.088	0.086	0.084	0.088
Colony	-0.722***	-0.730***	-0.744***	-0.853***
	0.206	0.206	0.208	0.258
Language	-0.938**	-0.940**	-0.984**	-1.161**
	0.367	0.367	0.386	0.553
Religion	0.068	0.111	0.081	0.170*
	0.088	0.088	0.087	0.098
Diffusion	0.159***	0.192***	0.160***	0.058***
	0.049	0.048	0.05	0.054
Observations	72342	72342	72342	53444
No. of PTAs	699	699	699	579

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5 Robustness checks: "Further checks on Democratization".

	Model (13)	Model (14)	Model (15)	Model (16)	Model (17)

Democratization (PR)	0.404***	0.504***	0.339***	0.387***	0.353*
	0.078	0.076	0.08	0.091	0.202
Type of Regime	0.189***				
	-0.023				
GDPpc	-0.040***	-0.025**	-0.005	-0.003	-0.055*
	0.014	0.01	0.009	0.009	0.029
GDP	0.354***	0.363***	0.334***	0.466***	-0.132*
	0.027	0.026	0.028	0.033	0.08
GDP Growth	-0.023***	-0.022***	-0.001	0.001	-0.106***
	0.006	0.006	0.006	0.009	0.035
SIM	-0.022	-0.023	-0.007	-0.017	-0.016
	0.022	0.022	0.023	0.028	0.037
Trade	-0.013		0.043	0.065*	-0.054
	0.029		0.028	0.039	0.038
Distance	-1.105***	-1.145***	-1.133***	-1.471***	-0.475***
	0.05	0.05	0.05	0.06	0.117
Trade Dispute	0.085	0.134	-0.05	0.116	0.934***
	0.095	0.096	0.094	0.107	0.333
Island	-0.016	0.049	0.043	-0.043	0.576***
	0.126	0.129	0.125	0.158	0.221
WTO	0.468***	0.697***	0.580***	1.078***	
	0.108	0.097	0.097	0.113	
Contiguity	-1.660***	-1.779***	-1.796***	-2.243***	-0.889**
	0.35	0.377	0.334	0.392	0.406
WTO Round	-0.164	-0.105	-0.868	0.123	2.739***
	0.174	0.172	2.531	0.171	0.568
Alliance	0.031	0.194**	0.319***	0.503***	-0.106
	0.085	0.087	0.085	0.102	0.145
Colony	-0.706***	-0.731***	-0.757***	-1.051***	-0.37
	0.218	0.202	0.196	0.237	0.274
Language	-0.990***	-0.924**	-0.922**	-0.768**	
	0.375	0.366	0.364	0.387	
Religion	-0.05	0.12	0.099	0.381***	0.073
	0.087	0.088	0.089	0.116	0.133
Diffusion	0.184***	0.203***	0.422***	0.654***	-2.300***
	0.053	0.049	0.058	0.069	0.294
Observations	72342	72342	72342	67800	4542
No. of PTAs	699	699	699	545	154

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6 Robustness checks: "Other checks".

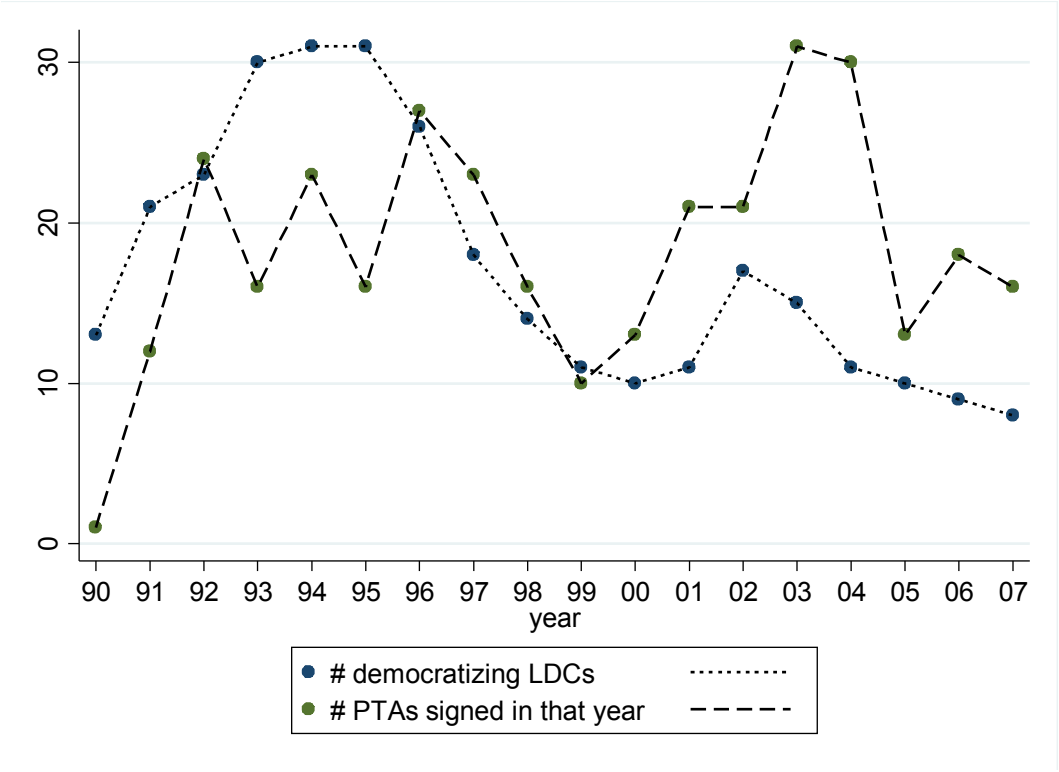

Figure 1 The number of PTAs and the number of regime change over time, 1990-2007.

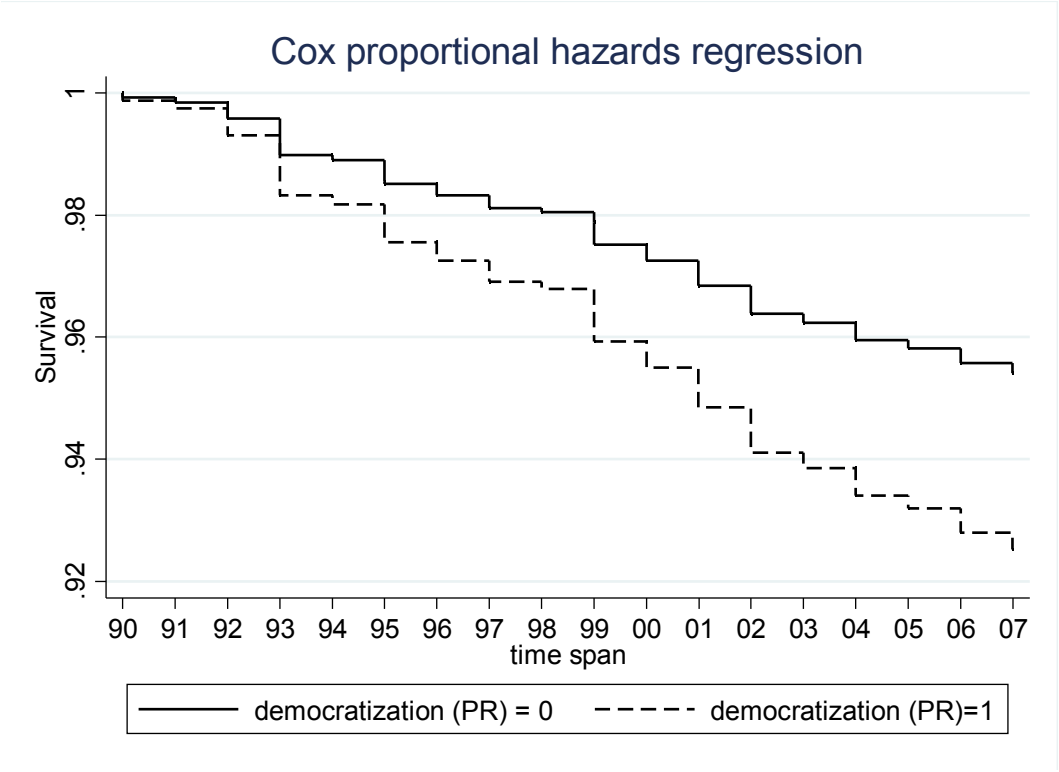

Figure 2 Survival estimates: Democratization (PR)

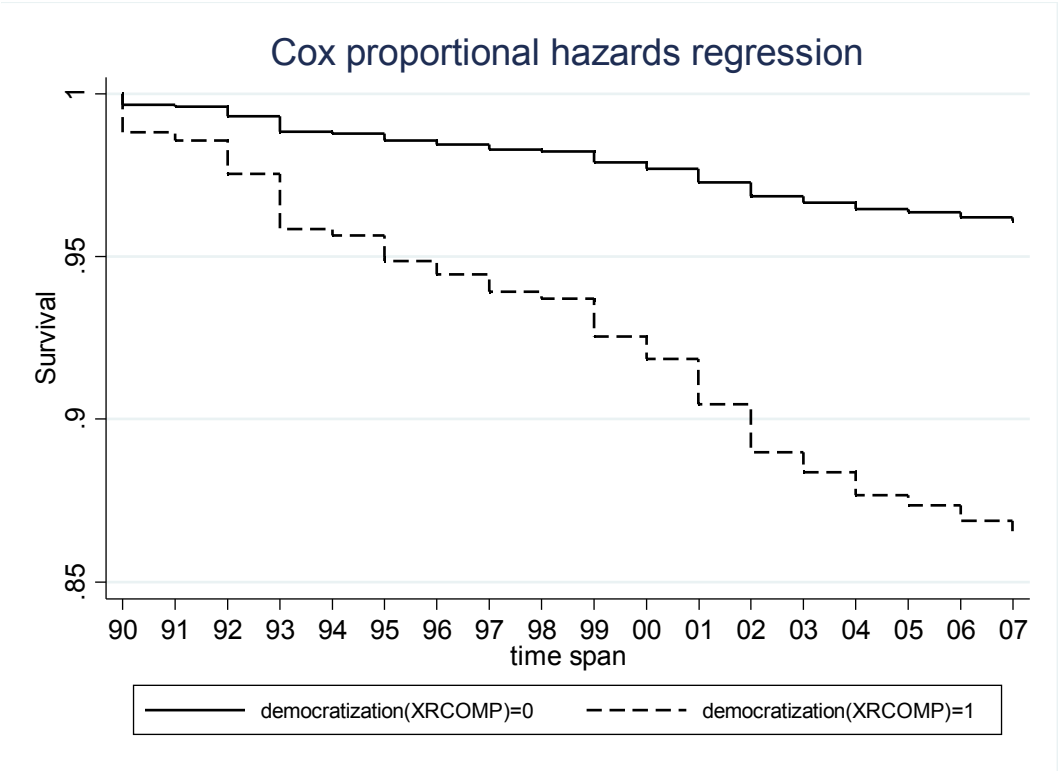

Figure 3 Survival estimates: Democratization (XRCOMP)

[1] The author wishes to thank Alex Baturo, Kenneth Benoit, Jos Elkink, Petr Kratochvil, Edward Mansfield, Jonathan Slapin, Jonathan Westrup, and two anonymous referees for their very helpful comments on versions of this article. The author also received helpful comments from conference participants at the ECPR Summer School in Ljubljana and the 6th ECPR Conference of International Relations in Turin. The author alone is, of course, responsible for the content of this paper.

[2] I use the terms "preferential trade agreement" and "trade (or trading) bloc" interchangeably and in a general way. Conversely, "bilateral trade agreement" denotes an agreement between only two states, whereas "plurilateral trade arrangement" refers to an agreement among more than two countries.

[3] Huntington (1991) identifies the third wave of democratization as having begun in 1974.

[4] See Mansfield and Pevehouse (2008) for an important exception to this claim.

[5] Using the World Bank classification, I define low-income economies and middle-income economies as LDCs.

[6] North-south PTAs implies PTAs between (at least) a developed country and an LDCs; South-South PTAs are PTAs between LDCs only.

[7] Given the weight this paper gives to this assumption, it is worthwhile to remark two points. First, the theoretical justification for this argument is the statement of complementarity of capital and labor between developed and developing economies. Thus, the positive impact of democratization on trade liberalization holds only for developing countries. Moreover, the aforementioned mechanism works independently of any further specification of different types of the labor factor. Other studies (Goldin and Katz, 1998) extend the above analysis by considering capital, skilled and unskilled labor as the relevant factors of production, which will be taken into account in the following section.

[8] The relationship between the growing membership in the GATT/WTO and the increasing number of PTAs has already received attention in the IPE literature. Mansfield and Reinhardt (2003) argue that developments in the GATT/WTO encourage its members to form PTAs as instruments to increase bargaining power within the multilateral regime.

[9] As Goldstein et al. (2007) show, countries have rights and obligations in the GATT/WTO even though they are not formal members of the agreement, but rather so-called *non-member participants*. Moreover, anticipating that they will eventually join the WTO, the few LDCs that are not WTO members, may also form PTAs with north countries. Thus, my argument holds with regard to both WTO membership and the WTO presence in the international trade system.

[10] Levy claims that bilateral agreements between countries with similar factor endowments are preferred by the median voter to multilateral trade agreements. This finding is driven by the fact that PTA formation always precedes multilateral liberalization in his model and that the median voter cares also about variety in goods. My predictions run the other way around, since the sequence of events is the opposite, *i.e.* multilateral liberalization comes first here. This seems more realistic, given that almost every country had obligations in the GATT/WTO during the period underinvestigation. Moreover, I am not taking into account variety gains. Thus, in my setting the entire mechanism is triggered by different factor endowments among countries.

[11] For an extensive debate on this topic, see Bhagwati (1992) and the collections edited by De Melo and Panagariya (1993) and Anderson and Blackhurst (1993).

[12] The same countries form more than one agreement either because they deepen an existing agreement, *e.g.* the EU, or because they are part of more than one trade bloc, *e.g.* Colombia and Venezuela were part of both the Andean Pact (Venezuela dropped out in 2006) and the G-3 agreement.

[13] Results do not change if I take the values of the previous ten years.

[14] For a theoretical justification, see Hirschleifer (1983; 1988) and Mueller (1989).

[15] Graphical methods implemented for both continuous covariates and discrete covariates assess the proportionality of hazards. Note: results shown in the next section hold also by using parametric models such as a Weibull regression and a Gompertz regression.

[16] Using Cox Proportional Hazard Model with the Gamma Frailty I get very similar results.

[17] I always report *coefficients* and not hazard ratios.

[18] I follow Mansfield *et al*. (2002) in calculating the predicted number of dyads forming a PTA. Specifically, I multiplied the hazard rate of a dyad forming a PTA by the total number of observations in the sample and then dividing that product by the number of years in the sample. Note: Mansfield *et al.* (2002) find that two democratic regimes sign 18 PTAs per year, whereas two autocratic regimes sign 6 PTAs per year.

[19] For an extensive analysis of the bivariate probit model, see Chun-Lo and Schmidt (1985), Greene (2003), and Poirier (1980). For an applications of this model, see Kucik and Reinhardt, 2006; and Przeworski and Vreeland, 2002.

[20] I used the STATA code made available by the two authors in the appendix of their paper (pages 17-18).

[21] Note that, to be consistent, the coefficient estimates from the proportional hazards and accelerated failure time (AFT) models should have the opposite signs. The proportional hazards model gives the effects of covariates on the hazard rate, while the AFT model gives the effects of covariates on the expected time until failure.