

Do Preferential Trade Agreements Contribute to the Goal of WTO? Taking into account Institutional Heterogeneity.

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1. Introduction

Initiated in 1957 by the treaty of Rome, discriminatory trade arrangements recently proliferated and are more than 300 nowadays. They come under the general denomination of preferential trade agreements (PTAs). Originally exclusively regional and allowed by the exemption of article 24 of GATT, PTAs are now predominantly trans-regional, whether notified or not to WTO, a completely new logic of trade negotiations and enlarge the scope of negotiations to areas which do not fall under WTO mandate. They have become preferred policy instruments and serve as a forum for negotiating various policy issues. The scope, coverage and institutionalization of these agreements may vary to a large extent, displaying widespread heterogeneity.

There exists a rich literature on the analysis of the effect on trade flows of preferential agreements. Most of it relies on analyzing the trade agreements homogenously, without taking into consideration, the different institutional characteristics they entail. However, recent research elaborated typologies to distinguish various kinds of agreements, underlining the widespread heterogeneity of this general category of PTAs (see Magee, 2008; Ghosh and Yamarik, 2004, Viacrd, 2009). Besides this analysis, based on typological classification of PTAs, econometric strategies have been proposed to identify the effects on trade of PTAs (Baier and Bergstrand, 2007).

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The scope of PTAs, proposed by Horn, Mavroidis and Sapir, (2010), can be classified in two different categories identified as WTO⁺ and WTO^X. This important distinction discriminates clauses falling under the framework of WTO (e.g. customs administration, TBTs, import and export restrictions etc.) and new areas of negotiations outside of the domain of WTO negotiations (e.g. competition policy, labor mobility and environmental standards).

There has been a contending debate whether PTAs are building or stumbling blocks for multilateral negotiations going on under the auspices of WTO. (Bhagwati, 1996a, 1996b, 2008; Baldwin, 2006; Krishna, 2012). Apart from static issue of trade diversion from cheaper non-member sources to more expensive member sources, PTAs do have a dynamic effect. They can hinder the negotiations at the multilateral level by leaving little incentive for states to go for WTO (Levy, 1997). Bhagwati (2008) warned that growing number of PTAs lead to systemic effect creating a “spaghetti bowl” of preferences and chaos in the world trading system. In effect, they slow down the progress on the multilateral freeing of trade as observed at the Doha round of multilateral trade negotiations. On the other hand, Summers (1991) argued that if trade agreements are formed within natural trade blocs then they would raise world welfare and further asserted that all the “isms are good”: unilateralism, bilateralism, regionalism and multilateralism. Moreover, he rejected the notion that regionalism and multilateralism are enemies and maintained rather that regionalism and multilateralism are the two legs on which the world was walking towards global free trade. Therefore, PTAs can be fruitful and complementary for multilateralism if they increase bilateral trade among the countries, which is the overall goal of WTO (Harmsen and Leidy 1995). The effect of PTAs on bilateral trade among countries, whether positive or negative is consequently an important issue.

The problem with the existing literature is that it evaluates the effect of PTAs without considering their differing nature. Nevertheless, they do vary in terms of the issues covered and the institutionalization (legalization) they entail. The black-boxing of PTAs limits the analysis of their trade creating/ trade diverting effect as they range from mere tariff concessions for some goods to the full-fledged trade and legal institutions.

However, recent research has started to tackle these issues of heterogeneity among PTAs (Orefice and Rocha, 2011; Kohl et al., 2013). These studies analyze the effect of the provisions belonging to both categories, WTO⁺ and WTO^X, as defined above. But they report diverging

effects that could be attributed to difference in methods and probably to the fact that the analysis of the effects of WTO^X clauses has not been fully investigated.

Following Horn, Mavroidis and Sapir (2010), this paper restricts the analysis to clauses legally enforceable and do not consider vague provisions pointing out only the area of negotiations.

This paper looks into the matter in more detail and performs a comprehensive theoretical and empirical analysis of each WTO^X provision, employing empirical techniques used by Baier and Bergstrand (2007) based on a gravity model in panel setting.

The paper proceeds as follows: Section 2 presents a brief review of literature on the effect of PTAs as well as the description of trade creating mechanisms of WTO^X provisions. Econometric strategy as well as estimation results are presented in section 3 and section 4 concludes.

2. Content of WTO^X clauses and discussion

The comprehensive and systematic study by Horn, Mavroidis and Sapir, (2010) provides a useful insight in to the analysis of PTAs. They investigated 14 EU and 14 US PTAs with third countries and identified varying policy areas negotiated in these agreements. Their research unveiled the neglected multidimensionality of PTAs in previous literature. A study of WTO secretariat (2011a) extended this work to incorporate 96 PTAs in a single database.

Four recent papers are of importance in this regard. Andréas et al. (2012) is the most extensive study regarding the trade impact of differing nature of PTAs with the use of the very comprehensive DESTA database (Design of Trade Agreements). They divided agreements into different categories according to their score, based on the provisions they contain and examined their effects on trade flows. Hicks and Kim (2012) studied the Asian PTAs and analyzed their depth and breadth as well as their effect on trade flows. Although, these works analyzed the content of PTAs in detail but did not differentiate for WTO⁺ or WTO^X provisions. Orefice and Rocha (2011), using WTO (2011 a) PTA database, analyzed the impact of WTO⁺, WTO^X provisions on production network trade and found significant positive effects, whereas Kohl et al. (2013) studied the impact of WTO⁺ and WTO^X provisions on bilateral import flows. They draw on the provisions from GPTAD, managed by World Bank, providing facilities to extract agreements containing specific provision and found the import flows to be positively associated

with WTO⁺ provisions whereas negative and significant with WTO^X provisions. Based on these results, they argue that WTO^X provisions, on the whole, are detrimental for trade.

Although these studies are an important contribution to the empirical literature examining the trade impact of varying nature of PTAs, this paper attempts to fill a gap by focusing on theoretical and empirical analysis of each individual provisions listed under WTO^X and also by providing alternative econometric approaches.

2.1 WTO^X Provisions

2.1.1 Capital Mobility

International capital mobility has become relevant only in past decades (Springer, 2000). The motivation for countries behind the inclusion of provisions relating to capital mobility in PTAs comes from the fact, that higher mobility gives them the opportunity to improve their financially dependent sectors involved in the production of goods and services. This, in turn confers the reallocation of resources permitting firms to produce more efficiently resulting in decreased costs and increased trade. Economies with more developed financial sector can support sectors with financial vulnerability (Manova, 2008). Similarly, Do and Levchenko (2007) and Huang and Temple (2005) argue that countries, having competitive edge in financially dependent sectors, have greater incentives to develop their capital markets, which can be made possible by increased capital mobility.

Although, the traditional models, pioneered by Mundell (1957) who entrench that when comparative advantage arises because of presence of difference in factor endowment, capital flows are substitute to trade flows. This argument follows the intuition that , a labor-abundant and at the same time capital-scarce country can increase consumption of capital intensive products by either producing them after importing capital or by importing them directly. However, in contrast to this view, Bougheas and Falvey (2011) argue that when comparative advantage arises due to difference in technology, trade flows and capital mobility are complements. They contend, following the work of Antràs and Caballero (2009) by introducing financial friction in a small two-sector open economy model where capital and goods are allowed to move freely across international borders, that when two countries have similar endowments in capital and labor, the one that has an edge in technology for producing capital intensive good

with import capital, produces good at home and then exports that particular good. Increasing capital mobility creates pressure for trade liberalization. Analyzing case study of Canadian-US Auto Pact, Thomas (1997) adds that increasing capital mobility imposes costs on governments that do not liberalize trade in terms of employment, prices, production and balance of payment effects. This phenomenon of increasing costs in response to increased capital mobility can trickle down to firm level as Milner (1988) argues that in the aftermath of mobility of investments (capital) by large multinationals, the latter prefer free trade because higher tariffs raise their costs and increase the risk of strengthening of their domestic competitors. Mobility of capital stimulates firm preferences for freer trade. In the same vein, Frieden (1991) argue that financiers with overseas holdings propone trade openness because they want their debtors to earn foreign exchange in result of free trade and be able to pay off their loans.

The assertion that capital mobility increases the opportunity for freer trade is also analyzed in political economic perspective. In this context, the conventional wisdom holds that increasing mobility of capital hinders incentives for domestic firms to lobby for trade protection. Therefore, the balance is shifted for political support in favor of trade liberalization (e.g. Milner, 1988; Bhagwati, 1991). However, Hiscox (2004) adds that these positive effects of capital mobility on trade depend largely upon the levels of inter-industry mobility. He performed general-equilibrium analysis and contends that increase in industry-specific capital mobility may have an opposite effect and potentially increase lobbying incentives for owners of other specific production factors, thereby intensifying rent-seeking behavior.

In the light of these theoretical arguments, this paper will test for the effects of capital mobility on trade flows expecting a positive effect on trade.

2.1.2 Competition Policy

It is a common assertion that competition among firms enables consumer to enjoy variety and low prices whereas it drives producer to attain sustainable innovation. The main impetus for including competition laws in PTAs is to preserve and foster competition as a means to ensure re-allocation of resources in an economy.

On the plane of international trade, the competition policy issues are more complicated. Anti-competitive business habitude can deteriorate trade flows. In this context, first it is necessary to

know which noncompetitive business practices actually distort trade. Then it becomes possible to analyze how provisions related to competition laws and policy guide the smooth functioning of output, business and trade.

The various forms of anti-competitive business practices which distort trade are import and export cartels, abuse of a dominant position and mergers. Import cartels discriminate foreign competitors by price fixing, market division and output restraints. The abuse of dominant position or monopolization is of major concern among as a factor hindering trade liberalization. Price discrimination, tied selling (purchasing a product of a brand conditional upon the purchasing another product of the same brand) and higher prices are some forms. Finally, the formation of mergers to get control over the market proves detrimental for trade.

The inclusion of competition provisions is beneficial in controlling these anti-competitive practices which undermine trade objectives of agreement. An increasing number of PTAs incorporate specific provisions to deal with such behavior. For example European Economic Community (EEC) embodies general prohibition against anti-competitive practices as well as abuse of dominant position. To overcome the problems arising from such anti-competitive conduct, Southern Common Market (MERCOSUR) establishes procedures for technical assistance and consultations. North American Free Trade Agreement (NAFTA) mandated a working group which deals with the issues of export cartels, abuse of dominance and merger control. All these (and other) agreements integrate variety of provisions under their competition policy to cope with trade hindering practices, ensure innovation and encourage free trade.

Solano and Sennekamp (2006) have studied competition clauses in various trade agreements in their OECD working paper. They distinguished different type of provisions addressing cooperation and coordination as well as provisions directly coping with non-competitive behavior. They further added that despite reluctance of countries to negotiate competition-related provisions under the auspices of WTO, they nevertheless are ready to consult and include them in PTAs by adopting certain measures to combat anti-competitive behavior in order to enhance trade objectives of the agreement. For example;

EFTA-Mexico agreement states “...to ensure that the gains from trade liberalization are not offset by the erection of private, anti-competitive barriers... The Parties agree that

anticompetitive business conduct can hinder the fulfillment of the objectives of this Agreement... The Parties undertake to apply their respective competition laws so as to avoid that the benefits of this Agreement may be undermined or nullified by anticompetitive business conduct.” and NAFTA encompasses “...adopt or maintain measures to proscribe anticompetitive business conduct and take appropriate action with respect thereto, recognizing that such measures will enhance the fulfillment of the objectives of this Agreement.”

whereas majority PTAs signed by EC underline:

“...The following [anti-competitive practices] are incompatible with the proper functioning of the Agreement, in so far as they may affect trade between the parties.”

These measures deal directly with noncompetitive practices inhibiting trade and hence their inclusion in PTAs helps to encourage trade flows (at least) between the member countries.

Competition policy in PTAs is also associated with new business opportunities and its effective implementation in economies encourages rapid entry of new firms (Dutz and Vagliasindi, 2002). Brusick et al. (2004) stress that competition is complementary for encouraging enterprise development and further argue that PTAs encompassing competition provisions, and if implemented in non-discriminatory terms vis-à-vis intra-PTA and third party firms, will have trade creating effects. Dawar and Holmes (2010) note that competition provisions are useful in responding to market failures such as creation of import and export cartels as well as abuse of dominant market position. The provisions are designed to control the restrictive business practices which regulate cross-border trade as well as mergers and acquisitions.

In line with the argument put forward by Solano and Sennekamp (2006), Dawar and Holmes (2010) stressed that competition provisions are rejected at WTO but are increasingly popular in PTAs proving the latter a stepping stone towards international integration. The trade creating effects of PTAs corroborate their complementarity to multilateral agreement with-in WTO.

Adopting a competition policy ascertains some costs and the challenge for PTA negotiators is to make sure that they outweigh the costs by accruing larger benefits. Although, the empirical evidence is relatively scant, the competition provisions are expected to address the negative

effects of cross-border trade distortions. Absence of competition policy in PTAs can subvert the benefits from trade liberalization.

2.1.3 Labor Mobility

Although, covered in GATS, the provisions regarding labor mobility in PTAs offer greater liberalization. According to the article I.2 (d) of the WTO General Agreement on Trade in Services (GATS), labor mobility is defined as temporary movement of natural persons and the provisions related to it are limited to movement of service suppliers. Beyond this conceptualization about labor mobility under the GATS, preferential trade agreements contain additional provisions to the GATS (Nielson, 2003) and could offer a more promising channel for greater labor mobility given the stalemate at the negotiations in Doha Round (Stephenson and Hufbauer, 2010).

As noted earlier, PTAs render extensive elements and range of issues regarding labor mobility and majority of which are not covered by GATS provisions. (Nielson, 2003) notes these additional elements which include:

- Full national treatment and market access for service suppliers as well as facilitations for groups, including beyond service suppliers
- Access to the labor market
- Separate chapters containing elements administering temporary movement of business persons including that related to investment or trade in goods.
- Rules on non-discriminatory conditions for workers.

In addition, (Stephenson and Hufbauer, 2010) have identified four categories, concerning labor mobility, being negotiated. They are business visitors, independent professionals, intra-corporate transferees and contractual services suppliers. Other agreements devote a separate chapter to all types of temporary movement of business persons, covering business movement related to goods, services and investment (Nielson, 2003). Among them, NAFTA was premier accord, containing a separate chapter “Temporary Movement of Business Persons” and serves as the model for subsequent agreements. The chapter was explicitly designed to facilitate temporary entry to member countries for corporate people engaged in goods or services trade as well

investment. Martin and Lowell (2008) noted that NAFTA contains a new migration component i.e. Trade NAFTA or TN.

The free movement of these categories of labor and those well defined by (Nielson, 2003) pertain mainly to the elements related to the temporary movement of personnel and mostly concerning trade issues which indicates that negotiations on these provisions would have significant trade effects. Also, states negotiate very modest opportunities for foreign workers in most of the agreements. The governments are skeptic to provide enhanced mobility of permanent or temporary workers perhaps for security reasons. In the context of developing countries, (Stephenson and Hufbauer, 2010) note that impediments to labor mobility suppress trade.

The argument, whether the provisions concerning labor mobility impact trade flows needs further analysis. The theory predicts that labor mobility is substitute for trade. Olivera (1967) proposed that free trade and factor movements are substitutes by noting that in an international economy either perfect mobility (of factors) or free trade will sustain equilibrium. Interestingly, Rakowski (1969) extended Olivera's argument and stressed on the specificity of labor mobility in contrast to other factors of production. He argued that displacement of trade by labor mobility implies no movement of goods between countries, since the owners of labor services are assumed to move with their services. By conducting a simple analysis of a two-country, two-good model, he suggested that labor mobility is indeed a substitute for trade. Similarly, Krugman and Obstfeld (2008) asserted, that although labor mobility is perfect substitute for trade flows in theory but an imperfect substitute in practice.

The problem is these theories treat labor mobility as only a factor of production. The provisions in trade agreements related to labor mobility treat it not only as factor of production but also free movement of business persons. Nevertheless, provisions for mobility of foreign workers are limited (Stephenson and Hufbauer, 2010). Rather, concerning labor mobility, the new wave of trade agreements contains numerous issues such as facilitation for groups, movement of temporary workers to name the few. In conclusion, it is likely to expect that these provisions have a positive impact on trade flows.

2.1.4 Environment

The trend to include environmental considerations in trade agreements is relatively recent. Environmental cooperation mechanisms are typically found in modern PTAs which range from broad to specific areas. Trade agreements, therefore, serve as forum for coherence and coordination among trade and environmental policies. One of the main reasons of deadlock in Doha negotiations was the disagreement between the negotiators of developed and developing countries as the latter consider that in consequence of agreement with the environmental clauses, they would potentially lose their competitiveness. Nevertheless, a number of developing countries have negotiated and endured the inclusion of strong environmental commitments in trade agreements signed with developed countries (OECD, 2007). In addition to other strategic motivations such as to address environmental matters in the countries, the incorporation of environmental commitments in preferential trade agreement encompass other benefits. They could: act as driver for reform in domestic environmental policies, instigate co-operation among environment and trade officials, and intensify harmonization in environmental matters. Other than these non-traditional gains, to the longstanding concern of developing countries at WTO, does the incorporation of environmental provisions in PTAs have positive or negative impact on trade flows? This necessitates a comprehensive analysis of pros and cons of environmental commitments in their effect on bilateral trade flows.

Conventionally, the relationship between environmental regulation and trade has been studied under the two hypotheses: race to the bottom and pollution havens. Race to the bottom approach implies incentives adopting lax environmental rules and regulation to cope with international competition whereas the pollution haven hypothesis is based on the extension of traditional theory of international trade and posits that more stringent environmental laws in developed countries drive the (polluting) firms to relocate their production facilities in countries with weak environmental regulations. These theories point that increased competition for trade and foreign direct investment lead to lowering of environmental standards. However, contrary to this view, Porter (1991) states that strict environmental policies do not necessarily deteriorate the competitive advantage of a country rather they induce efficiency and stimulate innovations that can help improve the nation's commercial competitiveness. He further adds that the innovation and efficiency gains outweigh the costs of complying with these policy measures. Therefore, if

environmental clauses are introduced and commitments are made by nations, they could have better opportunities for bringing novelty and efficiency in their production processes although a cost has to be paid. But these costs may be compensated by innovations. This novelty and efficiency can improve a country's international competitiveness, which in turn could have positive impact on bilateral and regional trade.

The trend of incorporating environmental provisions in trade agreements is at the behest of developed countries as they view these PTAs as strategic instruments to push developing countries to negotiate on the environmental provisions, which they hesitate to do so under the auspices of WTO. There is a possibility that developed countries give more market access to developing countries in return of their commitment to environmental sustainability. Although there are obstacles to including environmental issues in trade agreements, they are less complicated to negotiate at bilateral or regional level and are successful to bring developing countries on the negotiation table. In this context, Rana and Saucier (2013) categorized the commitment on environmental sustainability into three levels³ according to the intensity of obligations and analyzed the impact of North-South dummy on the inclusion of particular level in trade agreements. They found that although, Developed-Developing country pairs do commit moderately stringent commitments. Further, they found that Developed-Developed (North-North) agree on strong environmental commitments whereas developing-developing country pairs prefer the lowest level of obligations. This unveils the fact that between developed and developing countries; there exists some form of environmental commitments, still better than lower or no commitment at all.

Until Porter, economists had a certain point of view that, requiring firms to reduce pollution emissions restrict their options and, in turn reduce profits. Porter (1991) came up with a nuanced view that respecting environmental standards increase competitiveness of firms. Pollution is waste of resources the inclusion of environmental provisions, the reduction in pollution may lead to an improvement in productivity with which resources are used (Porter and Van de Linde 1995).

³ They divided into three categories, i.e. the environmental problem discussed in preamble, separate article and separate chapter of a PTA.

The empirical evidence of impact of setting higher environmental standards provide a mixed view. Van Beers and Van den Bergh (1997) studied the impact of environmental stringency on country's export flows. Based on indicators of environmental policy stringency, their results confirm pollution haven hypothesis. Their results indicate negative relationship between policy stringency and export values. On the other hand, they show that import flows are also negatively correlated to importing nations' policy, rejecting the pollution haven hypothesis. Harris et al. (2002) addressed the empirical shortcomings in Van Beers and Van den Bergh (1997)'s empirical model and modified it slightly to include exporter and importer fixed effects as well as time effects in a panel setting. They showed that environmental stringency has an insignificant impact on foreign trade. Caporale et al. (2010) revisit Harris et al. (2002), in same panel setting, by using environmental data from Eurostat and focusing on Romanian competitiveness in the context of country's environmental reform in response to joining the European Union. Their findings were consistent to those of Harris et al. (2002). Cagatay and Mihci (2006) introduced an index depending on pressure, state and response environmental indicator framework of OECD and used it to measure environmental stringency of developed and developing countries. They found significant negative effects on exports, leading to pollution haven hypothesis.

Ambec and Barla (2006) did a comprehensive review of literature regarding the impact of environmental regulations on business development and trade flows. They concluded that evidence showing, environmental regulations stimulate innovation activity (inherent in Porter hypothesis), is scant. They further argue that most of the empirical evidence reports against Porter hypothesis, however they pointed that it would be unreasonable to simply reject this hypothesis realizing the fact that empirical research is tainted with several weaknesses. In this context, they assert that most studies examine the impact of traditional command and control regulations, while theoretical research findings suggest that innovation activities are more likely to result from incentive based regulations. I argue, as earlier, apart from Porter hypothesis, that environmental provisions in PTAs are incentive based regulations by developed countries for developing countries and the latter acquire external incentives when they agree to include environmental provisions in PTAs.

Adopting a different strategy to the measurement of environmental policy, De Santis (2012) estimated the impact of three major multilateral environmental agreements (MEAs) on 15 EU

countries. She found positive and highly significant effect of three said agreements, Kyoto, UNFCCC and Montréal on export flows, rejecting the hypothesis of pollution haven. Porter hypothesis is also established by Trotignon (2010) who found positive and significant effect of carbon dioxide (CO₂) emissions stringency on competitiveness of firms in international markets and hence the level of exports. Ambec et al. (2011) came up with latest review providing rather solid theoretical arguments in favor of Porter Hypothesis (PH) nevertheless they argue that empirical evidence is mixed.

Figure 1 depicts the evolution of incorporation of different WTO^X policy areas into PTAs. It shows that country-pairs agreeing to WTO^X provisions to include in PTAs evolve from under 1% for all WTO^X provisions in 1960 to around 10%, 8%, 5% and 4% for capital mobility, competition policy, environmental standard and labor mobility respectively in 2009. We can see that countries still resist the incorporation of provisions related to environmental standards and labor mobility although it should be noted that they still increased with time.

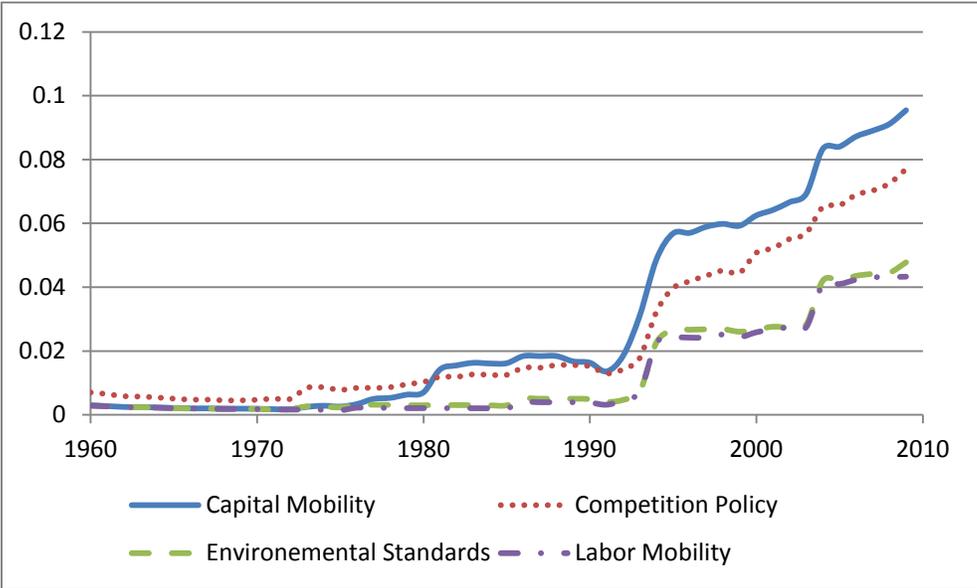


Figure 1 WTO^X Provisions in PTAs (% of the total number of country pairs in the world)

3. Econometric Strategy

The gravity equation has been traditionally employed to measure the impact of PTAs on bilateral trade flows. The basic form of the model estimates trade flows between pair of countries as a function of their economic size and their geographical distance. The additional variables are

further added to control for different social, cultural or physical trade barriers. Only recently, the efforts are seen by researchers trying to provide economic base to the theoretically weak gravity model of trade. The need to control individual country's price levels to omit biases was underlined by Anderson and Wincoop (2003). They argue that country-fixed effects be included in the estimation to account for importer and exporter's price resistance terms. Baier and Bergstrand (2007) advance two econometric specifications of gravity model in panel setting to estimate the effect of PTAs. The first is country-pair and country and time fixed effects and the second is differenced data with country and time fixed effects. Employing this methodology takes account of self-selection (of provisions in PTAs in our case), which is a source of endogeneity (see Wooldridge, 2000) and removes unobserved bilateral-specific heterogeneity, which causes biased estimates. The econometric methodology, by Baier and Bergstrand (2007), suits well in our case as we estimate the individual dummies for WTO^X provisions as well as for institutionalization of PTAs. Countries tend to conclude PTAs (and also specific provisions in PTAs) due to the higher level of trade (Krugman, 1991 a; Magee, 2003); moreover, they tend to institutionalize the already higher level of trade among them (see Haftel, 2013). Therefore, I apply the econometric methodology proposed by (Baier and Bergstrand, 2007) and estimate the following specification in order to explore the impact of coverage of WTO⁺ provision, WTO^X provisions.

$$\ln T_{ijt} = \beta_0 + \beta_1 \ln (\text{GDP}_{it} \text{GDP}_{jt}) + \beta_2 \ln \text{DIST}_{ij} + \beta_3 \text{Control}_{ij} + \beta_4 \text{Cap Mob}_{ijt} + \beta_4 \text{Comp Pol}_{ijt} + \beta_5 \text{ENV}_{ijt} + \beta_6 \text{Lab Mob}_{ijt} - \ln P_{it} - \ln P_{jt} + \varepsilon_{ijt}$$

Standard controls are added common to the gravity literature e.g. dummies for common border, language, religion and colonizer as well as landlocked countries. The dependant variable T_{ij} is average of log of two-way import values. Bilateral trade data emanates from IMF Direction of Trade Statistics (DoTS) database are assembled by (Barbieri and Keshk, 2012). GDP and GDP per capita data are extracted from Penn World Tables (PWT 7.0) and geographic and historical data are taken from Centre d'Etudes Prospectives et d'Information Internationales (CEPII). The period covered is 1960 – 2009. Trade and GDP data are transformed as 5-year average from annual data whereas the PTA coverage and institutional data is embedded as 5-year interval,

leaving the sample of 188 countries, for which I was able to obtain data, over 10 periods with gaps.

3.1 Operationalization of Variables

The measures of “WTO⁺” and “WTO^X” are constructed by adding their respective provisions. To account for individual WTO^X provisions, the individual dummy is employed to represent the specific provision present in PTA. These WTO-X provisions are on capital mobility, competition policy, labor mobility and environmental standards. The provisions accounting for WTO⁺ and WTO^X areas are summed up to create an overall indicator “WTO_PlusX”, i.e. 13 WTO⁺ and 4 WTO^X provisions.

3.2 Results and discussion

Table 1 shows seven estimations.

Table 1

Dependant Variable	$\ln T_{ijt} = (\ln \text{imp}_{ijt} + \ln \text{imp}_{jit}) / 2$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log (GDP _i *GDP _j)	0.542*** (0.00528)	0.415*** (0.0106)	0.415*** (0.0107)	0.452*** (0.0108)	0.452*** (0.0108)	0.158*** (0.00744)	0.165*** (0.00764)
Log distance	-0.580*** (0.0166)	-0.619*** (0.0233)	-0.626*** (0.0233)				
Both landlocked	-0.185*** (0.0585)	0.121** (0.0553)	0.120** (0.0557)				
Adjacency	0.356*** (0.0889)	0.377*** (0.0756)	0.378*** (0.0752)				
Common language	0.387*** (0.0294)	0.283*** (0.0254)	0.281*** (0.0254)				
Colonial history	1.279*** (0.0821)	0.892*** (0.0827)	0.893*** (0.0821)				
Current colony	-1.533* (0.810)	-1.152 (0.740)	-1.137 (0.736)	-0.370 (0.308)	-0.374 (0.307)	-0.797*** (0.118)	-0.846*** (0.167)
Common religion	-0.154*** (0.0410)	0.137*** (0.0440)	0.133*** (0.0439)				
Income difference	-0.0782*** (0.00780)	-0.164*** (0.00745)	-0.166*** (0.00744)	-0.131*** (0.0113)	-0.135*** (0.0112)	-0.0485*** (0.00794)	-0.0299*** (0.00883)
GATT/WTO	0.242*** (0.0203)	0.0875*** (0.0184)	0.0908*** (0.0184)	0.0429*** (0.0163)	0.0455*** (0.0164)	0.0296*** (0.0102)	0.0300*** (0.0106)
WTO ⁺	0.0328*** (0.00804)	0.0519*** (0.00567)		0.0615*** (0.00486)		0.00947*** (0.00163)	
WTO ^X			0.136*** (0.0162)		0.164*** (0.0105)		0.0126* (0.00756)
Constant	-2.720*** (0.155)	-1.338*** (0.282)	-1.282*** (0.283)	-6.191*** (0.164)	-6.192*** (0.165)	-0.00756 (0.0579)	0.0545** (0.0212)
Overall R ²	0.71	0.80	0.80			0.22	

Within R ²	-	-	-	0.48	0.49	-	0.09
No. of observations	53,502	53,502	53,502	53,502	53,502	38,936	38,936
Time FE	Yes	-	-	Yes	Yes	-	Yes
Ctry and time FE	-	Yes	Yes	-	-	Yes	-
Ctry-pair FE	-	-	-	Yes	Yes	-	Yes
First difference	-	-	-	-	-	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The measures of WTO⁺ and WTO^X are estimated interchangeably in different estimations. The reason for adopting this strategy is that introducing WTO⁺ and WTO^X in same estimation will ignore the risk of collinearity (variance inflation factor (vif) of 6.60 and 6.43 respectively, well above the limit of 2.50 (see Allison, 2012)) and susceptible to produce inconsistent estimates showing WTO^X indicator always negative (e.g. Kohl, 2013). This will eventually produce biased results and underestimate the potential of trade creating effect of WTO^X provisions. Model (1) is estimated with time dummies only. WTO⁺ provisions indicate strong positive effects on trade flows. WTO⁺ is persistently and significantly positive in creating trade in model (2) when controlled for price resistance terms and in model (4) when accounted for bilateral specific effects. Models (3 and 5) include the aggregate measure of WTO^X which is positive and highly significant (controlling for country-and-time fixed effects (estimation 3) and country-pair and time fixed effects (estimation 5)). Models (6) and (7) apply first difference with control by country-and-time fixed effects (see Baier and Bergstrand, 2007). Again, the estimates with WTO⁺ as well as with WTO^X show positive and significant effects although the significance level dropped to 0.10 for the latter.

Control variables show traditional results, positive effect on trade for log of GDP product and negative with geographical distance. The income difference ($\ln |GDPPC_i - \ln GDPPC_j|$) has negative effects on trade implying that trade is more intense when countries have similar levels of development. The positive sign and significance of the variable relating the membership of both countries in GATT/WTO shows that countries becoming members of WTO increase substantially their trade, whereas Rose (2004) reached opposite conclusions with a different method. This first result initiated an intense debate (Subramanian and Wei, 2007; Tomz et al. 2007; Kim, 2011). These new results reinforce conclusions opposed to Rose's (2004) findings. Although, the response made by Rose (2007).

Table 2 shows the results constituting the dominant logic of this paper. As opposed to results in table 1, the variable WTO^X is disaggregated into the four different policies negotiated and concluded in PTAs that do not fall under WTO mandate. The main purpose to break up this indicator is to delineate the effect of each WTO^X provision on trade creation. In this way we would distinguish the individual effect of each WTO^X provision by putting an insight into their qualitative analysis of how they affect trade and correct for contradictory results of the influence of WTO^X indicators (Kohl et al., 2013).

Table 2

Dependant Variable	$\ln T_{ijt} = (\ln imp_{ijt} + \ln imp_{jit}) / 2$			
	(1)	(2)	(3)	(4)
Log (GDP _i *GDP _j)	0.413*** (0.0106)	0.412*** (0.0106)	0.412*** (0.0106)	0.412*** (0.0106)
Log distance	-0.611*** (0.0235)	-0.619*** (0.0231)	-0.628*** (0.0234)	-0.625*** (0.0233)
Both landlocked	0.121** (0.0553)	0.121** (0.0548)	0.114** (0.0549)	0.116** (0.0550)
Adjacency	0.356*** (0.0764)	0.391*** (0.0759)	0.392*** (0.0772)	0.392*** (0.0771)
Common language	0.275*** (0.0255)	0.281*** (0.0254)	0.282*** (0.0255)	0.282*** (0.0255)
Colonial history	0.891*** (0.0826)	0.885*** (0.0829)	0.882*** (0.0830)	0.886*** (0.0827)
Current colony	-1.054 (0.742)	-1.128 (0.731)	-1.100 (0.740)	-1.098 (0.739)
Common religion	0.128*** (0.0441)	0.134*** (0.0439)	0.133*** (0.0441)	0.133*** (0.0440)
Income difference	-0.167*** (0.00746)	-0.166*** (0.00748)	-0.168*** (0.00747)	-0.166*** (0.00748)
GATT/WTO	0.0873*** (0.0184)	0.0823*** (0.0184)	0.0805*** (0.0184)	0.0848*** (0.0184)
Bilateral dummy	0.449*** (0.0560)	0.450*** (0.0616)	0.637*** (0.0507)	0.611*** (0.0501)
Regional dummy	0.0852*** (0.0320)	0.121*** (0.0298)	0.175*** (0.0286)	0.152*** (0.0288)
Capital mobility (WTO ^X -1)	0.369*** (0.0454)			
Competition policy (WTO ^X -2)		0.386*** (0.0506)		
Labour mobility(WTO ^X -3)			0.217*** (0.0499)	
Environmental standards (WTO ^X -4)				0.332*** (0.0480)
Constant	-1.363*** (0.281)	-1.285*** (0.280)	-1.194*** (0.281)	-1.230*** (0.281)
Overall R ²	0.80	0.80	0.80	0.80
Within R ²	-	-	-	-
No. of observations	53,502	53,502	53,502	53,502
Time FE	-	-	-	-

Ctry and time FE	Yes	Yes	Yes	Yes
Ctry-pair FE	-	-	-	-
First difference	-	-	-	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Estimations with country-pair fixed effects and with first difference show significant positive results for all of the WTO^X provisions although the magnitude differs. Results will be available upon request.

All four provisions constituting WTO^X show positive and significant signs although with varying degrees⁴. The results show that agreement to include provisions of capital mobility increases trade up to very important level of 44%. ($e^{0.369} - 1$). Competition policy is found to increase trade by 47%. Provisions on environmental standards and labor mobility, which drew much attention as they were said and are still considered as the biggest hurdle in the advancement of negotiations at multilateral level under the WTO (see Doha Ministerial Conference, 2001)⁵, show positive and significant effects. Agreements on environmental standards account for a 39% increase in trade flows which is consistent with Porter hypothesis as presented above (Porter, 1991). The results indicate that agreeing to strict environmental standards probably induce efficiency and stimulate innovation, which in turn improves the country's overall commercial competitiveness resulting in increased trade.

The positive and significant effects for labor related provisions, increasing trade flows by the important amount of 24%, confirms that providing facilities for movement of so-called natural persons is not detrimental to trade. There are labor-related provisions containing rules on non-discriminatory conditions for workers and access to labor markets.

Even though, it is commonly considered that negotiations of labor issues likely to include strict rules on labor standards can have a negative impact on trade and that labor mobility can act as a substitute to trade (Mundell, 1957), the above results do not confirm these intuitions.

Two more dummy variables are added to account for the distinction between bilateral and regional agreements, as they are formed with different underlying motivations. Bilateral Trade agreements (BTAs) are the agreements formed between two states or group of states,

⁴ All the four models are controlled with country-and-time effects here. Controlling for country-pair (bilateral specific) and time effects yield qualitatively the same results.

⁵ See http://www.wto.org/english/thewto_e/whatis_e/tif_e/bey2_e.htm

geographically apart⁶. Regional Trade Agreements are formed among three or more countries in a geographical proximity (under Article GATT XXIV). Both, BTAs and RTAs affect trade positively and significantly but differently. The results (in all models) show that bilateral agreements affect trade positively with larger magnitude compared to regional agreements reinforcing the evidence that agreements at regional level were formed by countries formerly engaged in substantial levels of trade, thus leaving little opportunity for marginal increase of trade (see Krugman's 1991a *Natural Trading Partner hypothesis*).

Table 3 presents the effects of factor variables created from WTOPlusX (four factors, model 1), WTO⁺ (three factors, model 2) and WTO^X (two factors, model 3).

Table 3

Dependant Variable	$\ln T_{ijt} = (\ln \text{imp}_{ijt} + \ln \text{imp}_{jit}) / 2$		
	(1)	(2)	(3)
Log (GDP _i *GDP _j)	0.410*** (0.0107)	0.408*** (0.0107)	0.416*** (0.0106)
Log distance	-0.610*** (0.0232)	-0.621*** (0.0231)	-0.614*** (0.0232)
Both landlocked	0.142*** (0.0538)	0.137** (0.0539)	0.120** (0.0559)
Adjacency	0.379*** (0.0747)	0.385*** (0.0752)	0.357*** (0.0752)
Common language	0.285*** (0.0254)	0.286*** (0.0254)	0.274*** (0.0255)
Colonial history	0.897*** (0.0826)	0.898*** (0.0828)	0.897*** (0.0821)
Current colony	-1.104 (0.748)	-1.102 (0.759)	-1.054 (0.741)
Common religion	0.136*** (0.0438)	0.133*** (0.0439)	0.127*** (0.0440)
Income difference	-0.165*** (0.00745)	-0.165*** (0.00746)	-0.167*** (0.00744)
GATT/WTO	0.0865*** (0.0184)	0.0867*** (0.0184)	0.0883*** (0.0185)
Factor 1_ WTO PlusX	0.0362*** (0.00626)		
Factor 2_ WTO PlusX	0.0528*** (0.00701)		
Factor 3_ WTO PlusX	0.0935*** (0.00772)		
Factor4_ WTO PlusX	0.0858*** (0.00803)		
Factor 1_ WTO ⁺		0.0507***	

⁶ They can be concluded by two countries situated in the same region, but the definition remains the same. They will be regarded as BTAs.

		(0.00600)	
Factor 2_WTO ⁺		0.0582***	
		(0.00730)	
Factor 3_WTO ⁺		0.112***	
		(0.00788)	
Factor 1_WTO ^X			0.0381***
			(0.00699)
Factor 2_WTO ^X			0.130***
			(0.00881)
Constant	-1.336***	-1.219***	-1.362***
	(0.280)	(0.279)	(0.281)
Overall R ²	0.80	0.80	0.80
Within R ²	-	-	-
No. of observations	53,502	53,502	53,502
Time FE	-	-	-
Ctry and time FE	Yes	Yes	Yes
Ctry-pair FE	-	-	-
First difference	-	-	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All the factors are rotated before regression and in three models, show positive signs confirming to our initial analysis. In model 3, the first factor contains environment and labor, showing lower magnitude than the second factor (containing capital mobility and competition provisions) but the sign is positive and significant. Again, putting the factors from different measures (WTOPlusX, WTO⁺ and WTO^X) separately in same model seriously ignores the risk of collinearity. Therefore, factors obtained from different indicators are estimated in different models.

4. Conclusion

Research on PTAs limits the analysis of their effect on trade if treated homogeneously which is the case. This research put an insight into policy areas which do not come under the mandate of WTO. An extensive theoretical and empirical analysis is performed on each provision, not falling under the auspices of WTO (i.e. WTO^X provisions), that through which mechanism they could create trade which is missing in the literature.

The studies, which address this important issue, lack the details on WTO^X provisions. The arithmetic sum of WTO^X provisions is econometrically (not qualitatively) analysed but fail to analyze the potential of each WTO^X provision. This study delineates the effect of individual WTO^X provisions as well as pointed some econometric shortcomings to provide genuine analysis

in the scant literature dealing with this issue. I found the effect of each WTO^X provisions to be trade enhancing although each provision affects trade flows differently.

Secondly, the different levels of legalism are analyzed moreover their influencing effect on legally enforceable policy areas is studied. The high level of legalization is found to be insignificantly moderating the effect of issue areas negotiated on trade flows. The medium level of institutionalization is found significant.

Although, PTAs affect multilateral negotiations multidimensionally, this study contributes to one dimension of PTAs on the ongoing debate of coherence between PTAs and WTO that provisions they entail (especially those not falling under WTO mandate) are trade creating and therefore contribute to the overall goal of WTO i.e. higher bilateral trade levels.

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