CTEI Working Papers

How Preferential are Preferential Trade Agreements? : Analysis of Product Exclusions in PTAs[a]

Yose Rizal Damuri[b]

Abstract

Many studies on preferential trade agreements (PTAs) tend to consider a trade agreement as a binary choice: either a particular country chooses to establish a PTA with its partners or it does not. However, free trade agreements are not alike. The value of preferences in PTAs can vary tremendously and may even be different towards different partners, which is embodied in the list of product exclusions of a PTA. A detailed examination of product exclusions sheds a light on the value of preferences in PTAs. This study examines the patterns of product exclusion in several PTAs and explores relevant factors influencing the decision to include or exclude a particular product. The econometric estimation in this study indicates that product exclusions in PTAs are partly the outcome of a bargaining process conducted by negotiating countries, but at the same time the trade policy of the reporting countries heavily influences the decision to exclude a particular product.

http://graduateinstitute.ch/ctei

ProDoc Trade Programme

The ProDoc Trade is a research and training programme that brings together PhD students and professors from the University of Geneva, the University of Lausanne and the Graduate Institute of International and Development studies, as well as economists working in the Geneva-based International Organisations devoted to trade (mainly the WTO, ITC and UNCTAD). This networking aims at an agglomeration of excellence in research and making the Lémanique area the heart of international trade economics attractive to trade scholars world wide and to first-rate students from around the globe.

www.graduateinstitute.ch/ctei

Centre for Trade and Economic Integration (CTEI)

The Centre for Trade and Economic Integration fosters world-class multidisciplinary scholarship aimed at developing solutions to problems facing the international trade system and economic integration more generally. It works in association with public sector and private sector actors, giving special prominence to Geneva-based International Organisations such as the WTO and UNCTAD. The Centre also bridges gaps between the scholarly and policymaking communities through outreach and training activities in Geneva.

www.graduateinstitute.ch/ctei

How Preferential are Preferential Trade Agreements? : Analysis of Product Exclusions in PTAs

Abstract

Abstract

1   Introduction

While one of the basic principles of multilateral trading system under the WTO requires the member countries to apply the principle of non-discrimination, famously known as Most Favored Nation (MFN), the system also provides an exception that allows its members to give a series of tariff concession to a certain number of countries. This preferential trade access usually comes as a part of preferential trade agreements, which commonly are regional, or most frequently as bilateral free trade agreements involving two or more countries with significant trade activities. The preferential trade agreement has become words of fashion in economic world, as virtually most countries are involved in at least one short of preferential agreement with others. As of January 2008, there are 199 PTAs that have been in force and notified to the WTO, and more others are still in the negotiation process or underway for the implementation.

The vast popularity of PTA might be attributed to the discriminatory nature of this type of trade agreement, which allow countries to provide greater market access to selected partners and maintaining protection to other trading partners. This partial liberalization offers bigger chance for the countries to maximize political economic gain from trade[3]. Preferential treatment in PTA is not only limited to partner countries and the rest of the world. A country engage in a PTA may also extent the discriminatory treatment by differentiating market access provision to different partners with which it forms the agreements.

---

[3] While economic theory shows that free trade offers biggest advantage from trade, countries usually pursue liberalization through trade agreement. Theoretical framework section presents one explanation to PTA. More general explanation on trade agreement can be found in Bagwel and Steigler (2002)

http://graduateinstitute.ch/ctei

The discriminatory feature towards different partners in PTAs is embodied in the list of products that are excluded from greater market access provision in an agreement. Knowing as product exclusions, this list is a common feature to the current trade agreements. It comes as a consequence that preferential liberalization in a PTA does not apply immediately after the agreement comes into force; there are certain periods and conditions before products are fully liberalized exclusively to the partners. Different staging of liberalization towards different partners leads to discriminatory treatment to different partners.

This study is an attempt to examine the pattern of product exclusion in several PTAs and to look at factors influencing the decision to include or exclude a particular product. Looking at the patterns of product exclusions allows better understanding towards the discriminatory feature of PTAs. While a discriminatory treatment between partner and non-partners is a familiar feature of a preferential trade agreement, discrimination toward different partners is less recognized. Product exclusions in PTAs reflect the latter type of discriminatory feature of the trade agreement.

This study also provides an insight to the bargaining process behind the provision of tariff concessions in PTAs. There is a general perception that negotiation process of a PTA, particularly between developed and developing countries, tend to give more bargaining position to the more powerful economies in order to pursue their interests and to put pressure on the less powerful ones. There is also a suspicion that big countries have a tendency to follow certain "templates" in conducting trade negotiation, which give less room for negotiation, particularly for the developing countries.

Grossman and Helpman (1995) explain that product exclusion is an outcome of a bargaining process in a PTA negotiation. It serves as a solution to accommodate conflicting interests from the two countries involved. The decision to include or exclude a product reflects the equilibrium between those two conflicting interests.

Looking at various factors affecting product exclusions from both sides provides information on how bargaining process conducted in a PTA negotiation.

This study aims to see empirical evidences whether product exclusion list in a PTA is the outcome of bargaining process between the exporting and importing countries or independently determined by the country creating the list. The empirical examination is conducted based on some hypothesis derived from the work of Grossman and Helpman (1995).

To our knowledge, only one study looks at the presence of product exclusions in PTAs. Using the model from GH95 as the basis for empirical work, Gawande, Sanguinetti and Bohara (2001) investigate product exclusions between Argentina and Brazil. The paper finds that products having trade creation effect after the PTA takes place are likely to be excluded, as in line with the hypothesis in GH95. The proposed empirical specification in the paper prevents them to do a larger scale cross-country examination on product exclusions due to the availability of data and information required. Another study from Olarreaga and Soloaga (1998) also briefly examines the lack of common external tariff in Mercosur when explaining the endogeneous tariff formation in the common market.

In the same spirit of the two papers above, this paper empirically examines the presence of product exclusions in the preferential trade agreements. Different from the previous study, which focuses solely on the product exclusions among Mercosur members, this study looks at the patterns of product exclusions in various PTAs involving developed and developing countries. The next section briefly explains the theoretical framework that forms a basis for methodology and strategy used in the empirical work. After exploring some descriptive features of product exclusions, we present and discuss the results of the empirical work, before closing the paper with a discussion on the implications of the results of study.

2   Theoretical Framework: Political Economy of a PTA

While product exclusions are a common feature of a preferential trade agreement, theoretical work explaining such occurrence appears only in the work of Grossman and Helpman (1995), which discusses the political economy process behind the formation of a PTA. GH95 presents the process in two stages of strategic action. The first stage involves domestic political process between various interests in the economy to determine government's policy preferences, while the subsequent one is conducted in the international level, where the concerned governments negotiate to form the trade agreement. The international negotiation sets some parameters for domestic political process, while at the same time the negotiation is constrained by domestic political-economy interests.

The basic of domestic political process is laid out in the 1994 work of Grossman and Helpman to explain the political-economy process behind trade policy formulation. The model sees trade policy as an equilibrium outcome of government as the agent that sets trade policy, and interest groups as principals. The government as policy maker receives contribution from various interest groups as an attempt to influence policy decision. On the other hand, the government also pays attention to general welfare of the economy as it increases their credibility.

The interest groups, or more specifically the industries, are willing to provide political contribution since trade policy increases the domestic price of goods, which in turn raise profits for the related industries. More organized industries find it easier to provide sufficient contribution that makes the government agree to set favourable policies. The higher the potential profits from a particular trade policy, the higher contribution that the industries are willing to give up to the government.

Therefore, the government is trying to maximise its objective function in using trade policy by balancing the general welfare and political contribution from interest groups.

Suppose that the government is in the process of a negotiation with a partner country. When the PTA is in force, producers from the partner country would be able to export their products facing a lower tariff barrier than the rest of the world. There is a possible adjustment in domestic price of the products, which would change the potential profits of the industries, and eventually the political contribution obtained by the government. On the other hand, there is also a possibility for the government to raise its objective function from the contribution of exporters receiving bigger market access and from the increase of consumer surplus.

The decision whether both countries continue to pursue the trade agreement depends on the international negotiation between the government. GH95 assumes that the negotiation is settled following a Nash bargaining process. The PTA can be successfully negotiated only if the objective function of both governments increases after the PTA between the countries takes place.

This condition leaves the government of both countries little room to negotiate. GH95 characterizes the condition in which political-economy support is sufficient to pursue the PTA. It could only occur when the potential trade under the PTA between the two countries is relatively "balance". It means potential exporters, who would gain from the agreement, possess at least equal political contribution to the losing import competing producers. This situation might not appear all the time.

The condition to endorse a PTA becomes more flexible if the countries are allowed to exclude particular products from the agreement. In that case, the government would find its objective function to be positive only for a set of products included in the agreement, while setting aside the products that lead negative effect on its objective function. GH95 describes that the possibility of having product exclusions in PTAs save the agreements that would never have taken place otherwise.

The model also predicts which product would be excluded or included. Taking a framework build by Richardson (1992), GH95 explains that there are three possible effects of providing tariff concession to the partner country in importing a particular

product. These possible effects shape how the political interests behave toward the establishment of the PTA, and eventually to the exclusion or inclusion of the product.

2.1   Cases for Exclusion and Inclusion

The first case is a situation where PTA results in an enhanced protection for exporting country producers. In this case partner country, despite being an exporter of the product, does not really have sufficient capacity to satisfy import demand at the associated domestic price. There would be no significant change in the domestic price of the product as a result of preferential liberalization. Exporters from the partner country would enjoy higher profits by exporting their products to the country as they no longer pay for the tariff. Profits of the import competing producers in the country remain unaltered by the tariff concessions. The consumers, on the other hand, would not reap the benefits from the FTA. This situation can be called as an **enhanced protection** for the partner. In this situation, there would be no significant opposition and support to give the partner country preferential tariff concession.

The opposite situation may take place when the partner country's exporters hold a capacity that allows them to fulfill the whole import demand at a much lower exporting price after the tariff removed. This leads to a decline in the domestic price of the product. In equilibrium the price would fall to the level faced in the international market, and give no additional protection rents to the exporters from the partner countries. Import competing producers in the country would suffer from the price decline, while domestic consumers would gain additional consumer surplus.

In this situation, preferential tariff concession to the product would lead to a **trade creation**. The government is likely to face strong oppositions from the related industries in the domestic level, while at the international level, not much demand would be addressed by the partner country's government to preferentially liberalize the market for that particular product in the negotiated PTA. It is likely that the product would be put in the exclusion list.

The third case is an intermediate situation in which partner country's exporters can only meet domestic demand of the product at the higher price than the international one. As a result of preferential liberalization, the domestic price level would fall although remain higher than the international level. The import competing producers would lose part of their current profits, while consumers would enjoy higher consumer surplus from a lower price. The partner country's exporters would also benefit from the tariff concession as they may sell the products at a price higher than the international one. There would be a **trade diversion** as a result of preferential tariff removal for the product.

The government is likely to find oppositions from the domestic industries in placing the product into the list of tariff elimination of the PTA. However, the government would also consider the increase of consumer surplus in the general welfare of the economy. At the international level, there would be a stronger pressure from the partner country to provide tariff concession for the product. Whether the product would be included in the exclusion list or be given preferential liberalization depends on how far the government weight general welfare over interest groups' contribution, and the negotiation process at the international level.

2.2   Theoretical Predictions

GH95 predicts that products that lead to a trade creation when a PTA is in force is likely to be placed in the exclusion list, while products that lead to an enhanced protection is expected to appear in the list of tariff elimination. Products that fall under the intermediate case may be excluded or be included in the PTA depending on the international negotiation process and the government attitude towards different domestic groups.

While it is almost impossible to obtain data for domestic political process and international bargaining power in the formation of PTAs, it is feasible to find various factors that lead to a particular situation described above after the PTAs are in effect. This would serve as a basis for our empirical work in product exclusions.

As described in GH95 the main factors that lead to "trade creation" or "enhanced protection" in the market for a particular product are export capacity of the partner country in supplying the product and the import demand of the product. The theoretical framework thus suggests that the possibility of a particular product to be included in a proposed PTA increases as the country's import demand of that product become larger. It also predicts that the chance of the product to be included decreases as the partner country's export capacity bigger.

These two factors, the country's import demand and partner's export capacity, are the main aspects of the GH95 prediction on the pattern of product exclusions, and also serve as focal points of our empirical analysis. Both reveal whether the PTA happens to be an outcome of bargaining and negotiation process by the two countries involved, taking into account the characteristics in the reporting and partner country, rather than determined solely by the country providing tariff concessions.

Note that the relationships mentioned above have to be taken carefully as it might take a different direction subject to changes in consumer welfare. There are two cases in which the effects of export capacity and import demands of product might give an opposite impact on the decision to include the product. The first is the case where a preferential tariff reduction would bring relatively large consumer welfare. The second is when the government values consumer welfare higher in its objective function. Both lead to a bigger effect of consumer support to the inclusion of the product, overwhelming oppositions from the import competing producers, and might change the direction of those effects explained above.

In addition to trade features, GH95 also emphasizes the importance of domestic political process. There are two attributes of the political process that determine whether a product would be preferentially liberalized in the PTA, namely the political contribution of interest groups, or related industries in this case, and the government valuation towards general welfare as opposed to political contribution. The latter is attributed to the country's political process in general, rather than determined at product or industry level. The former factor, namely political influence of interest

groups, might be related to various characteristics of the particular product or the related industries. We will discuss some potential variables to capture this process in our empirical work later.

3   Product Exclusions in PTAs

3.1   Product Exclusions: Data Construction

Detail inspection on text of preferential trade agreements normally shows that there are four main possibilities of the outcome of an agreement: (i) for some products, import tariffs were either removed completely when the agreement is enforced or the MFN tariffs were already zero; (ii) import tariffs of other products in the agreement were reduced gradually to zero within several years, beginning in the first year of implementation; (iii) a small number of products might be temporarily excluded for the agreement by having a series of reduction until the tariff reach zero starting several years after the agreement is effective; (iv) lastly, a very small number of products in various agreements were permanently excluded from the agreement.

There are several possibilities to specify products that are excluded from the agreement. One way is to specify our product exclusions as products that fall under category (iii) and (iv) described above, while the rest is considered to be included. The binary dataset consists of 0 for the products under the category (iii) and (iv) as the excluded products, and 1 for the goods included in the PTA, or products that come under category (i) and (ii). Note that while the analysis focuses on product exclusions, the dataset is constructed in the way to present products that are included in PTAs.

The coding process also takes into consideration the presence of non-tariff barriers negotiated in the PTAs, namely the application of tariff quota. Tariff concession for certain products might only valid to limited amount of imports from the partner country[4]. The presence of tariff quotas reduces the provision of tariff concessions on

---

[4] Trade agreement between US and Australia, for example, allow butter to be imported duty free from Australia to the US. However, this duty free provision subject to a quota, which is no more than 3000 tonnes per year for the first year of implementation. For exceeding amount of imports, butter from Australia is subject to normal MFN tariff rate.

those particular products. In this coding process, an arbitrary threshold of 50% of bilateral imports from the partner countries is set. If the quota for good in question is less than 50% of its bilateral imports, the good is declared to be excluded from PTA.

The dataset for our analysis are constructed from a sample of 15 bilateral agreements. This sample represents bilateral agreement of the four largest trading economies: United States, European Union, Japan and Canada, with their main trading partners. This sample aims to cover agreements between industrialized and developing countries, as well as among industrialized countries themselves to give better picture on the bargaining. However, there are only few agreements currently takes place among industrialized countries. Appendix A presents the agreements in our sample along with the various related information.

Since the product exclusions in PTAs are decided for each countries involved, the constructed the dataset consists of 30 possible reporting country. They are all coded at the original tariff line of the countries, ranging from 8 to 10 digit HS code.

3.2   A Glance on Product Exclusions: Descriptive Analysis

There are 289,543 tariff lines described in the dataset constructed from 15 agreements in our sample, consisting of 30 different reporting countries. The definition of products represented in each tariff line varies slightly from one country to another, although the product classifications follow international consensus up to 6 digits classification.

One interesting feature of the dataset in our sample agreement is that the exclusion of a product from a country's list of tariff concessions does not need to be matched by the exclusion of a similar product in the partner country's list. It is quite sensible to expect that when a reporting country put a particular product into its exclusion list, the partner would also exempt the product from its preferential treatment. However, the dataset only shows that less than 30% of products, classified at 6 digit HS, that are excluded from tariff elimination schedule of the reporting countries, are also excluded in the partner countries' schedule. While it is somewhat difficult to do comparison in

the original tariff line level, the real percentage of the matching excluded products is likely to be lower.

This indicates that each negotiating countries hold a great range of flexibility in determining which products to be in the country's product exclusion list. In fact, most agreements do not specify reciprocity principal in the schedule of tariff elimination. Some exceptions appear on the agreements involving Japan, particularly for textile and footwear, which require the partner countries to provide tariff concession for the same products in order to obtain preferential treatment from Japan.

Based on these findings, the further empirical and descriptive analysis can be conducted only for the product exclusions from the four largest trading economies; namely from the perspective of the US, the EU, Japan and Canada, due to the availability of data for further analysis. It reduces the number of tariff lines into 148,780.

Using the binary specification of product exclusions described above, there are around 8.07% of tariff lines in the dataset, comprising a little less than 12 thousand products, classified as products excluded from the trade agreements either temporarily or permanently. Looking at only on tariff lines in which the reporting countries recorded bilateral trade with their partners during the negotiation period, the proportion of the excluded products falls to 8%. Note that this proportion is calculated with zero MFN tariff lines included. The proportion of excluded product increases to 11% if only non-zero MFN goods are taken into consideration.

Agriculture and food products are known to be the most protected products in many countries, including countries involved in the trade agreements in our sample. It can also be observed easily in the list of product exclusion. In whole agriculture and food products, 20,915 tariff lines are recorded in the sample, and about 27% are among products that are excluded from the provision of tariff elimination. In comparison, only around 1% of manufacturing products are excluded from the agreements. This pattern is commonly observed across all reporting countries. Japan, for example,

maintain MFN tariff rate of 40% of agriculture and food products for its partners in the preferential trade agreements. Table 1 presents a more detail breakdown of product exclusions across reporting countries categorized in several aggregated product classifications.

Table 1. Product Exclusions (% of Excluded Products)

Categories	Canada (%)	EU (%)	Japan (%)	US (%)
Agriculture	39.3	56.8	50.0	35.1
Prepared Foods	23.2	27.3	31.8	41.3
Chemical, Plastics & Leather	2.6	0.9	6.6	2.4
Machinery & Transport	2.5	1.2	-	0.6
Mineral & metal	1.9	13.8	2.0	2.1
Wood and Paper	0.1	-	4.5	0.1
Textiles and Footwear	28.3	-	4.8	16.4
Others	2.1	-	0.2	2.0
Number of Excluded Products	**773**	**4,513**	**4,770**	**1,728**
% of Total Product*	**4.49**	**20.26**	**21.27**	**3.79**

* Allowing for only non-zero-MFN products; Source: Author's calculation

Our dataset also reveals another interesting feature on how the set of excluded product from a particular reporting country differs from one partner to another. A quick look on the list of product exclusion demonstrates that there is preferential treatment among different partners of preferential trade agreements. By examining only trade agreements pursued by the US during the period of 2000's, we can see that while the country puts 315 tariff lines into the list of excluded products in the agreement with Australia, it agrees to put only 103 lines as excluded products in the agreement with Peru. Although in less striking scale, other countries follow similar pattern. For example, Japan has 1320 tariff lines excluded from preferential treatment to Chile, while it just retains 1180 in the agreement with Thailand.

Table 2 presents the number of products appear in product exclusion lists of the reporting countries. The last four columns provide the number of individual products excluded in at least one of the agreements in our sample for each reporting country.

While some products are excluded in more than one agreement, only relatively small portion appear in all, as described in the first four column of the table. Of all 739 products excluded in the US's agreements with six partners, only less than 20% are excluded in all six. Sugar product and confectionary, such as chocolate, appears to be excluded in most US agreements, while some dairy and animal products exclusively excluded in the agreement with Australia. The same pattern can also be observed in Japan and European Union's product exclusion list. Only small number of products is excluded in all agreements. Some are just excluded specifically to a certain partner.

Table 2. Product Exclusions Towards Different Partners

	All Agreements (%)				At Least In One Agreement (Number)			
	Canada	EU	Japan	US	Canada	EU	Japan	US
Agriculture	15.6	54.5	45.4	28.2	263	1,660	853	227
Chemical, Plastics & Leather	-	42.9	53.2	-	20	28	109	34
Machinery & Transport	-	-	-	-	19	53	-	10
Mineral & metal	-	-	26.8	-	15	624	41	20
Others	-	-	-	-	16	-	9	27
Prepared Foods	7.8	61.5	53.9	35.6	166	762	523	233
Textiles and Footwear	-	-	67.6	-	219	-	68	187
Wood and Paper	-	-	-	-	1	-	115	1
Total	7.5	44.3	45.6	19.9	719	3,127	1,718	739

The differences in product exclusions across trade agreements with different partners provide evidence toward the discriminatory feature of PTAs. Discriminatory treatments apply not only non-partner countries, but also between different partners. This finding does not confirm a common perception on the preferential trade agreements, particularly the ones involving big countries like those in the sample. It is commonly believed that trade negotiators pursue trade talks with a specific agreement template on hand and limit the bargaining process in the negotiation. The product exclusion lists in our sample shows that the bargaining process might lead to different outcomes to different partners, at least for tariff concessions.

As explained in the previous section, the political-economy model of PTA from Grossman-Helpman (1995) sees product exclusion as a result of bargaining between the countries involved. The exclusion considers what the government would "gain" in

domestic political process, from the provision of tariff concessions to the partner's exports. Next, we would explore some evidences of the bargaining process in determining product exclusions using a theoretical framework developed in GH95.

4   Empirical Work

4.1   Econometric Specification

GH95 model predicts that trade features of both countries involved in the negotiation determine the attitude toward the inclusion or exclusion of a particular product. The decision is also affected by political influence of the interest groups in the economy. In order to facilitate our empirical work, we need to find some variables that might represent the prediction as briefly discussed in theoretical framework section above. The level of analysis and data availability is the main consideration. Decision of having a product excluded or included in tariff elimination is undertaken for each product. Therefore the analysis needs to be at a similar level, which requires explanatory variables at a disaggregated level.

To represent import demand, we use yearly value of imports of the product during the negotiation period. The effect of import value is expected to be positive towards the inclusion of the product. Since the value of import may only represent import demand of the product for current tariff-distorted price, we also use tariff free import value, estimated using elasticity of import demand, as an alternative for explanatory variables of product exclusions.

Export capacity is represented by an index of revealed comparative advantage (RCA) of partner countries export for a particular good. The RCA index measures the importance of the partner's exports relative to the world's export of the products, adjusted by total exports. Alternatively, we also use export values in the econometric estimation to check whether the result is affected by the type of indicators selected.

Proper measurements of political influence of industries and interest groups have been suggested by several authors in endogenous tariff literature both in theoretical and empirical work. Gawande and Li (2006) include a subjective indicator to represent

whether industries are properly organized or not, while Gawande and Hoekman (2004) examine the structure of US tariff in agriculture products by looking at PAC contribution of the industry. While indicator to reflect how organized an industry is a good choice to measure its influence level in affecting trade policy, the construction of the indicator depends heavily on subjective judgment[5]. Moreover, the practice of political contribution recording is only common in the United States, making it more difficult to look at political contribution directly in other countries.

Less direct indicators to political influence of interest groups using various industrial characteristics may serve as an alternative. Olarreaga and Soloaga (1998) propose a list of indicators built from several characteristics of industries, ranging from industry concentration index to labour union proxy, as well as policy indicators, such as tariffs, to capture the level of protection received by an industry. Unfortunately, these indicators demand sufficient information of industry characteristics related to the product examined, which is hardly available in a disaggregated level.

In this study, the political influence of interest groups is proxied by MFN tariff rate for that particular product. High MFN tariff rate indicates that the associated industry maintains strong influence on the government policies and put effort in lobbying in favor of protection for the product, while low MFN rate suggests that the industry either do not have strong influence or do not see the product require high protection.

Another factor that has to be considered in econometric specification of GH model is the reporting country's trade position on the product. While the theoretical framework is deduced on the assumption that the reporting country solely imports the product and its partner acts as an exporter, in reality it is easy to find that both countries carry out exports and imports of the same product. We deal with the problem by

---

[5] In a study to examine bargaining power between EU, Japan and US affecting each other's tariff structure, Gawande and Li (2006) assume that all manufacturing industries in those countries are well organized, except for a few. While the reference studies of this paper does examined producers organizations, it is still difficult to come up with such conclusion.

introducing trade balance of the reporting country for the product. Products with positive trade balance are expected to be more likely to obtain preferential treatment.

By considering the empirical strategy explained above, a binary econometric specification can be proposed to empirically examine product exclusions.

$$I_i^A = \beta_0 + \beta_1 BALANCE_i^A + \beta_2 \ln IMP_i^A + \beta_3 RCA_i^B + \beta_4 MFN_i^A + Z\delta + u_i \quad (1)$$

where u_i is the disturbance term, and prefix A and B represents reporting and partner countries respectively.

- I_i^A is a binary variable representing inclusion (1) or exclusion (0) of product i into the PTA in the sample.

- $BALANCE_i^A$ is country A's total trade balance of product i, which is defined as $\left[\dfrac{EXP_i^A - IMP_i^A}{EXP_i^A + IMP_i^A} \right]$. This variable tries to capture the effect of domestic output in the decision to include product I into the agreement. Higher value of $BALANCE$ increase supports for inclusion of the product.

- IMP_i^A is country A's total import value of product i. The data used in the econometric estimation comes from the period of negotiation for the associated PTA. From our discussion above it is expected that higher imports lead to higher support to inclusion of the product in the agreement.

- RCA_i^B is an index of revealed comparative advantage from Balassa, representing country B's capacity to export product i, defined as $RCA_i^B = \dfrac{EXP_i^B}{\sum\limits_i EXP_i^B} \Big/ \dfrac{EXP_i^W}{\sum\limits_i EXP_i^W}$, where EXP_i^B and EXP_i^W are export of product i from country B and the world respectively. The data is also extracted from the period of negotiation of the PTA. Higher RCA indicates less support of inclusion from country A point of view, as well as from country B' exporters. For the sake of scaling, the RCA is normalized so that it falls between -1 and 1.

- MFN_i^A refers to MFN tariff rate applied by country A for product i during the period of negotiation. It is expected that tariff rate is negatively correlated with the inclusion of the product.

- Z is a set of control variable affecting the decision to include or exclude product i. In this basic specification the control variables consist only of dummy variables to represent pairs of country A and country B. Later, we include various variables on country level that affects the bargaining process.

4.2   Estimation Strategy and Data

We use our constructed dataset on product exclusions to empirically analyse the pattern of product exclusion in the sample PTAs. The dataset is served as the dependent variable of our econometric estimations. Data for explanatory variables comes from various sources. Values of bilateral and total imports of reporting countries are collected from Comtrade database of UN Statistical division, which gathers yearly trade data at 6 digits HS classification. Data for RCA and trade balance calculation also comes from the same source (Appendix B describes data source in more detail). For our empirical purpose, the trade value is taken as three years average of exports and imports value during the period of negotiation for the countries involved in the agreements. Taking average is important considering we deal with highly disaggregated data which might suffer from yearly fluctuation.

MFN Tariff rates are collected from TRAINS database of UNCTAD. TRAINS database collects MFN tariff rate of each product according to original tariff lines classification, that comes under 6 to10 digit HS classification, published by the UN member countries for certain years.

In conducting the econometric estimation, there is a problem related to dependent variable specifications. In this model dependent variable takes value of 0/1. The application of OLS into this type of specification suffers from various problems, ranging from un-boundedness of dependent variable to heteroskedasticity. Binary response variable such as Logit and Probit regression provides solution to the related problems. With this type of regression, we can estimate the model using maximum likelihood techniques with logistic or normal distribution function as the cumulative distribution function.

However, we should pay more attention to the fact that the dependent variable, product exclusions, is coded in a highly disaggregated level of original tariff lines. Unfortunately, the data for related explanatory variables is only available in less disaggregated classification. While tariff lines commonly come as 8 – 10 digits HS codes, the available data for most of the explanatory variables, such as export and

imports, is limited to 6 digits HS level. This might affect the estimation significantly considering the dependent variable only takes two extreme values 0 or 1.

An alternative is to conduct the analysis in more aggregated level of HS 6 digits. Since the outcome variable is a binary variable, it is problematic to do the aggregation as it leads to non binary results. We can make an arbitrary assumption by declaring an HS 6 digits product to be excluded if there is at least one tariff line (less aggregated classification) comes up as excluded product. This strategy risks the analysis to be bias towards excluded products[6].

This paper takes a different approach by looking at proportion of a product, classified as HS 6 digit, obtaining preferential treatment in the sample PTAs as the dependent variable. Thus, instead of taking 0 or 1, the dependent variable takes value between 0, which means there is no original tariff line of 8-10 digit HS to be included in PTA for the related 6 digit classification, and 1, which means the whole tariff lines in the associated HS 6 digits being included in the agreement. Specification (1) can then be written as

$$p_k(I_i^A = 0) = \beta_0 + \beta_1 BALANCE_k^A + \beta_2 \ln IMP_k^A + \beta_3 RCA_k^B$$
$$+ \beta_4 MFN_k^A + \eta_A + \eta_B + u_k ; \quad i \subset k \tag{1a}$$

where p_k is the proportion of the included products (at original tariff line i) at 6 digit HS classification k. All explanatory variables are measured at 6 digit HS, while η is country fixed effects of A and B.

With a fractional dependent variable, binary-choice techniques might not be appropriate for estimation of the model. Papke and Wooldridge (1996) suggest the application of quasi maximum likelihood estimation (QMLE) method for a specific binary distribution. While this estimation is non-linear in nature and might be solved

---

[6] As an illustration, assume that one product under HS 6 digit classification contains 10 more disaggregated tariff lines. With this strategy, if there is one tariff line excluded from the agreement, the value of I_i^A is 0, regardless how many other tariff lines under the same classification are parts of the agreement.

by NLS estimation, a special case of the estimation, when the distribution function is the logistic function, can be carried out in the Generalized Linear Model framework using binomial distribution as a link function. An important drawback of this GLM method, namely inconsistent estimator of standard error, can be overcome by calculation of robust standard error.

4.3   Main Results and Discussions

As described above, our estimation strategy in analyzing product exclusions is to examine various factors related to the decision to include a product in a PTA. Our estimations of specification (1a) include individual fixed effects for reporting and partner countries pairs. Some observations need to be removed from the dataset. The first is the observations with zero MFN tariff rate. Since the purpose of preferential trade negotiation is to provide tariff concession below MFN rates, there is no point to negotiate concessions to products already having zero MFN rates.

The second is tariff lines with specific or non-advalorem rates, which are incomparable and contain qualitative information. Fortunately, the TRAINS database provides the calculation ad-valorem equivalent of specific tariff rates for countries in the sample[7]. Nevertheless, the calculation is incomplete, leaving a number of missing values to tariff rates that need to be taken away from the estimation. It leaves us with 99,421 observations in original tariff lines. Compiling the dataset into HS 6 digit classification leaves us with 52,747 products. Some descriptive information on the variables is available in Appendix C.

Table 4 presents the results of estimations conducted with fractional regression at the HS 6 digit level. In this estimation, the dependent variable is the proportion of products, specified at HS 6 digits, obtaining preferential treatment in the sample PTAs. The first column displays the estimation of the dependent variable on a dummy

---

[7] The calculation of ad-valorem equivalent (AVE) is based on methodology developed by UNCTAD. Some AVEs are calculated very high. In order to reduce the possibility of having outlier in the dataset, I take away observations with high calculated applying a filter of mean + 2 standard deviation calculated for product groups in HS 4 digits for each reporting country

variable represented agriculture sector. The second column presents the full specification described in (1a). This is the baseline estimation of our model. Result in coumn (4) is a variation of the estimation in column (2), but dropping the observations with 1% highest tariffs to take account of outliers. The fourth and fifth columns show variations of the specification with alternative variables of partner's export instead of RCA and the ratio between country A's imports and country B's exports. The last column adds agriculture dummy to the estimation in column (2).

Table 3. Estimation on the Proportions of Product Obtaining Concession

	1	2	3	4	5	6
MFN Tariff of A		-0.054*** (0.006)	-0.128*** (0.004)	-0.054*** (0.006)	-0.054*** (0.006)	-0.024*** (0.004)
Imports of A (ln)		**0.011*** (0.002)**	**0.015*** (0.002)**	**0.009*** (0.002)**		**0.004 (0.002)**
RCA of B		**-0.336*** (0.039)**	**-0.378*** (0.043)**			**-0.224*** (0.041)**
Exports of B (ln)				0.001 (0.001)		
Ratio Imports and Exports (ln)					0.000 (0.001)	
Agriculture	-3.028*** (0.043)					-2.933*** (0.055)
Balance		0.387*** (0.044)	0.381*** (0.048)	0.395*** (0.044)	0.331*** (0.042)	0.087* (0.042)
Constant	4.160*** (0.150)	4.015*** (0.182)	5.101*** (0.182)	4.231*** (0.183)	4.249*** (0.183)	4.537*** (0.162)
N	52747	52343	51888	52343	52343	52343
BIC	-560971	-554342	-550563	-554273	-554258	-557635
McFadden R2	0.364	0.272	0.355	0.268	0.267	0.441

* $p<0.05$, ** $p<0.01$, *** $p<0.001$
Note: Numbers inside parenthesis represent standard error. Estimations for specification (1a) are conducted using the fractional regression QLME, where the dependent variable is the proportion of included products in HS 6 digit level, rather than binary measure. Each column represents variation of the specification (1a) using different form of explanatory variables as discussed in the main text, combined with country fixed effects. The baseline estimation result is presented in column (2).

The table shows that coefficient of agriculture dummy is significant in both the first and sixth estimations indicating that the proportion of products obtaining tariff concessions in the PTAs are significantly different than the rest of the products.

Estimated coefficient of trade balance, as a measure of the reporting countries' trade performances and positions also indicates significant relationship between trade balance and the dependent variable with an expected sign: A higher trade balance of a particular product increase proportion of the product being included in the agreement.

More importantly, the estimations also show that MFN tariff of the reporting countries significantly explain the decision to include or exclude a product in the PTAs. Products with higher MFN tariff rates, indicating stronger influence of the associated industries, would be more likely to be excluded from preferential agreements.

The main prediction of GH95 on product exclusions, namely those products that potentially bring trade creation are among the most likely to be excluded from a PTA, does get a reasonable ground from the estimations. Lower import values of the reporting country and higher exports capacity of its partner increase the likelihood of the product for being excluded. Estimations with other alternative variables, e.g. logarithm of the partners' multilateral export value, also lead to the same conclusion.

Interpretation

The readers might notice that the estimations take the non-linear form. It makes the interpretation of the results, particularly of the coefficients, are not straightforward. The non-linearity makes it difficult to compare the magnitude of each coefficient while it is interesting to see which factors play more important role.

Table 4. Marginal Effects of Selected Coefficients

	2	3	4	5	6
MFN Tariff of A	-0.001	-0.002	-0.001	-0.001	-0.000
Imports of A (ln)	0.000	0.000	0.000		0.000
RCA of B	-0.007	-0.005			-0.003
Exports of B (ln)			0.000		
Ratio Imports and Exports (ln)				0.000	
Balance	0.008	0.005	0.009	0.007	0.001

Note: Marginal effects of the coefficients are calculated at mean points

http://graduateinstitute.ch/ctei

One way to interpret the coefficients is by looking at how the coefficient of one variable compared to each other. It can be seen from estimation in column (2) that a one percentage point increase in the MFN rate tariff reduce the proportion of goods being included by the same amount if the imports of the product decreases by 106 times bigger, or the same as the RCA index 0.18 point higher[8]. It leads us to suspect that MFN tariff plays a dominant role in explaining the degree of inclusion and the level of preferential access being provided.

Table 5. Country Pair Dummy for Each Agreement

Trade Agreement	Coefficient	Standard Error
Canada - Chile	0.001	0.002
Canada - Mexico	-0.064***	0.004
Canada - US	0.003***	0.001
EU - Mexico	-0.052***	0.004
EU - South Africa	-0.125***	0.005
Japan - Chile	-0.093***	0.006
Japan - Malaysia	-0.082***	0.005
Japan - Mexico	-0.120***	0.006
Japan - Thailand	-0.080***	0.005
US - Australia	0.004***	0.002
US - Korea	0.013***	0.002
US - Mexico	0.001**	0.001
US - Morocco	0.011***	0.002
US - Peru	0.012***	0.001
F Test of β_1 (overall)	212.54***	
F Test of β_1 (US)	8.6***	
F Test of β_1 (Japan)	110.04***	
R Square	0.072	

* $p<0.05$, ** $p<0.01$, *   ** $p<0.001$

Another way to interpret the result is to calculate the marginal effect of the coefficient at specific value of independent variables. The marginal effects of the estimations also

---

[8] One percent increase in MFN tariff is equivalent to the reduction of 4.67 (-0.056/0.012) in ln imports of country A. This is equal to *exp*(4.67) or 106.3 times lower imports of country A. Meanwhile, one percent increase in MFN is equivalent to 0.18 (-0.056/-0.33) point increase in RCA

show that MFN tariff rate is a major factor behind the dependent variables. The marginal effects of the coefficient calculated at mean values, using the logistic function as the link function is presented in Table 4.

Other interesting results of the estimations come from the coefficient of country pair fixed effects dummies. These fixed effect dummies denote the differences in product exclusions across bilateral trade agreements in our sample. A statically significant coefficient associated to a particular country pair indicates that the agreement between those two countries treat products differently from a benchmark agreement. Our estimations expose that almost all country pair dummies are statistically significant implying that the agreement are different from one another.

The F-tests conducted for each reporting country also show that overall differences between the coefficients are statistically significant. The test for all agreements involving the United States, for example, also indicates that the products are treated differently in trade agreements with different partners. This result is in line with our descriptive assessment on the product exclusion list in the previous section.

5   Some Robustness Checks

To see whether our estimations are quite robust, some robustness checks are conducted. The first one is conducted by estimations on separate agriculture-only sample and non-agriculture sample. This separation is important as the basic estimation finds a significant difference between agriculture and non-agriculture products. The result for estimation on agriculture-only sample is presented in the first column of Table 6.

All relevant variables seem to be statistically insignificant, except for the MFN tariff and trade balance. They also show different signs from the expected results. Coefficient of RCA has positive sign while coefficient of imports value is negative. One explanation on this result follows the theoretical prediction described above particularly in the case that the potential change in welfare after the PTA takes place will be so large that change the direction of affecting variables. In this case, industry

with better performance (larger trade balance) has more power to push for exclusion, instead of being more assertive toward preferential liberalization like in the normal case. Higher imports of these products also indicate that post-FTA imports would increase substantially and reduce domestic price greatly, resulting to higher opposition from the industries.

One case where this situation takes place is when the elasticity of import demand for the product is high, which is the case for most agriculture products. To see if this notion is reasonable, we put the elasticity as one of the explanatory variable and interacts with the coefficients of our variables with the elasticity[9]. The result is presented in the third column of Table 6. Coefficient for elasticity appears to be significant with the expected result; higher import elasticity of demand reduces the possibility of product inclusion. The interactive coefficients seem to be statistically insignificant although they follow the notion that higher elasticity of import demand tends to reduce the effect of explanatory variables. In the case of agriculture products, whose elasticities are more than twice of non-agriculture's, the effects of explanatory variables would change direction.

New data for countries' resources endowment and factor intensities of product at HS 6 digits level from Shirotori et al. (2009) allow us to measure the export capacity of partner countries in a different way[10]. Instead of using the existing trade statistics, the export capacity is proxied by the interaction of country's endowment and factor intensity of the product as can be shown below, where the FE_j is the factor endowment of country B, while FI_k is the product k's factor j intensity. There are three factors of production being consider, namely physical capital, human capital and land. It is expected that the interactions are negatively affected the proportion of products being included in a FTA.

---

[9] The elasticity of import demand is kindly provided by Marcello Olarreaga, who estimates the elasticities for 80 countries for products at 6 digits HS classification, following the methodology developed in paper from Kee, Nicita, and Olarreaga, (2008)

[10] The dataset can be downloaded from http://r0.unctad.org/ditc/tab/research.shtm

Table 6. Robustness Checks

	Agr.	Non Agr	3	4	5
MFN Tariff of A	-0.015*** (0.004)	-0.061*** (0.009)	-0.053*** (0.006)	-0.048*** (0.006)	
Elasticity			-0.0095** (0.004)		
Imports of A (ln)	-0.004 (0.002)	0.013** (0.004)	0.012*** (0.002)	0.029*** (0.002)	0.089** (0.04)
imp * Elast.			-0.000 (0.000)		
RCA of B	0.059 (0.047)	-0.743*** (0.067)	-0.438*** (0.049)		-0.049** (0.02)
RCA * Elast.			0.010** (0.003)		
Balance	-0.307*** (0.054)	0.433*** (0.092)	0.453*** (0.084)	0.406*** (0.047)	
Balance * Elast.			0.000 (0.004)		
Capital * FI Cap.				0.097 (0.058)	
Human Cap. * FI HC				0.274 (0.141)	
Land * FI Land				-0.647*** (0.059)	
Concentration Index					36.1 (26.8)
Intermediates					1.32*** (0.3)
Labor-captal Ratio					2.44*** (0.3)
Average Wages					0.000016 (0.000009)
Union Proxy					-39.4* (19.9)
Constant	1.517*** (0.196)	5.925*** (0.465)	4.039*** (0.188)	3.917*** (0.185)	
N	7606	44737	52343	48758	1445
BIC	-62853	-473478	-554398	-512278	-10044
McFadden	0.315	0.266	0.277	0.291	

* p<0.05, ** p<0.01, *   ** p<0.001

Note: Numbers inside parenthesis represent standard error. Estimations for specification (1a) are conducted using the fractional regression QLME, where the dependent variable is the proportion of included products in HS 6 digit level, rather than binary measure. Each column represents variation of the specification (1a) using different form of explanatory variables as discussed in the main text, combined with country fixed effects.

$$\sum_j {}^{\backprime}\ln\left(\frac{FE_j^B}{FE_j} \times \frac{FI_j^k}{FI_j}\right); \quad j = 1,2,3$$

http://graduateinstitute.ch/ctei

Result of the estimation using factor intensities and endowments is shown in the fourth column. Except for interaction between land and land intensity of a product, factor of productions seem to be statistically insignificant to the decision of including the product.

One main concern over specification (1a) is the possibility of endogeneity bias, particularly coming from the use of MFN as a regressor. Reverse causality problem has been handled by taking data from period when the negotiations started instead of when the trade agreement takes place. However, the problem of omitted bias on using tariff as an indicator of political influence can not be ignored. To check whether it affects the result, we run a regression following the specification suggested by Olarreaga and Soloaga (1998) as the regressors related to the political influence, MFN tariff and trade balance. Unfortunately, the data is only available for manufacturing industries and at more aggregated level, reducing the number of observations in our sample. With this limitation, the estimation does not seem to affect the significance of the main variables in explaining the pattern of product exclusions.

5.1   Extension: Bargaining Power in Trade Negotiation

A general concern over bilateral trade agreement, besides its effect to multilateral trade negotiation, is the unfair outcome of negotiation due to unequal bargaining power. This concern is crucial in the case of North-South bilateral negotiation. As the outcome of bargaining process, product exclusions might serve as evidences of bargaining power in a negotiation to form a bilateral preferential trade agreement. This section looks at some evidences of the role of bargaining power observed in the patterns of product exclusions.

The analysis is conducted by including some factors attached to the participating country characteristics. These country level characteristics serve as a weight that determines how a particular country's intention would be accommodated in the negotiation. In the case where the weights of the countries are not equal, country with higher weight tends to have higher bargaining position and can pursue its intention to

have the intended product included or excluded in the PTA. The specification (1a) is modified to incorporate some relevant factors,

$$
\begin{aligned}
p_k (I_i^A = 0) =\ & \beta_0 + \beta_1 BALANCE_k^A + \beta_2 \ln IMP_k^A + \beta_3 RCA_k^B + \beta_4 MFN_k^A \\
& + \delta_1 \ln GDP^A + \delta_2 \ln GDP^B + \delta_3 \ln GDPCap^A + \delta_4 \ln GDPCap^B \\
& + \delta_5 \ln DISTANCE + \delta_6 Sh\_EXP^{BA} + \delta_6 Sh\_EXP^{AB} \\
& + \delta_7 FAST\_TRACK + u_k
\end{aligned}
\tag{2}
$$

where variables *BALANCE, IMP, BIL_IMP, RCA,* and *MFN* follow description above. GDP^A and GDP^B describe GDP of two countries involved in the negotiation, while *GDPCap* represents their GDP per capita. Variable Sh_EXP^{BA} correspond to the share of exports of country *B* to country *A* to its total exports, capturing the importance of market *A* to country *B*, and Sh_EXP^{AB} represents importance of *B* to *A*. Variable DISTANCE measures the distance between the two countries, while *FAST_TRACK* denotes the present of greater mandate to perform trade negotiation. The results of the estimations are presented in Table 7.

Countries with large domestic market depends less on international trade and tend to have higher bargaining power in trade negotiation. It is expected that reporting countries with large economic size are more likely to exclude more. The effect of partner country's size is, however, ambiguous. While economic size increases its bargaining power, large domestic market might also reduce the incentive to push inclusion of products. In addition to the economic size, the economy level of countries is likely to play role in negotiation of a PTA. It is captured by GDP per capita of the countries; the richer country has the tendency to be more unwilling to provide concession in a trade agreement, whereas richer partner is expected to ask for more tariff concessions.

Our estimation follows the proposition as the coefficient for GDP and GDP per capita of the reporting country is negative. An interesting finding is exhibited by the coefficient of partner country's economic size. A descriptive look to our dataset roughly indicates that agreements involving developing countries tend to include

more products. Our econometric estimation supports such observation by presenting negative coefficient for GDP. Therefore the common perception that the developing countries have less bargaining power in the negotiation finds no evidence from our econometric estimation. While this finding has to be taken in with care, it shows that preferential trade agreements with developing countries may have more flexibility in terms of exclusions from tariff elimination schedule.

Table 7. Countries Characteristics Behinds Product Exclusions

	Inclusion	
	(All)	Agr.
ln_GDP[A]	-0.27***	-0.45***
	(0.04)	(0.06)
ln_GDP[B]	-0.25***	-0.27***
	(0.04)	(0.05)
ln_GDPCap[A]	-1.07***	-1.07***
	(0.10)	(0.2)
ln_GDPCap[B]	0.37***	-0.11
	(0.09)	(0.1)
Sh_EXP[AB]	0.082**	0.23***
	(0.03)	(0.05)
Sh_EXP[BA]	-0.019***	-0.028***
	(0.002)	(0.004)
Distance	0.044	0.47**
	(0.1)	(0.2)
Fast Track	2.30***	3.04***
	(0.09)	(0.1)
N	52343	7606
BIC	-554223	-62793
McFadden	0.264	0.303

* $p<0.05$, ** $p<0.01$, * ** $p<0.001$

Note: Numbers inside parenthesis represent standard error. Estimations for specification (2) are conducted using the fractional regression QLME, where the dependent variable is the proportion of included products in HS 6 digit level, rather than binary measure. First column is on the whole sample, while the second column only on agriculture products. Each estimation combine country fixed effects.

Another important factor in preferential trade agreement is geographical proximity between the two countries involved. While more trade between nearby countries increases the possibility of forming a PTA, bigger existing trade also means that import competing industries have to receive higher unfavorable effect of the PTA. It

leads to higher resistance for the inclusion of import competing products into the agreement between nearby countries. We expect that PTAs between distant countries to be more flexible in the inclusion of import competing products into the agreements. Our estimation reveals that reporting country become more flexible to give preferential treatment to distant partners rather than closer neighbors. It might be related to higher possibility of having a situation where preferential tariff provisions result to "trade creation", which increases the opposition to PTA. However, the coefficient of distance in our estimations seems to be insignificant except for the agriculture products.

Other country characteristics that may affect the result of negotiation are related with the dependence of the countries to the outcome of trade agreement. A country that expects larger gains from PTA is more inclined to compromise in the decision to include or exclude products. One way to see the importance of expected gain from the trade agreement is to look at the importance of the partner as an export destination; the more important the partner is, the bigger the gain from the agreement (or the bigger loss if the agreement fails). This aspect is captured by the share of export from one country to another in each total exports. We expect that the more important the reporting country to the partner, the more likely that import competing products in the reporting country to be excluded, since the partner is willing to compromise to see the agreement prevails. On the other hand, import competing products would be more likely to be included in the agreement if the partner country is an important market for the reporting country.

The econometric estimation indicates that the more important reporting country to the partner country negatively correspond to the probability of products to be included. It fits our expectation that the more important a reporting country to the partner country the more negotiable is its position during the negotiation. Moreover, it also indicates that partner country tends to accept proposal of exclusion from reporting country in order to save the agreement due to higher potential gains it might receive. On the other hand, reporting country also does not hesitate to provide more concession if it is

in a negotiation with an important partner as shown by positive coefficient for the variable share of partner's exports.

The last factor captures the domestic political institution of reporting countries dealing with preferential trade negotiation. Greater mandate that allow governments to negotiate the outcome, while at the same time limiting domestic political influence during the negotiation, increases the likelihood of products being in the list of tariff elimination. This type of mandate is known as Trade Promotion Authority (TPA) in the United States or part of Article 133 in Nice Treaty of European Union. Our estimation confirms that such mandate allows more inclusion of products into trade agreements.

Back to the concern over unequal bargaining power in preferential trade agreement, our econometric analysis reveals that the concern is not really groundless. The country characteristics of negotiating parties are relevant in the bargaining process. Bigger and richer reporting country, for example, are more influential to exclude products from its tariff concessions. However, partner country's characteristics also play important role in the decision. Interestingly, the estimation result presents different implication than the common perception towards partner country's bargaining position. Instead of having the richer and bigger partner in a better position during negotiation, our econometric analysis implies that smaller country is likely to get more preferential treatment from the reporting country. It also shows that the negotiation outcome is more related to how important one country to another and how it perceives the gain from trade agreement. These aspects might not depend on whether the participating countries have large or small economies, but rather on the intensity of the economic relation between them.

6   Conclusion and Discussion

One common feature in Preferential Trade Agreement is the presence of some products that are excluded from provision of tariff concessions. This study is an attempt to provide more understanding on the patterns of product exclusion in PTAs.

Having analyzed the pattern of product exclusion in a sample of 15 trade agreements involving four largest economies with their main partner, there are several aspects worth to discuss with regards to our analysis and its implications.

First is the pattern of excluded products which is a small part of an agreement. The presence of products excluded from tariff concessions is limited to only less than 15% of tariff lines discussed in a negotiation. Moreover, these excluded products are concentrated in several product groups, such as agriculture and food products, although some might be observed in other industries. However, our analysis defines excluded products as temporary and permanent exclusions. It means we only look at products that do not receive preferential tariff rate at the first year of implementation of a PTA. If more strict definition is used, such as defining excluded product as the ones remain subject to tariff, although less than MFN rate, then the number of products in exclusion list of our sample would be much higher.

Second is the finding that products exclusions vary from one agreement to another. Despite general opinion about trade agreements that have to follow a "template" prepared even before negotiation takes place, a quick look into dataset in our sample reveals different patterns of excluded products from each reporting country. This finding suggests that trade agreements are products of negotiating process between the two countries involved, in addition to the presence of agreement "template". Econometric work in this study analyzes various factors determining the pattern of product exclusions in the sample, using a theoretical framework proposed by Grossman-Helpman (1995).

Several factors are significantly related to the patterns of product exclusions, such as export capacity of partner countries and import demand of the reporting countries. The econometric results confirm Grossman-Helpman (1995) preposition that products which potentially generate "trade creation" effects after the agreement put in force, are more likely to be in the exclusion list. Trade creation effects would reduce domestic price of the product significantly and increase opposition of import competing industries, while at the same time lessen incentive for exporters to push for

tariff elimination. Moreover, the econometric estimations find several country characteristics that are significantly correlated to exclusions of products from an agreement. All these factors are related to the bargaining position of both countries involved in negotiation.

However, the empirical exercise also find that product exclusion is correlated with the regime of trade protection; the more protected an industry or the associated products, the more likely it is excluded in the trade agreement. In fact, this factor, which is unilaterally determined by the reporting countries, turn out to be a dominant one in determining whether a product to be included or excluded in an agreement.

The significance of those two types of factors, the one that is related to bargaining position of partner countries and the one solely determined by reporting countries, leads to a conclusion that product exclusions in preferential trade agreements are outcome of negotiation process, but heavily influenced by unilateral decision of the reporting countries.

References

Gawande, Kishore and Bernard Hoekman, 2006. "Lobbying and Agricultural Trade Policy in the United States," CEPR Discussion Papers 5634.

Gawande Kishore and Hui Li, 2006. "Trade Barriers as Bargaining Outcomes," *The World Economy,* vol. 29 (4), pages 437-457, April.

Gawande, K., Sanguinetti, P., and Bohara, A. 2001. "Exclusions for Sale: Evidence on the Grossman-Helpman Model of Free Trade Agreements." *Working Paper, University of New Mexico*.

Grossman, Gene M and Elhanan Helpman, 1994. "Protection for Sale," *American Economic Review*, vol. 84(4), pages 833-50, September.

Grossman, Gene M and Elhanan Helpman, 1995. "The Politics of Free-Trade Agreements," *American Economic Review*, vol. 85(4), pages 667-90, September.

Kee, Hiau Looi, Alessandro Nicita, and Marcelo Olarreaga, 2008. "Import Demand Elasticities and Trade Distortions", *Review of Economics and Statistics*, forthcoming.

Olarreaga, Marcelo & Soloaga, Isidro, 1998. "Endogenous Tariff Formation: The Case of Mercosur," World Bank Economic Review, vol. 12(2), 297-320, May

Papke, Leslie E & Wooldridge, Jeffrey M, 1996. "Econometric Methods for Fractional Response Variables with an Application to 401(K) Plan Participation Rates," *Journal of Applied Econometrics*, John Wiley & Sons, Ltd., vol. 11(6), pages 619-32, November.

Shirotori, Miho, Bolormaa Tumurchudur, and Olivier Cadot, 2009. "Revealed Factor Intensity Indices," Policy Issues In International Trade and Commodities Study Series No. 44. UNCTAD, Geneva.

APPENDIX A. Sample of Preferential Trade Agreements

Reporter	Partner	Launched	Negotiation
US	Australia	2004	March 2003 - March 2004
US	Canada	1994	1991-1992
US	Korea	2007	Feb 2006 - Feb 2007
US	Mexico	1994	1991-1992
US	Morocco	2006	Jan 2003-Feb 2004
US	Peru	2007	May 2004 - Dec 2007
Japan	Malaysia	2006	Dec 2003-Dec 2005
Japan	Mexico	2005	Oct 2002-Sept 2004
Japan	Thailand	2007	Dec 2003-Apr 2007
Japan	Chile	2007	Nov 2005-Sept 2006
EU	Mexico	2000	Oct 1998-Nov 1999
EU	SA	2000	1998-July 1999
Canada	Chile	1998	Dec 1995-Dec 1996
Canada	Mexico	1994	1991-1992
Canada	US	1994	1991-1992

APPENDIX B. Data Sources

Variable / Data	Description	Data Sources
Trade Statistics	Data for calculation of several trade-related variables: BALANCE, IMP, RCA	UN-Comtrade, accessed through WITS
MFN	MFN Tariff rate	UNCTAD-TRAINS Database, accessed through WITS
ELASTICITIES	Import demand elasticities at HS 6 digit classification	Available at http://www.unctad.info/en/Trade-Analysis-Branch/Data-And-Statistics/Other-Databases/
RFI	Revealed factor intensities for products at HS 6 digits	Available at http://www.unctad.info/en/Trade-Analysis-Branch/Data-And-Statistics/Other-Databases/
FE	Factor endowment of partner countries	Available at http://www.unctad.info/en/Trade-Analysis-Branch/Data-And-Statistics/Other-Databases/
Indutrial Statistics	Data for calculation of various industrial-related variables: Concentration Index, Intermediates, Labor-captal Ratio, Average Wages, Union Proxy	UNIDO-INDSTAT Various years
National Income Statistics	Data for calculation of GDP and GDP per capita	World Bank-World Development Indicators

APPENDIX C

Variable	Obs	Mean	Std. Dev.	Min	Max
MFN Tariff of A	52343	7.981234	18.94363	0.01	3058.54
Imports of A (ln)	52343	106939.9	892741.7	1.00E-30	7.44E+07
Exports of B (ln)	52343	17536.47	188240.8	1.00E-30	1.35E+07
RCA of B	52343	-0.5883236	0.5055248	-1	0.9957304
Ratio Imports and Exports (ln)	52343	8.996657	20.25985	-82.80438	85.51032
Balance	52343	-0.4585218	0.5323806	-1	1
Elasticities	50887	-94.68599	2326.142	-183005.4	5864.075
Concentration Index	1445	0.0083085	0.0125734	0.0000188	0.094533
Intermediates	1445	1.095505	0.2700216	0.1699981	2.039488
Labor-captal Ratio	1445	0.7088668	0.564256	0.0371406	7.598321
Average Wages	1445	31439.87	11287.56	4086.344	146673.3
Union Proxy	1445	0.0084321	0.009623	0.0000676	0.0526464
ln_GDP^A	52343	29.07277	1.120426	26.99878	30.03345
ln_GDP^B	52343	26.39867	1.302594	24.37288	29.61381
ln_GDPCap^A	52343	10.24783	0.2704977	9.83305	10.54891
ln_GDPCap^B	52343	8.758488	0.8345503	7.172094	10.25116
Sh_EXP^{AB}	52343	9.25593	20.49372	0.0699432	77.80148
Sh_EXP^{BA}	52343	21.58788	25.84261	0.5807633	77.80148
Distance	52343	7304.069	4721.097	733.894	17244.33