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IS THERE RECIPROCITY IN PREFERENTIAL TRADE AGREEMENTS ON SERVICES?[*]

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Abstract

Are market access commitments on services in Preferential Trade Agreements (PTAs) reciprocal or simply unilateral? If reciprocal, do concessions granted in services depend on concessions received from the trading partner in other services or in non-services areas as well? In this paper we investigate the presence of reciprocity in bilateral services agreements, by sub-sector, mode of supply and type of agreement (North-North, South-North, South-South). To do so, we use a database of concessions given and received by 36 WTO Members in 40 services PTAs. Results reveal the presence of reciprocity at the product (sub-sector) level and across economic sectors (i.e., preferences in services trade in exchange for preferences received in goods trade). Reciprocity is stronger in agreements between developed countries. The findings provide insights into motivations for services PTAs, but also the multilateral negotiations. Indeed, the negotiation of services PTAs provides an incentive to withhold services offers in the Doha Round in order to extract more - reciprocal- concessions at a bilateral level. The existence of reciprocity on a sectoral basis may also hold lessons on optimal ways to improve the multilateral negotiating process.

I.   INTRODUCTION

Many researchers and commentators have underscored the role of reciprocity as a pillar of multilateral negotiations, particularly for trade in merchandise. Some authors have raised the hypothesis that a lack of reciprocity has contributed to the low level of liberalization in services within the GATS (Mattoo and Olarreaga, 2004). However, the existence and relevance of reciprocity in services negotiations remains unclear. The purpose of this paper is to examine the role of reciprocity in Preferential Trade Agreements (PTAs) on services, using a comprehensive dataset of services commitments in 40 recently concluded PTAs. The analysis of bilateral arrangements involving services might yield some useful insights for the stalled multilateral round of negotiations.

PTAs containing disciplines on trade in services are proliferating. A look at the notification of these agreements to the WTO sheds ample light on this: only six before 2000, and 97 from 2000 to mid-2012. While only a handful of preferential services agreements existed before 2000 (e.g., intra-European arrangements, the NAFTA, Canada-Chile and Australia-New Zealand PTAs), a majority of WTO Members is now party to one or more services PTAs.[1] This trend appears set to continue as various other services PTAs are under negotiation. Services are now a standard feature not only of PTAs between developed countries, but also of PTAs involving developing countries.

The growing emphasis on services in trade negotiations is in line with the increasing importance of services in domestic economies, international trade, and even FDI, where services sectors now account for the larger share of global stocks. The most important trading countries are now involved in this web of services PTAs and have contracted preferential services commitments (e.g. Brazil, China, the EU, India, Japan, and the United States), although no PTA currently links these countries together. The top exporters and importers of commercial services are all involved in services PTAs. Recent research has highlighted that services commitments in PTAs generally went well beyond commitments under the GATS, although levels of commitments in PTAs vary across agreements and trading partners, as well as across sectors and, to a lesser extent, modes of supply (Roy *et al.*, 2007 and 2008; Marchetti and Roy, 2008; Fink and Molinuevo, 2008a; 2008b; Miroudot *et al.*, 2010; Van der Marel and Miroudot 2012).

In this paper, we investigate whether market access concessions granted by a country in a PTA are related to concessions received from its partner.[2] We then assess whether reciprocity exists across modes of supply, and between services and non-services areas (such as goods) as well as in South-South, North-South, and North-North agreements.

We find a small but positive correlation between *preferences*[3] given and received in bilateral PTAs in services, which indicates the presence of reciprocity at the product (or sub-sector) level (e.g. engineering services, legal services, architectural services). Reciprocity also holds when assessed at higher levels of sector aggregation, as well as when absolute concessions are examined (rather than *preferences*). These findings are unchanged whether preferences are measured as PTA commitments net of GATS commitments (PTA less GATS) or net of offers made in on-going WTO services negotiations (PTA less Doha offer).

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[1] Although the Mercosur Protocol of Montevideo − which constitutes the services chapter of Mercosur − was signed in 1997, specific commitments only entered into force later.

[2] Services concessions in this paper refer to commitments under 'market access' and 'national treatment'.

[3] The *preference* is the difference between the PTA and the GATS commitment (or that offered at the Doha Round) and captures the extent to which the PTA concession goes beyond bindings under GATS (and Doha offers). The construction of this variable is discussed in more detail in section 3.

In terms of implications for the Doha Round, these results may suggest that steps taken to ensure greater reciprocity, such as complementing the current bilateral request-offer negotiating emphasis and bringing greater sectoral focus to the negotiations, could yield greater commitments.[4] Another implication is the existence of incentives to withhold GATS offers in the Doha negotiations so as to keep negotiating leverage in PTAs. Indeed, since GATS+ commitments in PTAs are reciprocated by the other party, offering more commitments to all Members at the WTO arguably diminishes the value of GATS+ concessions that can be made in a PTA, and therefore the concessions received in return from the other party. In that sense, PTAs might be working as stumbling blocks to multilateral negotiations.

The paper is organized as follows: Section II discusses the role of reciprocity in trade negotiations and its relevance for services in the context of PTAs; Section III presents the dataset used to measure services concessions; Section IV introduces the empirical specification; Section V presents the results, and the final section concludes.

II.   RECIPROCITY IN TRADE AGREEMENTS

The principle of reciprocity is considered as a pillar of the multilateral trading system (Bagwell and Staiger 1999; 2001; 2002 and 2009). Bagwell and Staiger (2002) explain that "the principle of reciprocity in the GATT/WTO refers to the ideal of mutual changes in trade policy that bring about changes in the volume of each country's imports that are of equal value to changes in the volume of its exports." Thus, concessions are balanced or reciprocated when they result in equivalent changes in bilateral trade flows. Although it is nowhere defined explicitly, reciprocity in the GATT/WTO has always been understood in this way.[5] That concept of reciprocity is what Bhagwati (1988) has called *first-difference* reciprocity, which would contrast with *full* reciprocity, i.e, the elimination of market access barriers with the aim of achieving identical market access conditions. In fact, WTO Members are not required to completely remove their trade barriers, nor are they generally required to have the same levels of protection, either in general or at the product level. Instead, as a result of negotiations, WTO Members are expected to make similar efforts in undertaking concessions, taking into account their levels of development and importance in world trade.

This paper looks at reciprocity in terms of concessions over trade policy bindings, not in terms of services trade flows. The advantage of looking at reciprocity in terms of concessions given and received is that trade policy is under the direct control of policy makers and negotiators, while services trade flows depend on a variety of other factors (e.g., distance, language). On the other hand, analysis of flows has the advantage of focusing on outcomes, while concessions are potential gains that have yet to materialize. In any case, the analysis of reciprocity in terms of trade flows is hampered by the paucity of bilateral data on trade in services.[6]

While not ideal as a guiding principle for trade policy, reciprocity has served to overcome domestic resistance to freer trade as it allowed governments to *sell* the agreements to their domestic constituencies, by underscoring the political *gains* made so as to offset *losses*, and by highlighting that

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[4] Our analysis involves concessions in Modes 1 and 3 only (cross-border trade and commercial presence, respectively), and as such we do not assess reciprocity with respect to freer movement of natural persons (Mode 4).

[5] The GATT preamble states that the agreements' objectives shall be reached "by entering into reciprocal and mutually advantageous arrangements directed to the substantial reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce". The GATS does not make explicit reference to reciprocity or reciprocal negotiations, but rather to negotiations aimed at "promoting the interests of all participants on a mutually advantageous basis and at securing an overall balance of rights and obligations". The GATS language can nonetheless be construed as implying a need for reciprocal negotiations.

[6] See Maurer *et al.* (2008), for a discussion of the general problems associated with gathering data on services trade.

all participants had made efforts and concessions. In the GATT, reciprocity was also facilitated by the fact that export interests were easier to identify, and the prevalent trade barriers (tariff barriers and other key barriers that could be translated into tariff equivalents) were amenable to reciprocal exchanges of concessions (Hoekman and Messerlin, 2000).

Such favourable conditions do not appear in place for services negotiations under the GATS. For one, the experience with services negotiations - basically one round of successfully concluded multilateral talks - is much more limited than for goods negotiations, where eight rounds of multilateral trade negotiations have been completed since 1948. Moreover, the varying levels of GATS commitments undertaken by Members may be linked to the more limited export opportunities that many developing countries − or domestic interest groups in these countries − then perceived in services, despite scope to exploit opportunities and advantages, e.g. mode 4 (movement of natural persons)[7]. Regulatory concerns have also been cited as preventing WTO Members from engaging in *first-difference* reciprocity. Moreover, the barriers that are the focus of negotiations are not tariffs, but rather a wide array of inside-the-border measures which are not easily quantifiable - especially in view of the four modes of supply - and therefore less amenable to the exchange of balanced concessions (Hoekman and Messerlin, 2000; Hoekman *et al.,*2007; and Hoekman and Mattoo, 2007).

Another explanation for reduced reciprocity in the GATS relates to the structure of the agreement and the way services concessions are negotiated in the WTO. No negotiating formula is used, as is the case for Agriculture and NAMA negotiations.[8] In addition, the current request-and-offer approach, which is largely bilateral, provides much negotiating flexibility for WTO Members to decide whether to undertake commitments, and if so of what kind. Such flexibility makes it more difficult to organize a broad exchange of concessions across Members.

Whatever the reasons, commitments on services trade in the GATS appear to have been only moderately driven by reciprocity, at least when one focuses on the overall level of concessions made by different WTO Members (Adlung and Roy, 2005; Roy 2011). Indeed, negotiations pursuant to the Uruguay Round and subsequent negotiations on telecommunications and financial services have resulted in varying (and limited) levels of commitments across the membership, not in a balance of equivalent concessions across Members. Rather, there is a general perception that, at least in the Doha negotiations (DDA), governments have focused so far on exchanging (or trying to exchange) concessions in services with concessions in other areas of export interest such as agriculture (Jara and Dominguez, 2006).

What about the situation in services PTAs? On the one hand, reciprocity is facilitated in a bilateral context because, unlike in multilateral negotiations, free-riding is not possible. On the other hand, asymmetries between PTA partners may result in the larger partner extracting concessions without providing any (i.e., lack of reciprocity). Further, due to more limited export interests in services (particularly in developing countries), reciprocity may not take place within services (i.e., concessions in services sectors balanced by other countries' concessions in services), but across areas, where the balance of concessions is sought between agricultural and industrial products on one side, and services or other areas (such as investment) on the other. Since most services PTAs are concluded between a developed country and a developing one, with very different overall market

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[7] The potential advantage of developing countries in Mode 1 has arisen only recently (e.g. IT outsourcing). This was not the case in the Uruguay Round. Therefore, at that time the only perceived advantage of developing countries was basically mode 4. See Marchetti (2007).

[8] That said, the multilaterally-agreed objectives contained in the Hong Kong Ministerial Declaration (paragraph 1 of Annex C) contain the basic elements of a formula for services negotiations, but they remain a 'best endeavour' and stay shy of quantification by specifying the number of sectors in which respective groups of Members should reach these objectives. As noted by Mattoo and Olarreaga (2004), a services formula "should be seen not as something to be applied with extreme precision, but as a rule-of-thumb to ensure a certain balance of concessions".

access priorities, one may harbour such expectations. It may also be that, as noted above, the characteristics of services trade policy (e.g. a wide array of inside-the-border restrictions) imply that reciprocity has played a limited role.

But, in the absence of evidence one way or the other, this remains an empirical question. Even as regards trade in goods, studies investigating the existence of reciprocity are scarce. Looking at trade flows (not trade policy measures), Freund (2003) found evidence of reciprocity in PTA concessions on trade in goods, although less in North-South agreements, where larger countries extracted greater concessions from smaller countries. However, there is no systematic analysis of the importance of reciprocity in negotiations regarding trade in services. The purpose of this paper is to provide some evidence of the existence of reciprocity (or lack thereof) in services PTAs.

III.   SERVICES CONCESSIONS IN PTAS

In this section we introduce the measure of services concessions forming the basis of our empirical investigation. The main difficulty in measuring countries' policies and concessions regarding trade in services stems from the absence of a direct measure of protection (such as a tariff rate). Services trade barriers take many different (non-tariff) forms: quantitative restrictions and prohibitions (whether discriminatory or not), foreign equity ceilings, local content requirements, and all types of discriminatory measures, whether relating to taxation, minimum capital requirements, or licensing requirements and procedures, to name a few. It could be argued that the measurement of services barriers parallels to some extent the measurement of non-tariff barriers (NTBs) that limit trade in goods. However, the analysis and measurement of services barriers is more complex due to the existence of different modes of supplying services[9], which constitute the basis of the definition of trade contemplated in all services PTAs.

In the absence of direct measures of protection, researchers have turned to alternative indicators of services trade protection. Four types of measures can be found in the literature: 1) frequency measures, which have been used extensively to measure the relative degree of restrictiveness of market-access barriers to services trade across countries, and have led in some cases to the calculation of tariff equivalents; 2) price-based measures, calculated on the basis of estimates of price-cost margins; 3) quantity-based measures; and 4) financial-based measures. All these measures present drawbacks (Brown and Stern, 2001). Frequency-type measures are useful as a tool to identify the types of barriers and the relative degrees of protection afforded to particular sectors across countries, but have only limited economic content in the sense that they are not to be taken literally as indicators of absolute *ad valorem* tariff equivalents. Calculations of price-based measures are useful because they are derived from observed data and are, accordingly, well suited for use in economic models designed to assess the effects of restrictions. However, such price data is not available for all sectors, particularly those where services and prices are tailor-made (e.g. professional services, other business services). Quantity-based measures are constructed by means of econometric models, such as the gravity equation, which attribute to trade barriers all the departures of trade from what the other explanatory variables can explain. There is therefore a great burden on the model being used, which can introduce bias in the estimation of the measures. Moreover, since trade cannot be predicted accurately for particular industries and countries, it is not clear how the deviations should be interpreted and the extent to which existing trading patterns depart from free trade. Financial-based measures of services barriers depend on the availability of data on gross operating margins. Even if that data is available, the measures are only indirect measures, and do not necessarily make allowance for inter-country differences.

In our case, in order to measure the quality of commitments made in PTAs, we rely on the measure developed by Marchetti and Roy (2008), who computed an index of services commitments in

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[9] The modes of supply of services are: Mode 1 (cross-border trade), Mode 2 (Consumption abroad e.g., tourism), Mode 3 (commercial presence) and Mode 4 (movement of natural persons).

the GATS and in PTAs. The construction of this measure takes as a starting point Hoekman's (1996) frequency measure, which assesses the content of GATS schedules of commitments by attaching a value to commitments on a mode-by-mode and sector-by-sector basis. Under the GATS, schedules of commitments specify in which sectors and under what terms and conditions WTO Members grant market access and national treatment[10]. These conditions of access and national treatment are indicated for each mode of supply. Commitments can therefore be different for each mode of supply and may range from full market access and national treatment to no access or national treatment under a certain mode of supply, passing through intermediate situations, where access and/or national treatment are granted in a limited manner.

The index has been calculated for each Member's multilateral and preferential commitments under modes 1 (cross-border trade) and 3 (commercial presence), for each of the about 150 services sub-sectors[11]. While important, mode 4 (movement of natural persons) commitments are largely framed on a horizontal basis, rather than a sectoral one, and would therefore best be captured under a different approach than the one used here. Supply of services under mode 2 (consumption abroad, e.g. tourism) is typically unrestricted and comparing outcomes in this mode of supply may provide limited insights into the liberalization dynamics in bilateral and multilateral forums. Together, modes 1 and 3 account for over 80 per cent of world services trade (Magdeleine and Maurer, 2008).

As a starting point then, we divided all commitments in these two modes of supply in all services sub-sectors into three categories: full commitment, partial commitment, and no commitment.[12] A full commitment (i.e., a commitment without market access limitations) was given a score of 1, while partial commitments (i.e., with some limitation(s)) were originally given a score of 0.5, and the lack of commitment was given a score of 0.

Naturally, such an exercise has limitations, the most important being that it cannot fully capture the relative restrictiveness of partial commitments, which can only be gauged either through a case-by-case qualitative assessment that would make it difficult to identify more general trends, or through more complex restrictiveness indices that would assign weights and scores to the different types and modalities of barriers.[13] This limitation notwithstanding, this index serves to highlight the broad trends in terms of commitments undertaken, and it has been used extensively in the literature (Adlung and Roy, 2005; Roy 2011). Moreover, for our purposes, this frequency-based measure is useful in identifying the relative degree of access guaranteed by a country to all service sectors or to particular sectors across countries. Since the level of restrictiveness is pretty clear at the extremes of the index ("0" for a basically closed sector and "1" for the absence of limitations), the index also gives an idea of "movement" towards the maximum ambition of GATS negotiations, which is to achieve "full" market access commitments over time. In looking into reciprocity in services trade

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[10] 'Market access' and 'national treatment' are respectively defined in Articles XVI and XVII of the GATS. Essentially, full market access means that certain type of restrictions, essentially quantitative in nature, will not be applied, while full national treatment means that foreign services and services suppliers will not be treated less favourably than like domestic services and suppliers.

[11] The index was built for 152 sub-sectors for mode 3 and 142 sub-sectors for mode 1, on the basis of the WTO Services Sectoral Classification List (document MTN.GNS/W/120). The difference in the number of sub-sectors reflects the technical unfeasibility of cross-border trade (mode 1) in certain sub-sectors, such as building cleaning services or packaging services. In our analysis we compare concessions given and received in the 142 sub-sectors feasible to both modes of supply.

[12] In GATS schedules, a full commitment is expressed by the annotation *none* in the relevant sector and mode of supply, while the absence of a commitment is expressed by the word *unbound*. There is no common terminology for *partial* commitments, since WTO Members describe the applicable limitations in their own way.

[13] These frequency indices are not infallible since the weights and scores used are mostly subjective, based on the assessment of experts as to the relative restrictiveness of individual measures. For an analysis of this type of indices, as applied to banking services, see Barth *et al.* (2010).

negotiations, we would be therefore looking at whether those negotiations have led to reciprocal improvements in the relative degree of openness bound between trading partners.

In its original form, the Hoekman methodology does not allow for the comparison of commitments made by a trading partner in different trade agreements, since all partial commitments are assigned a score of 0.5. In other words, a score of 0.5 could hide a commitment subject to only one market access limitation and a commitment (made by the same trading partner) subject to more than one limitation. However, the index designed by Marchetti and Roy (2008) for the quantification of services commitments in PTAs has the advantage of allowing such comparison, by service sector and mode of supply. The approach used by these authors to show the improvements in successive commitments undertaken by the same country is straightforward. Improvements to commitments are identified as follows: using the original Hoekman index as a basis, if a partial commitment offered under the DDA services negotiations becomes a full commitment (i.e., without limitations) under a PTA, the 0.5 score of the GATS offer would then become a score of 1 for the PTA commitment. Likewise, when a country makes a partial commitment for the first time, a score of 0.5 is assigned, while the full commitment made for the first time gets a score of 1. The challenge is, of course, to identify improvements within the continuum of "partial" commitments. The methodology developed by Marchetti and Roy goes in that direction since it allows to rank the different levels of partial commitments. Improvements within partial commitments (i.e, the movement from a partial commitment to a less restricted but still partial commitment) are identified by adding half of the difference between the score 1 and the score of the partial commitment being improved. For example, if a WTO Member has made a partial commitment in the GATS for a given service sub-sector (a foreign equity ceiling of 49 per cent) and has improved such partial commitment in a PTA (e.g. by allowing up to 60 per cent foreign equity), the GATS commitment would obtain a score of 0.5, and the PTA commitment a score of 0.75. If, afterwards, the same WTO Member negotiates another PTA and improves on the previous PTA commitment, but still keeps a restrictive situation (e.g. a foreign equity ceiling of 75 per cent), then the new PTA commitment will get a score of 0.875. Examples provided in Table 1 illustrate the method used.

Table 1: Examples of commitments of Country A under GATS and in PTAs with countries B, C, and D for a given mode of supply

Sub-sector	GATS	GATS offer	PTA with Country B	PTA with Country C	PTA with Country D
Legal Services	No commitment	New commitment, but limitations remain (partial)	Better commitment, but limitations remain (partial)	Better commitment than in the PTA with B, but limitations remain (partial)	Better commitment than in the PTA with C, but limitations remain (partial)
Index value	0	0.5	0.75	0.875	0.937
Tax Services	No commitment	No commitment	Full commitment	No commitment	Partial commitment
Index Value	0	0	1	0	0.5
Advertising Services	Partial commitment	Same as GATS and GATS offer	Same as GATS and GATS offer	Better commitment than the GATS offer, but limitations remain (partial)	Full Commitment
Index Value	0.5	0.5	0.5	0.75	1

The index is applied not only to PTA commitments but also to GATS commitments and Doha offers, allowing to test different measures of concessions, such as the absolute level of the index but also the level of *preference* granted and received by bilateral trading partners. *Preference* is the

difference between the PTA and the GATS commitment (or that offered at the Doha Round) and captures the extent to which the PTA concession goes beyond bindings under GATS (and Doha offers).

Marchetti and Roy (2008) used the index to highlight that PTA commitments on services generally go far beyond both GATS commitments and Doha offers, although the extent of GATS+ commitments varies across countries and agreements. They also underscore that particular Members often undertake commitments of significantly varying levels in different PTAs, which they suggest may be tied to reciprocity considerations.

The index covers 40 PTAs that have entered into force and been notified under the WTO since 2000, as well as a few additional PTAs signed but not yet notified. The agreements and countries whose services commitments are covered by this index are identified in Table 2 in the Appendix.

IV.   ECONOMETRIC SPECIFICATION

Using the index described in the previous section, we investigate whether reciprocity exists in services commitments in bilateral PTAs, namely, whether services concessions granted by a country are positively related to the concessions received from its partner, at the sub-sector level. Covering 71 bilateral relationships and 36 Members, the dataset contains 20,164 observations per mode of supply (modes 1 and 3).[14]

We focus our analysis on the PTA concessions net of GATS commitments, i.e., we are interested in the *preferences* granted and received in the PTA, and not in the *absolute* concession. The reason is that *preferences* capture the extent to which the PTA concession goes beyond bindings under the GATS: a high PTA score may be due to a high score for GATS − the former build on the latter − even if little was done in the PTA. In the approach we use here, if Australia, for instance, made partial commitments regarding engineering services under GATS (value of 0.5) and made full commitments in the same sub-sector in its agreement with the United States (value of 1), the *preference* given by Australia to the United States ($Preference_{ij}$) equals 1 - 0.5 = 0.5. The *absolute* concession in this case would be 1. Conversely, $Preference_{ji}$ is the concession given by the United States to Australia, net of what the former has already committed under GATS.[15]

Since goods represent the principal potential export gains from a PTA for a number of countries, we expect countries receiving greater concessions in goods to give greater concessions in services. To control for concessions received in goods trade, we use the bilateral Market Access - Overall Trade Restrictiveness Index (MAOTRI), which measures the restrictiveness faced by exports of country i in country j (Kee *et al*, 2009). More formally, the bilateral MAOTRI is given by:

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[14] Plurilateral PTAs have been broken into the relevant bilateral concessions. For example, within Mercosur there are six bilateral relationships, and in agreements such as Chile-EFTA, there are four bilateral relationships (Chile-Liechtenstein, Chile-Iceland, Chile-Switzerland and Chile-Norway). This does not apply to PTAs signed by the EU, which has a single schedule of commitments (e.g. in Chile-EU there is only one bilateral relationship). Each bilateral relationship implies in fact two set of concessions (from Chile to the EU, and from the EU to Chile); therefore, each Member appears twice: once as a recipient and once as a receiver of concessions. For that reason we clustered the error terms at the country-pair level, but results do not change. The number of observations per mode of supply results from the following: 71 x 2 x 142 sub-sectors.

[15] We also measured preference as the difference between PTA commitments and GATS offers, which are the conditional schedules of commitments offered by Members in the context of the Doha Development Agenda.

$$\text{MAOTRI}_{ij} = \frac{\sum_n X_{i,j,n}\varepsilon_{j,n} T_{i,j,n}}{\sum_n \chi_{i,j,n}\varepsilon_{j,n}}$$

(1)

where $X_{i,j,n}$ are country i's exports of good to its trading partner j, $\varepsilon_{j,n}$ is the elasticity of import demand for good n in country j, and $T_{i,j,n}$ is the level of protection faced by country i's exports of good n to country j. Thus, a higher index value reflects higher restrictiveness faced by exports of country i in country j i.e, smaller concessions received in goods by country i. A negative sign for the coefficient on the MA-OTRI indicates reciprocity across sectors: the higher the protection faced by country i in its exports of goods to country j, the smaller the concession given to country j in services.

We also control for the trading partner's share in country i's total exports of goods, $Exports_{ij}/Exports_i$. We expect that a country will be more willing to give concessions in services if the partner's market is very important for its exports of goods.[16]

Finally, a country might be willing to liberalize in a specific sub-sector if it receives larger overall services concessions in the PTA. We thus also control for this reciprocity within the service PTA.

In sum, because reciprocity can take place across another economic sector (manufacturing goods, for example), another service sub-sector or another mode of supply, we control for those factors.

We expect a number of other factors to matter for the investigation of reciprocity, such as GDP (larger countries may extract greater concessions from smaller partners), GDP per capita and other country-specific characteristics (such as an overall tendency to liberalize) that we control for using importer and exporter fixed-effects in our estimations. To control for sector-specific factors that may affect concessions given in a sub-sector, we include sector fixed-effects.[17]

We are also interested in variations in North-North, South-South, and North-South agreements. We expect reciprocity within the same mode of supply to matter more for agreements between developed countries, as they often supply similar services and compete in the global market.

We look at concessions in mode 1 and mode 3 separately as they imply different negotiation dynamics: for example, service supply through commercial presence (mode 3) means that the foreign supplier is present in the partner country, bringing in capital and know-how, employing nationals, and being subject to the same regulatory framework that applies to local firms. In cross-border trade (mode 1), on the other hand, the service supplier is not present in the importing Member's territory.[18]

We assess whether reciprocity works not only within but also across modes 1 and 3: a country might give concessions in one sub-sector and mode in exchange for concessions in the same sub-sector, but on the other mode of supply. Reciprocity across modes seems more relevant for the creation of two-way trade between developing and developed countries, as the latter may have more export interests in mode 3 and the former in mode 1 (Chaudhuri and Karmakar, 2008).

Our basic econometric specification is thus:

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[16] Ideally we would also control for services trade flows, but the unavailability of bilateral data for many of the countries covered greatly reduces our sample.

[17] We do not have the time dimension in our dataset.

[18] Indeed, the pattern of concessions in mode 1 and 3 at the GATS are different; commitments in Mode 3 are better (preferences are thus smaller). The unofficial explanation for that pattern is that most countries want to attract FDI (mode 3) and thus are more willing to unilaterally open on that mode of supply.

$$\text{Preference}_{ijsm} = \beta_0 + \beta_1 \text{Preference}_{jism} + \beta_2 \ln\text{MAOTRI}_{ij} + \beta_3 \text{tradeshare}_{ij}$$
$$+ \beta_4 \text{Preference}_{jisM} + \beta_5 \text{Preference}_{ijsM}$$
$$+ \beta_6 \text{AverageConcession}_{jim} + \beta_7 D_i + \beta_8 D_j + +\beta_9 D_s + e_{ijsm} \qquad (2)$$

where βs are parameters to be estimated; *Preference*$_{ijsm}$ is the concession given in a bilateral PTA by country *i* to country *j* in each of the services' sub-sectors *s* (net of what country *i* already offered under GATS), in a specific mode of supply *m*; *Preference*$_{jism}$ is the concession received by country *i* from country *j* in the same sub-sectors and in the same mode of supply, net of country *j*'s GATS commitment; *lnMAOTRI*$_{ij}$ is the log of the index that captures the restrictiveness imposed by country *j* to the goods' exports of country *i* as in Kee *et al* (2009), in 2007; *tradeshare*$_{ij}$ is the ratio of exports from country *i* to country *j* over total exports of country *i*, in 2000; *Preference*$_{jisM}$ and *Preference*$_{ijsM}$ are preferences received and given in the other mode of supply *M*, respectively;[19] *AverageConcession*$_{jim}$ is the total concession given by country *j* to country *i* in the PTA, D_i and D_j are importer and exporter dummies, D_s are sectoral dummies and e_{ijsm} is the error term.

Table 3 (in the Appendix) presents summary statistics and definition of the aforementioned variables.

To this basic specification we add dummies for North-North, North-South, South-North and South-South agreements (keeping North-North agreements as the reference category), as well as the interaction of these variables with the preferences received (*Preference*$_{jism}$). This allows for testing the hypothesis that reciprocity (bargaining) is greater in agreements between developed countries (North-North agreements).

At first glance, reverse causality seems to be an issue, since concessions given and concessions received in a PTA mutually cause each other. However, this is not a problem for our analysis because reverse causality is inherent to reciprocity: exchanging concessions is a simultaneous process resulting from negotiations between trade partners. Thus we are interested in the correlation between what a country gives and what it receives, not on the direction of causation.[20]

We also estimate this specification with Ordered Probit (or Logit), which are the two standard models for ordered categorical data such as ours (it is set between 0 and 1 with higher frequencies of 0, 1 and 0.5). For the Ordered Probit estimation, we order the values of *Preference*$_{ijsm}$ from 1 to 7, so that the lowest value (1) represents no commitment in services (no liberalization) and the highest value represents full commitment (full liberalization).[21] We call this dependent variable "Openness Status" henceforth, and regress it on six dummies representing the six possible values taken by *Preference*$_{jism}$ (one reference dummy is excluded):

$$\text{OpennessStatus}_{ijsm} = \beta_0 + \beta_1 D2_{jism} + \beta_1 D3_{jism} + \beta_1 D4_{jism} + \beta_1 D5_{jism} +$$
$$\beta_1 D6_{jism} + \beta_1 D7_{jism} + \beta_2 \ln\text{MAOTRI}_{ij} + \beta_3 \text{trade share}_{ij}$$
$$+\beta_6 \text{OverallConcession}_{jim} + \beta_7 D_i + \beta_8 D_j + \beta_9 D_s + e_{ijsm} \qquad (3)$$

We find a positive value for the dummies, indicating the presence of reciprocity with this method as well. Because OLS estimation of Equation 2 with fixed effects allow for greater flexibility in the use of controls − with the ordered probit method, we need to interact each dummy with each control − we proceed with OLS.

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[19] Besides *preferences* received by country *i* in the other mode of supply, we also include *preferences* given by this country in this same mode to control for mode-driven concessions, as opposed to sector-driven.

[20] Furthermore, we do not know the details of the dynamic of request and offers between the partners, who offered first, what was the counter-offer and so on.

[21] The dependent variable is 1 if *Preference*$_{ijsm}$=0, 2 if *Preference*$_{ijsm}$=0.125, 3 if *Preference*$_{ijsm}$=0.25 and so on.

V.   RESULTS

The coefficient of interest for the analysis of reciprocity at the services sub-sector level is β_1 in equation 2 above: we find that *preferences* received by a country in a bilateral services PTA are positively and significantly correlated with the *preference* it gives, both in mode 1 and mode 3 (Tables 4 and 5). The coefficient of 0.07 and 0.04 for modes 1 and 3 respectively (columns 3) suggests that this effect is small: a 1-unit increase in the indicator for preferences received is reciprocated with a 0.07 (or 0.04) increase in the indicator of preferences given. As such, a movement from no commitment to full commitment in mode 1 (from 0 to 1) is associated with a 0.07 increase/openness by the trading partner.

This result also holds when we use *absolute* concessions instead of *preferences* (Tables 6 and 7, in the Appendix). It also holds whether we look at a more aggregated level of concession than the sub-sector level.[22] Moreover, it holds if we estimate the full sample with Modes 1 and 3 pooled together. We conduct our analysis at the more disaggregated level − 142 sub-sectors − using *preferences* and with separated modes of supply, following the reasons discussed in the previous section.[23] Furthermore, the findings are unchanged whether preferences are measured as PTA commitments net of GATS commitments (PTA less GATS) or net of offers made in on-going WTO services negotiations (PTA less Doha offer).

We find, as expected, a negative sign for the MAOTRI i.e., the restrictiveness that country j imposes on goods from country i, so that higher restrictiveness faced by country i is associated with lower concessions given by this country in services. That indicates the presence of reciprocity across economic sectors i.e, what is being granted in services is related to what was received in goods. This is true for mode 3, but not for mode 1 in the full specification (column 4 of Table 4), which indicates that Members trade commitments on mode 3 with concessions on goods, but not mode 1 commitments with goods concessions. Moreover, the coefficient of Trade Share is positive and significant, indicating that countries tend to undertake greater services commitments for their more important trading partners.

Results also indicate that the overall preference given by Member j to Member i in the PTA is positively correlated with the preference given by Member i to j in a sub-sector. This corresponds to reciprocity from the most aggregated level to the most disaggregated (sub-sector) level.

As expected, North-North agreements − represented by the omitted dummy − are more reciprocal than agreements between a developed and a developing country, and between developing countries, as indicated by the negative signs of the interactions of these dummies with preferences received (column 4). The stronger reciprocity among developed countries is not surprising given that that these countries, as services suppliers, have greater shared interest in services. In mode 3/FDI (Table 5), the South-South and South-North dummies are positive and significant, indicating that developing countries seem to be giving greater concessions, even though the reciprocity is smaller for those agreements. For mode 1/cross-border trade, this is valid only for South-South agreements.

Controlling for cross-mode concessions (i.e., concessions given and received in the other mode), we find that concessions given by a country in mode 1 are positively correlated with the concessions it gives in mode 3, and vice versa, which implies that the decision to undertake market access concessions is sector-driven and not mode-driven. Countries tend to open (and commit on) sectors, rather than modes of supply.

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[22] For classification purposes, the sub-sectors are aggregated into 18 sectors (e.g. professional services, banking and financial services). We also tested for the presence of reciprocity in concessions given and received in the overall PTA (i.e., the dependent variable and variable of interest are indexes that vary between 0 and 142). Reciprocity is also present at these more aggregated levels.

[23] Those results are available from the authors upon request, for the sake of space.

On the other hand, we find negative reciprocity across modes, meaning that the concessions a country receives from the trading partner in mode 1 are negatively correlated to how much it concedes in mode 3, and vice versa. This apparent odd result is not present once we use *absolute* concessions instead of *preferences* (Tables 6 and 7), for both modes. This may be explained by the fact that, under the GATS, unbound entries (value of 0) were often registered in relation to mode 1, which has been considered by many as non-relevant or technically unfeasible for a number of sectors. Also, a number of countries may sometimes have been uncertain of their capacity to adapt their regulatory framework to adequately cover such transactions. This may explain why concessions in mode 3 have not been reciprocated by concessions in mode 1.

Table 4: Reciprocity in the liberalization of cross-border trade - Mode 1

$Preference_{ijs}$ in Mode 1	(1)	(2)	(3)	(4)
$Preference_{ijs}$ in Mode 1	0.0688***	0.0867***	0.0664***	0.119***
	(0.00707)	(0.0106)	(0.00975)	(0.0276)
Trade share$_{ij}$		0.0334	0.0631*	0.200***
		(0.0494)	(0.0373)	(0.0513)
log of MAOTRI$_{ij}$		-0.0126***	-0.00102	0.000905
		(0.00322)	(0.00244)	(0.00250)
$Preference_{ijs}$ in Mode 3			0.594***	0.592***
			(0.00611)	(0.00612)
$Preference_{jis}$ in Mode 3			-0.0234***	-0.0239***
			(0.00773)	(0.00773)
Average Preference$_{ji}$			0.198**	0.0655
			(0.0861)	(0.0931)
SS				0.0773*
				(0.0454)
NS				0.0294
				(0.0526)
SN				-0.0344
				(0.0282)
$Preference_{ijs}$*SS				-0.0528*
				(0.0285)
$Preference_{jis}$*SN				-0.0344
				(0.0340)
$Preference_{jis}$*NS				-0.102***
				(0.0334)
Constant	0.307***	0.175***	0.0106	-0.0200
	(0.0232)	(0.0460)	(0.0410)	(0.0363)
Observations	20,022	11,360	11,218	11,218
R-squared	0.355	0.375	0.660	0.661

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
OLS estimates with importer, exporter and sector fixed-effects.

Table 5: Reciprocity in the liberalization of commercial presence (FDI) - Mode 3

Preference$_{ijs}$ in Mode 3	(1)	(2)	(3)	(4)
Preference$_{jis}$ in Mode 3	0.0403***	0.0469***	0.0417***	0.109***
	(0.00679)	(0.0107)	(0.0102)	(0.0255)
Trade share$_{ij}$		0.137***	-0.0527	0.117**
		(0.0451)	(0.0344)	(0.0517)
log of MAOTRI$_{ij}$		-0.0142***	-0.0108***	-0.00754***
		(0.00294)	(0.00218)	(0.00226)
Preference$_{ijs}$ in Mode 1			0.542***	0.539***
			(0.00522)	(0.00523)
Preference$_{jis}$ in Mode 1			-0.0204***	-0.0203***
			(0.00682)	(0.00681)
Average Preference$_{ji}$			-0.0921	-0.260**
			(0.0987)	(0.108)
SS				0.187***
				(0.0314)
NS				0.0303
				(0.0204)
SN				0.0575**
				(0.0237)
Preferencejis*SS				-0.0810***
				(0.0266)
Preferencejis*SN				-0.0142
				(0.0329)
Preferencejis*NS				-0.0983***
				(0.0319)
Constant	0.356***	0.198***	0.126***	0.0177
	(0.0215)	(0.0421)	(0.0440)	(0.0311)
Observations	21,584	12,312	11,218	11,218
R-squared	0.333	0.358	0.682	0.683

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
OLS estimates with importer, exporter and sector fixed-effects.

VI. CONCLUSION

This paper shows that reciprocity is significant in services PTAs, for both cross-border supply (mode 1) and commercial presence (mode 3), even after controlling for other forms of reciprocity, for example across economic areas and across modes of supply. Such reciprocity is stronger for North-North agreements, but South-South and North-South/South-North agreements are also reciprocal.

The existence of reciprocity in services PTAs, as opposed to that achieved under GATS so far, suggests that this may play an influential role in accounting for the proliferation of services PTAs in recent years, including among developing Members. The findings also support the idea that PTA negotiations do not simply consist in the larger trading partner extracting concessions from smaller partners without giving anything in return. Moreover, GATS *plus* concessions in PTAs are not solely related to trade-offs between services and non-services areas; rather, larger trading partners do grant concessions, even to relatively smaller partners, and the exchange of concessions takes place in the same services sectors.

Our results, which focus on net concessions in PTAs (*preferences*), underscore a potentially negative impact of PTAs on multilateral negotiations. Indeed, the findings imply that Members can potentially extract greater services concessions in PTAs if they have more limited GATS commitments and offers, and thus greater margin to grant bilateral preferences. This may have implications for the Doha Round negotiations: since offers made in the Round so far have only marginally improved upon GATS commitments, this can suggest that WTO Members have responded to an incentive to withhold more substantive GATS offers so as to keep negotiating leverage and obtain more concessions in PTAs (Marchetti and Roy 2008; Roy *et al.* 2007).

Evidence that lower services concessions are correlated with greater levels of restrictions on the other party's goods exports further highlights the potential for PTAs in inciting to hold back in multilateral services negotiations.

The existence of reciprocity in services PTAs may also hold some lessons for the on-going Doha Round negotiations on services, where the bilateral request-offer process remains prominent. For one, the analysis has shown that reciprocity within services − and not solely reciprocity between services and other trade areas − is possible and likely. Moreover, although the adoption of modalities such as those envisaged in Agriculture and NAMA negotiations have proved difficult in the services realm, WTO Members may benefit in the future from giving greater weight to setting common negotiating objectives aimed at providing for a basic level of reciprocity among the main participants in the negotiations, taking due account of differing levels of development. The challenge remains, however, how to move in an incremental fashion, through *first-difference* reciprocity, when it comes to negotiations, such as those in services, where regulations are not susceptible in many cases to quantification. A combination of *first-difference* and *full* reciprocity may indeed be needed in the case of services. In a way, the negotiating objectives identified for each mode of supply in the Hong Kong Ministerial Declaration seemed to go in that direction by identifying specific measures that all WTO Members should endeavour to eliminate.

Another lesson for Doha negotiations is the importance of reciprocity within services sectors − whether at the sub-sector or sector group level. In fact, the signs for cross-mode concessions seem to reinforce the idea that negotiations are more sector-driven than mode-driven. This highlights the relevance of allowing for the organization of negotiations by sector or groups of related sectors. Such sectoral negotiations would certainly benefit from the participation of experts, the exchange of liberalization and regulatory experiences, and the discussion of sector specificities and the ways to address them. Moreover, sectoral discussions would facilitate the design of specific liberalization templates that all trading partners concerned could rely on. The introduction of the plurilateral request-offer process after the Hong Kong Ministerial was a positive move in that direction, and renewed support for such sectoral discussions may bear fruit in the future.

References

Adlung, Rolf, and Martin Roy (2005), "Turning Hills into Mountains? Current Commitments under the General Agreement on Trade in Services and Prospects for Change", *Journal of World Trade* 39 (6): 1161-1194.

Bagwell, Kyle and Robert W. Staiger (1999), "An economic theory of GATT", *American Economic Review* 89(1): 215 - 48.

Bagwell, Kyle and Robert W. Staiger (2001), "Multilateral trade negotiations, bilateral opportunism and the rules of GATT/WTO," *Journal of International Economics* 63(1): 1-29.

Bagwell, Kyle and Robert W Staiger (2002), "The Economics of the World Trading System", The MIT Press.

Bagwell, Kyle and Robert W. Staiger (2009), "The WTO: Theory and Practice," NBER Working Papers 15445.

Barth, James, Juan A. Marchetti, Daniel Nolle, and Wanvimol Sawangngoenyuang (2010), "WTO Commitments vs. Reported Practices on Foreign Bank Entry and Regulation: A Cross-Country Analysis" in Allen Berger, Phil Molyneux, and John S. Wilson (eds.) Oxford Handbook of Banking, Oxford University Press.

Bhagwati, Jagdish (1988), Protectionism", The MIT Press.

Brown, Drusilla K. and Robert M. Stern (2001), "Measurement and Modelling of the Economic Effects of Trade and Investment Barriers in Services", *Review of International Economics* 9(2): 262-86.

Chaudhuri, Sumanta and Suparna Karmakar (2008), "The Liberalization of Cross-Border Trade in Services: A Developing Country Perspective", in Marchetti and Roy (eds.), Opening Markets for Trade in Services; Countries and Sectors in Bilateral and WTO Negotiations, Cambridge, Cambridge University Press and WTO, pp. 184-223.

Fink, Carsten and Martin Molinuevo (2008a), "East Asian Free Trade Agreements in Services: Key Architectural Elements", *Journal of International Economic Law* 11(2): 263-311.

Fink, Carsten and Martin Molinuevo (2008b), "East Asian Preferential Trade Agreements in Services: Liberalization Content and WTO Rules", *World Trade Review* 7(4): 641-673.

Freund, Caroline (2003), "Reciprocity in Free Trade Agreements", World Bank Policy Research Working Paper No. 3061.

Hoekman, Bernard (1996), "Assessing the General Agreement on Trade in Services", in Martin and Winters (eds.), The Uruguay Round and Developing Countries, Cambridge University Press, Cambridge.

Hoekman, Bernard and Aaditya Mattoo (2007), "Regulatory Cooperation, Aid for trade and the General Agreement on Trade in Services", Policy Research Working Paper Series 4451, World Bank.

Hoekman, Bernard, Aaditya Mattoo, and André Sapir (2007), "The Political Economy of Services Trade Liberalization: a Case for International Regulatory Cooperation?", *Oxford Review of Economic Policy* 23(3): 367-391.

Hoekman, Bernard and Patrick Messerlin (2000), "Liberalizing Trade in Services: Reciprocal Negotiations and Regulatory Reform", in Sauvé and Stern (eds.), GATS 2000; New Directions in Services Trade Liberalization, Washington, Brookings Institution Press.

Jara, Alejandro and Carmen Dominguez (2006), "Liberalization of Trade in Services and Trade Negotiations", *Journal of World Trade* 40(1): 113-127.

Hiau Looi Kee, Alessandro Nicita and Marcelo Olarreaga (2009). "Estimating Trade Restrictiveness Indices", *The Economic Journal* 119 (January): 172-199.

Magdeleine, Joscelyn and Andreas Maurer (2008), "Measuring GATS Mode 4 Trade Flows", WTO Staff Working Paper, ERSD-2008-05.

Marchetti, Juan A. (2007), "Developing Countries in the WTO Services Negotiations: Doing Enough?", in George A. Bermann and Petros C. Mavroidis (eds.), WTO Law and Developing Countries, Cambridge University Press.

Marchetti, Juan A. and Martin Roy (2008), "Services Liberalization in the WTO and in PTAs", in Marchetti and Roy (eds.), Opening Markets for Trade in Services; Countries and Sectors in Bilateral and WTO Negotiations, Cambridge, Cambridge University Press and WTO, pp. 61-112.

Mattoo, Aaditya and Marcelo Olarreaga (2004), "Reciprocity Across Modes of Supply in the WTO: A Negotiating Formula", *International Trade Journal* 23(1): 1-22.

Mattoo, Aaditya and Sacha Wunsch-Vincent (2004), "Pre-Empting Protectionism in Services: The GATS and Outsourcing", *Journal of International Economic Law* 7 (4): 765-800.

Maurer, Andreas, Yann Marcus, Joscelyn Magdeleine, and Barbara d'Andrea (2008) "Measuring Trade in Services", in Mattoo, Aaditya, Robert M. Stern, and Gianni Zanini (eds.) A Handbook of International Trade in Services, Oxford University Pres: Oxford.

Miroudot, Sébastien, Jehan Sauvage and Marie Sudreau (2010), "Multilateralizing Regionalism: How Preferential Are Services Commitments in Regional Trade Agreements", OECD Trade Policy Working Papers No. 106, Paris.

Roy, Martin (2011), "Democracy and the Political Economy of Multilateral Commitments on Trade in Services", *Journal of World Trade* 45(6): 1157-1180.

Roy, Martin, Juan A. Marchetti and Aik Hoe Lim (2007), "Services Liberalization in the New Generation of Preferential Trade Agreements (PTAs): How Much Further than the GATS?", *World Trade Review* 6 (2): 155-192.

Roy, Martin, Juan A. Marchetti and Aik Hoe Lim (2008), "The Race Towards Preferential Trade Agreements in Services: How Much Market Access Is Really Achieved?", in Panizzon, Pohl, and Sauv (eds.), GATS and the Regulation of International Trade in Services, Cambridge, Cambridge University Press, pp. 77-110.

Van der Marel, Erik and Sébastien Miroudot (2012), "The Economics and Political Economy of Going Beyond the GATS", Working Paper, Groupe d'économie mondiale (GEM), Sciences Po, Paris.

APPENDIX

Table 2: List of Agreements

Pair of countries	Corresponding Regional Agreement
Argentina-Brazil	Mercosur
Argentina-Paraguay	Mercosur
Argentina-Uruguay	Mercosur
Australia-Singapore	
Australia-Thailand	
Australia-United States	
Bahrain-United States	
Brazil-Argentina	Mercosur
Brazil-Paraguay	Mercosur
Brazil-Uruguay	Mercosur
Chile-Switzerland	Chile-EFTA
Chile-Costa Rica	
Chile-EU	
Chile-Iceland	Chile-EFTA
Chile-Rep. of Korea	
Chile-Liechtenstein	Chile-EFTA
Chile-Norway	Chile-EFTA
Chile-El Salvador	
Chile-United States	
Colombia-United States	
Costa Rica-Chile	
Costa Rica-Mexico	
Costa Rica-United States	CAFTA + DR
Dominican Republic-United States	CAFTA + DR
El Salvador-Chile	
El Salvador-Mexico	Mexico-Northern Triangle
El Salvador-Panama	
El Salvador-United States	CAFTA + DR
EU-Chile	
Guatemala-Mexico	Mexico-Northern Triangle
Guatemala-United States	CAFTA + DR
Honduras-Mexico	Mexico-Northern Triangle
Honduras-United States	CAFTA + DR
Indonesia-Malaysia	ASEAN
Indonesia-Philippines	ASEAN
Indonesia-Singapore	ASEAN
Indonesia-Thailand	ASEAN
India-Singapore	
Iceland-Chile	EFTA-Chile
Iceland-Rep. of Korea	EFTA-Rep. of Korea
Iceland-Mexico	EFTA-Mexico
Iceland-Singapore	EFTA-Singapore
Jordan-Singapore	
Jordan-United States	
Japan-Mexico	
Japan-Malaysia	
Japan-Philippines	
Japan-Singapore	
Japan-Thailand	

Pair of countries	Corresponding Regional Agreement
Liechtenstein-Chile	EFTA-Chile
Liechtenstein-Rep. of Korea	EFTA-Rep. of Korea
Liechtenstein-Mexico	EFTA-Mexico
Liechtenstein-Singapore	EFTA-Singapore
Morocco-United States	
Mexico-Switzerland	Mexico-EFTA
Mexico-Costa Rica	
Mexico-Guatemala	Mexico-Northern Triangle
Mexico-Honduras	Mexico-Northern Triangle
Mexico-Iceland	Mexico-EFTA
Mexico-Japan	
Mexico-Liechtenstein	Mexico-EFTA
Mexico-Norway	Mexico-EFTA
Mexico-El Salvador	Mexico-Northern Triangle
Malaysia-Indonesia	ASEAN
Malaysia-Japan	
Malaysia-Philippines	ASEAN
Malaysia-Singapore	ASEAN
Malaysia-Thailand	ASEAN
Nicaragua-United States	CAFTA + DR
Norway-Chile	EFTA-Chile
Norway-Rep. of Korea	EFTA-Rep. of Korea
Norway-Mexico	EFTA-Mexico
Norway-Singapore	EFTA-Singapore
New Zealand-Singapore	
Oman-United States	
Panama-Singapore	
Panama-El Salvador	
Panama-Chinese Taipei	
Panama-United States	
Peru-United States	
Philippines-Indonesia	ASEAN
Philippines-Japan	
Philippines-Malaysia	ASEAN
Philippines-Singapore	ASEAN
Philippines-Thailand	ASEAN
Paraguay-Argentina	Mercosur
Paraguay-Brazil	Mercosur
Paraguay-Uruguay	Mercosur
Singapore-Australia	
Singapore-Switzerland	Singapore-EFTA
Singapore-Indonesia	ASEAN
Singapore-India	
Singapore-Iceland	Singapore-EFTA
Singapore-Jordan	
Singapore-Japan	
Singapore-Rep. of Korea	
Singapore-Liechtenstein	Singapore-EFTA
Singapore-Malaysia	ASEAN
Singapore-Norway	Singapore-EFTA
Singapore-New Zealand	
Singapore-Panama	
Singapore-Philippines	ASEAN
Singapore-Thailand	ASEAN
Singapore-United States	
Rep. of Korea-Switzerland	Rep. of Korea-EFTA

Pair of countries	Corresponding Regional Agreement
Rep. of Korea-Iceland	Rep. of Korea-EFTA
Rep. of Korea-Liechtenstein	Rep. of Korea-EFTA
Rep. of Korea-Norway	Rep. of Korea-EFTA
Rep. of Korea-Singapore	
Rep. of Korea-United States	
Switzerland-Chile	EFTA-Chile
Switzerland-Rep. Korea	EFTA-Rep. of Korea
Switzerland-Mexico	EFTA-Mexico
Switzerland-Singapore	EFTA-Singapore
Thailand-Australia	
Thailand-Indonesia	ASEAN
Thailand-Japan	
Thailand-Malaysia	ASEAN
Thailand-Philippines	ASEAN
Thailand-Singapore	ASEAN
Chinese Taipei-Panama	
Uruguay-Argentina	Mercosur
Uruguay-Brazil	Mercosur
Uruguay-Paraguay	Mercosur
United States-Australia	
United States-Bahrain	
United States-Chile	
United States-Costa Rica	CAFTA + DR
United States-Colombia	
United States-Dominican Republic	CAFTA + DR
United States-Guatemala	CAFTA + DR
United States-Honduras	CAFTA + DR
United States-Jordan	
United States-Rep. of Korea	
United States-Morocco	
United States-Nicaragua	CAFTA + DR
United States-Oman	
United States-Panama	
United States-Peru	
United States-Singapore	
United States-El Salvador	CAFTA+ DR

Table 3: Summary Statistics

Variable	Definition	Mean	Std. Dev.	Min.	Max.	N
For Mode 1 - cross-border trade						
$Preference_{ijs}$	$Concession_{ijs}$- $GATSoffer_{is}$	0.256	0.385	0	1	20022
$Preference_{jis}$	$Concession_{jis}$- $GATSoffer_{js}$	0.256	0.385	0	1	20022
$Preference_{ijs}$ in Mode 3	$Concession_{ijs}$- $GATS_{is}$ in Mode 3	0.333	0.422	0	1	20022
$Preference_{jis}$ in Mode 3	$Concession_{jis}$- $GATS_{js}$ in Mode 3	0.33	0.421	0	1	20164
$Preference_{iis}$*SS		0.079	0.251	0	1	20022
$Preference_{iis}$*NS		0.098	0.279	0	1	20022
$Preference_{iis}$*NN		0.043	0.178	0	1	20022
$Preference_{iis}$*SN		0.035	0.149	0	1	20022
$AveragePreference_{ji}$	by pair: mean($Preference_{jis}$)	0.515	0.173	0.123	0.835	21432
log of MAOTRI	from Kee, Nicita *et al.* (2009)	-3.868	2.019	-12.685	0.002	15655
Trade Share	$Exports_{ij}$/$Exports_i$, from WITS	0.092	0.176	0	0.84	14592
For Mode 3 - commercial presence						
$Preference_{ijs}$	$Concession_{ijs}$- $GATS_{is}$	0.277	0.37	0	1	21584
$Preference_{iis}$	$Concession_{jis}$- $GATS_{is}$	0.275	0.371	0	1	21584
$Preference_{ijs}$ in Mode 1	$Concession_{ijs}$- $GATS_{is}$ in Mode 1	0.2	0.456	0	1	20022
$Preference_{jis}$ in Mode 1	$Concession_{jis}$- $GATS_{js}$ in Mode 1	0.201	0.457	0	1	20022
$Preference_{iis}$*SS		0.085	0.245	0	1	21584
$Preference_{iis}$*NS		0.101	0.274	0	1	21584
$Preference_{iis}$*NN		0.05	0.184	0	1	21584
$Preference_{iis}$*SN		0.039	0.151	0	1	21584
$AveragePreference_{ji}$	by pair: mean($Preference_{jis}$)	0.592	0.176	0.184	0.924	21584
log of MAOTRI	from Kee, Nicita *et al* (2009)	-3.868	2.019	-12.685	0.002	15655
Trade Share	$Exports_{ij}$/$Exports_i$, from WITS	0.092	0.176	0	0.84	14592

Table 6: Reciprocity in the liberalization of cross-border trade - Mode 1 (Absolute concessions)

Concession_{jis} in Mode 1	(1)	(2)	(3)	(4)
Concession_{jis} in Mode 1	0.173***	0.170***	0.0633***	0.114***
	(0.00698)	(0.00936)	(0.00910)	(0.0163)
Trade share$_{ij}$		0.0362	-0.0706*	-0.0330
		(0.0585)	(0.0424)	(0.0589)
log of MAOTRI$_{ij}$		-0.0120***	-0.00254	-0.00267
		(0.00381)	(0.00284)	(0.00289)
Concession_{ijs} in Mode 3			0.767***	0.766***
			(0.00756)	(0.00758)
Concession_{jis} in Mode 3			0.0127	0.0119
			(0.0103)	(0.0103)
Average Concession$_{ji}$			-0.0264	-0.112
			(0.0997)	(0.108)
SS				-0.00197
				(0.0347)
NS				0.0813
				(0.0589)
SN				-0.0794
				(0.0665)
Concession_{jis}*SS				-0.0628***
				(0.0176)
Concession_{jis}*SN				-0.0446**
				(0.0175)
Concession_{jis}*NS				-0.0321
				(0.0199)
Constant	0.589***	0.465***	0.0600	0.0939**
	(0.0292)	(0.0547)	(0.0483)	(0.0433)
Observations	20,022	11,360	11,360	11,360
R-squared	0.354	0.346	0.659	0.660

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
OLS estimates with importer, exporter and sector fixed-effects.

Table 7: Reciprocity in the liberalization of commercial presence (FDI) - Mode 3 (Absolute concessions)

Concession$_{ijs}$ in Mode 3	(1)	(2)	(3)	(4)
Concession$_{jis}$ in Mode 3	0.165***	0.152***	0.0527***	0.0731***
	(0.00693)	(0.00935)	(0.00899)	(0.0164)
Trade share$_{ij}$		-0.0538	-0.0510	0.0739
		(0.0534)	(0.0386)	(0.0586)
log of MAOTRI$_{ij}$		-0.0173***	-0.00970***	-0.00697***
		(0.00341)	(0.00245)	(0.00253)
Concession$_{jis}$ in Mode 1			0.631***	0.629***
			(0.00597)	(0.00598)
Concession$_{iis}$ in Mode 1			-0.00649	-0.00667
			(0.00797)	(0.00796)
Average Concession$_{ji}$			-0.147	-0.261**
			(0.110)	(0.121)
SS				0.0638**
				(0.0314)
NS				-0.0257
				(0.0241)
SN				0.0169
				(0.0306)
Concession$_{jis}$*SS				-0.0325*
				(0.0180)
Concession$_{jis}$*SN				-0.0113
				(0.0188)
Concession$_{jis}$*NS				-0.0100
				(0.0204)
Constant	0.632***	0.488***	0.244***	0.243***
	(0.0261)	(0.0488)	(0.0497)	(0.0479)
Observations	20,022	11,360	11,218	11,218
R-squared	0.334	0.337	0.671	0.671

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
OLS estimates with importer, exporter and sector fixed-effects.