D. Anatomy of preferential trade agreements

This section considers to what extent conclusions about deep preferential trade agreements (PTAs) and production networks, reached in Section C, are supported by evidence. The evidence presented includes an examination of the magnitude of preferential tariff rates, the coverage and contents of the agreements, econometric evidence on the relationship between production networks and deeper PTAs and the integration experience of specific PTAs.

Contents

Some key facts and findings

- MFN tariffs are low and equal to 4 per cent on average in 2009.
- Most "sensitive" sectors remain "sensitive" in PTAs. Approximately 66 per cent of tariff lines with MFN rates above 15 percentage points have not been reduced in PTAs.
- If the preferential access enjoyed by other exporters is taken into account, less than 13 per cent of preferential trade benefits from a competitive advantage exceeding 2 percentage points.
- Signing deep integration PTAs increases trade in production networks by almost 8 per cent on average. In addition, high levels of trade in production networks raise the likelihood of signing deep agreements.

1. Are lower tariffs still important for PTAs?

Tariffs have progressively fallen since the establishment of the General Agreement on Tariffs and Trade (GATT) in 1948. The pre-GATT average tariff among major trading countries was between 20 and 30 per cent.[1] Since then, unilateral liberalization, eight rounds of multilateral trade negotiations and numerous PTAs have significantly reduced the tariffs applied by WTO members. In 2009, the average applied tariff across all products and countries was a mere 4 per cent.

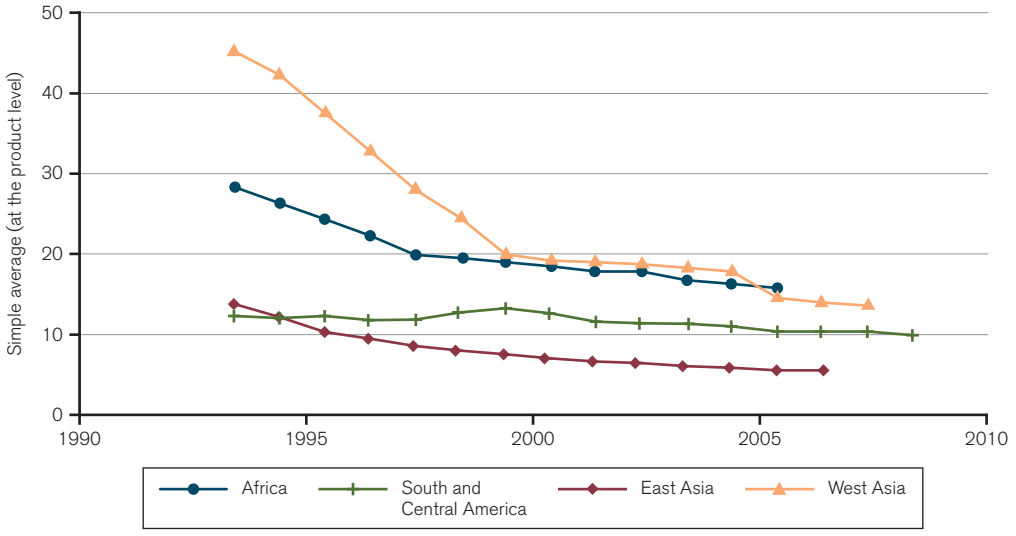
The process of most-favoured nation (MFN) liberalization (i.e. the reduction of tariffs on an MFN basis for all WTO members) accelerated in the late 1980s and 1990s, when applied tariffs were reduced in many developing countries. The rates applied by developed countries were already low, at around 6 per cent on average by the end of the 1980s. They continued to decline subsequently, to an average of approximately 3 per cent in 2009. Average applied tariffs have been falling in all regions (see Figure D.1). In South-Central America, the average tariff rate fell from over 30 per cent at the beginning of the 1990s to less than 10 per cent ten years later. Over the same period, tariffs in East Asia dropped from around 15-20 per cent to some 6 per cent in 2009. Similarly, in Africa, applied MFN tariffs fell from an average rate of roughly 30 per cent to some 12 per cent in 2009. The reduction of tariffs was more pronounced in West Asia, where the average MFN applied tariff rate fell from an average of about 45 per cent to below 15 per cent.

Tariff reductions have not occurred at the same pace in all sectors. Significant tariff barriers still exist in agriculture and some manufacturing sectors. Most MFN tariff reductions took place in manufactured goods, however, with particular emphasis on parts and components (see Figure D.2). The latter trend accompanied the development of production networks.

Despite variance in tariff rates around the average, low average MFN rates suggest that the scope for exchanging preferential market access is unlikely to be extensive. A similar conclusion is suggested by the data on trade flows. As seen in Section B, the share of MFN duty-free trade in total trade is estimated at 52 per cent in 2008 (excluding trade within the EU), and over 70 per cent of total trade occurs at an MFN tariff rate of below 5 per cent.

Moreover, PTAs cannot be satisfactorily explained by a desire to remove tariff peaks (i.e. relatively higher tariffs). Most "sensitive" sectors with higher tariffs also tend to retain higher tariffs in PTAs. As shown in Figure D.3, for example, tariff lines subject to an MFN rate above 15 per cent continue to be subject to relatively high rates in PTAs. According to the 2007 data reported in the figure, approximately 66 per cent

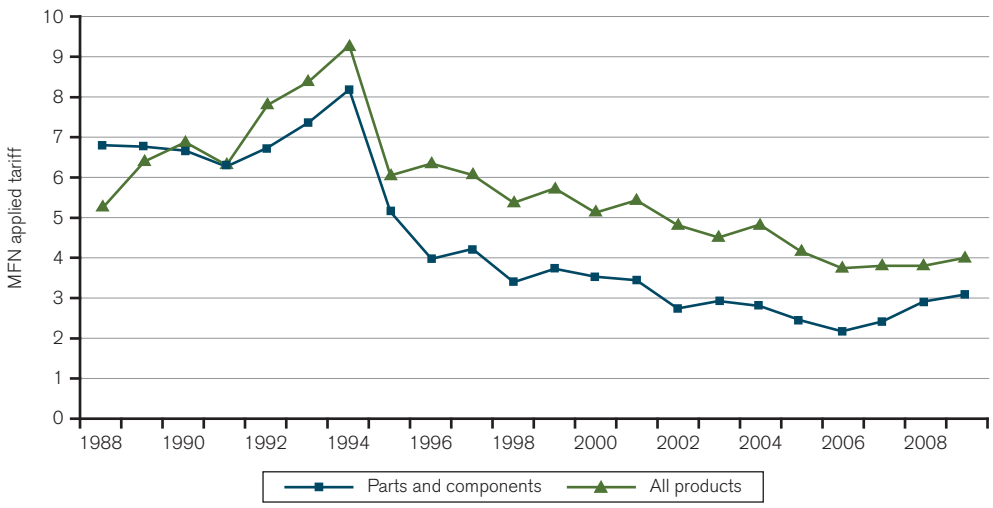
Figure D.1: **MFN tariff trends in developing countries by region** (Percentage)



Note: In order to avoid sample selection bias, figures have been calculated for a balanced sub-sample of countries in each region and missing data have been interpolated. In this subsample, East Asia comprises 13 economies (Australia; Kingdom of Bahrain; China; Hong Kong, China; Indonesia; Japan; Republic of Korea; Malaysia; New Zealand; Philippines; Singapore; Thailand; and Chinese Taipei); West Asia covers four countries (Bangladesh; India; Sri Lanka; and Nepal); South and Central America is made up of 12 countries (Argentina; the Plurinational State of Bolivia; Brazil; Chile; Colombia; Cuba; Ecuador; Paraguay; Peru; Trinidad and Tobago; Uruguay; and the Bolivarian Republic of Venezuela); and Africa includes 11 countries (Burkina Faso; Côte d'Ivoire; Algeria; Ghana; Morocco; Nigeria; Rwanda; Tunisia; Tanzania; South Africa; and Zimbabwe). The data used in the figure are simple averages of *ad valorem* lines in all sectors.

Source: Calculations based on Trains database, WITS.

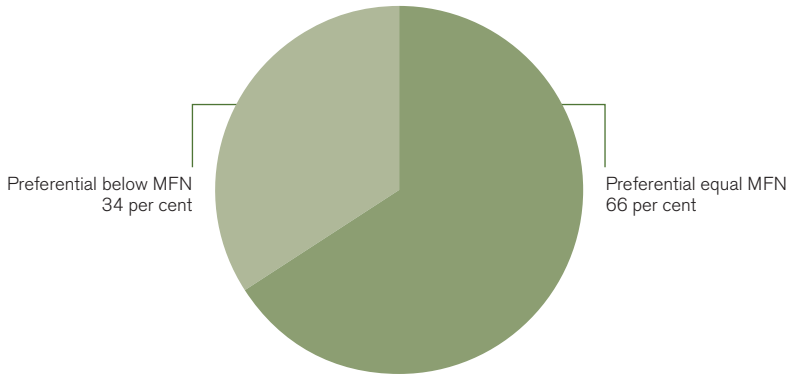
Figure D.2: **World MFN applied tariff trends** (Percentage)



Note: Underlying data are trade-weighted averages of *ad valorem* rates.

Source: Trains database, WITS.

Figure D.3: **Preferential reductions of tariff rates above 15 per cent, 2007**



Note: "Preferential equal MFN" denotes the share of tariff lines at the HS-6 level with an MFN rate above 15 per cent that have not been reduced under PTAs. "Preferential below MFN" denotes the share of tariff lines that have been at least partially reduced.

Source: Calculations based on the Fugazza and Nicita (2010) database, covering the PTAs of 85 countries, accounting for 90 per cent of world trade.

of the tariffs above this rate have not been reduced at all through PTAs. This means that "preferential" rates are no lower than MFN rates.

Recent work has emphasized that the value of a particular preferential tariff must be gauged in the context of an importing country's overall tariff policy.[2] Thus, in a world of numerous PTAs, the advantage conferred by a preferential tariff to a given exporter does not depend only on that rate, but also on tariffs faced by competing suppliers from other countries in the same market.

In order to account for the actual advantage provided by preferences, Low et al. (2009) use the concept of a "competition-adjusted" preference margin, calculated as the percentage-point difference between the weighted average tariff rate applied to the rest of the world and the preferential rate applied to the beneficiary country, where weights are represented by trade shares in the preference-granting market (see Box D.1).

Unlike a traditional preference margin which was the basis of the analysis in Section B, this competition-adjusted preference margin can assume positive as well as negative values. A negative value indicates that, in a specific market, a certain country faces worse market conditions than its trade competitors.[3] Competition-adjusted preference margins emphasize the fact that PTAs can result from the desire to avoid negative discrimination rather than to benefit from a positive preference margin. This is the underlying argument for the so-called "domino effect" to explain the proliferation of PTAs (see Section C).

Box D.1: **Measurement of the value of preferences**

Traditionally, the value of a preference margin for a beneficiary country has been measured simply as the difference in terms of percentage points between the MFN rate and the preferential tariff. Or, expressed formally:

$$\text{Traditional preference margin} = T_{k,i}^{MFN} - T_{k,i}^{j}$$

where $T_{k,i}^{MFN}$ is the MFN rate applied by country *k* on product *i* and $T_{k,i}^{j}$ is the preferential rate applied to country *j*. By definition this margin can only be positive.

A limitation of this measure of the value of the preference is that it cannot address the question whether the putative advantage of a preference effectively helps the beneficiary to export to the preference-giving country. Since numerous and overlapping preferential trade agreements exist around the world, the MFN rate does not provide an appropriate basis for calculating the preference margin. On the contrary, the value of a preference for one country will ultimately depend on the advantage/disadvantage it has vis-à-vis the other countries competing in the same market.

The "competition-adjusted" preference margin proposed by Low et al. (2009) addresses this concern by measuring the value of a preference as the percentage-point difference between the weighted average tariff rate applied to the rest of the world and the preferential rate applied to the preferential agreement partner, where weights are represented by trade shares in the preference granting market. The formula for this measure is expressed as follows:

$$\text{Competition-adjusted preference margin for product } i = T_{k,i}^{w} - T_{k,i}^{j}$$

where $T_{k,i}^{w} = \dfrac{\sum_{v} X_{vk,i} T_{k,i}^{v}}{\sum_{v} X_{vk,i}}$ is the export-weighted (*X* in the formula denotes exports of *v* into *k*) average tariff imposed by country *k* on all other exporting countries *v* (excluding country *j*) in respect of product *i*. Equivalently, the formula captures weighted tariff imposed by *k* on imports from all other countries but *j*. As before, $T_{k,i}^{j}$ is the preferential rate applied to country *j*. This competition-adjusted preference margin can be positive or negative, depending on whether exporters of good *i* from country *j* benefit from market access conditions more or less favourable than the other trading partners of country *k* in the same market.

In order to measure the overall level of advantage or disadvantage that a beneficiary under a PTA faces in entering another market in the preferential area, Fugazza and Nicita (2010) estimated the overall value to a country of preferences in terms of the degree of responsiveness of import demand to variations in price (price elasticity of import demand), taking into account the trade share of the country concerned. Under this specification of the value of the preference, which the authors call the "relative preference margin" (RPM), preference margins are thus weighted by the relevant import demand elasticity and by the export share of the preference-receiving country. The rationale for including these elements in the preference margin calculation is that a preference margin is more or less valuable to the exporting country depending on the elasticity of demand in the importing country and on the export capability of the exporting country. When import demand is elastic, a given preference margin gives rise to larger increases in import demand than when the import demand is inelastic. In addition, a preference is more valuable to an exporter the higher the level of exports.

The formula for the RPM is:

$$RPM_{jk} = \frac{\sum_{i} X_{jk,i} \varepsilon_{ki} \left(T_{k,i}^{w} - T_{k,i}^{j} \right)}{\sum_{i} X_{jk,i} \varepsilon_{k,i}}, j \neq k$$

where ε is an estimate of the price elasticity of demand for an import, and the other variables are defined as above.

Table D.1: **Share of tariff lines and trade by level of competition-adjusted preference margin, 2000 and 2007** (Percentage)

Competition-adjusted preference margin	2000		2007	
	TL covered	trade covered	TL covered	trade covered
< –30	0.2	0.0	0.1	0.0
–30; –15	1.1	0.3	0.5	0.1
–15; –5	7.1	3.4	4.6	2.3
–5; –2	9.3	5.8	6.3	3.5
–2; 2	72.4	77.8	79.0	87.3
of which MFN = 0	*9.2*	*18.5*	*25.3*	*42.5*
2; 5	5.7	7.6	5.6	4.5
5; 15	3.7	4.1	3.1	2.0
15; 30	0.4	0.9	0.6	0.2
> 30	0.1	0.1	0.1	0.0

Source: Calculations based on the Fugazza and Nicita (2010) database, covering the PTAs of 85 countries, accounting for 90 per cent of world trade.

Table D.1 shows the distribution of competition-adjusted preference margins at the Harmonized System (HS) 6-digit level for the years 2000 and 2007. The distribution is highly concentrated, falling within the range of –2 per cent and +2 per cent. In 2007, over 87 per cent of trade fell inside this range. Except perhaps for highly demand-elastic goods that are particularly responsive to price changes, these numbers suggest that today tariff preferences are unlikely to be a sole reason, or in some cases not even a major one, for countries entering PTAs.

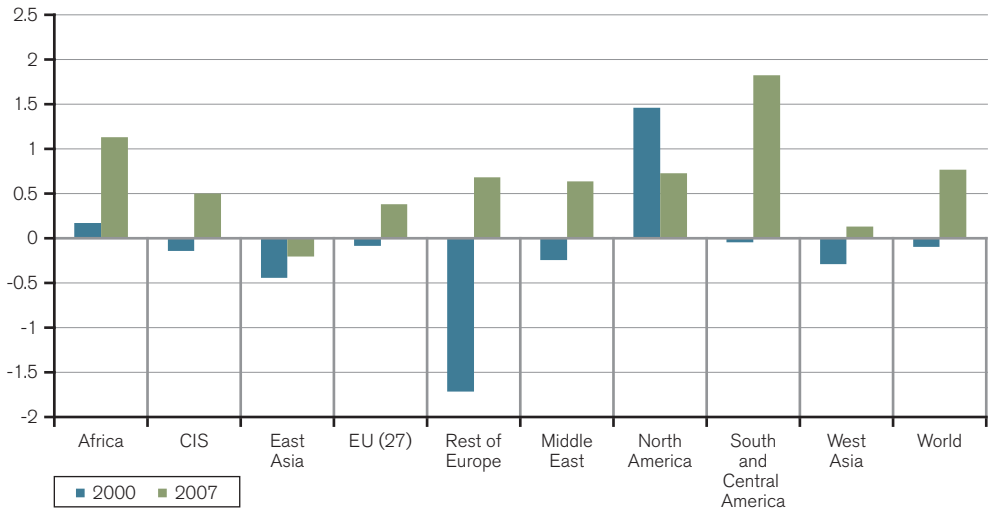
A limitation of using competition-adjusted preference margins as a measure of the value of preferences is that they do not take into account the fact that imports of some goods can be more responsive than others to changes in price. A reduction of the tariff on a good whose demand is inelastic (i.e. not very sensitive to price changes) will have a smaller impact on the overall volume of trade than a reduction of the same magnitude for demand-elastic goods. Even a low preference margin may trigger significant changes in the volume of trade when the import demand for the good is elastic. In these circumstances, even low preference margins might lead to the establishment of PTAs. Applying product-specific price elasticities to products, Fugazza and Nicita (2010) define an index of the overall advantage/disadvantage that exporters in country A face in country B (see Box D.1). This index accords lower weights to competition-adjusted preference margins that are less sensitive to price changes (inelastic goods) than those that are sensitive (elastic goods).

Data based on this relative preference margin (RPM) index was calculated for a sample of 85 countries covering 90 per cent of trade between 2000 and 2008. As shown in Figure D.4, RPMs improved on average across all regions between 2000 and 2007, except in North America, where the initial competitive advantage of the region has been eroded by the proliferation of PTAs in other areas. In general, PTAs have helped countries to offset or reduce the negative discrimination they suffer vis-à-vis non-PTA trading partners. For example, countries in South and Central America significantly improved their conditions of market access between 2000 and 2007, mainly because of the numerous PTAs they signed over that period.

Figure D.4 shows that on average RPMs were below 1 per cent in 2007. Africa and South and Central America had RPMs in excess of this average. Fugazza and Nicita (2010) calculated that a 1 per cent change in the RPM would have a trade impact of 0.34 per cent.[4] This implies that a rise or fall of 2 per cent in trade would require a change in the RPM of at least 5 percentage points. El Salvador is the only country in the sample covered by the Fugazza and Nicita database that satisfies these conditions. This finding reinforces our conclusion that limited scope remains for the pursuit of preferences in PTAs.

In sum, the proliferation of PTAs between 2000 and 2007 has improved the conditions of market access for signatory countries. To a large extent, the improvement has been due to the reduction in the number of instances where relative preference margins were negative (i.e. cases where a country faces worse market conditions than its trade competitors). One may argue, therefore, that PTAs have in part restored a "level-playing field" for those countries that faced worse conditions of access than others. Whether or not adjusted for tariffs faced by other suppliers, the overall level of tariffs faced by exporters is low, as is the volume of trade for which preference margins are significant.[5] Low average benefits accruing from preferential tariffs on trade may nevertheless conceal larger effects for some products and countries, and this should be borne in mind in the context of the broader conclusion reached in this report that preferential tariffs are no longer a major consideration in PTA formation. We now turn to

Figure D.4: **Relative preference margins by region, 2000 and 2007**



Note: Relative preference margins by region are in percentage points and are calculated as the simple average of all RPMs of countries in the region.

Source: Calculations based on the Fugazza and Nicita (2010) database.

an analysis of other factors at play, linked particularly to the international fragmentation of production.

2. Patterns in the content of PTAs

If tariffs are no longer so important within PTAs, what is being negotiated in these agreements? To answer this question, we examine in detail the contents of a large sample of PTAs. This examination is conducted first by analysing the sectoral coverage and legal enforceability of various PTAs. The identification of the policy areas and the definition of legal enforceability are based on Horn et al. (2010). The result of this analysis shows that commitments in services, investment, intellectual property protection, technical barriers to trade and competition policy loom large in many PTAs. In the second phase of the analysis, the nature of the commitments in a number of key policy areas is considered.

(a) Sectoral coverage and enforceability

(i) Methodology

The original analysis by Horn, Mavroidis and Sapir (HMS) examined EU and US PTAs with third countries. Their approach can be divided into three stages. First, HMS identify the substantive policy areas covered in PTAs. They consider an area to be covered by an agreement when the latter provides for some form of undertaking in the relevant field. In this respect, HMS base their list of policy areas on article headings in the case of EU agreements and chapter headings in the US agreements. This is one limitation of our use of the HMS approach, since non-US and non-EU PTAs may contain policy areas of importance to countries involved in those PTAs that are not reflected in the US and EU agreements.

The authors identify 52 policy areas which they then classify into two groups. The first group of policy areas, called WTO+ provisions, fall under the current mandate of the WTO and are already subject to some form of commitment in WTO agreements. WTO+ provisions reconfirm existing commitments and provide for additional obligations. The second group of policy areas, which they denote as WTO-X provisions, refer to obligations that are outside the current mandate of the WTO. Table D.2 lists the 52 policy areas that HMS identified as either WTO+ (14 areas) or WTO-X (38 areas).

In a second stage, the legal enforceability of the PTA obligations is ascertained. A policy area that is covered might still not be legally enforceable due to unclear or loosely formulated legal language. The authors' idea appears to be that the clearer, more specific and imperative the legal language used to express a commitment or undertaking, the more successfully it can be invoked by a complainant in a dispute settlement proceeding, and thus the greater likelihood of it being enforced. They have classified certain terms as either implying enforceable or non-enforceable obligations. The strengths and limitations of the definition of "legal enforceability", as applied by HMS, are considered in greater detail in Box D.2.

In a third stage, the "depth" of an obligation is established for some policy areas. The purpose of this step is to establish whether a provision that is legally binding is actually likely to matter in practice. However, HMS did not delve into any substantive examination of the policy. To complete this third step, this report undertakes an in-depth provision-by-provision examination of a number of policy areas.

Table D.2: **WTO+ and WTO-X policy areas in PTAs**

WTO+ areas	WTO-X areas	
PTA industrial goods	Anti-corruption	Health
PTA agricultural goods	Competition policy	Human rights
Customs administration	Environmental laws	Illegal immigration
Export taxes	IPR	Illicit drugs
SPS measures	Investment measures	Industrial cooperation
State trading enterprises	Labour market regulation	Information society
Technical barriers to trade	Movement of capital	Mining
Countervailing measures	Consumer protection	Money laundering
Anti-dumping	Data protection	Nuclear safety
State aid	Agriculture	Political dialogue
Public procurement	Approximation of legislation	Public administration
TRIMS measures	Audiovisual	Regional cooperation
GATS	Civil protection	Research and technology
TRIPS	Innovation policies	SMEs
	Cultural cooperation	Social matters
	Economic policy dialogue	Statistics
	Education and training	Taxation
	Energy	Terrorism
	Financial assistance	Visa and asylum

Source: Horn et al. (2010).

Box D.2: **Legal enforceability**

For the purpose of classifying provisions in PTAs as "legally enforceable" or "non-enforceable", Horn et al. (2010) focus on two variables relating to dispute settlement: (a) the actual terminology of a provision, and in particular whether a provision "specifies at least some obligation that is clearly defined and likely effectively to bind the parties", as distinguished from vague undertakings that are "not likely to be successfully invoked by a complainant in a dispute settlement proceeding"; and (b) whether the agreement "explicitly states that dispute settlement is not available for the provision" under the PTA.

Although these two variables constitute a solid starting point, there are a number of other variables – including those related to dispute settlement – that could also have a bearing on the "legal enforceability" of obligations arising under PTAs. The HMS study, however, focuses solely on the text of PTAs, and not on their effects or implementation.

Whether or not the actual terminology of a provision establishes a legally enforceable obligation is a question of treaty interpretation. An important consideration is therefore the approach to treaty interpretation adopted in the PTA. For example, in the context of WTO dispute settlement proceedings, the Appellate Body has repeatedly emphasized the principle of "effectiveness" in treaty interpretation, which provides all of the terms of the WTO agreements with a "legally operative meaning". The Appellate Body has found on more than one occasion that the term "should", in the same way as "shall", can give rise to a legal obligation.

The tradition of treaty interpretation stems from the Vienna Convention on the Law of the Treaties 1969 (VCLT). The VCLT is a legal instrument codified by the UN International Law Commission. It sets out rules recognized as customary international law. For present purposes, the relevant rules of treaty interpretation are laid down in Articles 31-33 of the Convention. Article 31 of the VCLT establishes four elements that have to be combined in the interpretation of a treaty. A treaty has to be interpreted: i) in good faith; ii) within the ordinary meaning of its terms; iii) in its specific context; and iv) in the light of its object and purpose.[6] PTAs are recognized as treaties under international law and have to be interpreted in accordance with the rules of the VCLT.[7]

The strong focus on the use of legal language in a PTA is referred to as a textual or literal interpretation.[8] The language of a provision reveals its intention and the extent to which it declares legal obligations and rights.[9] The language also helps to define demarcations and the scope of WTO law in dispute settlement

proceedings. In this respect, treaty language also reveals those areas that have not been negotiated within the framework of the WTO.[10] The process of enforcement, however, makes use of other approaches in WTO dispute settlement. Three aspects of the legal enforceability of a provision are mentioned below, in addition to the textual approach.

First, obligations arising under the WTO agreements may have a bearing on the legal enforceability of obligations under PTAs. HMS consider provisions carved out from dispute settlement proceedings as being non-enforceable. To the extent that a provision of a PTA addresses an area that is also directly or indirectly covered by one or more obligations under the WTO agreements, it remains to be seen whether a PTA can deprive a party of its right of access to the WTO dispute settlement system. In other words, the fact that dispute settlement may not be available in respect of that provision under the PTA would not necessarily preclude a party from having recourse to WTO dispute settlement procedures in respect of the corresponding obligation(s) under the WTO agreements. This complex and unsolved legal question leaves open whether and to what extent rules of conflict leading to the enforcement of a provision under a PTA can override the WTO dispute settlement system.[11]

Secondly, to the extent that the concept of legal enforceability is linked to the possibility of applying counter-measures to give force to PTA obligations, rights and obligations under WTO agreements limiting the use of trade counter-measures may also have a bearing on the enforceability of certain PTA provisions. Another related issue refers to the enforceability of WTO-X provisions. To what extent is it possible to make use of trade counter-measures to enforce those policy areas not covered by the WTO (Marceau, 2009)? The scope and limitations of the relevant law still need to be clarified.[12]

Thirdly, non-legal considerations are an important factor when determining the enforceability of obligations in trade agreements. This approach encompasses political factors as relevant in the process of legal drafting, thus leading to the adoption of loosely formulated legal language. It does not, however, take external political factors into consideration that might be important for the actual enforcement of a provision in practice.[13] As HMS acknowledge, "provisions may be enforced not only through a formal judicial dispute settlement mechanism, but also through more political means". In other words, the fact that particular obligations may be carved out from dispute settlement procedures does not necessarily mean that parties cannot seek to enforce such obligations through political or diplomatic means. However, the reverse is also true. The fact that particular obligations are not carved out from dispute settlement procedures does not necessarily mean that legal enforcement through dispute settlement proceedings is always a realistic and viable option.

The vast majority of provisions in regional and bilateral trade agreements are never the subject of any dispute settlement proceedings, even where a right to invoke proceedings exists. In a nutshell, provisions that are legally enforceable in theory may be difficult to enforce in practice, whether on account of political factors, resource constraints, or other non-legal considerations.

The analysis conducted here extends HMS's original analysis of 14 EU and 14 US PTAs to a total of 96 PTAs. Of these, 33 involve the EU and 11 involve the United States. The sample covers some recently concluded EPAs by the EU, with Cameroon and CARIFORUM, for example, as well as Euromed agreements. The 42 other PTAs were concluded by regional trading blocs and major trading powers, such as the Association of Southeast Asian Nations (ASEAN), China, the European Free Trade Agreement (EFTA), India and the Southern Common Market (MERCOSUR). PTAs from Africa (such as COMESA and ECOWAS) and the Middle East (such as the GCC and PAFTA) are also included in the analysis. The sample of PTAs was chosen primarily on account of the volume of trade within the PTA, but also included the initial set of PTAs examined in the HMS study (see Appendix Table D.1 for a detailed list of the PTAs covered).

The HMS study only covers PTAs concluded by WTO members, signed by the parties and mostly notified to the WTO as of October 2008. It considers agreements signed both before and after the creation of the WTO, but excludes those where partners are not members of the WTO. Three agreements that have been signed but that are not yet ratified were also included in the study. HMS further restricts the selection of PTAs in its study to those concluded under Article XXIV of the GATT or Article V of the General Agreement on Trade in Services (GATS). Agreements notified under the Enabling Clause are not taken into account. All the PTAs considered in the HMS study are free trade agreements, except for EU-Turkey, which is a customs union.

The sample used in this report also includes agreements in which not all partners are members of the WTO. Some non-notified agreements are covered, but all are in force. The sample covers the period from 1958 to 2010. PTAs notified under the Enabling Clause are included along with others notified under GATT Article XXIV and GATS Article V. Eighty-two of the agreements covered are free trade agreements, 12 are customs unions and two are partial scope agreements.[14] Four among the EC agreements are enlargement agreements.

The majority of the EU's PTAs are concluded with neighbouring countries, whereas those of the United States tend to be more widely spread geographically. Included in the coverage are ten PTAs concluded by Japan, seven by China, five by Australia, five by the Republic of Korea and four by India. The sample covers 18 major trading blocs. The analysis here departs slightly from the HMS approach in that certain obligations covered may not be the subject of a dedicated article or chapter. Provisions in the areas of "visa and asylum" or "information society", for example, are often not explicitly mentioned as an article or chapter heading, but in the context of other provisions. Another notable example is export taxes where, unlike HMS, this report considers "customs duties on exports" as synonymous with export taxes. Finally, it should be noted that the analysis relates to the version of the trade agreement as it was signed or notified to the WTO. This means it will not capture subsequent changes to an agreement, such as the addition of new areas of cooperation or a strengthening of existing provisions.

(ii) Empirical evidence on PTA content by income, policy area and over time

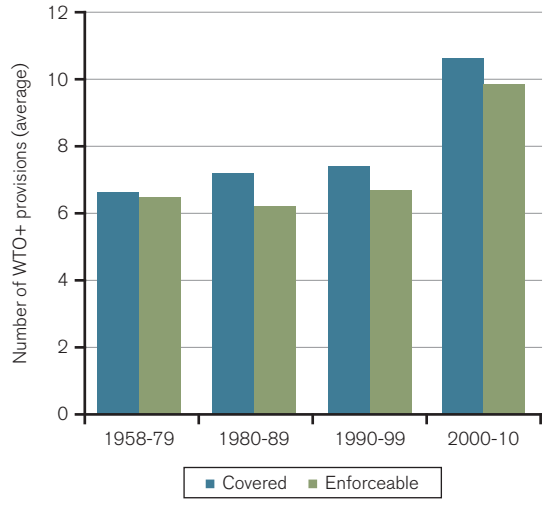
Figure D.5 shows that the average number of WTO+ areas covered by PTAs has been increasing over time. From 1958 to 2010, the proportion of legally enforceable provisions was very close to the total number of sectors covered. As described above, WTO+ areas are those covered by existing WTO agreements. The pattern observed suggests that deepening commitments in these areas, i.e. going beyond commitments in the WTO, continue to be a major driving force for recent PTAs.

In contrast, the pattern over time of WTO-X provisions is less clear (see Figure D.6). It is certainly the case that PTAs coming into force since 2000 cover more WTO-X areas than agreements established earlier, and that more of them are legally enforceable. However, the gap between areas covered that are legally enforceable and those that are not is still higher for WTO-X provisions than for WTO+ provisions. Horn et al. (2010) characterize WTO-X provisions as largely regulatory in nature. Using this interpretation, and even accounting for the smaller proportion of these areas that are enforceable, the growth in the average number of WTO-X provisions in recent PTAs is a testimony to the growing importance of behind the border measures in PTAs.

Which specific policy areas figure prominently in preferential trade agreements? Figure D.7 presents the number of PTAs in the sample with specific WTO+ provisions. As expected, all of the 96 agreements contain provisions relating to industrial and agricultural tariffs. However, an increasingly large number of PTAs now go beyond merchandise tariffs, including provisions on technical barriers to trade, services, intellectual property and trade-related investment measures. Figure D.7 also shows that even if one examines each of the WTO+ areas individually, there is not much of a gap between coverage and legal enforceability.

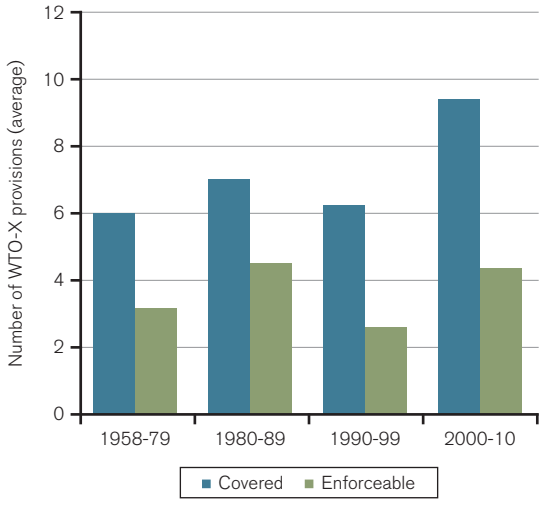
The main policy areas covered by WTO-X provisions are competition policy, intellectual property rights, investment and movement of capital (see Figure D.8). These are also the policy areas that are most often legally enforceable in PTAs. The next largest group of policy areas with legally enforceable provisions (present in about one-third of the agreements) are environmental laws, labour market regulations and measures on visa and asylum. The remaining legally enforceable policy areas appear in less than ten of the agreements. So while there appears to have been a significant increase in new policy areas in PTAs, the picture that emerges from Figure D.8 is more nuanced. Only a handful of truly important areas are affected, where importance is judged by whether the provisions can be enforced by the parties to the agreement.

Figure D.5: **Covered and enforceable WTO+ provisions over time**



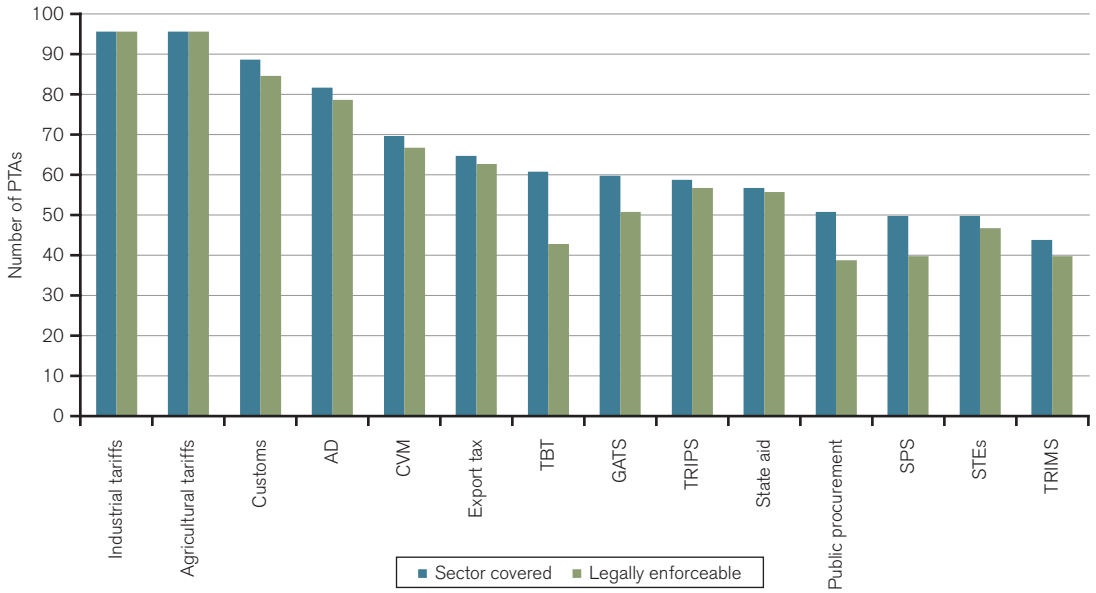
Source: WTO Secretariat.

Figure D.6: **Covered and enforceable WTO-X provisions over time**



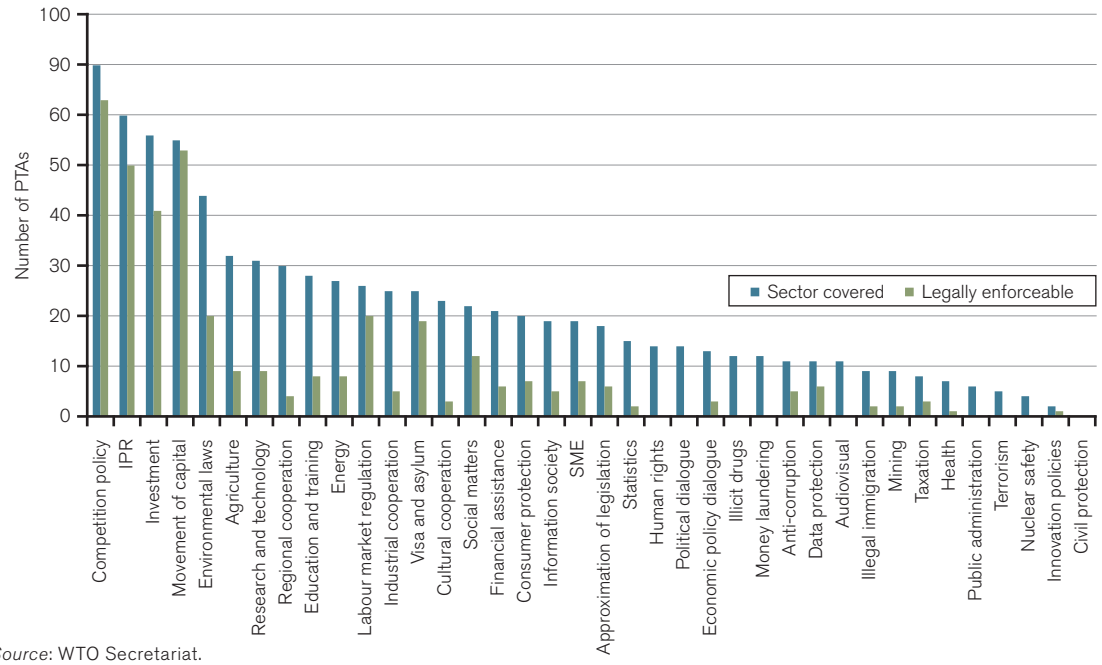
Source: WTO Secretariat.

Figure D.7: **Number of agreements covering WTO+ provisions**



Source: WTO Secretariat.

Figure D.8: **Number of agreements covering WTO-X provisions**

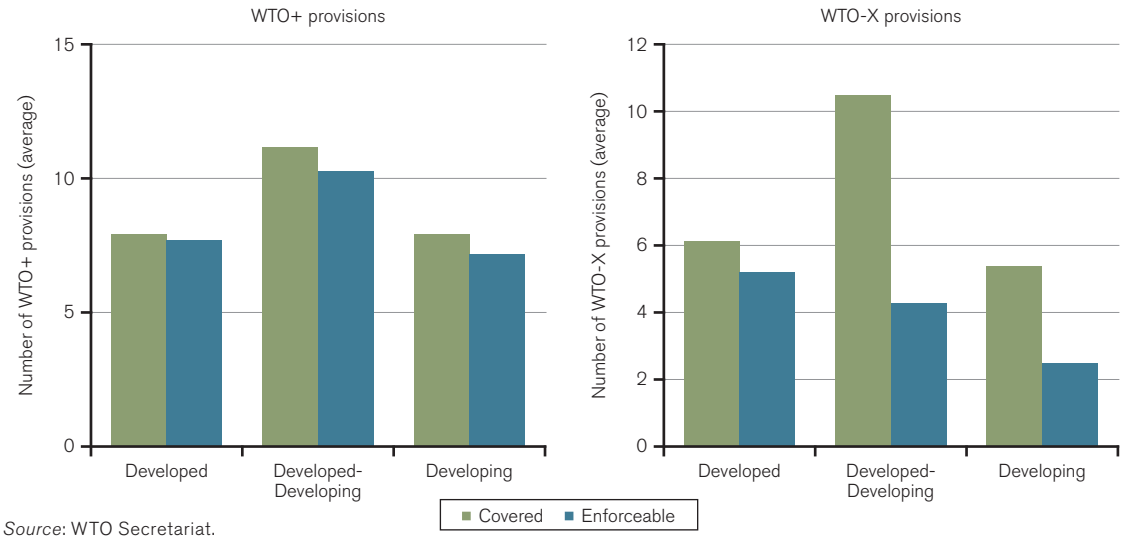


Source: WTO Secretariat.

To investigate possible differences among PTAs signed between categories of countries – that is, developed-developed, developed-developing and developing-developing – the average number of provisions in these PTA categories are compared (see Figure D.9). PTAs between developed and developing countries contain on average a higher number of legally enforceable WTO+ provisions compared with PTAs between trading partners with similar levels of income (i.e. among developed or among developing countries). How might this be explained? Barriers affecting goods and services are generally higher in developing than in developed countries. Developed countries might use PTAs with developing countries to obtain deeper levels of commitments than those made in the WTO. In exchange, developing countries might acquire fuller and greater security of market access to the large economies of their PTA partners.

As shown in the second panel of Figure D.9, PTAs between developed and developing countries also cover a higher average number of WTO-X provisions than PTAs between two developed countries or between two developing countries. However, most of these provisions

Figure D.9: **Number of WTO+ and WTO-X provisions**



Source: WTO Secretariat.

are not legally enforceable. Agreements between developed countries on average have a higher number of enforceable provisions, with PTAs between developing countries having the smallest number of enforceable WTO-X provisions. The pattern between developed and developing countries observed in the portion of Figure D.9 dealing with WTO-X provisions is consistent with the argument made by HMS that developed countries are seeking to "export" their regulatory regimes to developing countries. The fact that most of these WTO-X provisions are not legally enforceable may suggest limited success in these efforts, or perhaps that the process of regulatory convergence in a legally binding sense is a gradual one.

It may at first appear surprising that agreements between developing countries include WTO-X policy areas. However, this pattern becomes more understandable given that many of these PTAs typically involve upper or middle-income developing countries such as Chile, the Republic of Korea and Singapore. They may have the same interest in exporting their regulatory regimes as developed countries.

Overall, this analysis leads to two main conclusions. First, where WTO+ provisions are encountered in PTAs, involving any combination of developed or developing countries, agreements have generally served to strengthen rules and commitment levels compared with the WTO agreements. The fact that these are policy areas already covered by the WTO has made it easier to give legal force to the relevant provisions. Secondly, in spite of the apparent explosion of new WTO-X issues covered by PTAs, the areas embodying legally enforceable and therefore substantive commitments in PTAs are relatively few, and are to be found predominantly in the fields of investment, competition policy, intellectual property rights, and the movement of capital.

(b) PTA commitments in selected policy areas

(i) Services

Services obligations are usually included in comprehensive PTAs that cover not only trade in goods, but also, for example, investment, intellectual property, e-commerce and competition. Out of 85 notifications under Article V of the GATS,[15] a little more than one-third of the agreements follow a structure that is close to that of the GATS, with a similar set of obligations (national treatment, domestic regulation, etc.) that apply to the four modes of supply,[16] and rely on a GATS-type "positive-list modality" for the scheduling of liberalization commitments.[17] A positive-list approach means that the obligations stipulated in the agreement apply only to those services sectors listed in WTO members' schedules of commitments (and subject to limitations inscribed), while a negative-list approach means that obligations in the agreement apply fully to all sectors, subject only to explicitly listed reservations. In other words, in a positive list approach only what is listed is covered, whereas in a negative list approach everything is covered apart from what is listed.

Almost half of the services PTAs notified follow a different structure, which is closer to the approach used in the North American Free Trade Agreement (NAFTA) than to that of the GATS.[18] Such agreements use a negative-list modality for the scheduling of commitments, and services trade is covered by different sets of obligations. These include a chapter on cross-border services trade focusing on mode 1 (cross-border supply), mode 2 (consumption abroad) and mode 4 (movement of natural persons), a chapter on investment covering all sectors, including services, and separate chapters on telecommunications, financial services and the temporary entry of business persons.[19]

Over time, a number of agreements have innovated in terms of their structure, combining elements of both the original NAFTA and GATS-type models.[20] A number of services PTAs, whether positive-list or negative-list, also include some additional sector-specific provisions, contained in annexes to relevant chapters. Examples of these are recognition for professional services in various PTAs, provisions specific to express delivery services in US agreements, and maritime services in the agreement between the EU and the Caribbean Forum (CARIFORUM).

Aside from innovations in architecture and market-opening modalities, most services PTAs tend to share a broad commonality, among themselves and with the GATS, in terms of a basic set of disciplines relating to trade in services. These include national treatment (the principle of giving others the same treatment as one's own nationals), market access, domestic regulation obligations, exceptions, definitions and scope. In the area of "rules", for which negotiations are provided for under the GATS, namely safeguards, subsidies and procurement, PTAs have tended not to go further. The same is true for most agreements in regard to domestic regulation and transparency issues. Important exceptions exist here, however, as some countries have gone beyond GATS provisions. These include a necessity test on domestic regulation in the Switzerland-Japan PTA , or additional services-specific provisions on transparency in US agreements.[21]

How much more market access than under the GATS?

In addition to architectural and rules-related differences in the services provisions in PTAs, a key issue is the extent of market-opening commitments – that is, the level of access guaranteed for foreign services and services suppliers (market access and national treatment obligations). Studies have found that, overall, services commitments in PTAs go beyond GATS commitments currently in force.[22] Some studies also show that PTA commitments go further than GATS offers tabled so far in the Doha Development Agenda (DDA).[23] GATS+ commitments in PTAs take the form of both new bindings or commitments in services sectors uncommitted under the GATS and better bindings in sectors already committed under the GATS.

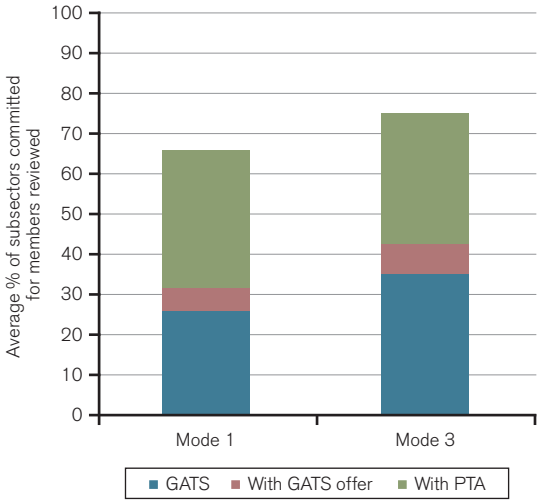
The value of services commitments in PTAs is largely based on the fact that they guarantee a minimum level of treatment – often a better one than that guaranteed under the GATS. This is important for mode 3 (foreign commercial presence), where the supply involves large investments abroad, and for mode 1 (cross-border supply), where the current lack of restrictions in various sectors may not last as technological advances lead to greater trade, and competitive pressures, via that mode.[24] It is also important for mode 4 (movement of natural persons), where measures affecting temporary entry can rapidly be reversed.

PTA commitments are not expected to lead to many occurrences of "real liberalization" – i.e. removal of applied restrictions. At the same time, although such information is not readily discernible from PTAs, evidence suggests that some PTAs have, in certain instances, directly led to the removal of certain applied restrictions, for example the phasing out of the monopoly in the insurance sector in Costa Rica and the opening of the insurance sector to foreign branches in Australia, the Dominican Republic or Chile.[25]

Figure D.10[26] highlights differences between services commitments in the WTO and in PTAs by focusing on the proportion of services subsectors that are subject to market access/national treatment commitments. On the basis of data for a large number of PTAs, the figure shows that members involved in PTAs have, on average, undertaken commitments on a greater proportion of services subsectors than they have in the GATS, or even than they have so far proposed in their current GATS offers in the Doha Development Agenda (DDA). This trend is clear in both modes 1 and 3, representing more than 80 per cent of the value of world trade in services. Levels of sectoral coverage achieved in PTAs are, on average, similar for developing and developed countries included in the sample. The contrast with the GATS, however, is greater for developing countries, whose commitments tend to apply to a more limited set of services subsectors at the multilateral level.

Figure D.11 presents a more complete picture of GATS+ commitments in PTAs by showing the proportion of subsectors where commitments undertaken by WTO members in PTAs go beyond

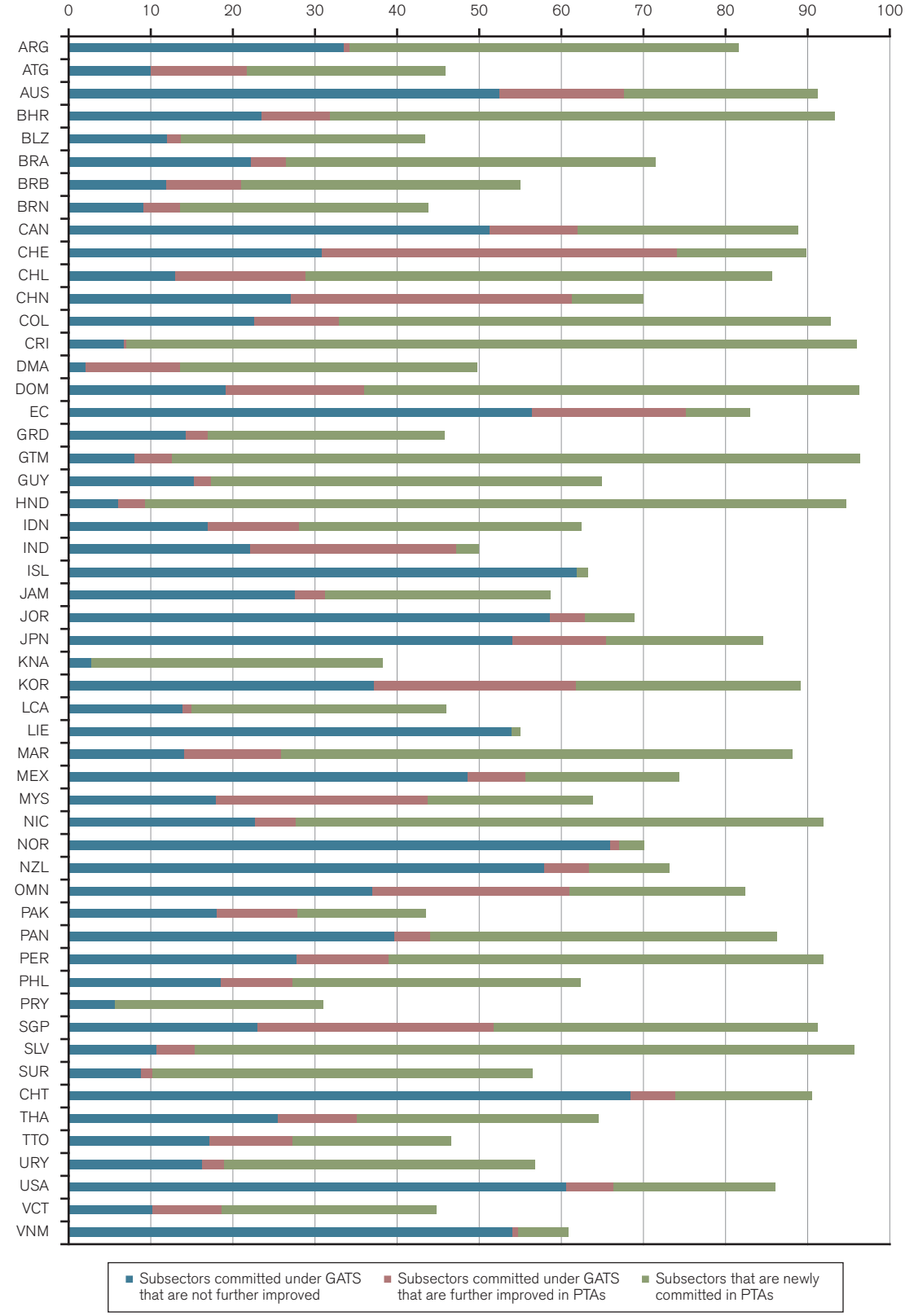
Figure D.10: **Sector coverage in PTAs in comparison with GATS commitments and DDA offers** (Percentage)



Note: See Appendix Table D.3 for the list of PTAs covered.

Source: Updated from Roy et al. (2008) on the basis of an expanded dataset.

Figure D.11: **Proportion of services subsectors subject to new or improved commitments in PTAs, compared to GATS (by member)** (Percentage)



Note: GATS stands here for GATS commitments and DDA offers. Blue: subsectors committed under GATS; red: subsectors committed under GATS but bound at a better level of treatment under PTAs; green: subsectors committed under PTAs that were uncommitted under GATS. Covers each member's "best" PTA commitment across all the PTAs it is party to. Covers modes 1 and 3. See Box A.1. The legend of the acronyms for the members is provided in Appendix Table D.2.

Source: Updated from Roy et al. (2007), on the basis of expanded dataset.

those in GATS schedules of commitments and offers. This captures not only those instances where PTAs include new bindings in subsectors that were uncommitted in the GATS, but also bindings at better levels of access in PTAs for those subsectors already subject to commitments under the GATS and DDA offers. The underlying PTA information represents the PTA in which the member concerned has undertaken the highest level of binding – it is not an average of bindings in all PTAs with services commitments. These data underscore the magnitude of GATS+ commitments in PTAs, both among developing and developed members.

The overall trend of significant GATS+ commitments observed in many PTAs also embodies large variations among parties. Some exhibit spectacular improvements over what is committed or offered under the WTO, particularly in the case of a number of developing countries in Latin America. Others, such as ASEAN countries (other than Singapore), show relatively more limited GATS+ commitments in PTAs. Moreover, a large number of those members that have made more significant GATS+ commitments have submitted relatively limited offers in the services negotiations in the DDA.

The level of services commitments of individual parties to PTAs also varies significantly among agreements. Singapore's services commitments, for example, vary notably in its agreements with the United States, Japan, and other ASEAN countries. Important variations can also be observed in the PTA commitments of Australia, Chile and the Republic of Korea. Commitments by the United States, in contrast, do not vary significantly among PTAs, except for its agreement with Jordan, which was based on the GATS (see Appendix Figure D.1).

No simple or single reason explains why PTA commitments are different among the PTAs signed by various countries, or why PTA commitments are generally more far-reaching than those offered in the GATS. It has been argued that factors such as reciprocity (within services, but also among other issues) as well as the respective economic size and importance of the parties involved have played a role.[27] For example, the United States always obtains better commitments overall on modes 1 and 3 from its trading partners than the commitments these countries undertake in PTAs with other countries. In Appendix Figure D.1, this is apparent in the PTA commitments of Chile, the Republic of Korea, Australia and Singapore.

The type of liberalization modalities used in the PTA is also a factor, as agreements using negative list[28] modalities have tended, on average, to result in greater commitments than positive list ones. This may, of course, be due to the fact that governments which are ready to assume more commitments are more comfortable with the negative list approach.[29] Although not investigated in the context of services PTAs, the nature of political regimes may also play a role in influencing levels of GATS+ commitments that governments are ready to undertake in a preferential context.[30]

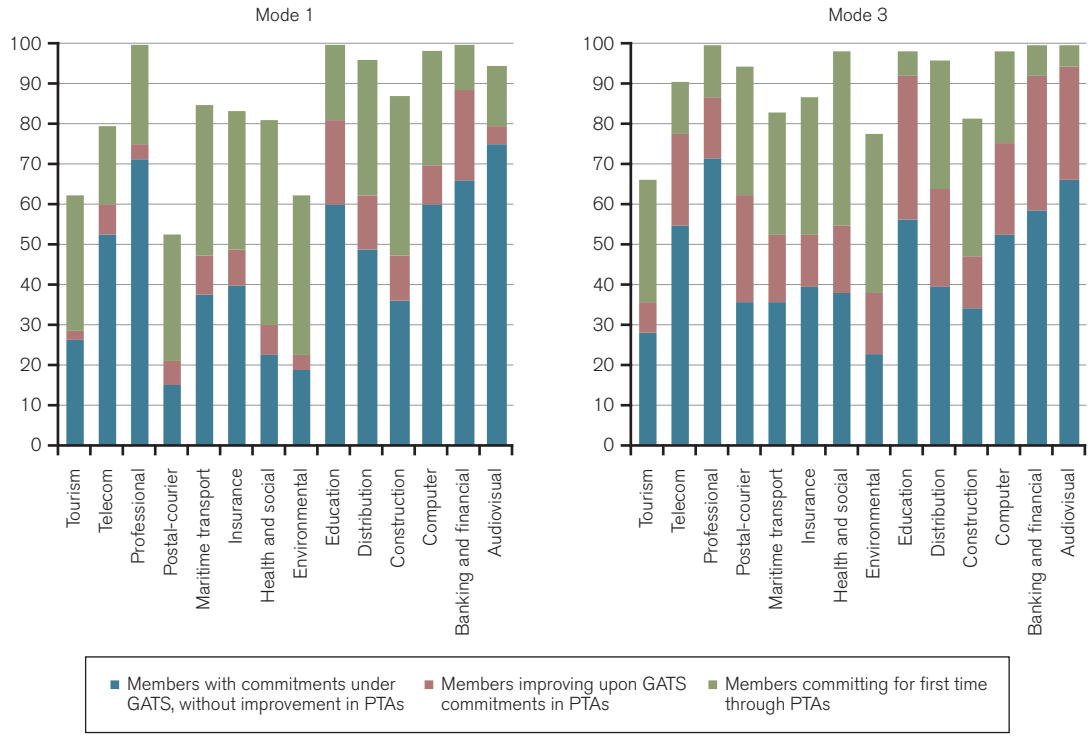
Figure D.12 shows GATS and PTA commitments by sector for modes 1 and 3. Overall, services commitments at the sectoral level in PTAs are more numerous than those in GATS sectors. Sectors that have proved more difficult at the multilateral level (e.g. audiovisual, education) have also attracted less GATS+ commitments than sectors such as telecommunications or financial services. However, PTA commitments for the former have still gone significantly beyond GATS commitments. Qualitative analysis of PTA commitments in a number of sectors also highlights this point.[31] Nevertheless, the more sensitive sectors for larger trading partners have been subject to little or no improvement in PTAs (e.g. maritime transport for the United States or audiovisual services for the European Union).

As for differences according to the level of development among parties, the GATS+ commitments of developed economies tend to be more limited overall in PTAs in view of the higher levels of GATS commitments in these countries. For developed countries, GATS+ commitments largely take the form of better levels of bindings for sectors already covered under the GATS. The GATS+ commitments of developing countries are spread across all sectors, with particularly significant advances in such areas as business, environmental services, distribution, education and postal-courier services. Overall, PTAs have narrowed the gap in commitment levels between developed and developing countries.

GATS+ commitments are more significant in cross-border supply (mode 1) and commercial presence (mode 3) than they are in respect of the temporary movement of natural persons (mode 4). Mode 4 commitments are essentially defined in a cross-sectoral manner in both the GATS and PTAs. PTAs have on the whole made notable improvements over the GATS, although to a lesser extent in such important categories of natural persons as "independent professionals" and "contractual service suppliers".[32]

The scale of GATS+ commitments varies significantly from one member to another. According to Stephenson and Delourme (2010), Australia, Canada, the European Union and Japan have undertaken some significant GATS+ commitments in some recent PTAs.[33] On the other hand, most United States PTAs on services, including all those notified to the WTO after 2003, do not go beyond GATS on mode 4. The same is true for a number of PTA commitments by developing countries. However, the broader sectoral coverage of most PTAs means that, at a minimum, GATS-type mode 4 commitments are extended to many previously uncommitted sectors.[34]

Figure D.12: **GATS+ commitments in PTAs by sector, modes 1 and 3** (Percentage)



Note: GATS stands here for GATS commitments and DDA offers. Done on the basis of each member's "best" PTA commitment across all the PTAs it is party to.

Source: Updated from Roy et al. (2007), on the basis of expanded dataset.

Bilateral investment treaties (BITs) also cover issues relevant to mode 3. Although the majority of BITs are limited to post-establishment investor rights, some also include commitments on investments in services sectors with respect to the establishment phase.[35] This is particularly the case with BITs concluded by the United States.

Finally, PTAs are sometimes GATS-minus, in that they contain commitments that provide for less than what is bound under the GATS, either by excluding sectors (e.g. financial services in certain PTAs) or by listing limitations not foreseen in GATS commitments.[36]

(ii) Investment

The trade and investment literature – see, for example, Helpman (1984); Markusen (1984); Brainard (1993); Brainard (1997) and Markusen (1998) – allows us to infer what provisions in trade agreements, and in investment chapters in particular, will be needed to facilitate international production networks. A key insight of this literature is that what gives the multinational enterprise its competitive edge in international markets is its firm-specific assets – human capital (management or technical experts) and intellectual property, such as patents or blueprints. Hence provisions in PTAs that give ample protection to these assets will encourage more FDI flows and production sharing. Examples of such provisions are protection against expropriation or a commitment to compensate investors in the case of expropriation.

Allowing freer movement of corporate personnel would be another critical ingredient in PTAs motivated by production sharing. Another provision that may improve investor confidence is having the right to invoke the PTA's dispute settlement mechanism. Finally, reducing barriers to investment will allow more enterprises the opportunity to establish a production facility in a foreign location.

What are investment provisions in PTAs commonly about?

Several studies have analysed investment provisions in PTAs – see, for example, Dee et al. (2006); Dee (2008); Houde et al. (2007); Kotschwar (2009) and Berger et al. (2010). For the purpose of this report, the Kotschwar study will be used. It is based on an examination of the investment chapters or provisions in 52 PTAs. The sample of PTAs includes 22 free trade agreements among countries of the Americas. Two agreements are from the 1980s, 13 from the 1990s, and 33 from

2000 onwards. Seventeen agreements in the sample pair countries of the Americas with others outside the region, including eight with Asian countries, six with countries in the Middle East and three with European partners. Eight agreements are between Asian countries, two agreements among European countries or groups (European transition agreements), and one each involving Europe-Africa, Europe-Asia, Europe-Middle East and Africa-Africa. More than 30 specific features of the investment chapters in these agreements were examined in Kotschwar's 2009 study.

One potential shortcoming of the approach taken here to examine investment provisions in PTAs is that these agreements are not the sole avenue for making international commitments in investments. Over the past 20 years, there has been an explosion of bilateral investment treaties (BITs). The United Nations Conference on Trade and Development (UNCTAD) estimates that the total number of BITs increased more than six-fold during the 1990s, with their number rising from 385 in 1989 to some 2,750 by the end of 2009.[37] One reason why investment and trade have been regulated by distinct treaties is because investment and trade disciplines focused on "different but complementary objectives" (DiMascio and Pauwelyn, 2008). Trade agreements seek to increase trading opportunities and investment agreements seek to protect and promote foreign investment.

Even though PTAs increasingly include investment rules, their numbers are still dwarfed by the BITs. For instance, UNCTAD's BITs database reports that 82 BITs were signed in 2009, which exceeds the number of PTAs containing investment provisions notified to the WTO that year.[38] BITs have clearly been an important vehicle for guaranteeing investor protection (Adlung and Molinuevo, 2008). Baldwin (2010) considers the explosion of BITs in the 1990s as an important means by which emerging markets were able to attract offshored manufacturing jobs and factories. Thus, it could be argued that BITs and investment chapters in PTAs play largely similar roles in the spread of international production networks.

Kotschwar's study identifies a number of key elements in the investment provisions of PTAs, including coverage, non-discrimination, standards of treatment, investor protection, temporary movement and nationality of senior personnel, and dispute settlement. Each of these is considered briefly below.

Coverage

The coverage of the investment chapter depends on how investment is defined and what disciplines are contained in the chapter. Investment may be defined in either a broad, asset-based way (including both FDI and portfolio investment) or more narrowly using an enterprise-based approach (comprising the establishment or acquisition of a business enterprise). Investment disciplines may be divided between the investment and services chapters of an agreement. As a consequence, interactions between them are more prevalent, and are governed either in the investment or the services chapter (Houde et al., 2007). Alternatively, investment disciplines are contained in the investment chapter and there is limited interaction with the services chapter.[39]

Principle of non-discrimination

A key mechanism for opening up investment opportunities in a PTA is the application of the principle of non-discrimination to foreign investors. The extent of opening depends upon how broadly investment is defined in the agreement (i.e. the range of assets to which non-discrimination applies), whether the principle is applied to the entire lifetime of the investment (pre- and post-establishment), and the number of reservations. There are two broad approaches for determining reservations: the negative list and positive list approach, as explained earlier. In general, a negative list approach is likely to yield greater investment opportunities.

Standard of treatment

Beyond non-discrimination, investment provisions also specify other standards of treatment of foreign investors. These include such standards as fair and equitable treatment under international law, and freedom in transferring payments abroad.

Investor protection

Most investment chapters contain provisions stipulating that investors are protected or will be compensated in the event that the host country nationalizes or expropriates an investment.

Senior management and personnel

Most PTAs provide for the temporary entry of managers and key personnel of a foreign investor. Some agreements allow hiring of top managerial personnel regardless of nationality, while other agreements hold that the foreign investor may not stipulate the nationality of a majority of the board of directors.

Dispute settlement

While many investment chapters in PTAs now contain provisions on dispute settlement, disputes are handled in a variety of ways. Some PTAs provide for the settlement of disputes through coordination and negotiation; others contain provision only for state-to-state settlement of disputes. However, some PTAs, such as NAFTA, now allow investor-state dispute settlement. An investor that is a national of a PTA member may submit to international arbitration a claim that a PTA member (state) has breached obligations under the investment provisions of the PTA.

Kotschwar's sample of PTAs is used to provide a more detailed analysis of those elements of the agreements that might be seen as essential for production networks. Figure D.13 shows that a large proportion of the sample of the PTAs (between 60 and 70 per cent) have adopted a negative list approach to investment commitments. MFN and national treatment have also been widely guaranteed to foreign investors who wish to establish a presence, or acquire or resell holdings. Investor protection guarantees are written into most agreements, and private investors are frequently granted the right to dispute settlement. In general, the investment provisions in these PTAs appear to be rather open, although no attempt was made in the Kotschwar study to test how much these provisions actually affected FDI flows. Some econometric evidence is available, however, showing that FDI flows respond to provisions in the investment chapters of PTAs. See Dee et al. (2006), Dee (2008) and Berger et al. (2010).

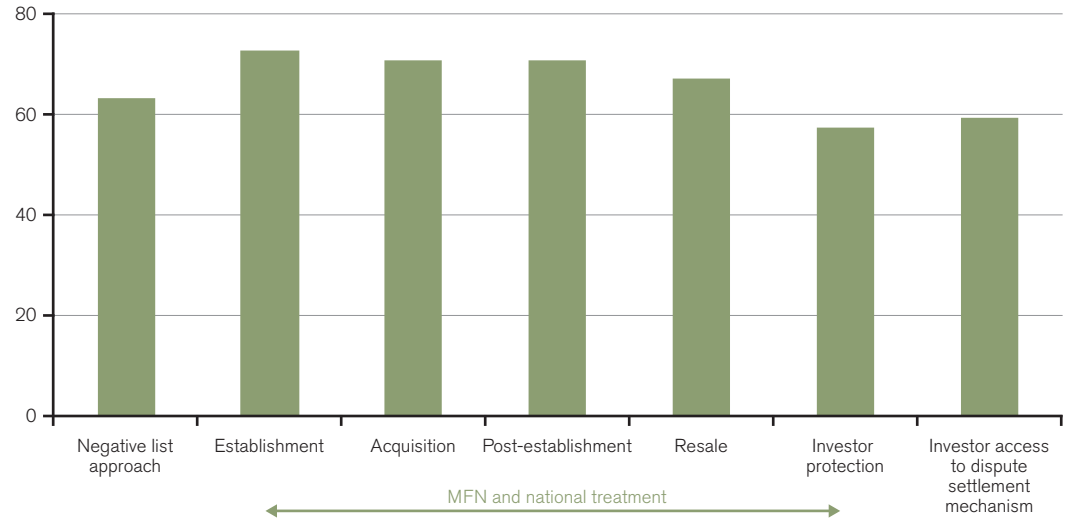
Patterns over time

The agreements in Kotschwar's sample span from the early 1980s to around 2009. Using the total number of provisions in the investment chapter as an indicator of investment openness, later agreements appear to be more open than earlier ones (see Figure D.14).[40] This trend is the same even if a narrower set of provisions in the investment chapter are used, such as only those limited to MFN and national treatment.

Are there families of investment provisions?

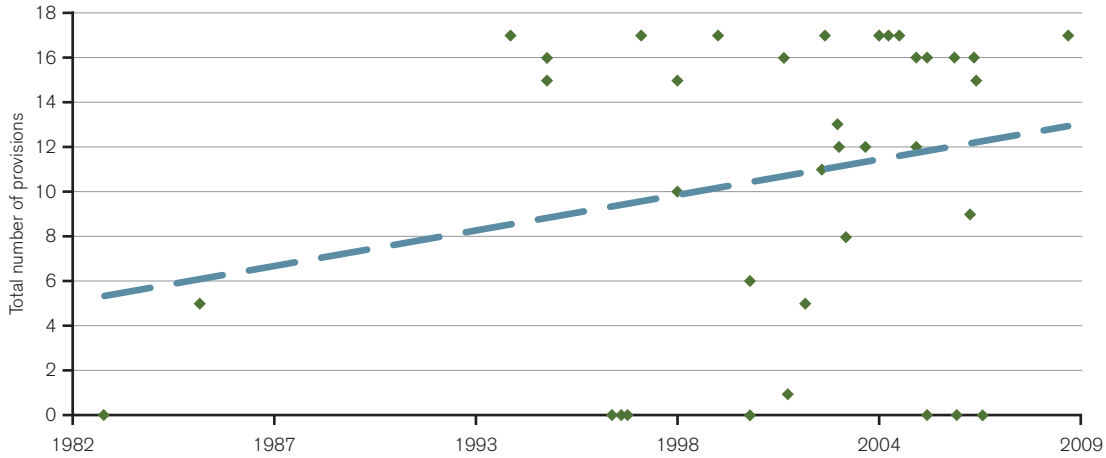
Kotschwar finds that PTAs are grouped roughly around two hubs: a NAFTA-type hub, which includes agreements among countries in the Americas and increasingly in the Asia-Pacific region, and the European-style hub. She characterizes all the PTAs in

Figure D.13: **Proportion of PTAs with selected provisions in investment chapter** (Percentage)



Source: Calculated from Kotschwar (2009).

Figure D.14: **Total number of provisions in investment chapter over time**



Source: Calculated from Kotschwar (2009).

the sample involving the three NAFTA members (Canada, Mexico and the United States) with their respective partners in the Americas as "encompassing", since they apply the four modalities that determine investment conditions: establishment, acquisition, post-establishment operations and resale. They also cover such disciplines as MFN treatment, national treatment, and dispute settlement. Eighty per cent or more also cover transparency, protection against denial of benefits and restriction of transfers, minimum limitations on the nationality of management and the board of directors, no performance requirements and guarantees against expropriation.

The United States leads the way in designing particularly comprehensive PTAs. In Asia, Kotschwar finds that Singapore and Australia's agreements are more comprehensive, but other agreements have scant coverage. In interregional agreements, she finds that the coverage is somewhat lower due to the limited coverage of disciplines in the EU-Mexico and EU-Chile agreements, as well as in the Chile-China Free Trade Agreement (FTA), the P-4 Agreement (Australia, Brunei Darussalam, Chile and Singapore), and the US-Jordan FTA.

Kotschwar observes that the agreements signed among developed economies tend to go beyond provisions at the multilateral level. This is most obvious where they include separate investment chapters that go beyond services, cover all investment phases, employ a negative list approach, and have little or no limitations on the nationality of board members and management. A geographic divide exists with respect to limitations on performance requirements. United States agreements (except for US-Israel) restrict performance requirements. Singapore agreements (except for US-Singapore and Japan-Singapore) do not.

A similar division is seen in terms of transparency requirements. Agreements in the Americas tend to add prior comment and publication obligations to the GATS, and establish national enquiry points. Asian agreements, by and large, do not. Australian agreements (with the United States and with Singapore) incorporate GATS-style denial of benefits. Among agreements that include Asian members, only a handful adopt tougher-than-GATS treatment. All of these are with countries in the Americas (Chile-Korea, Mexico-Japan, US-Korea and US-Singapore). Agreements with Australia or Israel do not contain investor-state dispute settlement mechanisms except for the Singapore-Australia agreement – all Singapore agreements incorporate this element.

As for agreements between developed and developing countries, those in the Americas all contain a separate investment chapter or incorporate a BIT. EU agreements with developing countries generally do not. PTAs among developing countries vary considerably in content and approach. Agreements signed by Chile and Mexico with other developing countries look much more like the agreements involving developed countries than those signed among other developing countries, such as MERCOSUR. These latter agreements tend to open markets more gradually.

(iii) Technical barriers to trade

In a world where tariff barriers have progressively fallen, non-tariff barriers to trade have acquired more significance. As noted above, many PTAs include norms on technical barriers to trade (TBT) and a growing number include TBT provisions.

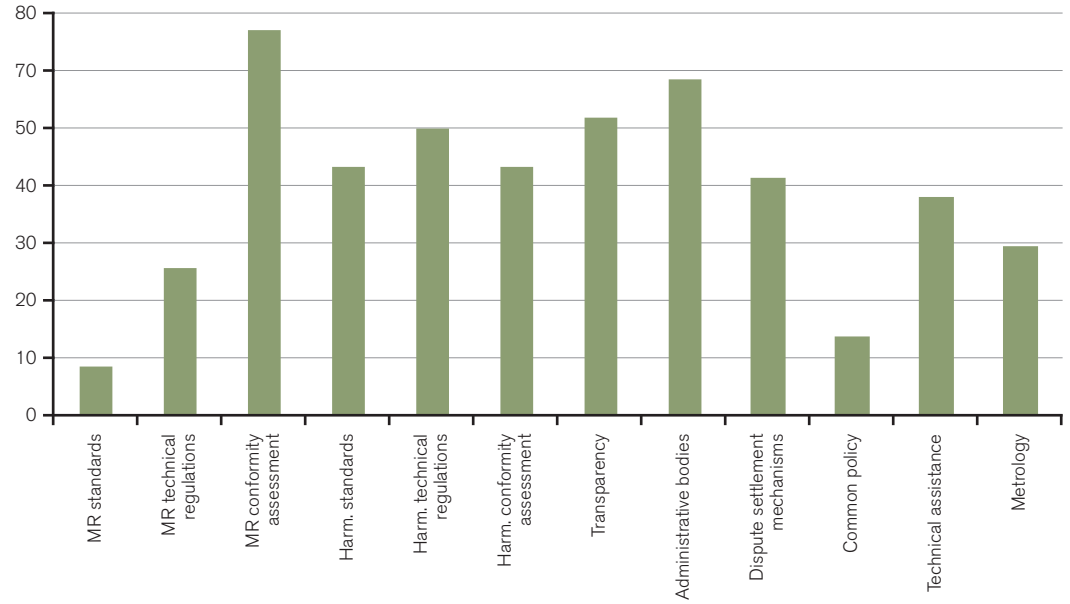
Data reported here on TBT provisions in PTAs are taken from a study by Piermartini and Budetta (2009) of 70 PTAs that differ in terms of geographical characteristics, level of development and the extent of intra-regional trade. Fifty-eight of the 70 PTAs surveyed contained TBT provisions. The study employs a template that maps TBT provisions in terms of the integration approach chosen for standards, technical regulations and conformity assessment procedures (i.e. harmonization or mutual recognition), improvements in transparency, institutions or mechanisms to administer the agreement and solve disputes, and the possibility of cooperation among regional partners on standards-related issues beyond trade objectives and technical assistance. Since this database primarily[41] relies on the legal texts of the agreements, it does not allow an assessment of the actual extent of implementation of the provisions.

What are TBT provisions in PTAs commonly about?

The most common provisions in PTAs (occurring in over 50 per cent of the 58 PTAs included in the Piermartini and Budetta study that contain TBT provisions) are mutual recognition of conformity assessment, harmonization of technical regulations, transparency provisions, and provisions that establish institutional machinery such as a committee, a body or a network for standard-related matters (see Figure D.15). Harmonized standards, harmonized conformity assessment procedures and dispute settlement provisions were found in more than 40 per cent of the agreements contained in the sample of 58 PTAs. Provisions dealing with the mutual recognition of regulations and standards, common policies, technical assistance and metrology occurred in less than 30 to 40 per cent of the agreements.

Mutual recognition means that countries agree to recognize each other's regulations, standards or conformity assessment procedures as equivalent, thus facilitating the unimpeded flow of goods into partner markets. Like mutual recognition, harmonization of regulations and standards is a step towards more open trade. Both mutual recognition and harmonization

Figure D.15: **Percentage of PTAs by TBT provision**



Note: Percentages are relative to the 58 PTAs in the sample containing TBT provisions. MR denotes mutual recognition and Harm. means harmonization.

Source: Authors' calculations on Piermartini and Budetta (2009) database.

promote transparency and trade opening by reducing the costs to exporters of monitoring destination country policy changes. These arrangements also provide exporters with easier access to information about the preferences of consumers in partner countries.[42]

The advantage of harmonization relative to mutual recognition in terms of its effects on trade is that with harmonization products produced in different countries are more similar (more homogeneous) and therefore better substitutes from the point of view of producers and consumers. This, in turn, may facilitate trade by improving consumer confidence about the quality of imported goods. In enhancing compatibility between imported and domestically produced goods, harmonization makes it easier for consumers to match products. It is also likely to increase competition, reduce prices and increase trade. However, harmonization involves more arduous negotiations and carries higher regulatory costs than mutual recognition.

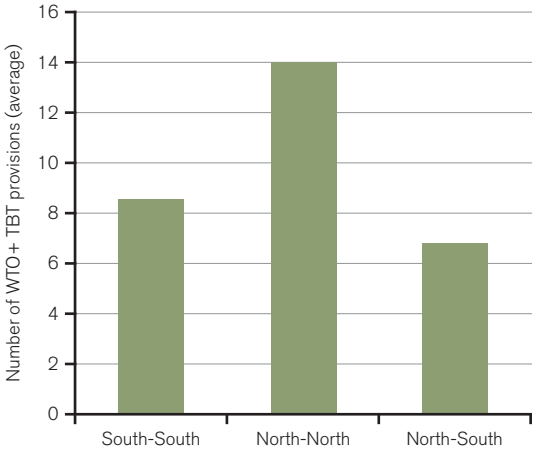
Finally, strengthening cooperation on the institutional set-up for the standards regime is a step towards further trade opening because it is likely to promote the effective implementation of measures. In general, the gap between law and practice will depend on institutions and administrative procedures.

Who integrates TBT provisions the most?

Agreements signed between countries similar in terms of levels of development, technology, environmental requirements and preferences are likely to be deeper in terms of TBT integration than those between more dissimilar countries. This is because countries that are alike tend to share similar policy objectives and therefore similar types of standards. In addition, countries at a higher level of development are more likely to trust one another's conformity assessments and standards than countries at a lower level of development.

In order to understand the overall level of TBT integration, PTAs have been ranked on the basis of provisions that go beyond WTO commitments (i.e. WTO+ integration). Figure D.16 shows the average

Figure D.16: **Average degree of TBT integration by level of development**



Note: The "North" consists of the EU, EFTA countries, Australia, New Zealand, the United States, Canada and Japan. Agreements with no TBT provisions are included.

Source: Authors' calculations based on Piermartini and Budetta (2009) database.

level of WTO+ integration achieved by PTAs classified according to the level of development and similarity of their member countries. In line with the prediction that a deeper level of integration is likely to be achieved in PTAs among countries with a similar level of development and higher incomes, agreements between developed countries (the North) display the highest degree of TBT integration on average. PTAs between developing countries (the South) score more highly than agreements between a developed and a developing country, confirming the proposition that integration is more likely among similar countries.

Are there families of PTAs in the context of TBT integration?

Table D.3 shows patterns of TBT integration by region. The most common provisions (defined as those that occurred in over 60 per cent of the cases) are shaded in green, the least common (those occurring in less than 40 per cent of cases) are shaded in blue, and the rest (occurring between 40 and 60 per cent of cases) are shaded in red. While mutual recognition of conformity assessment is common across the board, significant differences are discernible in relation to other measures adopted in PTAs.

A major difference exists between EU-type and North American-type agreements in terms of the choice between harmonization and mutual recognition as a vehicle for TBT integration. PTAs involving the EU typically prefer harmonization, while North American agreements tend to prefer mutual recognition. In addition, TBT provisions in PTAs in North America, East Asia and South-Central America mainly focus on introducing transparency requirements and developing institutional bodies, while EU and African agreements barely consider these issues.

PTAs that harmonize standards are likely to feature hub-and-spoke characteristics, with a larger partner representing the hub to whose standards the spokes will conform. This tendency can result in standards becoming a barrier to trade and integration among major regional groupings.[43]

(iv) Competition policy

The presence of monopolies, cartels and other forms of private anti-competitive practices can frustrate the benefits of trade, investment and services reform. These market features prevent multinational enterprises from taking full advantage of differences in costs among countries through fragmenting production. The adoption of competition policy is in many ways a natural complement to the reduction of trade, investment and services barriers. While the latter reduce or eliminate policy-created distortions, competition policy dilutes or prevents the abuse of market power. As noted by many commentators, the stillborn 1948 Havana Charter of the International Trade Organization included provisions on restrictive business practices, testifying to the recognition by negotiators of the link between trade opening and competition law.

The following analysis of competition rules in PTAs is based on recent research by Silva (2004); Brusik et al. (2005); Anderson and Evenett (2006); Solano and Sennekamp (2006); Teh (2009) and Dawar and Holmes (2010). Many studies of competition rules in PTAs have focused only on the competition policy chapters of agreements. However, as Anderson and Evenett (2006) have emphasized, competition-related provisions also appear in other provisions. In their view, these sector-specific competition provisions may have stronger pro-competitive effects than the competition

Table D.3: **Patterns of TBT integration across regions (percentage of PTAs by provision and region)**

Provisions	EU	North America	East Asia	South Central America	Africa
MR standards	13	7	8	6	0
MR technical regulations	13	40	31	41	0
MR conformity assessment	67	73	69	76	70
Harm. standards	80	20	31	47	60
Harm. technical regulations	73	27	54	59	50
Harm. conformity assessment	80	20	31	47	60
Transparency requirements	20	67	62	65	20
Administrative body	20	67	62	76	40
Dispute settlement body	20	33	46	47	20
Common policy	7	0	15	6	20
Technical assistance	40	40	23	65	40
Metrology	47	13	8	47	60

Note: MR refers to mutual recognition and Harm. to harmonization.

Source: Calculations on Piermartini and Budetta (2009) database.

policy chapter itself, assuming that the trade agreement even has one. The authors also draw attention to what they refer to as "horizontal principles" relating to the non-discrimination, procedural fairness and transparency provisions in the agreements.

Transparency requires the publication of laws promoting fair competition and addressing anti-competitive practices. Procedural fairness requires that administrative proceedings are consistent, impartial and reasonable and that it is possible to review or appeal any decisions taken in administrative proceedings. Anderson and Evenett (2006) argue that these horizontal principles have a bearing on competition law and policy.

Confirming the hypothesis of Anderson and Evenett, the study by Teh (2009) documents how a large number of PTAs include competition disciplines in the chapters on investment, services (in telecommunications, maritime transport and financial services), government procurement and intellectual property. Based on his sample of 74 PTAs, Figure D.17 shows the proportion of PTAs which contain competition-related elements in the other chapters of the agreements. More than a quarter of the PTAs, for example, have provisions that guard against major telecommunications suppliers engaging in anti-competitive practices. About one-fifth of the PTAs have an intellectual property (IP) chapter preventing abuse or anti-competitive behaviour by IP rights holders.

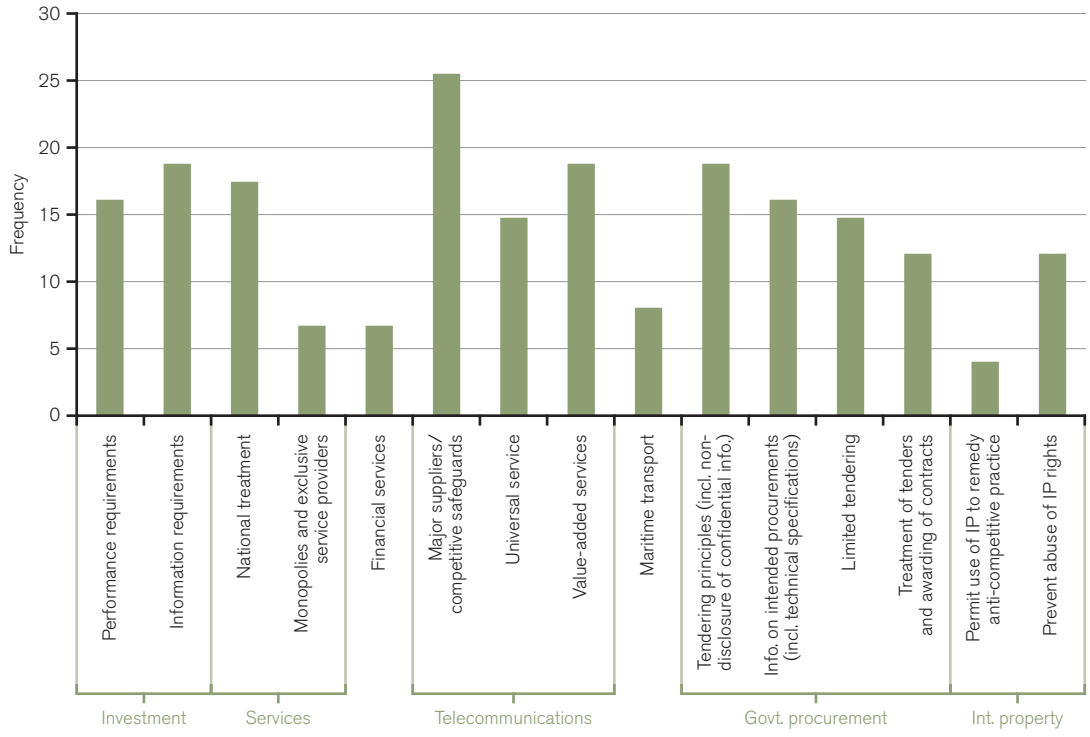
As has been argued in this report, infrastructural services, investments, and intellectual property protection are likely to be central ingredients of well-functioning production networking arrangements. The application of competition rules in these areas complements the reduction of trade and other regulatory barriers.

The main obligations found in the competition policy chapters of PTAs are the adoption or application of competition law and closer cooperation among competition authorities of PTA partners. Several types of behaviour are considered anti-competitive or as having the potential to affect competition adversely, and are explicitly mentioned in the agreements. These include concerted actions, abuse of a dominant position and state aid. Monopolies, state enterprises and undertakings with special or exclusive rights are also given particular attention.

Competition policy chapters typically mandate closer cooperation among national competition authorities, although for the most part the scope of cooperation is limited to the exchange of information, notification and consultation. A small number of PTAs, however, give a substantial role to regional bodies in carrying out surveillance and investigations, and in taking measures to curb anti-competitive behaviour.

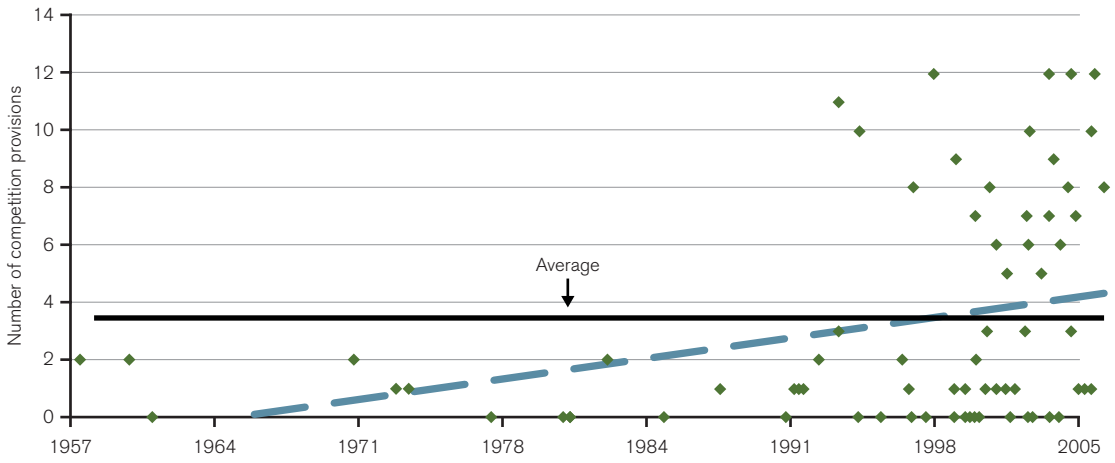
One complication in assessing the policy effects of competition policy chapters, as distinguished from the sector-specific competition provisions and horizontal

Figure D.17: **Sector-specific competition provisions in PTAs**



Source: Teh (2009).

Figure D.18: **Competition disciplines in PTAs over time**



Source: Teh (2009).

principles, is that a sizeable number of PTAs exclude them wholly or in part from dispute settlement provisions in the agreement. Out of the 55 PTAs with competition policy provisions in the sample of 74 PTAs in Teh (2009), 14 exclude all of these provisions from dispute settlement, while another two exclude parts of the competition provisions. These carve-outs suggest that competition policy chapters are for the most part intended to operate on a "best endeavour" basis only.[44] They also underscore the importance of the horizontal principles and sector-specific competition provisions outside the competition policy chapters of the relevant PTAs.

Pattern over time

Figure D.18 shows that the commitment to promote competition though PTAs has increased over time. The focus of this analysis is limited to sector-specific and horizontal competition provisions, given that a sizeable number of PTAs exclude, completely or in part, the competition policy provisions from dispute settlement. The vertical axis in Figure D.18 measures the frequency of the sector-specific and horizontal provisions of each PTA in the sample while the horizontal axis shows the date on which the PTA entered into force. The increased commitment to promote competition is shown by the ascending blue line for the entire sample of 74 PTAs which came into force from 1958 to 2006.

Are there families of PTAs in the context of competition policy?

The question whether distinct kinds of competition provisions are found in agreements involving particular countries is relevant in light of the claim by Horn et al. (2010) that certain PTA hubs tend to export their regulatory regimes to PTA partners. Solano and Sennekamp (2006) argue that distinct patterns can be detected in the competition policy provisions in EU- and NAFTA-style agreements. Since that study focused only on the competition policy chapters of the agreements, the question arises whether the finding holds if a broader view is taken of competition provisions in PTAs.

The analysis undertaken in this report suggests that the Solano and Sennekamp finding is robust, even if we include the sector-specific and horizontal provisions. Four salient differences are identifiable in the treatment of competition policy in PTAs involving the EU and the United States. First, horizontal principles are more pronounced in US-centred PTAs. Secondly, competition disciplines are fairly prominent in the sectoral chapters of US PTAs, particularly in telecommunications, government procurement and investment. Thirdly, compared with the EU agreements, there is less likelihood of finding a specific competition policy chapter in North American PTAs. Nearly all of the PTAs concluded by the EU contain competition policy chapters. Finally, US-centred PTAs exclude competition policy chapters from dispute settlement.

It is difficult to ascertain the practical relevance of these differences. In the analysis of TBT provisions in PTAs, one explanation for the observed existence of families of PTAs was that the hub in hub-and-spoke PTAs was exporting its regulatory regime to the spokes. Thus one interpretation is that the two trading powers are interested in exporting different aspects of their competition regulations to their PTA partners.

Are competition rules preferential?

Unlike traditional market access provisions, many elements of competition rules in PTAs are characterized by non-discrimination, see for example, Teh (2009) and Dawar and Holmes (2010). Competition disciplines usually operate through the use of domestic regulations.[45] While it is not impossible for these regulations to be tailored to favour enterprises originating from PTA partners, it

may be costly to do so and becomes even more difficult as the number of PTAs to which a country is a signatory increases. Transparency, and in particular the obligation to publish laws promoting competition, provides information that is available to PTA and non-PTA members alike.

Competition policy chapters typically mandate the application of competition law and the establishment of a competition authority. To the extent that enforcement of competition law in a country reduces the market power of domestic incumbents, all foreign enterprises that operate in the market stand to benefit, regardless of whether or not they are from a PTA member. Competition policy obligations also provide opportunities for new foreign entrants (either from PTA or non-PTA members) to challenge domestic incumbents.

Finally, positive benefits (spillovers) may arise from competition provisions, particularly if they are contained in regional rather than bilateral agreements (Dawar and Holmes, 2010). Economies of scale can be realized from the creation of a regional competition authority. Even if no centralized authority is established, beneficial spillovers can result from information sharing and cooperation among enforcement authorities. There can also be demonstration effects in other jurisdictions, when a competition authority in one PTA member takes action against another for anti-competitive behaviour. Eventually, more common competition norms and practices within a PTA will prevent regulatory arbitrage, where enterprises locate in a jurisdiction in the PTA with relatively lax competition policy.

3. Production networks and deep PTAs

In this section of the report, we turn to the role of international production networks in encouraging the establishment of "deep" PTAs that go beyond reducing tariffs. The econometric results show that greater trade in parts and components is associated with the greater depth of newly signed agreements among PTA members. In addition, the analysis shows that the greater the depth of an agreement, the bigger the increase in trade among PTA members. To complement this analysis, we examine two case studies from different regions of the world: ASEAN (Association of Southeast Asian Nations) and Costa Rica. These provide useful insights into the link between production networks and the process of creating a PTA.[46] The intention is to document the growth of trade in parts and components as well inflows of foreign direct investment during the period leading up to the conclusion of the trade agreement.

(a) Deep integration and production networks: an empirical analysis

The theoretical literature on PTAs reviewed in Section C.2 suggests that the relationship between deep integration and trade goes in both directions. On the one hand, PTAs may stimulate the creation of production networks by facilitating trade among potential members of a supply chain. On the other hand, countries already involved in the international fragmentation of production are willing to sign preferential trade agreements with their partners in order to secure their trading relationships as providers of intermediate goods and services. Moreover, when production networks take place among countries with significant gaps (or differences) in business laws and regulations, deep PTAs are a vehicle for narrowing such gaps and further developing production sharing activity. In this section we will empirically test both directions of causality.

The impact of PTAs on trade has been widely studied.[47] The main conclusion of these studies is that PTAs boost trade among members. The literature on the effects of deep integration, however, is limited. One of the main reasons for this is that difficulties arise in defining and measuring the depth of agreements (see Section C.2). In this section, an attempt will be made to investigate the effects of deep integration on trade with a focus on production networks for the sub-set of agreements analysed in Section D.2.[48]

The depth of an agreement will be defined in terms of coverage and will be captured by two sets of indices. The first group of indices is constructed on the basis of the number of legally enforceable WTO+ and WTO-X provisions included in each agreement. The higher the number of enforceable provisions covered by an agreement, the deeper the agreement. A limitation of these indices is that they give the same weight to each of the areas covered in a PTA, thereby assuming that the potential impact of each provision on production networks is of the same magnitude.

To deal with this problem, another method – known as a principal factors component methodology[49] – will also be used to generate an index capturing the depth of an agreement. This methodology is not theoretically founded but it can be used as a starting point for further research on how to quantify deep integration.

Two alternative indices capturing the depth of an agreement in areas such as competition policy and TBTs are also considered. These indices are also computed in terms of the coverage of provisions, with a higher index score representing increased depth in the relevant area.[50] These particular provisions are chosen for two reasons. First, an existing literature[51] has attempted in-depth analysis and a mapping of the provisions. Secondly, as discussed in Section D.2, areas such as

competition policy and TBT are important in terms of production sharing. The integration of TBT measures makes international fragmentation of production easier by lowering the cost of testing and product certification. Competition policy allows multinational enterprises to take full advantage of cost differences among countries when production is fragmented.

An augmented gravity equation[52] is estimated for 200 countries, using data from 1980 to 2007, in order to investigate the effect of deep integration on production networks. This methodology has been extensively used by economists to test empirically the determinants of trade flows, and in particular to estimate the effect of preferential trade opening on trade flows. Estimating the effects of PTAs on bilateral trade in parts and components using a gravity equation is, however, susceptible to an endogeneity problem.[53] In order to take account of this, the approach used by Baier and Bergstrand (2007) is followed.[54]

Lack of data poses some difficulties in assessing the international fragmentation of production. This is why the empirical literature often draws on proxy measures for production networks. Different approaches have been used to quantify the magnitude and pattern of manufacturing trade directly attributable to production networks.[55] We follow Yeats (1998) and Hummels et al. (2001) and use trade in parts and components to proxy for global production sharing.[56]

Preliminary results show that, as expected, signing a PTA increases production sharing among countries. More specifically, preferential trade agreements increase trade in parts and components by 35 per cent among country members (see column (1) of Appendix Table D.4). In addition, countries that sign deep agreements trade more than countries that sign shallow agreements. In other words, having an additional provision in an agreement will increase trade by almost 2 percentage points on average (see columns (2) (3) and (4) of Appendix Table D.4). Interpreting the magnitude of deep integration when it is measured using principal component analysis is less intuitive, since it is not easy to understand the meaning of a one-unit increase in such an index. However, results show that on average, signing deep agreements increases trade in production networks between member countries by almost 8 percentage points (see column 5 of Appendix Table D.4).

Preliminary evidence also shows that deeper agreements in areas such as TBT measures and competition policy have a positive and significant impact on production networks (see the last two columns of Appendix Table D.4). Including an additional provision in competition policy or TBTs will increase trade by one and three percentage points respectively. Results confirm that TBT integration involving mutual recognition, harmonization of standards and transparency decreases the costs of fragmentation of production. The adoption of competition law and higher levels of cooperation among country members of a PTA also make production sharing more profitable for firms in the countries concerned.

Since the TBT integration and competition policy indices are based on different samples of countries, it is not possible to compare the magnitude of these coefficients in order to determine which policy area is the most important in relation to production networks.

So far, we have considered whether deep agreements increase trade in parts and components. The second question noted at the start of this subsection was whether higher levels of trade in parts and components increase the likelihood of signing deeper agreements. In order to answer this, we follow the literature on the determinants of preferential trade agreements[57] and estimate an equation in which the depth of an agreement is now the dependent variable to be explained and the share of trade in parts and components in total trade is included as an explanatory variable.[58]

Results (see Appendix Table D.5) show that higher levels of trade in parts and components relative to total trade have a positive impact on the depth of an agreement. This effect is still significant after taking account of other PTA determinants, such as the economic similarity between countries and their differences in relative factor endowments.

(b) ASEAN: from regionalization to regionalism

In Section B of this report, reference was made to the large increase and regional concentration of trade in parts and components in East Asia in recent years. This pattern is consistent with the findings of Ando and Kimura (2005) and Kimura et al. (2007) for a broader class of products which they termed "machinery industries".[59] The authors link the large share of these products in the trade of East Asian countries to the rise of international production networks in the region.

International production networks are not, of course, unique to East Asia. It is possible to identify such networks in North America (involving American firms and Mexican *maquiladoras*) and in Europe (featuring, for example, German car companies and Hungarian and Czech affiliates). However, there are at least three factors that make the East Asian networks distinctive (Ando and Kimura, 2005). First, countries' manufacturing activities and international trade are more intertwined. Secondly, the networks involve a large number of countries at different levels of income. Thirdly, the networks include both intra-firm and arm's length relationships.

ASEAN was established in 1967 largely to deal with rising territorial tensions among some of its members (the original signatories were Indonesia, Malaysia, Philippines, Singapore and Thailand), and with possible spillovers from the conflict in Indochina. As a result, economic

cooperation did not appear to be a priority until 1977, when a partial-scope PTA was established. However, the scheme only had a limited impact because of long exclusion lists and low preference margins (Cuyvers and Pupphavesa, 1996). It was not until 1992 that formal economic cooperation took a significant step forward when the members decided to create a free trade area. The initial goal was to reduce tariffs between member countries to a range of 0 to 5 per cent within 15 years, but that horizon was subsequently shortened to ten years.

In the quarter of a century that spanned the creation of the association and the decision formally to establish a free trade area, a shift occurred in economic policy from traditional import substitution to export promotion and openness to FDI. Total merchandise exports of the five original members expanded from US$ 8.9 billion in 1967 to US$ 357 billion in 1992 (see Table D.4). In particular, exports of parts and components became increasingly important, rising from about 2 per cent of total exports in the year of the Association's founding to 17 per cent by the time the free trade agreement was signed.

Equally telling was the increased prominence of parts and components in intra-regional trade. In 1967, parts and components made up less than 2 per cent of intra-regional trade and by 1992 accounted for nearly 18 per cent of such trade (see Figure D.19).

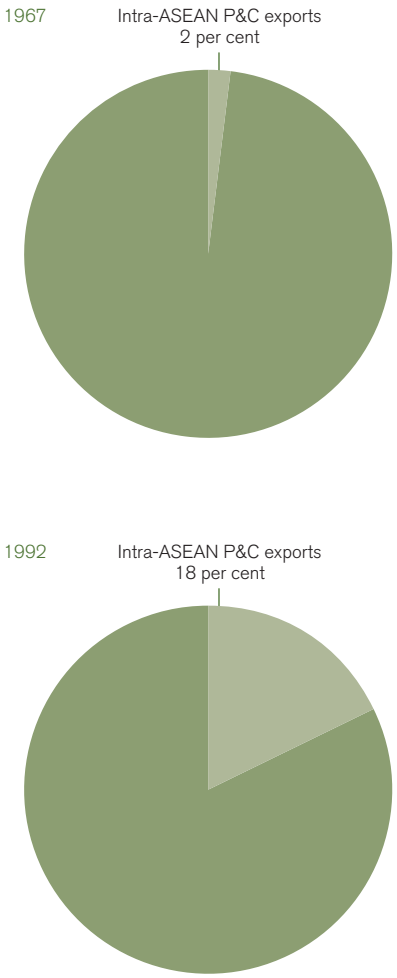
In their description of East Asian production networks, Ando and Kimura argued that Japanese firms had a large role in the development of these networks. They note that by 2000 as many as 80 per cent of the Japanese firms going abroad had at least one affiliate in East Asia, and 54 per cent of the foreign affiliates of Japanese firms were located in East Asia (Ando and Kimura, 2005).

Complementary data from the Japanese External Trade Organization (JETRO) show the large flow of Japanese FDI to the original five ASEAN members. Between 1967 and 1992, Japanese FDI to these five countries averaged about 15 per cent of all its outflows and 30 per cent of all Japanese FDI to developing countries.[60] Taking into account all sources of FDI, annual inflows to the five ASEAN countries grew significantly during this period, starting from less than a billion dollars in 1970 to reach nearly US$ 13 billion in 1992. These flows represented a large share of all FDI going to developing countries, averaging more than one-fifth during the 1970s and remaining above one-sixth in the 1980s (see Figure D.20).

While the increased regionalization of trade in parts and components would not have been possible without ASEAN's openness to trade and foreign investment, this may not have been sufficient for production networks to flourish. Production networks require low trade costs. They also require predictability in economic policy. Even if tariffs were being lowered by ASEAN countries, trade costs could still be a problem because of inadequate infrastructural services (such as transportation and telecommunications) or bureaucratic red tape.

As production networks expand, they result in greater economic integration. Differences in legal systems and economic institutions among countries in such areas as product and services standards, intellectual

Figure D.19: **Share of parts and components in intra-regional trade**



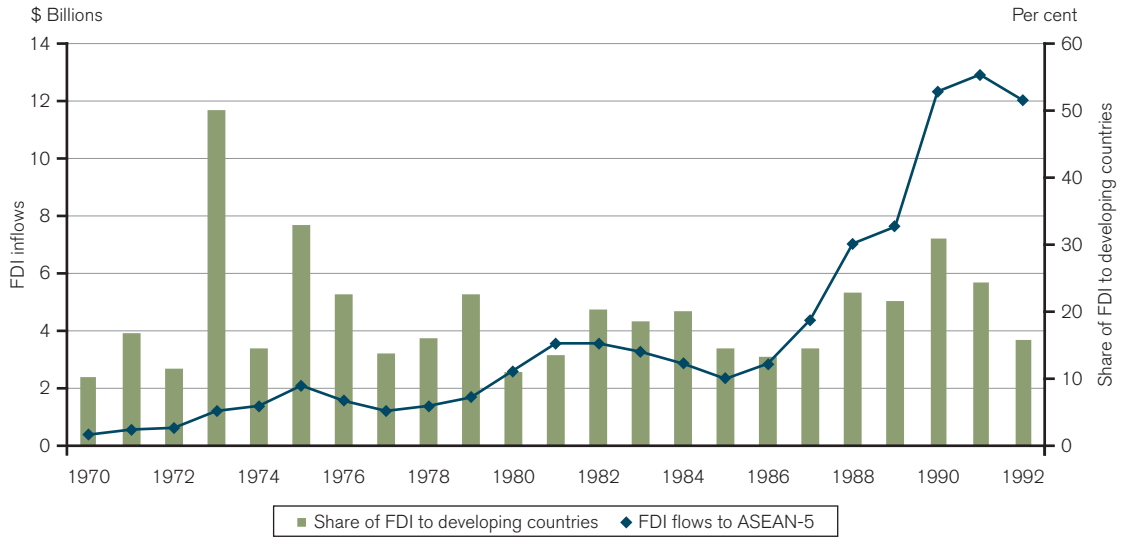
Source: Calculations using UN Comtrade data.

Table D.4: **ASEAN-5 exports, 1967-92**
(Million dollars)

Year	Parts and components exports	Total exports	Share (per cent)
1967	154.9	8,867.0	1.7
1970	235.1	12,213.7	1.9
1980	3,905.2	135,657.5	2.9
1990	38,562.2	276,095.8	14.0
1992	60,637.9	356,829.4	17.0

Source: Calculations using UN Comtrade data.

Figure D.20: **FDI flows to ASEAN-5 and as share of FDI to developing countries, 1970-92**



Source: UNCTAD FDI database (see http://unctadstat.unctad.org/).

property rights protection, investment protection, and access to dispute settlement mechanisms become more critical as a potential hindrance to production sharing. To keep the momentum of production networks going, countries increasingly needed to turn their attention to policies beyond tariff reduction.

Two recent papers by Pomfret and Sourdin (2009 and 2010) substantiate this view of the role played by the ASEAN free trade area. They maintain that ASEAN countries used their PTA as a vehicle for concerted trade facilitation and that the driving force behind these policies was the emergence of international production networks and the desire of ASEAN governments to increase the efficiency of these arrangements. Progress in reducing trade costs through improved customs administration and other facilitation measures benefits all trade and so gains accrue to members and non-members alike. It is therefore possible to use trade costs between ASEAN members and countries who are not parties to the PTA (such as Australia) to measure the impact of ASEAN's trade facilitation initiatives.

Pomfret and Sourdin find that the simple average *ad valorem* trade costs associated with the ten ASEAN countries' exports to Australia declined from 10.3 per cent in 1990 to 3.9 per cent in 2007, which was much more pronounced than the drop in the global average. The results are similar if data from other countries such as the United States or Brazil were used instead. The authors note that most of the observed reduction in trade costs relative to the global average occurred before 2002, when ASEAN was constructing its free trade area and there was little global movement towards implementing trade facilitation measures.

Another important element that may have played a role in the creation of regional rules and institutions was the expansion of ASEAN's membership. In the 1990s, four new members, Cambodia, Lao PDR, Myanmar and Viet Nam, acceded to the organization.[61] The economies of the new members were different from the older members both in terms of their stage of development and their market orientation. Lao PDR and Viet Nam were socialist economies and Cambodia was just emerging from a long civil war. With the exception of Myanmar, none were GATT/WTO members at that time.

The ASEAN Free Trade Area in 1992 was only the start of the PTA process. It was followed by services and intellectual property agreements in 1995, an investment agreement and dispute settlement mechanism in 1996, and a framework agreement on mutual recognition arrangements for standards in 1998. In sum, the trajectory followed by the ASEAN PTA process began with the regionalization of trade and production and culminated with the creation of formal regional rules and institutions to oversee a thriving and integrated regional economy.

The focus of this discussion on production networks and ASEAN is not intended to suggest that regionalism in South-East Asia is only about trade. As noted previously, the Association was partly intended to manage territorial disputes among some of its founding members and to contain any fallout from the war in Indochina. With respect to these goals, the Association has outdone even its most optimistic expectations. The region has been largely free of major conflict since the end of the war in Indochina. The organization has played a key role in managing big-power rivalries in East Asia. It has arguably facilitated the integration of Cambodia, Lao PDR and Viet Nam into the international community. Both Cambodia and Viet Nam are now members of the WTO

and among the fastest growing developing economies. Lao PDR is in the process of accession to the WTO. As is the case of other successful models of regional cooperation, the creation of regional public goods has also produced global benefits.

(c) Costa Rica

Production networks are often associated most closely with the Asia-Pacific region and Eastern Europe. Countries from other regions, however, may also be involved in international production networks where they also play a part in the process of PTA formation.

Monge-Ariño (2011) provides an insightful account of Costa Rica's trade policies over the past few decades. The country has managed to combine an active agenda in multilateral trade negotiations at the WTO with the negotiation of several preferential trade agreements. Its trade opening started in the mid-1980s with the unilateral reduction of import tariffs and continued with the accession to the GATT in 1990. Further trade opening resulted from the Uruguay Round (concluded in 1994) as well as from PTAs negotiated with Mexico, Chile, the Dominican Republic, Canada, the Caribbean Community (CARICOM), Panama, the United States, China, Singapore and the EU (see Table D.5). In addition, negotiations for a PTA with Peru began in 2010 and negotiations for a PTA with South Korea are anticipated to begin in 2011. Costa Rica's policy of trade opening has been accompanied by a strong emphasis on attracting FDI, particularly in high-tech manufacturing and services activities.

These policies resulted in significant changes in the structure of Costa Rica's exports, leading to a substantial rise in the share of manufacturing exports as well as trade in services in total exports, and a decrease in the dependence of the Costa Rican economy on traditional export commodities, such as coffee and bananas (Echandi, 2006). Costa Rica also saw an increase in its participation in international production networks, with 43 per cent of its total merchandise exports in 2009 directly related to five main supply chains: electronics, medical devices, automotive products, aeronautic/aerospace products and film/broadcasting devices (Monge-Ariño, 2011).

One of the pivotal moments in Costa Rica's involvement in international production networks came with the decision by Intel in 1996 to establish a US$ 300 million semiconductor assembly and test plant in the country (World Bank, 2006). The variety of goods and services produced in Costa Rica and exported as part of these networks is relatively wide for an economy of Costa Rica's size. They range from computer parts and medical equipment to parts for cars and airplanes, and services such as the design of turbines for airplanes and the first ever plasma-propelled engine for space shuttles.

The overall average for the domestic component of exports associated with production networks was 36 per cent in 2009, ranging from 72 per cent in aeronautics/aerospace to 22 per cent in electronics (Monge-Ariño, 2011). The joint contribution of labour and capital to the domestic component of exports was 40 per cent in 2009, while locally provided services and supplies accounted for almost one-sixth and one-tenth,

Table D.5: **Costa Rica's preferential trade agreements**

PTA	Current partners	Entry into force
CACM	El Salvador, Guatemala, Honduras, Nicaragua	23 September 1963
Costa Rica – Mexico	Mexico	1 January 1995
Costa Rica – Chile	Chile	15 February 2002
Costa Rica – Dominican Republic	Dominican Republic	7 March 2002
Costa Rica – Canada	Canada	1 November 2002
Costa Rica – CARICOM	Trinidad & Tobago	15 November 2005
	Guyana	30 April 2006
	Barbados	1 August 2006
Costa Rica – Panama	Panama	24 November 2008
CAFTA-DR-US	United States, El Salvador, Guatemala, Honduras, Nicaragua, Dominican Republic	1 January 2009*
Costa Rica – China	China	**
Costa Rica – Singapore	Singapore	**
AACUE	EU – 27	***

* This date refers to when the agreement entered into force for Costa Rica.
** Negotiation finished in early 2010 and submitted for legislative approval; entry into force expected in 2011.
*** Negotiation completed in early 2010; legal "scrubbing" is expected to be completed in early 2011.

Source: Monge-Ariño (2011).

respectively. The contribution of capital is more significant in the electronics sector, while the respective contributions of labour and locally provided services are more significant in the aeronautic/aerospace sector.

The link between production networks and PTAs seems apparent in Costa Rica's agreements with the United States (United States-Dominican Republic-Central America Free Trade Agreement) and with China.[62] The share of parts and components in total trade, a customary indicator of production sharing, rose rapidly with both countries between 1995 and 2008. While total two-way trade with the United States grew by about 11 per cent annually, Table D.6 shows that parts and components trade expanded at about twice that rate.

Along with the strong trade performance between the two countries, US FDI flows rose more than eighteen-fold between 1982 and 2008, from US$ 142 million to US$ 2.6 billion (see Figure D.21). As a consequence, Costa Rica's share of US FDI to Central America[63] climbed from less than 3 per cent in 1982 to about 20 per cent in 2008.

Turning to Costa Rica's links with China, two-way trade grew by an annual average rate of nearly 30 per cent between 1995 and 2008, while trade in parts and components grew at more than twice that rate (see Table D.7). Overall, trade in parts and components now make up about half of Costa Rica's trade with China.

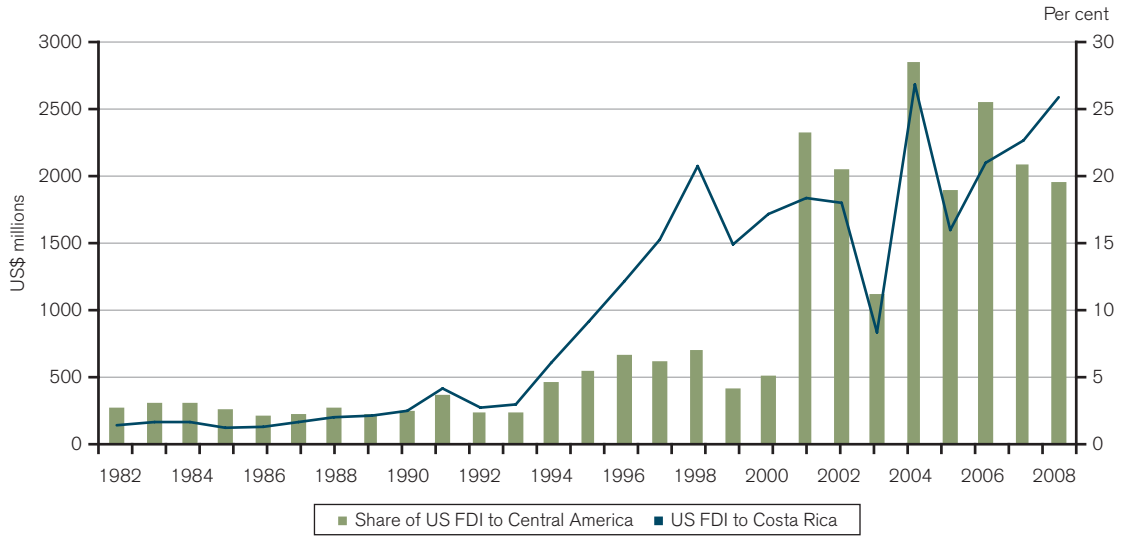
These facts are consistent with the explanation that Costa Rica's participation in international production networks was an important trigger for its trade agreements with the United States and China.

Table D.6: **Costa Rica's two-way trade with the United States, 1995-2008** (Million dollars)

Items	1995	2008	Average annual growth (Per cent)
Parts & components	209.3	2,600.6	21.4
All merchandise goods	2,537.6	9,571.4	10.8
Share of parts and components (%)	8.2	27.2	

Source: UN Comtrade.

Figure D.21: **Costa Rica's share of US FDI flows to Central America, 1982-2008**



Source: US Department of Commerce, Bureau of Economic Analysis.

Table D.7: **Costa Rica's two-way trade with China, 1995-2008** (Million dollars)

Items	1995	2008	Average annual growth (Per cent)
Parts & components	1.1	694.2	64.2
All merchandise goods	50.1	1,478.4	29.7
Share of parts and components (%)	2.2	47.0	

Source: UN Comtrade.

4. African regional cooperation: lessons from deep integration?[64]

Not all PTAs are prompted by international production networks and the trend towards deep integration. African regional cooperation is a case in point. Deep integration may nevertheless hold some useful lessons that can increase the returns from the process of African integration. Much of the subsequent discussion will refer to the experience of Sub-Saharan Africa. Hence it is essential not to lose sight of efforts by countries in North Africa to integrate with one another or with the rest of the continent. Efforts at integration in North Africa include the Agadir agreement (of which Jordan, a Middle Eastern country, is also a member) and the Arab Maghreb Union (AMU), which was created as the North African building block of the continent-wide African Economic Community.

The geopolitical configuration of Africa has been largely determined by the political forces of colonialism. The borders of African countries demarcated the colonies of the European powers, not the emergence of nation states in Africa. A fragmented continent is the result, with small markets, small economies, and a large number of landlocked countries significantly limiting development options. Fragmentation is associated with the lack of economies of scale in the production and distribution of goods and services and the impact of scale on the cost of public goods. In the early years of independence, attention focused strongly on the need to overcome the problems of scale and fragmentation. Continental economic and political unification was accepted as a rational response in order to create a larger economic space for industrialization and economic development.

This was an era of economic planning, and Africa's leadership believed that economic planning would be more practicable at a regional, and ultimately continental, level. Underpinning this policy approach was the conviction that the path to development would be industrialization, and diversification away from reliance on primary commodity production. The industrialization-regional integration links were clear. A larger, protected market would provide the space for viable industrialization to replace certain imports. This was at the time a well-accepted strategy for developing countries. The aim was to establish a broad range of industries across different sectors. Economic unification was seen as a solution to Africa's development dilemma, and political unification was required to make economic integration work. More recent experience has confirmed that political considerations are also key drivers of many African integration arrangements. However, even in these cases, regional integration remains a political arrangement that must be justified in economic terms.

The ambition of regional economic integration and the commitment to develop through industrialization were important during the first decades of independence, and this provided the motivation for the Lagos Plan of Action (LPA). The LPA was an initiative of the Organisation of African Unity (OAU), adopted by Heads of State in April 1980, and actively supported by the United Nations Economic Commission for Africa (ECA).

The LPA emphasized the expected contribution of industrialization and the 1980s became the "Industrial Development Decade in Africa". The proposed framework for industrialization was the division of the continent into regional integration areas that would eventually constitute a united African economy, the African Economic Community. To achieve this, the ECA supported three regional integration arrangements: i) the Economic Community of West African States (ECOWAS), which was established in 1975, predating the LPA; ii) the Preferential Trade Area (PTA) covering East and Southern Africa, which was the precursor of the Common Market for Eastern and Southern Africa (COMESA); and iii) the Economic Community of Central African States (ECCAS). The Arab Maghreb Union was established in 1989, completing the coverage of the continent.

Apartheid South Africa was at this stage still excluded from the African integration plan. The Southern African Development Coordination Conference (SADCC) was established in 1980, supported by the European Union, with the specific aim of reducing economic dependence on South Africa. SADCC was not a market integration arrangement. Its broad development mandate focused on regional cooperation to ensure independence from South Africa for countries that were known as the frontline states.[65] As such, SADCC focused on cross-border, sector-specific projects, such as regional development corridors and the Southern African Power Pool.

In anticipation of South Africa's democratic transition, SADCC was transformed into the Southern African Development Community (SADC) in 1992. South Africa joined SADC in 1994, thus becoming part of the continental integration plan. In contrast to SADCC, SADC adopted an explicit market integration agenda and is a good example of a linear model of progressive integration in Africa. Although the SADC Treaty (and subsequently the SADC Trade Protocol) does not articulate a detailed plan for integration, the detail was provided in the Regional Indicative Strategic Development Plan of 2003. This strategic plan provides for the establishment of a free trade area by 2008, a customs union in 2010, a common market in 2015, monetary union in 2016 and the introduction of a single currency in 2018.[66] This approach was also adopted by the East African Community (EAC), established in 1999[67] and also by ECOWAS in West Africa. Progress in ECOWAS to establish a free trade area has been very slow and the customs union is still work in progress.

The SADC roadmap and the EAC integration plan reflect the general trend in Africa to adopt a linear model of progressive regional integration, characterized by ambitious targets. Of 14 regional economic

communities that existed in 2001, nine have a full economic union as the specified objective, one aims to become a common market (COMESA), one is an established customs union (the South African Customs Union) with no plans to move beyond this, while the remaining three aim for intra-regional free trade or regional cooperation. These agendas share the aim of transforming the African economic landscape and establishing "a strong united bloc of nations" over a period of just more than three decades.

An important step in this process requires the strengthening of the building blocks of regional economic communities. This involves an evolutionary process, moving from free trade areas and customs unions to a common market covering the continent (Economic Commission for Africa, 2004). The member states of COMESA, SADC and the EAC have undertaken recent commitments to establish a Tripartite Free Trade Area consisting of the 26 member states of these agreements. This is seen as an important step in addressing the problem of overlapping membership, a key feature of African regional integration agreements.[68]

African regional integration focuses primarily on reducing barriers to trade in goods. Trade in services becomes a feature of the regional integration model when the common market stage is reached, but to date services have received very little attention in formal African integration arrangements. This is also true of forays by African countries into preferential trade agreements with external partners. The inclusion of services (and also other behind-the-border issues, such as investment, competition policy and government procurement) has proven contentious.

Africa's regional integration initiatives have achieved limited results, raising doubts about the approach adopted to addressing factors that inhibit regional trade. Barriers to trade that raise the costs of doing business can be classified as border or behind-the-border measures. African regional free trade arrangements have focused on border measures, and primarily on tariffs. Tariffs are undeniably an important barrier but they may not be the most important one.

Abundant anecdotal evidence suggests that time-consuming and inefficient border procedures may be more important than tariffs in inhibiting intra-regional trade. Multiple border crossings for goods to reach land-locked countries add significantly to the transaction costs of intra-regional trade. Many other constraints besides border barriers increase the transaction costs of trade. Geography is an important consideration. Given the limited availability of navigable inland waterways and the cheap transport this allows, the logistical costs of trade in goods are high. This is exacerbated by poorly developed transport systems, characterized by low per capita densities of rail and road transport infrastructure, which in colonial times was designed to transport primary products to port. Poorly developed cross-country road, air and rail connections are the outcome (McCord et al., 2005).

Transport costs in Africa are still among the world's highest. For example, shipping a car from Japan to Abidjan costs US$ 1,500 whereas the comparable cost for transporting the same car from Addis Ababa to Abidjan would be US$ 5,000 (Economic Commission for Africa, 2004). Both infrastructural and regulatory forces are at work. Overall, the high cost and unreliability of transport services contribute to a business environment in which firms are forced to keep higher levels of inventories, ruling out the possibility of adopting cost-saving management systems for "just in time" production (Collier, 2000).

The lack of skills and capital to establish and operate modern communication systems, combined with small business communities that do not allow financially viable business publications, mean that business news and information required for informed decision-making is another important constraint.[69] Fixed-line telephone services are limited and unreliable, with high call charges, especially for international calls. In most African economies the provision of fixed-line phone services is still the exclusive preserve of public monopolies. Business contracts require information on comparative prices and depend on reliable, fast and low-cost access to market information. Information is essential to efficient market outcomes, and a lack of readily available information at reasonable cost will raise trade transaction costs. Although these barriers also constrain trade with the rest of the world, their impact on intra-regional trade is particularly important.

The barriers discussed so far feature strongly on the demand side of intra-regional trade. These demand-side factors, however, may arguably be much less important than the weak supply-side capacity of African economies. Indeed, it may be argued that the real problem facing African economies is not market access (border constraints) but rather the capacity to produce tradable products competitively.

Expanding market access by lowering the transaction costs of trade is necessary, but will not guarantee economic growth and development. Enhanced market access without the capacity to produce goods and services to benefit from those opportunities will fail to produce higher economic growth. Effective supply-side capacity depends on sound macroeconomic and microeconomic policies, good governance, well-developed institutional capacities, adequate infrastructure and a sound business environment capable of attracting investment.

Supply-side constraints to efficient production could be partly addressed by a deep regional integration agenda. No single, ready-made recipe exists for effective deep regional integration. Among the factors relevant to Africa are integration of services markets, trade facilitation, improved market intelligence, dispute settlement mechanisms, revenue systems less dependent on trade taxes, funding for cross-border

infrastructure, and financing for regional institutions (Lamy, 2010). Development partners and international institutions could assist this process by recognizing that the emergence of regional groupings is relevant to the planning and implementation of development assistance. The WTO, for its part, is progressively regionalizing its Trade Policy Reviews and is now encouraging the regionalization of Aid for Trade, which aims to help developing countries develop the trade-related skills and infrastructure needed to implement and benefit from trade agreements and to expand their trade.

5. Conclusions

While not discounting other explanations for PTAs, a central focus of the literature on this subject has been on preferential tariffs. As a consequence, much of the economic analysis of the effects of PTAs has concentrated on the trade-creation and trade-diversion impacts of discriminatory access to individual markets.

The analysis in this section demonstrates that PTAs are not only about lowering tariffs. Ample evidence shows that commitments in PTAs cover a large number of non-tariff policy areas and have become deeper. As far as tariffs are concerned, the proliferation of PTAs has eroded preference margins over time. If tariff-related reasons do weigh with countries engaged in negotiating PTAs, they may be more concerned with avoiding negative discrimination than securing preferential tariffs. Furthermore, there is evidence – both statistical and through case studies – of a role for production networks in PTA formation.

Two important conclusions follow from the analysis in this section. First, research needs to focus increasingly on the reasons for establishing PTAs that go beyond the reduction of tariffs. Secondly, further reflection is needed on the implications for the multilateral trading system of deeper integration in PTAs. This and other questions bearing on coherence between PTAs and the multilateral trading system are the subject of the next section of this report.

Endnotes

1 See World Trade Organization (WTO) (2007).

2 Starting from a theoretical model of intra-industry trade, Anderson and van Wincoop (2003) derived a gravity-type reduced form equation for the bilateral trade between two countries, where trade between two countries depend on their gross domestic products (GDPs) and their relative trade costs. In particular, they show that in a theoretically founded gravity equation, trade between two countries, A and B, where A is the importer and B is the exporter, depends not only on their bilateral trade costs, but also on the overall level of barriers that exports of country B face in the rest of the world, and the overall level of restriction to imports that country A imposes on the rest of the world.

3 A similar approach has been used by Hoekman and Nicita (2008) and Carrère et al. (2008).

4 The estimate is based on a standard gravity model augmented by the RPM index.

5 Recall that over 70 per cent is traded at an MFN rate below 5 per cent and less than 15 per cent of trade shows relative preference margins greater in absolute values than 2 per cent.

6 See Kuijper (2010).

7 See Hsu (2006).

8 See Kuijper (2010).

9 See Hsu (2006).

10 See van Damme (2006).

11 See Kwak and Marceau (2006); Hillman (2009).

12 See Kwak and Marceau (2006).

13 See Horn et al. (2010).

14 ASEAN-China and MERCOSUR-India.

15 This figure is current as of 1 March 2011, counting notifications for agreements that are currently in force.

16 The four modes for supplying services under GATS include cross-border trade (mode 1), consumption abroad (mode 2), commercial presence (mode 3), and temporary movement of natural persons (mode 4).

17 Examples of agreements using the GATS approach include, for example, MERCOSUR and AFAS (ASEAN Framework Agreement on Services).

18 The rest of the agreements notified under GATS Article V are agreements that do not easily fit into the GATS-type or negative-list categories since they aim at deep regional integration, such as agreements between the EU and EU candidate countries.

19 Most United States PTAs, including all those notified after 2003, do not include a separate chapter on temporary entry for business persons.

20 For example, a number of more recent agreements have used negative-list modalities for a market access obligation modelled on GATS Article XVI that applies to all modes of supply. In NAFTA, there is no binding obligation along the lines of GATS Article XVI, while in GATS-type agreements such obligations apply on the basis of a positive-list approach. See Roy et al. (2007).

21 See Mattoo and Sauvé (2010).

22 For original WTO members, these are the commitments made in the period 1995-97.

23 See Roy et al. (2007) and (2008); Marchetti and Roy (2008b), Fink and Molinuevo (2008a) and (2008b), Miroudot et al. (2010).

24 On that see Mattoo and Wunsch-Vincent (2004).

25 See Roy et al. (2007).

26 Figures in this section rely on an extension of the dataset used in Roy et al. (2007), Roy et al. (2008), and Marchetti and Roy (2008b). It covers 68 PTAs involving 53 WTO members (counting the EU-15 as one). The list of WTO members (and their acronyms) and the set of services agreements covered can be found in Appendix Tables D.2 and D.3 respectively. This includes PTAs notified under Article V of the GATS between 2000 and 2010, as well as a few PTAs that have been signed, but have not yet entered into force and been notified. For each party to each PTA, the commitments undertaken for market access and national treatment in each service sub-sector have been compared to those undertaken in the GATS and those proposed in the most recent GATS offer in the DDA. The dataset covers mode 1 (cross-border supply) and mode 3 (commercial presence), and looks at commitments that are GATS+. Further information on the data can be found at: http://www.wto.org/english/tratop_e/serv_e/dataset_e/dataset_e.htm

27 See Marchetti and Roy (2008b).

28 As noted previously, a negative list identifies sectors or modes in respect of which commitments do not apply, while a positive list approach does the reverse.

29 See Fink and Molinuevo (2008b), Roy et al. (2007).

30 For the impact of regime type on PTAs, see, among others, Mansfield et al. (2008). Roy (2010) looks at the impact of democracy on levels of GATS commitments.

31 See, for example, Chaudhuri and Karmakar on various business services, Zhang on postal and courier services, Marchetti on financial services, Roy on audiovisual and distribution services or Tuthill on telecommunication services in Marchetti and Roy (2008a). Commitments on education and professional services, among others, are also examined in Roy et al. (2008).

32 See Carzaniga (2008).

33 See Stephenson and Delourme, (2010). See also Sauvé and Ward (2009) on the EU's mode 4 commitments in the PTA with the CARIFORUM.

34 See Miroudot et al. (2010); Fink and Molinuevo (2008b) .

35 See Adlung and Molinuevo (2008), Berger et al. (2010).

36 See Adlung and Morrison (2010).

37 See UNCTAD (2010).

38 See http://www.unctadxi.org/templates/Page____1007.aspx.

39 Houde et al. (2007) refers to the former as "GATS-inspired" agreements and to the latter as "NAFTA-style" agreements.

40 An alternative to the total number of provisions is a method that "scores" the various provisions in the investment chapter for the committed degree of openness. See for example Dee et al. (2006).

41 Additional information has been collected on the existence of mutual recognition arrangements.

42 See Rauch and Trindade (2002) for an assessment of the importance of information costs for trade.

43 See Collins and Rodrik (2000).

44 The extraterritorial application of competition policy may raise sovereignty concerns. States may prefer engagement in this area through discussion and political negotiation. Another possible explanation for these carve-outs from dispute settlement is that competition provisions are new to some PTA members, particularly developing countries. While developing countries might be willing to accept competition policy provisions (e.g. implement competition law, establish a competition authority, or act on anti-trust and abuse of dominant position), they may be uncertain about how quickly or how successfully they can fully implement these commitments.

45 See the analysis in Section C which demonstrates why, under certain conditions, trade-diversion effects are absent when regulatory barriers are removed in PTAs.

46 See Ravenhill (2009) and Ravenhill (2010) for a sceptical take on this interpretation of East Asian integration. He argues that the primary motivation for trade agreements in East Asia has been to secure diplomatic or strategic gains.

47 See studies such as Baier and Bergstrand (2007), Silva and Tenreyro (2006), Soloaga and Winters (2001), Ghosh and Yamarik (2004), Aitken (1973), Bertstrand (1985), Frankel (1997) and Frankel et al. (1995).

48 This analysis draws on Orefice and Rocha (2011) (forthcoming).

49 Principal component analysis is a mathematical procedure that orthogonally transforms a number of possibly correlated variables – in our case the different provisions included in an agreement – into a number of uncorrelated variables called principal components. The transformation is defined in such a way that the first principal component accounts for the highest level of variability in the data. Each succeeding component in turn has the highest variance possible under the constraint that it be orthogonal (that is, uncorrelated) to the preceding components.

50 For details on how the index on TBTs has been constructed see Section D.2. The index on competition policy is built as the unweighted sum of three different elements. The first element focuses on the general objectives of an agreement. This element takes the value of one whenever these objectives promote and advance conditions of fair competition between parties or establish cooperation between them in this field and zero otherwise. The second element represents the count of the total number of competition related provisions that are present both in the competition policy chapter and in other sections of an agreement such as investment and services. The third element counts the number of horizontal principles such transparency, non-discrimination and procedural fairness that are included in the agreement.

51 See Teh (2009) and Piermartini and Budetta (2009).

52 Gravity equations are derived from models that seek to explain or predict the relationship between a particular (dependent) variable (in this case bilateral trade in parts and components) and a set of other (independent or explanatory) variables whose values can be estimated (in this case elements of deep integration).

53 Endogeneity arises when an explanatory variable in an equation is correlated with the error term of the equation, and the error term is the unexplained deviation of sample data from their unobservable "true" value. Studies such as Baier and Bergstrand (2007) show that omitted variables, and to a lesser extent simultaneity, are the two most important sources of endogeneity bias caused by PTAs. The omitted variables problem of PTAs arises since the error term may retain the effect of some unobservable country-specific policy variables, which at the same time affect both trade and the probability of forming a PTA. If, for example, the formation of a PTA also induces reforms in trade-restrictive domestic regulation, the likelihood of an FTA is higher (since the expected gains from the FTA are higher), and the omission of the domestic regulation variable will bias the PTA coefficient downwards. A simultaneity problem can arise, for instance, when governments of two countries that trade more than their "natural" level of trade may be induced to form a PTA, as there is less probability of trade diversion. In this case, the PTA coefficients will be upward biased.

54 Specifically we estimate a fixed-effect gravity regression: $\ln(x_{ijt}) = a_{ij} + a_{it} + a_{jt} + \beta_1(PTA_{ijt} * DEEPNESS_{ij}) + \varepsilon_{ijt}$ where x_{ijt} represents the imports in parts and components from country i to country j in time t; α_{ij} are fixed effects capturing country-pair specific variables such as distance or the fact that countries share the same border or the same language; α_{it} and α_{jt} are reporter and partner time specific fixed effects and capture factors such as the size of a country or its multilateral trade resistance. β_1 is the coefficient of our interest and it captures the effect of deep integration on trade. Finally, ε_{ijt} is the error term.

55 For a description of the pros and cons of alternative measures of international fragmentation of production, see World Trade Organization (WTO) (2008), Box 14.

56 For a classification of goods belonging to the category parts and components see Section B.3

57 See papers such as Baier and Bergstrand (2004) and Bergstrand et al. (2010).

58 Specifically we regress the following equation: $DEPTH_{ij} = a + \beta_1(PC\_shr)_{ij} + \beta_2 X_{ij} + \varepsilon_{ij}$ where Pc_shr_{ij} is the average share of trade in intermediates over total trade between countries i and j between 1980 and the year before the agreement is signed and X is a vector of control variables for the economic determinants of PTAs as (i) the economic size of the involved countries (represented by the sum of the logs of real GDP of the two countries, GDPSUM); (ii) the economic similarity between the two countries (represented the log of the product of country i share of both countries' real GDP with country j share); (iii) the difference in the relative factor endowments (represented by the absolute value of the log difference between countries' per capita GDP, GDPDIF); (iv) its square values (SQGDPDIF); (v) distance and (vi) remoteness.

59 Included in this category are industries that manufacture general machinery, electrical machinery, transport equipment, and precision machinery.

60 For this specific calculation, developing countries are defined as all countries less Australia, New Zealand, Canada, the United States, the European Free Trade Agreement (EFTA) members and EC-9 (France, Germany, Italy, United Kingdom, Ireland, Denmark, Belgium, Luxembourg and Netherlands).

61 Viet Nam did not become a member until 1995. Lao PDR and Myanmar became members in 1998; while Cambodia became a member in 1999.

62 One cannot, of course, discount the possibility that other motivations may have also played a role. Griswold and Ikenson (2004), for instance, have argued that the CAFTA-DR-US agreement enhances important US foreign policy goals in a region that has experienced severe civil strife in the recent past.

63 Central America includes Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

64 This discussion is based on Hartzenberg (2011).

65 Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe.

66 The free trade agreement adopted in 2008 has not yet been fully implemented and at a ministerial task force meeting in March 2010 it was decided to postpone the establishment of the customs union, without committing to a specific deadline.

67 The EAC was founded when the presidents of Kenya, Tanzania and Uganda signed the Community's treaty in 1999. Burundi and Rwanda have since joined the EAC. A protocol to prepare the way towards a customs union was signed in March 2004, and a common market protocol was signed in June 2010. The current EAC is a revival of an earlier post-independence arrangement, also the East African Community, which was initiated by the East African Treaty for Cooperation signed in 1967. This EAC collapsed in 1977.

68 A tripartite summit of the Heads of State and Government of COMESA, SADC and EAC countries was held in Kampala, Uganda, on 22 October 2008. The Summit approved the expeditious establishment of a free trade area encompassing the member states of the three agreements. Integrating the three regional communities is seen as an important step in building the African Economic Community envisaged in the Abuja Treaty.

69 Collier and Venables (2008) make the point that large societies can be better informed than small societies because of the existence of scale economies in the commercial media. They mention that in Africa only "South Africa comes anywhere close to providing a market in which specialist journals are viable".

Appendix tables

Appendix Table D.1: **List of PTAs and results of HMS mapping**

PTA	Date of entry into force	Member	Number of provisions			
			WTO+	WTO-X	WTO+ Leg. Enf.	WTO-X Leg. Enf.
ANDEAN Community	25-May-88	Developing	4	11	3	3
ASEAN free trade area	28-Jan-92	Developing	2	0	2	0
ASEAN-Australia-New Zealand	01-Jan-10	Developed-Developing	11	8	11	5
ASEAN-India	01-Jan-10	Developing	9	0	8	0
ASEAN-Korea, Rep. of	01-Jan-10	Developing	12	11	11	8
Australia-New Zealand	01-Jan-83	Developed	8	2	6	1
Australia-Singapore	28-Jul-03	Developed-Developing	13	8	12	7
Australia-Thailand	01-Jan-05	Developed-Developing	14	8	13	5
CAFTA-DR-US	01-Mar-06	Developed-Developing	13	6	13	6
CEFTA	01-May-07	Developed-Developing	13	3	13	3
CIS	30-Dec-94	Developing	9	0	9	0
COMESA	08-Dec-94	Developing	10	19	7	4
Canada-EFTA	01-Jul-09	Developed	11	2	10	1
Canada-Peru	01-Aug-09	Developed-Developing	13	7	11	5
Chile-Australia	06-Mar-09	Developed-Developing	13	9	13	6
Chile-China	01-Oct-06	Developing	11	20	8	12
Chile-Japan	03-Sep-07	Developed-Developing	14	6	14	3
Chile-Korea, Rep. of	01-Apr-04	Developing	14	7	13	6
China-ASEAN	01-Jan-05	Developing	6	1	4	0
China-Hong Kong, China	01-Jan-04	Developing	5	3	5	0
China-New Zealand	10-Oct-08	Developed-Developing	13	8	13	8
China-Pakistan	01-Jul-07	Developing	9	2	9	2
China-Peru	01-Mar-10	Developing	12	13	12	2
China-Singapore	01-Jan-09	Developing	10	6	10	4
Common Economic Zone	20-May-04	Developing	12	5	12	2
EAEC	08-Oct-97	Developing	6	8	6	8
EC Enlargement (12)	01-Jan-86	Developed	6	15	6	14
EC Enlargement (15)	01-Jan-95	Developed	6	6	6	5
EC Enlargement (25)	01-May-04	Developed	8	16	8	16
EC Enlargement (27)	01-Jan-07	Developed	9	11	9	11
Treaty of Rome	01-Jan-58	Developed	10	12	10	9
EU-Albania	01-Dec-06	Developed-Developing	11	31	10	8
EU-Algeria	01-Sep-05	Developed-Developing	9	27	8	5
EU-Bosnia Herzegovina	01-Jul-08	Developed-Developing	9	2	9	2
EU-CARIFORUM	01-Nov-08	Developed-Developing	13	14	13	7
EU-Cameroon	01-Oct-09	Developed-Developing	11	5	7	2
EU-Chile	01-Feb-03	Developed-Developing	13	27	13	4
EU-Croatia	01-Mar-02	Developed-Developing	12	29	10	4
EU-Côte d'Ivoire	01-Jan-09	Developed-Developing	8	4	6	0
EU-Egypt	01-Jun-04	Developed-Developing	10	25	9	3
EU-FYR Macedonia	01-Jun-01	Developed-Developing	12	29	10	5

Appendix Table D.1: **List of PTAs and results of HMS mapping** (continued)

PTA	Date of entry into force	Member	Number of provisions			
			WTO+	WTO-X	WTO+ Leg. Enf.	WTO-X Leg. Enf.
EU-Faroe Islands	01-Jan-97	Developed	5	2	5	1
EU-Iceland	01-Apr-73	Developed	6	1	6	1
EU-Jordan	01-May-02	Developed-Developing	13	20	9	5
EU-Lebanon	01-Mar-03	Developed-Developing	8	3	8	2
EU-Montenegro	01-Jan-08	Developed-Developing	11	2	10	2
EU-Morocco	01-Mar-00	Developed-Developing	10	18	9	4
EU-Norway	01-Jul-73	Developed	6	1	6	1
EU-Overseas Territories	01-Jan-71	Developed-Developing	8	17	7	6
EU-Palestinian Authority	01-Jul-97	Developed-Developing	11	20	8	3
EU-South Africa	01-Jan-00	Developed-Developing	10	26	8	2
EU-Switzerland Liechtenstein	01-Jan-73	Developed	6	1	6	1
EU-Syria	01-Jul-77	Developed-Developing	4	4	4	1
EU-Tunisia	01-Mar-98	Developed-Developing	11	20	9	4
EU-Turkey	01-Jan-96	Developed-Developing	10	4	9	3
ECOWAS	24-Jul-93	Developing	7	13	5	3
EFTA-Israel	01-Jan-93	Developed-Developing	9	4	8	2
EFTA-Korea	01-Sep-06	Developed-Developing	13	4	13	4
EU-San Marino	01-Apr-02	Developed	4	3	4	1
EU-Serbia	01-Feb-10	Developed-Developing	9	3	9	2
GCC	01-Jan-03	Developing	5	8	4	4
India-Singapore	01-Aug-05	Developing	11	7	11	5
Japan-ASEAN	01-Dec-08	Developed-Developing	9	10	9	10
Japan-Indonesia	01-Jul-08	Developed-Developing	9	8	9	4
Japan-Malaysia	13-Jul-06	Developed-Developing	10	6	10	5
Japan-Mexico	01-Apr-05	Developed-Developing	12	9	12	9
Japan-Philippines	11-Dec-08	Developed-Developing	11	8	9	5
Japan-Singapore	30-Nov-02	Developed-Developing	12	7	11	3
Japan-Switzerland	01-Sep-09	Developed	12	8	12	7
Japan-Thailand	01-Nov-07	Developed-Developing	9	9	9	4
Japan-Viet Nam	01-Oct-09	Developed-Developing	12	5	12	4
Korea, Republic of-India	01-Jan-10	Developing	14	11	13	4
Korea, Republic of-Singapore	02-Mar-06	Developing	12	9	12	4
MERCOSUR	29-Nov-91	Developing	9	3	9	3
MERCOSUR-India	01-Jun-09	Developing	7	0	7	0
NAFTA	01-Jan-94	Developed-Developing	14	8	14	7
PAFTA	01-Jan-98	Developing	2	0	2	0
Russian Federation-Ukraine	21-Feb-94	Developing	4	1	4	0
SACU	15-Jul-04	Developing	7	4	4	0
SAFTA	01-Jan-06	Developing	4	0	2	0
SADC	01-Sep-00	Developing	11	1	10	0
Turkey-EFTA	01-Apr-92	Developed-Developing	11	2	10	2

Appendix Table D.1: **List of PTAs and results of HMS mapping** (continued)

PTA	Date of entry into force	Member	Number of provisions			
			WTO+	WTO-X	WTO+ Leg. Enf.	WTO-X Leg. Enf.
US-Australia	01-Jan-05	Developed	14	8	14	6
US-Bahrain	01-Aug-06	Developed-Developing	12	4	12	4
US-Israel	19-Aug-85	Developed-Developing	11	0	10	0
US-Jordan	17-Dec-01	Developed-Developing	6	5	5	4
US-Morocco	01-Jan-06	Developed-Developing	14	6	13	6
US-Oman	01-Feb-09	Developed-Developing	13	6	13	6
US-Peru	01-Feb-09	Developed-Developing	14	7	14	7
Ukraine-Belarus	11-Nov-06	Developing	6	1	6	1
Ukraine-Kazakhstan	19-Oct-98	Developing	4	1	4	1
Ukraine-Turkmenistan	04-Nov-95	Developing	4	1	4	1

Source: WTO Secretariat.

Appendix Table D.2: **Acronyms and members**

Acronyms	Member	Acronyms	Member
ARG	Argentina	KNA	Saint Kitts and Nevis
ATG	Antigua and Barbuda	KOR	Rep. of Korea
AUS	Australia	LCA	St. Lucia
BHR	Bahrain	LIE	Liechtenstein
BLZ	Belize	MAC	Macao, China
BRA	Brazil	MAR	Morocco
BRB	Barbados	MEX	Mexico
BRN	Brunei Darussalam	MYS	Malaysia
CAN	Canada	NIC	Nicaragua
CHE	Switzerland	NOR	Norway
CHL	Chile	NZL	New Zealand
CHN	China	OMN	Oman
COL	Colombia	PAK	Pakistan
CRI	Costa Rica	PAN	Panama
DMA	Dominica	PER	Peru
DOM	Dominican Rep.	PHL	Philippines
EC	European Union	PRY	Paraguay
GRD	Grenada	SGP	Singapore
GTM	Guatemala	SLV	El Salvador
GUY	Guyana	SUR	Suriname
HKG	Hong Kong, China	CHT	Chinese Taipei
HND	Honduras	THA	Thailand
IDN	Indonesia	TTO	Trinidad and Tobago
IND	India	URY	Uruguay
ISL	Iceland	USA	USA
JAM	Jamaica	VCT	Saint Vincent and the Grenadines
JOR	Jordan	VNM	Viet Nam
JPN	Japan		

Source: WTO Secretariat.

Appendix Table D.3: **List of services agreements in the database used for this report**

Korea (Rep.)-India	Japan-Thailand	EFTA-Chile
ASEAN-Korea (Rep.)	Chile-Japan	Korea (Rep.)-Chile
ASEAN-Australia-New Zealand	Chile-China	EU-Chile
Honduras-El Salvador-Taipei, Chinese	India-Singapore	Chile-El Salvador
Peru-China	Panama-Singapore	China-Macao, China
Japan-Viet Nam	US-Bahrain	China-Hong Kong, China
Japan-Switzerland	EFTA-Korea (Rep.)	US-Singapore
Chile-Colombia	Costa Rica-Mexico	US-Chile
Canada-Peru	Japan-Malaysia	Singapore-Australia
Panama-Taipei, Chinese	Mexico-Honduras	EFTA-Singapore
Nicaragua-Taipei, Chinese	Jordan-Singapore	Japan-Singapore
China-New Zealand	Mexico-Guatemala	Chile-Costa Rica
Australia-Chile	Mexico-El Salvador	US-Jordan
China-Singapore	Dominican Rep.-Cent. America-USA	New Zealand-Singapore
US-Peru	Korea (Rep.)-Singapore	EFTA-Mexico
US-Oman	US-Morocco	Chile-Mexico
Japan-Philippines	Thailand-New Zealand	EU-Mexico
EU-CARIFORUM	Mexico-Nicaragua	US-Korea (Rep.)
Brunei Darussalam-Japan	ASEAN-China	Mercosur (6th negotiated round)
Japan-Indonesia	Japan-Mexico	ASEAN (7th package)
Panama-Chile	Panama-El Salvador	US-Colombia
Pakistan-Malaysia	Thailand-Australia	US-Panama
Pakistan-China	US-Australia	

Source: WTO Secretariat.

Appendix Table D.4: **The effects of deep integration on production networks**

Dependent variable	Trade in parts and components (log)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
PTAij	0.299***						
	(0.020)						
PTAij* Number of provisions		0.0165***					
		(0.001)					
PTAij* Number of WTO-X provisions			0.0265***				
			(0.002)				
PTAij* Number of WTO+ provisions				0.0310***			
				(0.002)			
PTAij* Principal Component Analysis Index					0.0773***		
					(0.007)		
PTAij* TBT Index						0.0138***	
						(0.001)	
PTAij* Competition Policy Index							0.0308***
							(0.002)
Country pair fixed effects	yes	yes	yes	yes	yes	yes	yes
Country-time fixed effects	yes	yes	yes	yes	yes	yes	yes
Observations	60,473	60,473	60,473	60,473	60,473	27,524	32,733
R-squared	0.328	0.328	0.327	0.327	0.327	0.434	0.414
Number of country pairs	3,485	3,485	3,485	3,485	3,485	1,386	1,657

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: WTO Secretariat estimates.

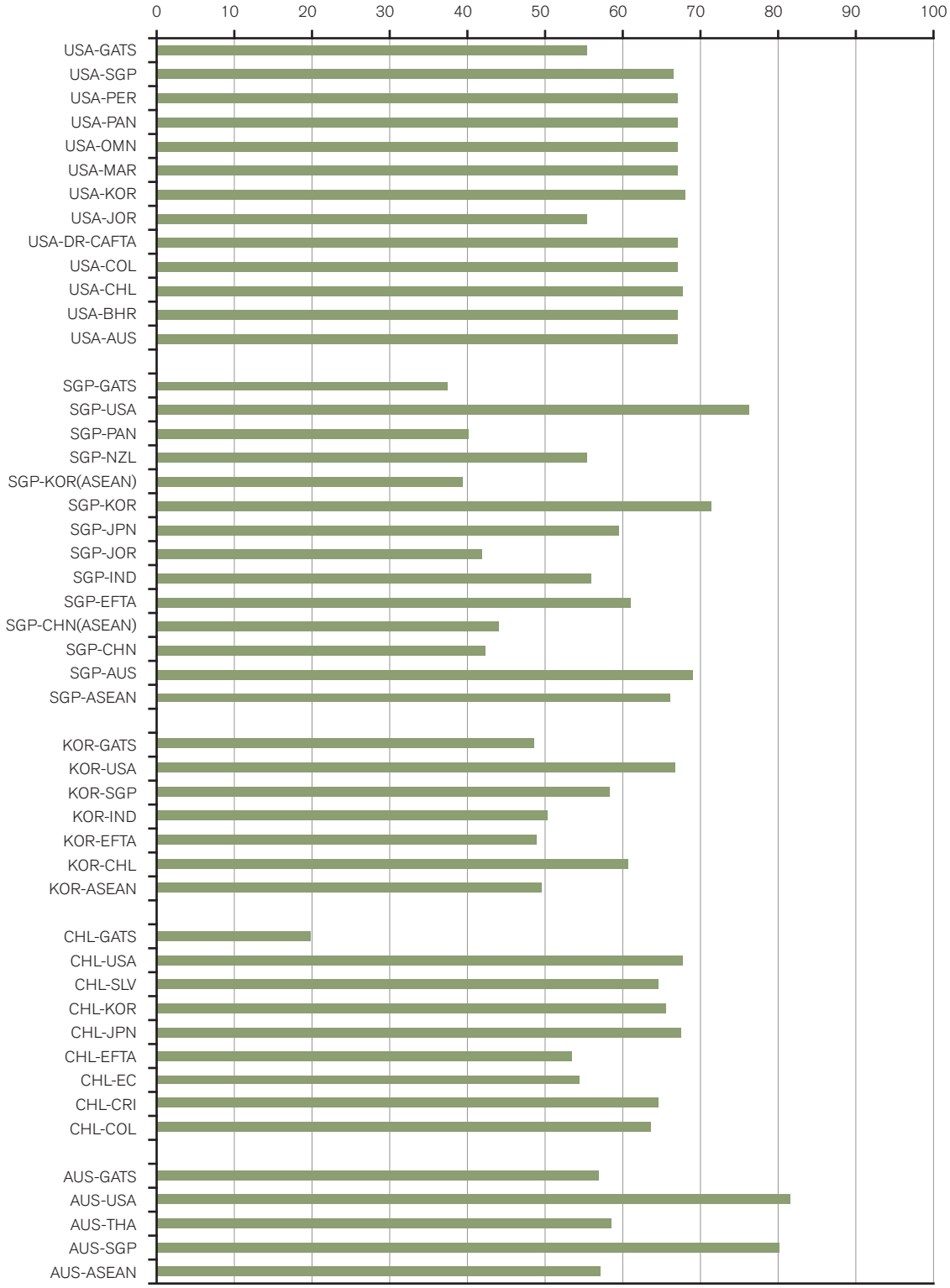
Appendix Table D.5: **The effects of trade in parts and components on deep integration**

Dependent Variable	Number of Provision	Number of WTO-X provision	Number of WTO+ provision	Principal Component Analysis Index
Share of trade in parts and components over total trade (ln)	0.0880***	0.0107	0.0630***	0.0234***
	(0.028)	(0.024)	(0.017)	(0.006)
Country fixed effects	yes	yes	yes	yes
Observations	2,572	2,572	2,572	2,572
R-squared	0.962	0.955	0.917	0.927

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.distance and remoteness. Other control variables included in the regression: GDPSUM, GDPSIM, GDPDIF, SQGDPDIF

Source: WTO Secretariat estimations.

Appendix Figure D.1: **Variations in the level of commitments offered in different PTAs: Australia, Chile, Republic of Korea, Singapore and United States**



Note: This Figure uses an index that captures improvements in "partial" commitments from one agreement to the next. GATS stands for GATS commitments and offer. Scores of 0, 0.5 and 1 are given for uncommitted, partially committed and fully committed subsectors, respectively, for modes 1 and 3. It also captures improvements in partial commitments by attaching to them between 0.5 and 1. This Figure underscores differences between the commitments a member undertakes in different PTAs, but is not best used to compare GATS+ commitments that different members undertake. The index is brought onto a 0-100 scale, with 100 representing full commitments in all subsectors and relevant modes. The legend of the acronyms for the members is provided in Appendix Table D.2.

Source: From updated data Marchetti and Roy (2008).