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Trade Impacts of Selected Regional Trade Agreements in Agriculture

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**TRADE IMPACTS OF SELECTED REGIONAL TRADE AGREEMENTS
IN AGRICULTURE**

ABSTRACT

This paper provides an in-depth examination of the trade effects of three regional trade agreements (RTAs) – the ASEAN Free Trade Agreement (AFTA), the Common Market for Eastern and Southern Africa (COMESA) and the Southern Cone Common Market (MERCOSUR) -- in the agricultural sector. Results from a gravity model suggest that the creation of AFTA, COMESA and MERCOSUR have increased trade in agricultural products between their member countries. There is no robust indication of trade diversion with respect to imports from outside the region. The agreements are therefore net trade creating. There is no robust indication however that there has been strong trade creation with non-members in the case of any of the RTAs under study. In some cases, lack of transport and communications infrastructure, in addition to supply constraints, lessens the effect of the RTA on trade flows. Trade costs such as transport and logistics seem to remain important factors in determining agricultural trade flows. In some RTAs, countries have a comparative advantage in exporting many of the same agricultural products, thereby decreasing the impact of the preferential market access. A number of implications for South-South RTAs can be drawn from examining these very different agreements.

Keywords: access, AFTA, agricultural trade, ASEAN, COMESA, gravity model, Mercosur, preferential market access, regional trade agreements, RTA, South-South, tariffs, trade creation, trade diversion, trade liberalisation

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EXECUTIVE SUMMARY

This paper provides an in-depth examination of the trade effects of three regional trade agreements (RTAs) – the ASEAN Free Trade Agreement (AFTA), the Common Market for Eastern and Southern Africa (COMESA) and the Southern Cone Common Market (MERCOSUR) in the agricultural sector. AFTA is a free trade agreement where members extend preferential duties among themselves; COMESA has eliminated tariffs on all goods exported within its free trade area; whereas MERCOSUR is a customs union where internal trade takes place duty free, in principle, and a common tariff is applied to goods emanating from non-members.

FTA members are an extremely diverse group of countries, both in terms of level of development and economic size. The ten members of AFTA account for a small proportion of world trade – approximately 5% of total trade. Exports of agricultural goods make up a small and declining share of exports by ASEAN countries, now equalling 5.5% of total trade. Trade within AFTA has grown relative to AFTA's total trade, now accounting for just under a quarter of AFTA's trade in agricultural goods.

COMESA members span a large portion of the African continent. Some have difficulty accessing others' markets for physical and geographical reasons. Eleven of the 19 COMESA members are least developed countries. COMESA's exports account for less than 1% of world trade. Agriculture is important for COMESA countries, as 21% of their exports are in agricultural goods. A free trade area was established in 2000 between nine of the 19 COMESA countries. Trade within COMESA is low, accounting for only 7% of total trade of the region, although trade within the region in agriculture has risen since its inception to equal 15% of total agricultural exports.

MERCOSUR is a highly asymmetrical grouping, with one country (Brazil) accounting for three-quarters of the production of the region. Ninety per cent of trade within MERCOSUR is between Argentina and Brazil. Contrary to world trends, agriculture accounts for a large and growing share of exports by the four MERCOSUR countries, now accounting for 32% of MERCOSUR's exports. Trade among MERCOSUR member countries accounts for a very small percentage of exports within the agriculture sector, only 5% of MERCOSUR's agricultural exports remain within the zone, at the same level as in 1981.

Results from a gravity model suggest that the creation of AFTA, COMESA and MERCOSUR have increased trade in agricultural products between their member countries. This is not a surprising result: within COMESA and MERCOSUR, members accord each other duty-free access to their markets in all or almost all agricultural products; and AFTA members' tariffs within the zone are less than one third MFN rates on average when the agreement is fully implemented. In addition, there is no robust indication of trade diversion with respect to imports from outside the region. The agreements are therefore net trade creating.

There is no robust indication however that there has been strong trade creation with non-members in the case of any of the RTAs under study. It could have been expected that MERCOSUR in particular would be significantly trade creating *vis-à-vis* non-members, since it is in principle an open customs union where goods flow freely once they enter the zone. A large, integrated market could be expected to attract added trade and investment from non-members. One reason for the lack of trade creation between MERCOSUR members and non-members may be the imperfect implementation of the customs union.

Once goods enter the MERCOSUR market, they do not travel freely but are subject to the common external tariff whenever they cross a MERCOSUR member's border, which nearly eliminates re-export of agricultural goods within the zone.

COMESA shows the least change in trade flows as a result of the RTA despite the full duty-free access accorded within the free trade area. This can be attributed to the difficulty in physically accessing markets experienced by many African countries. Lack of transport and communications infrastructure, in addition to supply constraints, lessens the effect of the RTA on trade flows.

Trade costs such as transport and logistics remain important factors in determining agricultural trade flows. AFTA members trade intensively with large markets in the region like China and India relative to the world average. Trade in agricultural goods with China represents 9% of AFTA members' total trade, whereas China represents 3% of world trade in agriculture. Similar figures for India are 4% and 1%. AFTA members concluded bilateral agreements with China in 2003 and India in 2004, and although it is too early to ascertain the effects of these agreements on trade, the importance of trade costs and historical ties in agricultural trade flows can be confirmed.

Argentina and Brazil, MERCOSUR's two largest members, have a comparative advantage in exporting many of the same agricultural products. They therefore do not trade extensively among themselves in agricultural goods relative to other countries. Analysis of revealed comparative advantage in the two countries shows that they export products in which they have a revealed comparative advantage outside the region, but that a large and growing share of their agricultural exports among themselves are in products in which they have a revealed comparative disadvantage. This can be attributed to the duty-free market access among MERCOSUR countries in these products and the protection they receive through the common external tariff, coupled with high barriers to trade in these agricultural products in their major export markets. The global policy framework therefore largely influences how much trade in agricultural goods is in products in which countries show a comparative advantage.

The implications for South-South RTAs that have been drawn from examining these three very different agreements can be found in section IV and are summarized here:

- All RTAs examined here are trade creating.
- The depth of integration within the agreement is important in determining the extent to which it is trade creating.
- Membership in an RTA alone is unlikely to be sufficient to overcome other physical or economic barriers to trade.
- Underlying determinants of trade such as export structure that are based on factor endowments change little.
- There is no strong evidence of trade diversion from trading partners outside the zone due to the RTAs.
- Trade costs remain an important factor in agricultural trade.
- Historical trade patterns and traditional economic ties are also important determinants of trade flows.
- In some instances, RTAs encourage producers which are not necessarily the most competitive at the world level, but so do high global MFN tariff rates.
- Some of the most entrenched barriers to trade, such as subsidies and other non tariff measures, remain in RTAs.

I. Introduction

From a multilateral perspective, one of the main questions regarding regional trade agreements (RTAs) is whether they support or detract from the WTO's multilateral trading system. Regional agreements provide an opportunity for groups of countries to negotiate rules and commitments to strengthen their integration; these often go beyond what is possible multilaterally at the time. In turn, some of these rules have paved the way for agreement in the WTO.

According to the traditional gains-from-trade argument, global free trade is Pareto optimal (first best) overall. RTAs are a second-best alternative. While they produce freer trade among member countries, thereby creating trade, their introduction does not guarantee a welfare improvement either for members or for non-members. This is because by definition RTAs discriminate against non-members (OECD, 2001). The costs of the resulting distortions may outweigh the benefits of the lower trade barriers between members. In particular, if lower barriers to trade within an RTA lead to trade creation with lower cost producers, there will be gains from trade. However, if changes in trade patterns due to the RTA displace lower cost imports from the rest of the world, trade diversion results.¹ The relative changes in trade determine the overall welfare effect of a given RTA, although this cannot be derived by simply comparing the magnitudes of trade creation and diversion.

Notwithstanding its multilateral and non-discriminatory focus, the GATT permits RTAs (via Article XXIV) provided they encourage freer trade among their member countries without raising barriers to trade with non-members. In other words, regional integration should complement the multilateral trading system and not threaten it.²

RTA participation may appear attractive to countries through the prospect of economies of scale and the potential for more efficient use of resources. Access to a larger market, made possible by adherence to an RTA, allows firms to exploit economies of scale more fully (OECD, 2001). Firms may make more efficient use of inputs into their production processes, taking advantage of complementarities that exist among countries in the RTA. Their costs are therefore reduced and they can lower output prices as they capture and create larger markets for their outputs at home and abroad. This results in changes in production processes and potential changes in the product basket of exports and imports.

This paper analyses three RTAs in depth and sheds light on whether and to what extent these agreements enhance trade in agricultural goods between their members, and divert trade from partners outside the RTA. It also addresses the question of changes in the nature of trade due to, or concomitant with, implementation of the RTA. The three RTAs examined in detail in this paper are the ASEAN Free Trade Agreement (AFTA), the Common Market for Eastern and Southern Africa (COMESA) and the Southern Cone Common Market (MERCOSUR).³ All three RTAs under examination are "South-South" agreements. Recognising the importance of certain large, emerging markets in the context of South-South trade, an analysis of AFTA bilateral agreements with China and India is included. Although those two bilateral agreements are too recent to measure their effects on trade *ex post*, a preliminary analysis is included here.

In order to ascertain the effects of the RTAs on trade, a gravity model has been developed. The gravity model estimates the effect of implementation of an RTA using bilateral trade flows in agricultural

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1. The theory behind trade creation and diversion can be found in Viner (1950).
 2. http://www.wto.org/english/thewto_e/whatis_e/tif_e/bey1_e.htm.
 3. MERCOSUL in Portuguese.

products with many countries over a significant period of time. It is the technique which is used most commonly to measure these effects.

Changes in the nature of exports and the specialisation of trade within the RTA are examined using the index of revealed comparative advantage (RCA). The RCA measures the export intensity in a given agricultural product by members of the RTA, relative to other countries in the world.

The RTAs examined in this paper have been chosen for their geographical and structural differences, as well as their differing depth of integration. AFTA provides member countries with preferential access to each other's markets; trade between COMESA members is fully duty-free. In contrast, MERCOSUR is an emerging customs union which aims to implement duty free trade among members and levy a common external tariff on member country imports.

This paper is structured as follows. Section II gives a short overview of the trade provisions and implementation of the two agreements and provides some information on the context of this paper's analysis by looking briefly at the place of AFTA, COMESA and MERCOSUR in world trade. Section III provides quantitative analysis of the trade effects in the agriculture sector of the selected RTAs. Section IV provides some preliminary implications from the analysis.

II. The context: overview of provisions and role in world trade of the selected RTAs

Trade Provisions and Implementation

AFTA

AFTA was signed in January 1992 with the aim of creating a free trade area by 2008. The original signatories were: Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand (ASEAN-6). Vietnam joined in 1995, Laos and Myanmar in 1997 and Cambodia in 1999. Vietnam, Laos, Myanmar and Cambodia (ASEAN-4) were required to join AFTA in order to join ASEAN, but were accorded longer time frames for implementing the preferential trading agreement.⁴

The main mechanism by which the AFTA signatory countries open their markets to each other is through the Common Effective Preferential Tariff (CEPT). The gradual tariff reduction on goods emanating from other AFTA members was applied to manufactured goods and processed agricultural products in the first instance, allowing for specific products to be excluded. The CEPT was extended to unprocessed agricultural goods in 1996. The original agreement allowed for elimination of some non-tariff barriers and instituted safeguard measures and a consultatory process in the case of dispute.

In practice, AFTA countries have extended preferential access to each other in an accelerated fashion compared with deadlines set in the original agreement. All goods within the region enter ASEAN-6 countries at a tariff rate of between 0 and 5% since 2003, excluding products specified on exceptions lists. In 2006, goods entered ASEAN-6 from AFTA countries with a tariff of 4.4% on average, compared to 10.9% from countries outside the zone, *i.e.* with a margin of preference of 6.5 percentage points.

AFTA countries have been allowed to exclude certain products from the list of goods that enter their markets preferentially. Some of the ASEAN-4 have taken particular advantage of this opportunity by "opting out" of according preferential market access for a large number of products. Many AFTA members do not open their markets to some sensitive agricultural products, particularly in the rice and sugar sectors.

4. All members of ASEAN have joined AFTA. Therefore the two acronyms refer to the same set of countries. An attempt has been made in this paper to refer to ASEAN when referring to the ten countries in general and to AFTA when referring to the preferential trade liberalisation extended among them.

AFTA countries are negotiating closer economic relations with their major trading partners in the region, including bilateral FTAs with China, India and Korea. For a more detailed examination of AFTA provisions, implementation of the agreement and AFTA bilateral agreements with China and India, see Annex 1.

COMESA

COMESA was created in 1993 and now counts 19 members: Burundi, Comoros, Democratic Republic of the Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia and Zimbabwe (COMESA, 2007). A free trade area was achieved in October 2000 when nine members eliminated their tariffs on products originating from partners within the FTA. The nine original members of the FTA were: Djibouti, Egypt, Kenya, Madagascar, Malawi, Mauritius, Sudan, Zambia and Zimbabwe. Burundi and Rwanda joined the FTA in 2004. Since then, Libya and Comoros joined, in 2005 and 2006 respectively, bringing the number of COMESA members included in the FTA to 13 out of 19. Seychelles is scheduled to join the FTA during 2007.

Since October 2000, duty free access has been granted to all products traded between COMESA members without exception. A safeguard mechanism is in place to temporarily levy a duty on imports of some sensitive products as needed. This temporary measure generally lasts for a period of six months.

COMESA members not in the FTA that have reduced their tariffs vis-à-vis other COMESA members by at least 60% are eligible for preferential tariff rates when their goods enter FTA members' markets. All six of the COMESA members not in the FTA have done so, and have therefore been granted preferential access into FTA member countries' markets.

Rules of origin in the COMESA agreement are less stringent than those for many other FTAs. Goods qualify for preferential access if at least 40% of materials or 35% of processing takes place in the region. For some significant imports, such as investment goods, petroleum products and medicines, the local content requirement is 25%. See Appendix 2 for a more detailed analysis of COMESA provisions and implementation of the agreement.

MERCOSUR

The objective of the Southern Cone Common Market (MERCOSUR) is to create one of the most integrated economic areas in the world. The Asunción Treaty, signed in 1991 by Argentina, Brazil, Paraguay and Uruguay, established a framework to put into place a free trade area among the four signatory countries. Three years later, the clearly stated objective was to form a customs union. Since the mid-1990s, MERCOSUR objectives include fully harmonizing the trade policy of its four members. In practice, however, integration has been implemented unevenly.

Today, all goods produced within the zone, with the exception of automobiles and sugar, have duty free access to member markets. These two sensitive sectors are subject to bilateral regimes that are not harmonized within the region.

MERCOSUR members have agreed to converge to a common external tariff (CET). In practice, however, MERCOSUR countries apply different cross-the-board extra duties, defensive measures, sectoral exclusion, and they have concluded country-specific preferential agreements with third parties. These differences among MERCOSUR members in applied tariffs on goods emanating from outside the zone can be significant.

One important barrier to MERCOSUR intra-trade is the double taxation of imports from third countries. When a product is imported to a MERCOSUR country for re-export within MERCOSUR, or for re-export following some product transformation, the product is double-taxed. Duty is paid upon entry into both MERCOSUR countries, *i.e.* the CET is paid *twice* on the given good. Effectively, therefore, a system of rules of origin (ROO) exists which prevents duty-free on-selling of products sourced outside MERCOSUR's borders. This imperfect implementation of the CET leads to missed trade and investment opportunities. Potential suppliers outside MERCOSUR, who would want to export to one MERCOSUR country and supply the entire MERCOSUR market from that country, are discouraged from doing so. Indeed, re-exports within the MERCOSUR zone are almost non-existent. See Appendix 3 for a more detailed analysis of MERCOSUR provisions and implementation of the agreement.

Overview of AFTA, COMESA and MERCOSUR in World Trade

RTAs evolve in a complex economic, political, historical and geographic environment. These factors influence the way in which RTAs are implemented, and their overall effects once they are in place. This section outlines briefly the general context in which the RTAs under examination are evolving.

AFTA, COMESA and MERCOSUR member countries' characteristics

ASEAN comprises a very diverse set of countries, both economically and politically (Table 1). Members range from Laos, a landlocked, least developed country to Thailand and Malaysia, which have applied for OECD membership. Levels of development are very different across these countries with GDP per capita spanning from USD 28 100 (Singapore) to 1 700 (Myanmar). Political regimes are also diverse, ranging from relatively smoothly functioning democracies such as Malaysia to more authoritarian-based systems in Singapore to military dictatorship in Myanmar.

Table 1. ASEAN: Comparative indicators of member countries

	Population (000s)	GDP (billion USD)	GDP per capita (USD)	GDP growth (%)
Brunei	379	6.8	23 600	1.7
Cambodia	13 881	4.7	2 200	6.0
Indonesia	245 452	270.0	3 600	5.6
Laos	6 368	2.5	1 900	7.2
Malaysia	24 385	122.0	12 100	5.3
Myanmar	47 382	7.5	1 700	2.9
Philippines	89 468	91.4	5 100	5.1
Singapore	4 492	110.6	28 100	6.4
Thailand	64 631	183.9	8 300	4.5
Vietnam	84 402	43.8	2 800	8.4

Population estimates are July 2006. GDP and GDP per capita estimates are 2005 (2004 for Brunei).

GDP growth estimates refer to 2005 (2004 for Brunei).

Source: CIA Factbook, 2006.

AFTA signatory countries are also diverse in terms of their recent growth. Some countries are growing quickly (6% or more) but starting from low levels of development, such as Cambodia, Laos and Vietnam. Others are growing rapidly from high levels of development (Singapore). Still others are stagnating at a high level of GDP per capita (Brunei) or at a low level (Myanmar). Population varies widely from one country to another within AFTA, ranging from less than 400 000 (Brunei) to 245 million (Indonesia).

COMESA countries are more numerous than AFTA or MERCOSUR signatories, numbering 19 member countries, and they comprise a disparate group in terms of economic size and geography. Eight COMESA members are landlocked – Burundi, Ethiopia, Malawi, Rwanda, Swaziland, Uganda, Zambia and Zimbabwe. Four COMESA members are island states – Comoros, Madagascar, Mauritius and Seychelles, although Madagascar has been named “the fifth continent” due to its size and biodiversity. One COMESA member, Swaziland, is surrounded by countries that are not members of COMESA, while two countries that are not members of COMESA (Tanzania and Mozambique) are largely surrounded by COMESA members. This is particularly relevant for issues of trade facilitation and physical access to markets.

Economic size and level of development vary widely among COMESA members. COMESA encompasses close to 400 million people and accounts for GDP of 780 million dollars in total (in current PPP dollars). But there are large differences between COMESA member countries. Eleven COMESA members are least developed countries: Burundi, Comoros, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Malawi, Rwanda, Sudan, Uganda and Zambia. On the other hand, two countries are classified as middle-income (Egypt and Swaziland) and two countries are upper-middle income countries (Mauritius and Seychelles). Growth in GDP has also been contrasted, although 15 members have shown moderate to high growth, albeit often from low levels. Egypt engulfs all other COMESA members by its economic size (USD 352 billion), and is followed in size of GDP by Sudan (\$89 billion) and Ethiopia, USD 87 billion (Table 2).

Table 2. COMESA: comparative indicators of member countries

	Population (’000s)	GDP (billion USD)	GDP per capita (USD)	GDP growth (%)
	7 833	5.7	729	5
Comoros	614	1.2	2 018	1
Congo, Democratic Republic	59 338	44.5	751	5
Djibouti	806	1.8	2 293	5
Egypt, Arab Rep.	75 397	3 51.6	4 664	7
Eritrea	4 538	5.0	1 096	-1
Ethiopia	72 712	86.7	1 192	9
Kenya	35 143	46.2	1 316	6
Libya	5 965	n.a	n.a	6
Madagascar	19 087	18.6	972	5
Malawi	13 163	9.6	731	8
Mauritius	1 253	16.9	13 446	4
Rwanda	9 244	11.8	1 278	5
Seychelles	86	1.5	17 476	4
Sudan	37 003	87.8	2 372	13
Swaziland	1 126	5.8	5 137	2
Uganda	29 874	45.4	1 519	5
Zambia	11 862	13.0	1 098	6
Zimbabwe	13 086	26.3	2 011	5

Data refer to 2006.

Source: World Development Indicators.

The situation in MERCOSUR is very different from that of AFTA and COMESA. Although levels of development are less widely dispersed, there is a basic asymmetry within MERCOSUR countries that has been a determining factor in the development of the customs union. Brazil, with a population of 188 million and a GDP of USD 620 billion, is by far the largest producer and trader in the bloc (Table 3). Brazil accounts for 75% of the GDP in MERCOSUR.

Table 3. MERCOSUR: Comparative indicators of member countries

	Population (000s)	GDP (bln USD)	GDP per capita (USD)	GDP growth (%)
Argentina	39 921	182.0	13 100	8.7%
Brazil	188 078	619.7	8 400	2.4%
Paraguay	6 506	7.2	4 900	2.7%
Uruguay	3 431	13.2	9 600	6.5%

Population estimates are July 2006. GDP and GDP per capita estimates are 2005.

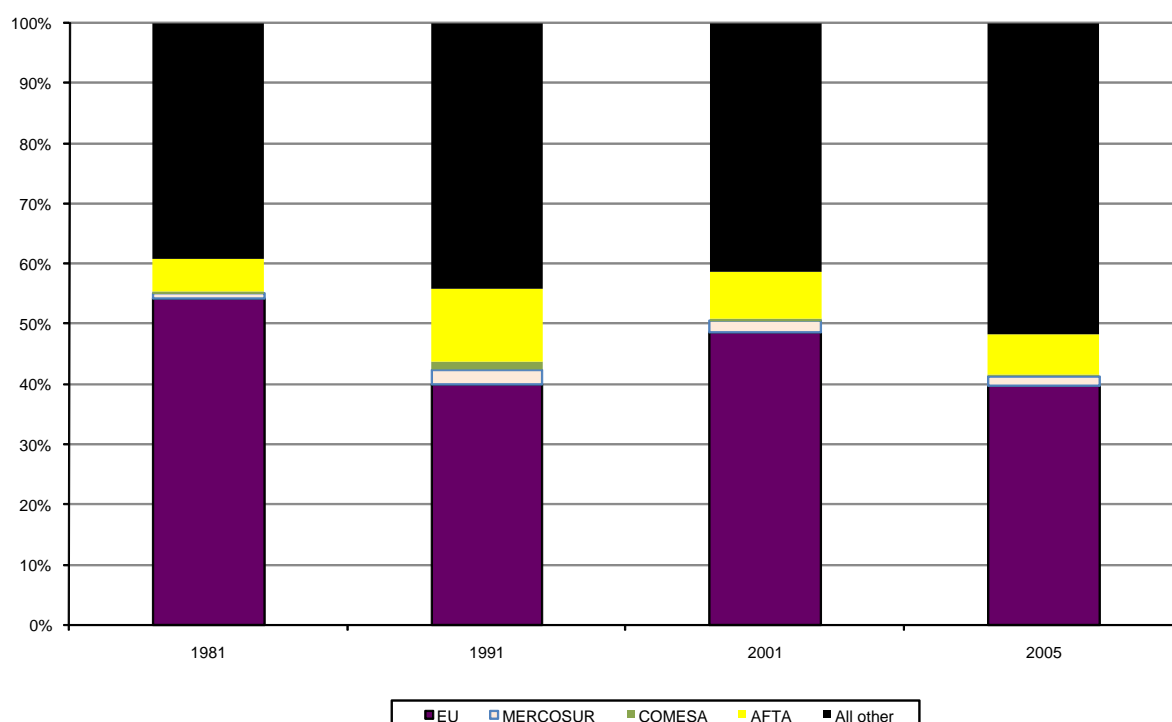
GDP growth estimates refer to 2005.

Source: CIA Factbook, 2006.

AFTA, COMESA and MERCOSUR in World Trade

Figure 1 below shows the evolution of the share of AFTA, COMESA and MERCOSUR in total world exports. Similar information for the EU and NAFTA are shown for comparison. AFTA has generally accounted for about 5 % of world trade since its formation; MERCOSUR has accounted for about 1 %; and COMESA for significantly less than 1 % of world trade. All three South-South RTAs are dwarfed by the importance of trade within and among OECD countries. Also important in the global context is the place of emerging markets in world trade, accounting for a larger percentage of trade labelled “all other” (Figure 1).

Figure 1. Exports by members of selected RTAs: relative importance in world exports



Composition of selected RTAs varies over time as new members join, as appropriate. For periods before the formation of selected RTAs, original members' trade is used. Trade of RTAs includes intra-trade. Data for some COMESA countries is not included as unavailable.

Source: World Integrated Trade Solution (WITS).

Trade in food and agriculture

The share of food and agriculture in world trade has been declining. Exports of agricultural goods accounted for 8.2% of world exports in 1991 compared with 6.3% in 2005 (Table 4). This trend has been mirrored in AFTA and COMESA but not MERCOSUR. Exports in agricultural products have declined relative to manufacturing in the case of ASEAN countries. Agriculture accounted for 9.1% of ASEAN total exports (*i.e.* within as well as outside the region) in 1991 and only 5.5% of total exports in 2005. The share of agricultural goods in total exports (*i.e.* within as well as outside the region) by COMESA countries also experienced a sharp decline since 2000, falling from 42% in 2001 to 21% in 2005. Although some of this decline in agricultural exports by COMESA countries can be attributed to the patchy country coverage in the data set (on average data are only available for 11 COMESA countries), it seems that COMESA countries are following the world trend in exporting less agricultural products and more manufactured goods as well as services. COMESA members continue however to be more dependent on agricultural exports than most other countries.

In contrast, MERCOSUR's agricultural exports have been increasing. The share of agriculture in total trade in MERCOSUR was high before the agreement was signed, totalling 26.8%, and has reached 32.4% of total exports by MERCOSUR in 2005. Exports in agriculture by the EU and NAFTA, shown here for reference, have stagnated or declined over the 15-year period.

Table 4. Exports of Agricultural goods as a percentage of total exports by members of selected RTAs

	1991	2001	2005	2005
		%		Billion USD
World total	8.2	7.0	6.3	687.5
AFTA	9.1	5.4	5.5	33.3
COMESA	n.a.	41.7	21.0	2.3
EU	7.9	8.1	7.9	297.0
MERCOSUR	26.8	33.0	32.4	51.7
NAFTA	10.1	7.2	6.8	100.0

Source: WITS.

Intra-regional trade

The member countries of AFTA, COMESA and MERCOSUR undertake relatively little trade with their RTA partners compared with members of other RTAs such as the EU or NAFTA. Intra-AFTA trade accounted for 21% of total trade of AFTA members before its inception, and 18% of its trade in agricultural goods (Table 5). Subsequently, intra-AFTA trade has grown to 26% of total AFTA trade, and 23% of trade in agriculture. These figures are dwarfed by some of the older, more integrated RTAs among OECD members, which now account for well over half of the trade of their members.

COMESA intra-trade accounts for an even smaller, and declining, share of its members' exports. Total exports within COMESA fell from 11% to 7% of total trade between 2001 and 2005. Intra-trade in agriculture also makes up a small percentage of trade in agriculture, accounting for 13% of total exports in agriculture in 2001 and 15% in 2005. Low levels of intra-trade within COMESA can be attributed in part to the wide geographical span of the RTA. Although originally formed to include countries of eastern and southern Africa, it now includes faraway members such as Libya and Egypt. A lack of infrastructure (especially transport infrastructure) within Africa, even between neighbouring countries, also contributes to the low levels of intra-trade. It will be seen in subsequent sections of this paper that the preferential market access implied by the RTA has not been sufficient to alter this situation.

MERCOSUR accounts for little of the trade of its members, despite the deep integration due to the customs union. At the outset of the MERCOSUR agreement, intra-trade accounted for 11% of trade of the members, and only 9% of their trade in agricultural products. Intra-trade reached a high of 17% of trade in goods in 2001, following the currency crises of 1999-2000, and fell to 13% in 2005. Intra-trade in the agriculture and food sectors accounts for only 5% of MERCOSUR members' trade in agriculture, having fallen to its level in 1981. Despite the deep policy integration, therefore, MERCOSUR's trade has not generated a high level of trade integration. Natural factors such as the asymmetry of members and similar comparative advantage among member countries undoubtedly play a role, as will be seen in subsequent sections of this paper.

Table 5. Trade within RTAs as a share of total trade

	1981	1991	2001	2005	2005 bIn USD
	Share of total trade				
AFTA					
Total	0.18	0.21	0.23	0.26	155.6
Agriculture	0.17	0.18	0.25	0.23	7.7
COMESA					
Total	n.a.	n.a.	0.11	0.07	0.8
Agriculture	n.a.	n.a.	0.13	0.15	0.5
EU					
Total	0.57	0.66	0.66	0.65	2239.4
Agriculture	0.65	0.75	0.74	0.75	209.2
MERCOSUR					
Total	0.10	0.11	0.17	0.13	20.8
Agriculture	0.05	0.09	0.11	0.05	2.5
NAFTA					
Total	0.34	0.41	0.55	0.56	824.4
Agriculture	0.17	0.29	0.44	0.46	45.3

Source: WITS

Summary

In light of the discussion in this section, a number of observations can be made regarding AFTA, COMESA and MERCOSUR.

Regarding AFTA

- ASEAN is an extremely diverse group of countries, both in terms of level of development and economic size.
- ASEAN countries account for a small proportion of world trade – approximately 5% of total trade.
- Exports of agricultural goods make up a small and declining share of exports by ASEAN countries, now equalling 5.5% of total trade.
- Trade within AFTA has grown relative to AFTA's total trade, now accounting for just under a quarter of AFTA's trade in agricultural goods.

Regarding COMESA

- COMESA includes 19 countries spanning a large part of the African continent. Some of these countries have particular physical challenges in accessing foreign (including neighbouring) markets (*e.g.* landlocked and island nations).
- COMESA members vary widely in terms of economic size. Egypt is by far the largest economy and is 200 times larger than some of the small COMESA members (Comoros, Djibouti, Seychelles).
- COMESA members are disparate in terms of level of development, ranging from least developed countries to upper-middle income.
- Agriculture makes up a declining, although still important, share in COMESA exports. COMESA exports of agriculture are negligible in terms of their global market share, accounting for less than 1%.
- COMESA members trade little with each other, equalling just 7% of their total trade, particularly in manufacturing goods. Intra-trade in agriculture is also low, accounting for 15% of COMESA members' trade in agriculture.

Regarding MERCOSUR

- MERCOSUR is a highly asymmetrical grouping, with one country (Brazil) accounting for three-quarters of the production of the region. Ninety per cent of trade within MERCOSUR is between Argentina and Brazil.
- MERCOSUR accounts for a very small proportion of world trade – approximately 1% of total trade.
- Contrary to world trends, agriculture accounts for a large and growing share of exports by MERCOSUR countries, now accounting for 32% of MERCOSUR's exports.
- Intra-trade accounts for a very small percentage of exports within the agriculture sector – only 5% of its agricultural exports go to other MERCOSUR members – and is at the same level as that in 1981.

III. effects on trade of the selected RTAs

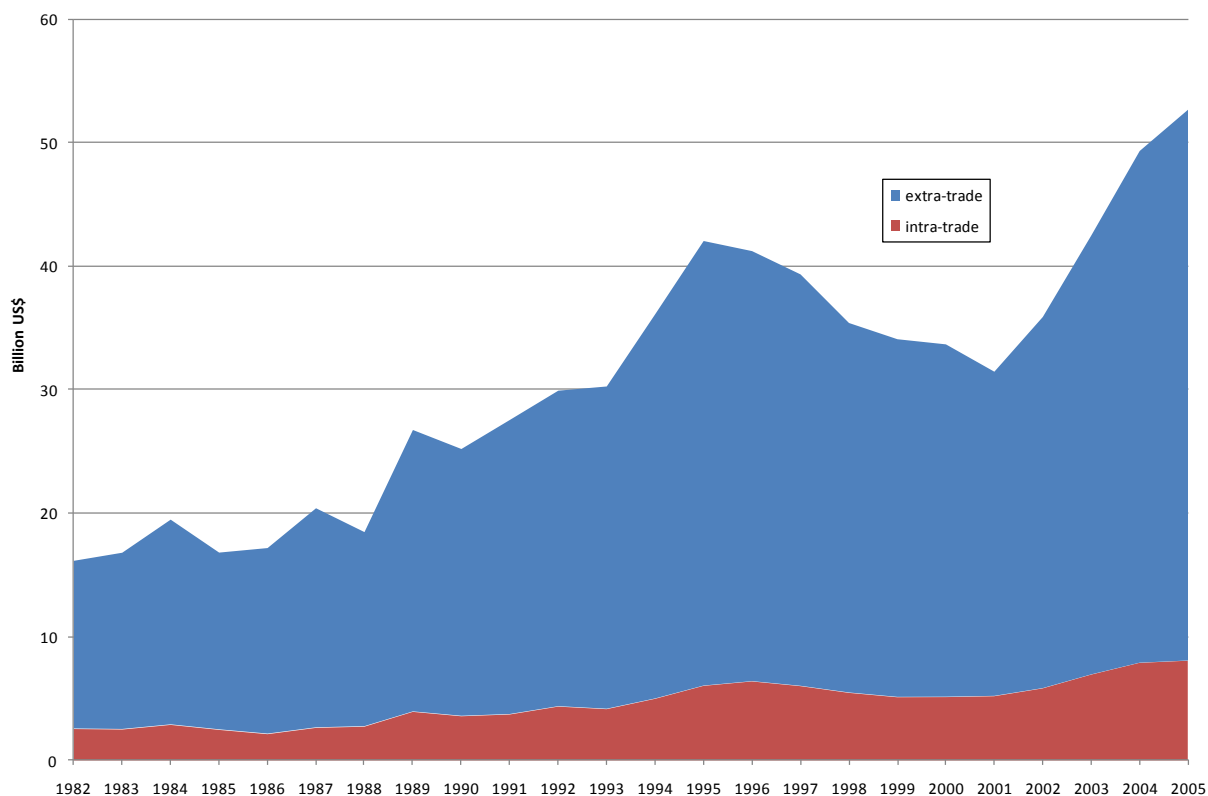
This section analyses the trade effects of the RTAs under examination. It examines the potential trade creating and trade diverting effects of the agreements, and their influence on the structure of goods traded in the food and agriculture sectors.

ASEAN Free Trade Area

Trade flows

It has been shown above that AFTA intra-trade is important and has been growing. AFTA implementation has been gradual, starting in 1994 for the ASEAN-6, achieving full integration by 2001.⁵ ASEAN-4 have joined the RTA in 1995 (Vietnam), 1997 (Laos and Myanmar) and 1999 (Cambodia). The implementation of AFTA has therefore coincided with an increase in intra-regional trade overall. Trade in agricultural goods between ASEAN countries accounted for 18% of their total trade in 1991, expanding to reach USD 7.7 billion in 2005 (Figure 2).

Figure 2. ASEAN intra- and extra-trade in agricultural goods



Source: WITS.

5. Note that even with full implementation, non-tariff measures (NTMs) such as tariff rate quotas and import licensing are still a feature of trade between AFTA members. Given the well-documented and unresolved problems associated with quantifying the effects of NTMs on trade and welfare, we do not directly analyse these impacts below. However, the aggregate effects of policy instruments like NTMs are captured by the individual country fixed effects that are included in our gravity model analysis.

It is of interest to ascertain whether any of this expansion in trade can be attributed to the establishment of AFTA. In order to shed light on this question, a gravity model was developed and estimated.

Gravity model estimation

The gravity model allows an *ex post* analysis of the impacts of phenomena such as regional trade agreements. Traditional gravity models, which are analogous to Newton's equation of gravity, use the incomes (economic masses) of trade partners as well as the distance between them to explain bilateral trade flows. Distance is typically used as a (crude) proxy for trade costs.⁶ These models also typically include indications of common language and culture, and historical ties to explain trade patterns not based on comparative advantage and complementary endowments. In such models, a dummy variable captures the effect of RTA membership on past trade flows (OECD, 2006).

Recent gravity models have gone further in capturing country-specific and bilateral country-pair specific effects on trade. They include dummy variables for country fixed effects and country-pair fixed effects to account for all the possible cultural, historical and other factors that influence trade.

A literature review in Appendix 5 includes recent model estimates of the effect of AFTA, COMESA and MERCOSUR on trade between member countries, as well as on trade with non-members. Estimates often vary widely, bringing credence to the hypothesis that model specification is of primary importance, although some estimates of particular relevance to this paper are robust across a wide range of different model specifications.⁷

A detailed analysis of the gravity model used in this study and rationale for its structure is included in Appendix 4. A single model was developed to measure the effects of AFTA, COMESA and MERCOSUR on member and non-member country trade patterns, using a control group of countries comprising all other major agricultural exporters.^{8,9,10} The results discussed here generally refer to the gravity model

-
6. A project is underway within the Secretariat to collect and analyse maritime transport costs and their impact on trade flows. It is envisaged that the information compiled for that project will provide a significantly better estimate for trade costs than distance, which is typically used in gravity models at present.
 7. The estimates in the Appendix 5 table for Ghosh and Yamarik refer to extreme bounds estimation. This technique is used because those authors believe that reported gravity model specifications typically reflect researchers' prior beliefs than the most robust model results. In order to test all potential hypotheses, they establish a core list of variables that are included in every gravity model (such as the trade creation variable, GDP and distance), as well as a non-core list of variables that include all other variables found in the gravity model literature. They run many different model specifications and report a range of possible values for each variable. Since they have tested many different model specifications, the range of results is necessarily wide. They thereby suggest that the trade creation due to the existence of RTAs is overstated in much of the literature.
 8. Since trade between the three RTA groupings -- AFTA, COMESA and MERCOSUR -- is relatively small, interactions due to the creation of the different RTAs are assumed to be minor.
 9. The data set includes AFTA, COMESA and MERCOSUR members and all other countries among the top 15 agricultural exporters: European Union, United States, Canada, China, Australia, Mexico, New Zealand, Russian Federation, Chile and India.
 10. Note that the gravity model results aggregate trade effects across commodities. That is, our modelling does not directly provide information informing in which products trade diversion and trade creation may be occurring. Nevertheless, the disaggregated data is available in the dataset and we have accounted for unobserved heterogeneity among products through the inclusion of product fixed effects.

incorporating time, individual country and product fixed effects (model specification 1 in Table A4.1 in Appendix 4).

As was seen in section II, AFTA has been implemented in stages (see Appendix 1): the gravity model developed here takes this into account. Tariff reduction has been gradual, starting in 1993 for the ASEAN-6, reaching full integration by 2002 (but not full duty free access). The ASEAN-4 acceded later and are still not fully integrated in the same way as the original members. Two variables were therefore developed to test AFTA integration – one which takes into account full integration, *i.e.* ASEAN-6 countries since 2002 (*AFTAFull*), and one variable which accounts for interim periods of integration -- ASEAN-6 from 1994-2001, and ASEAN-4 since joining the RTA (*AFTAPartial*). The effect of the RTA on bilateral trade flows of member countries therefore can be ascertained more precisely.¹¹

Model results

Gravity model results show that full integration into AFTA has strongly increased trade in agricultural products between the member countries. The implication of the preferred model specification (see specification 1, Table A4.1, Appendix 4) is that trade among AFTA members has risen by 60% due to the agreement alone.¹² Even at the stage of partial integration, AFTA had the effect of significantly increasing intra-member trade. The preferred specification indicates an increase of 25% among partially-integrated members of AFTA.

Moreover, in all specifications tested, trade increased more among fully-integrated members of AFTA than among partially-integrated ones (the coefficient of *AFTAFull_{ij}* is greater than that of *AFTAPartial_{ij}*). This suggests that, in terms of trade in agriculture, the fully implemented AFTA (*i.e.* trade among ASEAN-6 from 2002-2004) has been more trade creating than its partially implemented predecessor.

Much of the literature confirms this result, finding strong trade creation within AFTA members (see Appendix 5). Coefficients are wide-ranging, but most estimates find AFTA has increased trade among its members significantly. In particular, a recent study by Koo, Kennedy and Skripnitchenko (2006), modelling only the agriculture sector, finds a large positive effect.

A related question is whether or not intra-AFTA trade has come at the expense of (*i.e.* has been diverted from) non-member exporters. In order to measure this phenomenon, two cases have been tested – the effect on *exports* by AFTA producers outside the region, and the effect on AFTA *imports* from outside producers. Model results are therefore differentiated both between full and partial implementation of the agreement, and between the impact on AFTA exporters' trade outside the region, and imports into AFTA from third countries.

The models show that when the agreement is fully implemented, AFTA countries export less outside the region than would otherwise be expected. According to the preferred model specification, exports by AFTA outside the region are 25% less than would be expected, other things being equal, if AFTA did not exist (see coefficient *AFTAFull_{iExpIn}* in Table A4.1 of Appendix 4). This suggests that once fully

11. Note that the gravity model analysis indirectly captures the impact of RTA rules of origin on bilateral trade. To the extent that rules of origin make it more difficult for exporters to qualify for the preferential tariff concession, the reduction of tariffs as part of the RTA negotiation process will be less trade enhancing than might otherwise have been expected.

12. Since the endogenous variable is a log and RTA trade creation and diversion are dummy variables (zero or one values), the value of the coefficient does not directly translate into percentage changes, *i.e.* it is not an elasticity. In order to express the dummy variable coefficient x in percentage terms, one must calculate $e^x - 1$.

implemented, AFTA reduced exports from ASEAN members to non-members. This finding is corroborated by the alternative model specifications.

AFTA members import more from non-members during periods of full implementation of the RTA than otherwise (refer to the coefficient estimates of $AFTAFull_iExpOut$). Results from all model specifications point to a positive effect of the RTA on imports from non-members. Indeed, much of the literature confirms this finding. AFTA, in its fully implemented form, is therefore not particularly trade diverting in terms of imports from countries outside the zone.

In its partially implemented form, model results regarding trade between AFTA members and non-members mirror those of the fully-implemented agreement, but are generally lower in magnitude. This result was to be expected. As in the fully-implemented AFTA, partial implementation has implied greater imports from non-AFTA countries, and lower exports from AFTA outside the region in agricultural products. In all cases, however, the net effect of AFTA vis-à-vis non-AFTA members is trade creating, *i.e.* the magnitude of the increase in imports outweighs the magnitude of the decrease in exports. In its partially implemented form, therefore, there is no strong indication that AFTA is net trade diverting.

The fully implemented AFTA has encouraged members to decrease their exports of agricultural products to non-AFTA countries to a greater extent than its partially implemented predecessor. This can be interpreted from a comparison of results between the fully-implemented AFTA and the partially-implemented AFTA. In all specifications tested, exports by AFTA outside the region dropped more significantly in the case of full integration into AFTA, than during partial integration (*i.e.* the coefficient of $AFTAFull_iExpIn$ is of greater magnitude than that of $AFTAPartial_iExpIn$).

Estimates of the trade diversion coefficients of AFTA in the literature review cover a wide range but are generally positive; trade between AFTA members and non-members has increased subsequent to the agreement's ratification. It should be noted, however, that the precision of our estimates benefits from the fact that we correct for different phases in the agreement's development and test separately for exporter and importer effects. Compared to existing work, the data used here is more current, which is of great importance for AFTA as it has been implemented gradually over a long period, and has only fully been implemented in recent years.

It can be noted that results from AFTA, both in its fully- and partially-implemented form, are more robust than the effects of the other two RTAs. AFTA coefficients are of similar sign and magnitude in all model specifications, contrary to those of MERCOSUR and, particularly, COMESA. There could be a number of reasons for this: data quality among AFTA countries may be better, the results are consistent across time, products and partner countries, there is less distortion in policies in agriculture that is unaccounted for in the fixed effects model, etc.

Revealed comparative advantage

In order to take a closer look at the products that are traded and AFTA's potential effect on their composition, an analysis follows of revealed comparative advantage (RCA). The RCA uses actual trade flows to ascertain the comparative advantage of exporters in agricultural products.

The RCA_j is defined as follows:

$$RCA_j = \frac{\left(\frac{x_{rj}}{X_r} \right)}{\left(\frac{x_{wj}^*}{X_w^*} \right)}$$

The variables x_{rj} and X_r represent the value of exports of product j from region (or country) r and total exports of all products from region (or country) r respectively. The variables x_{wj}^* and X_w^* represent the value of world exports of product j and total world exports both exclusive of the exports of region (or country) r . The RCA ranges from zero to infinity. Values above unity reflect a comparative advantage while values below unity reflect a comparative disadvantage (Yeats, 1998).

The revealed comparative advantage of AFTA countries, taken as a group, excluding intra-trade among AFTA members, is shown in Table 6. Only products in which AFTA countries possess a comparative advantage are shown in the table, *i.e.* those products with an RCA greater than one. AFTA has consistently shown a comparative advantage in exporting vegetable oil, rice, fish and shellfish, cocoa, spices, preserved fruit and miscellaneous cereal meal or flour.

RCAs in AFTA are relatively constant over time. Over the ten-year period shown in the table, there is only one agricultural product where comparative advantage has been lost – sugar – and one where it has been gained – margarine. All other products are consistently within a range of comfortable export comparative advantage, compared with other countries in the world. It seems therefore that apart from these two products, there has been little change in recent periods in the comparative advantage of AFTA agricultural exports. This suggests that the agreement has not produced a significant change in the revealed comparative advantage of its members' export products.

ASEAN FTAs with major regional partners

ASEAN countries have concluded recent bilateral agreements with two large emerging markets in the region, China and India. Tariff reductions within the FTA with China started in 2005; the RTA with India is to start in 2007. It is therefore too early to judge the impact of these agreements. Gravity model analysis of the bilateral agreements was not undertaken as the data used in the model are for 1981 through 2005, *i.e.* before any tariff reductions have taken place.

It can be said, however, that ASEAN countries trade more in agricultural goods with China and India than do other countries as a percentage of their total trade in agriculture. Nine per cent of AFTA countries' agricultural trade (imports and exports combined) was with China in 2005 (Table 7), compared with China's share in world agricultural trade of 3%. Trade with India is also higher than the world average. India accounts for 4% of ASEAN trade in agriculture, while accounting for only 1% of world trade.

Table 6. AFTA Revealed comparative advantage in top 10 products, 1995 to 2004

SITC code	Product	1995	SITC code	Product	2000	SITC code	Product	2004
422	Fixed vegetable oils, not soft	50.6	422	Fixed vegetable oils, not soft	47.0	422	Fixed vegetable oils, not soft	70.5
431	Processed animal/veg. oils	8.9	042	Rice	8.5	431	Processed animal/veg. oils	9.7
075	Spices	6.4	075	Spices	7.8	042	Rice	9.1
042	Rice	6.1	431	Processed animal/veg. oils	6.6	037	Prepared fish/shellfish	4.9
036	Crustaceans, molluscs	5.4	036	Crustaceans, molluscs	6.0	036	Crustaceans, molluscs	3.8
037	Prepared fish/shellfish	4.4	037	Prepared fish/shellfish	5.2	072	Cocoa	3.4
072	Cocoa	3.0	091	Margarine/shortening	2.8	091	Margarine/shortening	3.1
047	Cereal meal/flour, n.e.s	2.1	072	Cocoa	2.5	075	Spices	2.6
058	Prepared/preserved fruit	1.9	047	Cereal meal/flour, n.e.s	2.1	058	Prepared/preserved fruit	1.9
061	Sugar/mollasses/honey	1.7	058	Prepared/preserved fruit	1.8	047	Cereal meal/flour, n.e.s	1.8

NB: Revealed comparative advantage greater than 1 assumes the country has a comparative advantage in exporting the good, relative to other countries of the world.

Source: Author's calculation from WITS export flows.

It is unlikely that the relatively high trade flows with China and India can be attributed to an “announcement effect” leading-up to the ratification of the RTA. A more likely explanation is the presumption behind the gravity model that AFTA countries trade more intensively with China and India, other things being equal, because they are relatively closer than other major markets. It will be possible to look into these issues in more detail, and ascertain the real effects of the bilateral agreements with China and India using an *ex post* analytical tool such as the gravity model in a few years.

Table 7. Share of ASEAN trade with China and India

	1981	1991	2001	2002	2003	2004	2005
Total trade	138 655	316 996	687 984	714 844	818 188	989 654	1 144 715
<i>share to:</i>							
ASEAN	0.16	0.19	0.22	0.23	0.25	0.25	0.25
China	0.02	0.03	0.05	0.06	0.07	0.08	0.09
India	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Trade in agricultural goods	26 366	24 132	37 835	41 815	47 430	54 816	57 333
<i>share to:</i>							
ASEAN	0.22	0.20	0.23	0.23	0.24	0.24	0.24
China	0.03	0.07	0.06	0.08	0.09	0.09	0.09
India	0.02	0.02	0.05	0.06	0.05	0.06	0.04

Trade (exports + imports) is in USD million.

Source: WITS.

Summary

The above section provides a quantitative analysis of the effects of AFTA on trade in food and agriculture of its members and non-members. The main results from the gravity models, RCA and other quantitative analysis can be summarised as follows:

- The fully-implemented AFTA has been strongly trade creating for its members.
- The fully-implemented AFTA has been more strongly trade creating than its partially-implemented predecessor.
- AFTA members have reduced their exports to partners outside the region in agricultural goods, under the fully-implemented scenario.
- AFTA members have not reduced their imports from partners outside the region in agricultural goods, under the fully implemented scenario.
- There has been little change in product composition of AFTA exports since signing the agreement, relative to other countries, that can be attributed to membership in the RTA.
- AFTA countries trade more with China and India than other countries of the world, but this cannot be attributed to closer ties in the lead-up to bilateral agreements concluded with these countries.

COMESA

Trade flows

Trade by COMESA countries in agricultural products has risen in the ten years for which data are available for a significant number of member countries, but remains low compared to the other two South-South RTAs covered here. Trade in agriculture remains irregular (Figure 3), and may be due to supply constraints in the sector. COMESA intra-trade in agriculture is small, representing 7% of the total in 1995, up to a high of 15% of trade in agriculture in 2005. COMESA's intra-trade in agriculture is also low compared to AFTA, MERCOSUR or indeed, other RTAs such as NAFTA or the EU.

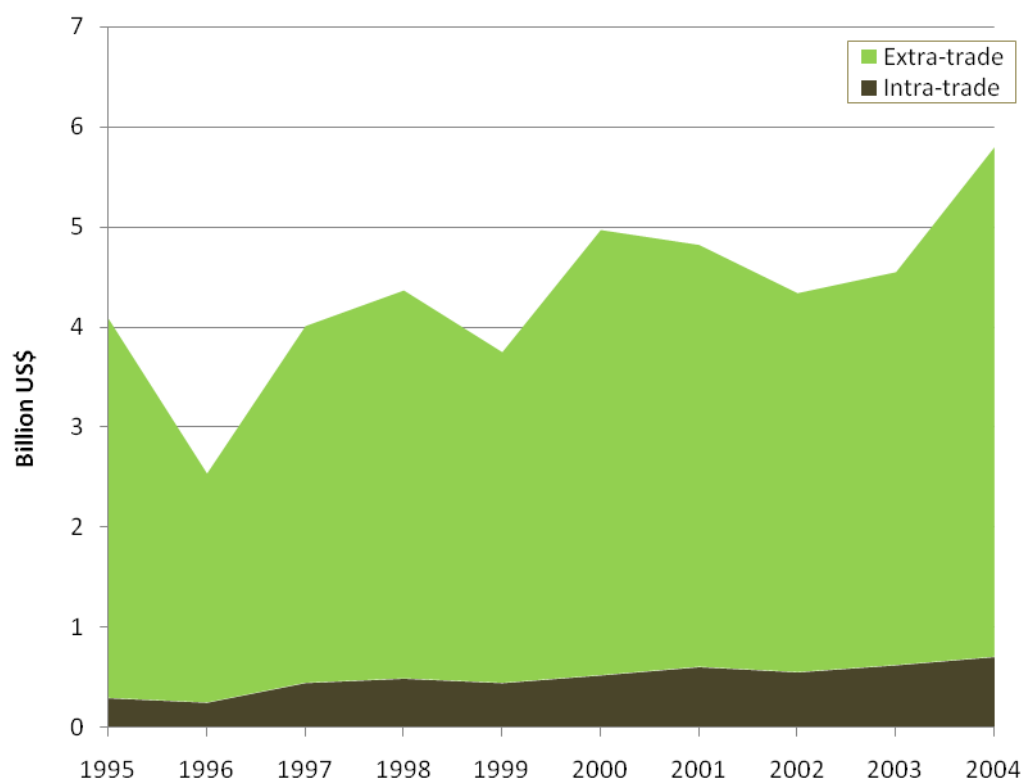
Trade within COMESA is predominantly between countries that have a common border. In 2005, trade between the top ten bilateral country-pairs took place exclusively between countries that share a border or are neighbouring islands. This points to two problems with regard to increasing COMESA intra-trade: i) COMESA countries are often difficult to access either because they are landlocked and/or due to lack of infrastructure between destinations, and ii) border crossings are often time-intensive, leading to prohibitive time constraints if a large number of borders have to be crossed.

Gravity model estimation

The model results regarding COMESA point overall to a trade creating effect within the RTA, and to some trade diversion away from imports from countries outside the region.¹³ COMESA countries trade more among themselves as a result of the RTA, as is illustrated by the positive and significant coefficient, 0.266, on variable $COMESA_{ij}$ in Specification 1, Table A4.1, of Appendix 4. This is to be expected as the COMESA RTA has put into place full duty free access for all products without exception, among all free trade area participants. Despite the extensive market access that COMESA free trade area members have implemented, however, the extent of trade creation is low compared with the coefficients for AFTA or intra-MERCOSUR trade. (AFTA and MERCOSUR coefficients are .464 and .594, respectively, pointing to greater trade creation among those agreements' members).

13. A detailed analysis of the gravity model and rationale for its structure is included in Appendix 4. The results discussed here generally refer to a gravity model incorporating time, individual country and product fixed effects using a log-linear model solved using ordinary least squares (see Specification 1, Table A4.1 in Appendix 4). In addition, a review of recent literature in which the trade effects of COMESA have been modeled in gravity-type models, is included in Appendix 5.

Figure 3. COMESA intra- and extra-trade in agricultural goods



There may be many reasons for COMESA’s relatively low trade creation coefficient, compared to the other South-South agreements under review. One major factor is the strong barrier to trade among COMESA members comprised of lengthy customs procedures and lack of infrastructure.¹⁴ Getting goods to market overland is a challenge in many African countries. It typically takes 2-3 weeks to transport goods by road from one COMESA country to its neighbour; this can be contrasted with a three week transport by sea, for example, from Durban to London. The barriers to trade in the form of trade facilitation measures, customs administration and infrastructure are perhaps more important than the effect of duty on trade flows, thereby resulting in a low trade creation coefficient on COMESA intra-trade, compared with the other South-South agreements. Indeed, there is evidence in the model of this assertion. When comparing model specification 2, which includes country pair dummy variables, which should pick up some of the phenomena (albeit not explicitly) such as lack of efficient transportation between countries, the COMESA trade creation variable is stronger. This implies that if bilateral country pair specificities are taken into account, the effect of the RTA is significantly stronger (see specification 2, Table A4.1, Appendix 4).

The effect on trade with non-members is also relatively low in COMESA according to model results. COMESA exports outside the region rose slightly due to the RTA in place, and COMESA imports from third countries fell slightly in agricultural products. The low impact of COMESA on members’ trade with non-members may also be attributed to factors other than the presence of an RTA. The results of the

14. “The duty is not the problem – it is the time to get to market” indicated one COMESA official. As there is no telephone, fax, or Internet connection at most border posts, transporters regularly drive up to 500 km to collect a customs document or obtain a required certification. The infrastructure necessary for efficient inland transport is also lacking, and road connections between COMESA members often scarce. It is estimated that in Malawi, transport costs make up 60% of the price of many exported goods.

impact on COMESA exports to third countries in the preferred model are not particularly robust when compared with the results in the alternative model, *i.e.* specification 2 in table A4.1 of Appendix 4, which includes country pair fixed effects (which would account more fully for such phenomena as lack of transport and logistics infrastructure between country pairs). In the model correcting for country pair fixed effects, exports to third countries by COMESA members are not significantly different from zero.

The relatively weak impact of the RTA on trade may be due to more fundamental constraints such as supply constraints and weak infrastructure. Imports from outside the COMESA region have fallen by 10% due to the agreement according to the preferred model specification. Trade with countries outside the RTA may have changed less than that for some of the other RTAs under examination due to problems COMESA countries face in increasing exports in general, *e.g.* creating economies of scale, increasing productivity, physical access to markets, access to credit, etc.

The relatively less robust results for COMESA compared with those for AFTA for example, could be due to a number of factors, not least of all data quality. Data for COMESA countries are relatively scarce, and for some years, data are not included for some COMESA members. Given the lack of communication infrastructure, problems of security and other macro-level issues that some COMESA members face, the data quality may be lower than that for some of the other RTAs under review here, or that for the countries in the control group (Australia, Canada, etc.).

There is relatively less literature on the impact of COMESA than that for AFTA or MERCOSUR. In addition, many of the studies are either less detailed (*e.g.* looking at the aggregate trade levels rather than the product level) or less current (none of those reviewed have more than a year or two of data since full implementation of the agreement) than the quantitative analysis undertaken here. Carrère (2003), by far the most interesting of the studies, finds an insignificant effect on intra-COMESA trade and on imports by COMESA members from the rest of the world, and a strong negative effect on exports from COMESA to the rest of the world. Her analysis therefore points to a clear net decrease in trade for COMESA members due to adherence to the RTA. Other studies find strong trade creation and insignificant to strong trade diversion due to the presence of the free trade area. A study measuring COMESA's effect on Uganda's imports between 1994-2003, although not strictly comparable with the results presented here, reveals little evidence of trade creation or trade diversion (Mayda and Steinberg, 2006).

Revealed comparative advantage

COMESA countries' export product specialization is particularly strong in agricultural goods that make up a minor share of world trade flows in agriculture. Many of the products in which COMESA shows a strong comparative advantage are tropical products. COMESA countries show a strong revealed comparative advantage in the following products: tea, spices, raw tobacco, sugar, coffee, rice, fish, soft oil and cereal flour. Since some of these products are exported in small quantities by other countries of the world, and make up a large share of COMESA's exports, the coefficients of revealed comparative advantage are very high (Table 8).

Generally, the revealed comparative advantage shown by COMESA countries has not changed significantly due to the free trade area. Many of the products in which COMESA showed a revealed comparative advantage before the RTA was in place, remain so after its implementation.

**Table 8. Revealed comparative advantage in top 10 agricultural products, COMESA
1990 to 2004**

1990-92		1993-95		1999-2001		2002-04	
Tea	80.9	Tea	101.5	Tea	103.6	Tea	73.1
Raw tobacco	66.7	Raw tobacco	73.7	Raw tobacco	77.6	Spices	42.1
Spices	35.2	Coffee	30.7	Spices	29.0	Raw tobacco	41.3
Sugar	26.0	Spices	23.4	Coffee	25.9	Sugar	20.8
Coffee	19.1	Sugar	21.6	Sugar	20.7	Coffee	15.4
Fruit, preserved	4.9	Cereal flour	5.3	Oilseeds, soft oil	14.7	Rice	14.7
Cereal flour	4.3	Maize	5.0	Rice	7.5	Fish, prepared	9.8
Maize	2.9	Fruit, preserved	4.7	Vegetables	5.4	Oilseeds, soft oil	9.7
Margarine	2.5	Oilseeds, soft oil	4.5	Fish	5.2	Cereal flour	9.0
Crustaceans	2.4	Misc. cereal grains	4.2	Fish, prepared	5.2	Fish	6.3

Summary

The above section provides a quantitative analysis of the effects of AFTA on trade in food and agriculture of its members and non-members. The main results from the gravity models, RCA and other quantitative analysis can be summarised as follows:

- COMESA has been trade creating for the members of its free trade area, but less so than AFTA or MERCOSUR.
- COMESA exports to third countries increased slightly, and imports from third countries fell slightly due to the presence of the agreement. These results are however not particularly robust.
- COMESA intra-trade in agriculture remains small, although growing, and takes place predominantly between countries with a common border.
- COMESA countries show a strong comparative advantage in tropical and other products that do not typically capture a large share of world markets. The revealed comparative advantage shown by COMESA countries has not changed significantly due to the free trade area.

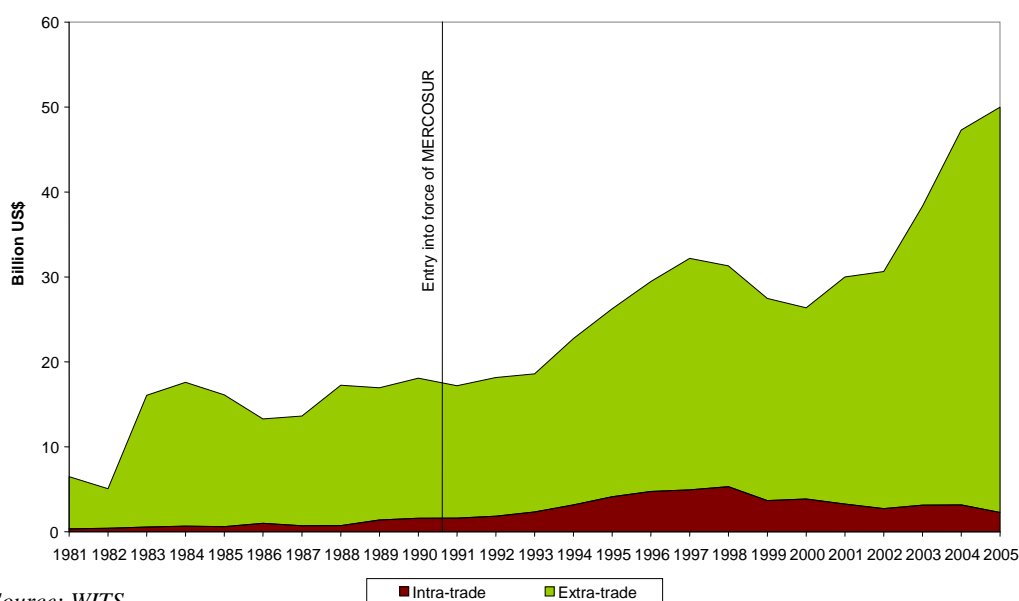
MERCOSUR

Trade flows

It has been shown in section II above that MERCOSUR does not absorb a large share of its members' exports – intra-trade accounted for 13% of total trade for countries within the region, and only 5% of agricultural exports. Figure 4 shows MERCOSUR's trade in agricultural goods within and outside the region.

Indeed, MERCOSUR's export markets are particularly geographically diversified. About half of its exports are directed toward the OECD. Despite the greater distance from European markets, the EU-25 accounted for 21% of MERCOSUR's exports compared with 17% by the United States. Just over half of MERCOSUR's exports go to developing countries, 28% of which are absorbed within Latin America (Table 9).

Figure 4. MERCOSUR intra- and extra-trade in agricultural products



Source: WITS.

Table 9. MERCOSUR: exports by destination,% of total trade

	1981	1991	2001	2005
OECD	40	61	52	49
<i>of which:</i>				
EU25	25	33	23	21
United States	9	17	20	17
Non-OECD	60	39	48	51
<i>of which:</i>				
Latin America	20	30	31	28
<i>of which:</i>				
MERCOSUR	10	11	17	12
ANDEAN	4	4	4	5
Chile	2	4	5	5
China	1	2	4	6

Source: WITS.

It should not be concluded from the above that the trade effect of MERCOSUR, despite the deep integration that we have seen in section II, has been insignificant. Controlling for all other effects, MERCOSUR has had a strong positive effect on trade flows within its member countries in the agri-food sectors.

Gravity model estimation

Results from all gravity model specifications converge to suggest that MERCOSUR has had a significant trade creating effect in the agricultural sectors in the region.¹⁵ Coefficients estimating MERCOSUR intra-trade are high and significant, ranging from 0.59 to 1.117 (see *MERCOSUR_{ij}* coefficients in Table A4.1 of Appendix 4). The implied effect of MERCOSUR on trade within the members in the preferred model scenario points to an increase of 81% in agricultural trade among MERCOSUR members due to the agreement alone, other things being equal. Indeed, this is the strongest trade creation effect of all three RTAs examined in this paper. This strong effect is echoed in much of the literature. Although the models in the literature are not strictly comparable with the one estimated here, they give a general idea as to the robustness of findings under different specifications, time periods and sectors of activity. Estimates, using extreme bounds analysis, of the likely trade creation effects of MERCOSUR range from 1.39 to 2.78 (see Ghosh and Yamarik (2005) estimates in Appendix 5). Although existing gravity model estimates vary over a wide range – coefficients range from statistically insignificant to 2.28 – the general sense is that MERCOSUR countries trade significantly more with each other than they would if the RTA was not in place.

This result is not in itself surprising. Section II and Appendix 3 outline the deep integration of MERCOSUR. All agricultural products in the zone are traded duty free with the exception of sugar. Although trade among MERCOSUR countries does not account for a major share of total trade in the region, the four members undoubtedly trade more among themselves given their duty free access to each

15. A detailed analysis of the gravity model and rationale for its structure is included in Appendix 4. The results discussed here generally refer to a gravity model incorporating time, individual country and product fixed effects using a log-linear model solved using ordinary least squares (see Specification 1, Table A4.1 in Appendix 4). In addition, a review of recent literature in which the trade effects of MERCOSUR have been modeled in gravity-type models, is included in Appendix 5.

others' markets than they would otherwise. The question that this result poses is whether or not the increase in intra-trade among MERCOSUR members occurs in addition to, or at the expense of, trade with countries outside the zone.

The results obtained from the modelling undertaken are not suggestive of net trade diversion, although different specifications indicate different results. In the preferred model specification (Specification 1, Table A4.1, Appendix 4) imports by MERCOSUR countries from countries outside the zone increase due to the existence of the RTA (the coefficient on *MERCOSUR_iExpOut* is positive and significant). Alternative specifications of the gravity model (see the maximum likelihood Poisson estimation in specification 3) suggest that MERCOSUR members import less from non-members due to the creation of the RTA. In the existing literature, results vary widely, ranging from negative to strong positive effects.

Regarding MERCOSUR agricultural exports outside the zone, the potential trade diverting effect is minimal. The coefficient on *MERCOSUR_iExpIn* is negative and significant in the favoured model specification, but is low, indicating a decrease in MERCOSUR's exports of agricultural products outside the region of 9%. Additionally, alternative specifications tested indicate a positive effect on MERCOSUR's agricultural exports (see Specification 3 in Table A4.1 in Appendix 4). In the existing literature, estimates of the effect of MERCOSUR on member exports are similarly mixed, although it seems in more recent periods that they have decreased, other things being equal.

Given the wide diversity of results regarding trade diversion, one may therefore conclude that there is no robust indication that trade has been strongly diverted away from third countries. There is no particularly robust indication, however, among all the model specifications and in the literature, that imports from third countries have increased significantly, which might have been the case if the customs union had created increased investment and trade opportunities through access to a larger market. In the case of MERCOSUR, however, this has not been true in practice due to the double charging of the Common External Tariff. The increased market opportunities of an integrated region that would attract trade and investment have not been accessible to countries outside the region due to the double charging of the CET – and this is reflected in the results of the gravity model by a less than robust effect on imports from outside MERCOSUR.

Revealed comparative advantage

The MERCOSUR agreement has not had a large effect on the comparative advantage of MERCOSUR countries' export products in the food and agriculture sectors. MERCOSUR countries, taken as a group, have a largely similar comparative advantage in exporting a variety of agricultural products such as soft oilseeds, beef and preserved meat, tobacco, coffee, sugar and honey, and fruit juices and preparations (Table 10).

A few products have lost in comparative advantage. One product in which MERCOSUR countries showed a high comparative advantage before the agreement was put into place is cocoa. In the late 1980s, Brazil was highly competitive in the cocoa market. By 1995, however, the advantage was lost.

Conversely, MERCOSUR countries have seen their comparative advantage in a few products rise over the last decade. Comparative advantage in exporting margarine, for example, has risen dramatically, to attain the product in which the region has the highest comparative advantage. Much of this product is exported by Argentina. This phenomenon cannot be attributed to the existence of the MERCOSUR agreement however as it came about in 1991, one year before the agreement was signed.

As shown in section II, the vast majority of trade within MERCOSUR is between Argentina and Brazil. However, the two countries show a comparative advantage in broadly similar agricultural products.

Table 11 below indicates in bold all products in which Argentina and Brazil both had a comparative advantage in 2004 (*i.e.* RCA > 1).

The two largest MERCOSUR exporters show a comparative advantage in the export of the same agricultural goods. In 2004, Argentina and Brazil had a comparative advantage in the export of the same seven products; each had an additional comparative advantage in the export of three products (Argentina) or four products (Brazil). Argentina and Brazil both show a comparative advantage in soft oilseeds,¹⁶ fruit and vegetable juices, margarine, beef and preserved meat and animal feed. Argentina also has a comparative advantage in grains (wheat and maize) and milk products (excluding butter and cheese). Brazil has an additional comparative advantage in some tropical-climate products such as tobacco, cocoa and sugar.

The fact that Argentina and Brazil have a comparative advantage in similar products could entail three possible effects regarding the creation of the free trade area. First, they could avoid trading with each other since their comparative advantage structure is similar. This is partially true, it was seen in section II that MERCOSUR intra-trade is low compared to other RTAs. A second potential effect is that there could be more “intra-industry” trade, with more integration along production chains, in products in which both countries have a comparative advantage. Third, MERCOSUR countries could trade among themselves in products in which they do not have a strong comparative advantage, and reserve trade in products in which exporters do have a comparative advantage for outside partners (*i.e.* non-preferential trade).

16. Argentina’s comparative advantage in oil from oilseeds could in fact be the reflection of the differential export tax (DET) placed on raw oilseeds, effectively subsidizing processed oil and other oilseed products. See Appendix 3 for more details on this policy.

Table 10. Revealed Comparative Advantage in agricultural products in MERCOSUR

	1988		1995		2001		2004
Coffee	7.20	Margarine	12.25	Margarine	9.31	Margarine	7.62
Preserved meat	5.87	Vegetable oil, soft	4.90	Vegetable oil, soft	3.93	Vegetable oil, soft	3.84
Vegetable oil, soft	5.51	Coffee	4.76	Coffee	3.66	Sugar/honey	3.47
Fruit preparations	4.21	Sugar/honey	3.65	Sugar/honey	3.61	Coffee	3.10
Cocoa	3.77	Raw tobacco	3.28	Soft oilseeds	3.10	Soft oilseeds	3.06
Raw tobacco	3.13	Preserved meat, nes	3.16	Raw tobacco	3.00	Raw tobacco	2.91
Animal feed	2.95	Fruit / vegetable juice	3.14	Fruit/vegetable juice	2.91	Animal feed	2.63
Sugar/honey	2.15	Animal feed	2.41	Animal feed	2.70	Beef	2.48
Vegetable fibres	2.01	Soft oilseeds	1.65	Maize	1.93	Fruit/vegetable juice	2.42
Soft oilseeds	1.80	Beef	1.35	Preserved meat, nes	1.50	Preserved meat, nes	1.54
Cereal grains, nes	1.41			Meat, nes	1.16	Meat, nes	1.47
Beef	1.34			Beef	1.10	Maize	1.45
Cotton	1.03						
Spices	1.02						

NB. Only products in which MERCOSUR has a revealed comparative advantage (i.e. RCA > 1) figure here.

MERCOSUR countries' revealed comparative advantage is calculated using the exports of the four MERCOSUR members combined.

Source: Author's calculation; trade flow data from WITS.

Table 11. Argentina and Brazil: Revealed Comparative Advantage, 2004

Argentina			Brazil		
	Product Code	RCA		Product Code	RCA
Milk products, excluding butter and cheese	22	1.05	Meat or offal, preserved	17	1.82
Meat or offal, preserved	17	1.10	Animal feed excluding unmilled cereals	81	1.98
Fruit and vegetable juices	59	1.23	Beef, fresh, chilled or frozen	11	1.98
Wheat or meslin	41	1.25	Margarine	91	2.16
Beef, fresh, chilled or frozen	11	1.48	Vegetable oil/fat, soft	421	2.22
Oilseeds — soft oil	222	2.40	Meat, not elsewhere specified	12	2.30
Maize except sweet corn	44	2.81	Fruit and vegetable juices	59	3.32
Animal feed excluding unmilled cereals	81	4.18	Oilseeds -- soft oil	222	3.48
Vegetable oil/fat, soft	421	7.35	Tobacco, raw and waste	121	4.34
Margarine	91	18.5	Cocoa	71	5.15
			Sugar, molasses, honey	61	5.27

Product names in bold refer to those in which both Argentina and Brazil have a comparative advantage (*i.e.* RCA > 1).
 Source: WITS.

Analyses show that MERCOSUR countries trade largely among themselves in goods in which they do not have a comparative advantage, and that they trade with countries outside the region in goods in which they have a comparative advantage. In 1988, 62% of MERCOSUR intra-trade was in products in which MERCOSUR countries had a comparative advantage. In 2004, the figure fell to 37%. Therefore, 63% of MERCOSUR intra-trade in 2004 was in products in which its two largest members, Argentina and Brazil, do not have a comparative advantage. Looking at Brazil alone, the picture is similar. In 1988, 23% of Brazil's exports to MERCOSUR countries were in products in which both Brazil and Argentina do not possess comparative advantage. In 2004, the figure was 60%.

These indicators imply that MERCOSUR intra-trade is largely in products in which the main trading countries do not have comparative advantage. There could be two explanations for this: 1) inefficient producers are protected within the zone and therefore export largely within MERCOSUR, or 2) markets of trading partners are closed to some goods in which MERCOSUR countries could potentially compete if there existed a more "level playing field". The fact that producers are protected within the MERCOSUR region relative to competitors outside the zone is evident since they have duty free access to each others' markets, whereas the CET is applied to imports from third countries. The second assertion can be easily tested by looking at tariff levels of MERCOSUR partners in goods in which *intra-trade* is high.

Table 12 shows the tariffs levied by non-member countries on the products that MERCOSUR members export heavily within the zone but relatively little outside. The hypothesis is that MERCOSUR countries export these products within the zone primarily because markets outside the region are closed to these products. The tariffs on three major products in this category, *i.e.* products that are in the top five exports in agriculture within MERCOSUR but in which MERCOSUR does not show a comparative advantage in exporting outside the region, are shown below in MERCOSUR's seven top export markets. Tariffs range from 8.5 to 28.3% (simple average) with maximum tariffs between 20 and 176% for milk products, excluding butter and cheese. Tariff for rice range from 2 to 68% (2 to 100% maximum rate) and may be even higher if specific tariffs could be properly accounted for, as well as special import regimes for rice. Cereal flour faces tariffs between 4 and 114.4% on average, with maximum tariffs between 15 and 800%.

Tariffs levied by non-members on products which MERCOSUR countries largely trade among themselves may, therefore, constitute a barrier to their exports outside the region. In addition, when traded within the zone, these products potentially compete against incoming products subject to MERCOSUR's CET. The CET is relatively high on the three products in question – average tariffs are respectively 17, 11 and 16.5% for milk products, rice and cereal flour, with maximum tariffs reaching 27, 18 and 19.5% respectively. The opportunity cost for exporting outside the region in these products is therefore likely to be high.

Table 12. Tariff rates facing three MERCOSUR products by major trading partners, 2004

	Simple average MFN tariff	Maximum tariff rate
<i>Milk products (excluding butter and cheese)</i>		
China	14.3	20
Egypt	10.8	32
Iran	28.3	50
Japan	24.6	35
Korea	76.4	176
Saudi Arabia	8.5	25
United States	16.6	20
<i>Rice</i>		
China	68.0	68
Egypt	2.0	2
Iran	52.0	100
Japan	0.0	0
Korea	5.0	5
Saudi Arabia	0.0	0
United States	11.2	11
<i>Cereal flour</i>		
China	23.5	68
Egypt	26.4	32
Iran	45.6	70
Japan	15.7	34
Korea	114.4	800
Saudi Arabia	8.1	20
United States	4.0	15

NB.: In some cases, a zero represents unavailable data as WITS does not differentiate between duty free access and specific tariffs for which there is no ad valorem equivalent, or special regimes.

Source: WITS

Summary

This section has provided a quantitative analysis of the effect of MERCOSUR on the agricultural trade of its members and non-members. The main results from the gravity models and RCA analysis can be summarised as follows:

- MERCOSUR has had a strong trade creating effect on its members.
- It is not possible to affirm with certainty that trade has been diverted from third country sources, nor that trade outside the region has increased due to MERCOSUR.

- There has been little change in the product composition of MERCOSUR exports, relative to other countries, that can be attributed to membership in MERCOSUR.
- Argentina and Brazil, the two largest MERCOSUR members, have similar comparative advantages in exporting agricultural products.
- Since the advent of MERCOSUR, Argentina and Brazil have traded among themselves increasingly in products in which they have a comparative *disadvantage*. Almost 2/3 of MERCOSUR intra-trade is in products in which Argentina and Brazil have a comparative disadvantage, as compared to the rest of the world.
- The above indicates that Argentina and Brazil export different products outside the region than they do among themselves. This is partly attributable to the high tariffs their products face in the markets of their major trading partners, and also to the protection they receive within the RTA from MERCOSUR's Common External Tariff.

IV. Implications

The above analysis of AFTA, COMESA and MERCOSUR has brought out some of the underlying characteristics of the South-South RTAs and their effects on trade in agricultural products. It is impossible to draw general conclusions about the effects of RTAs on trade from a few case studies. They do, however, suggest some interesting elements that may merit further study and verification. Some implications from these case studies follow.

All RTAs examined in this paper are trade creating. This is not a surprising finding: when barriers to trade are significantly reduced within a group of countries, trade in agricultural goods increases. It should be noted, however, that this finding may not be replicated with respect to other RTAs that are either less ambitious or less effective.

The depth of integration within the agreement is important in determining the extent to which it is trade creating. In all of the model simulations done for this analysis, the effect of MERCOSUR on the trade in agricultural goods of its members is much higher than that of AFTA or COMESA. This can be attributed to the fact that MERCOSUR agreement has allowed its member countries much deeper integration, and over a longer time period, than have AFTA or COMESA.

Membership in an RTA alone is unlikely to be sufficient to overcome other physical or economic barriers to trade. COMESA, despite its full duty free access to all members of the free trade area in all products, has produced fewer trade opportunities for COMESA members than other RTAs such as AFTA. This is ostensibly because of low complementarity of natural endowments, COMESA countries' relatively small markets and capacity constraints. Basic infrastructure, such as transport and communications infrastructure, is also lacking, impeding trade opportunities.

Underlying determinants of trade such as export structure that are based on factor endowments change little. Argentina and Brazil are large agricultural exporters, due to their geography and factor endowments. Their export structures in agricultural products are similar and they have a comparative advantage in exporting many of the same products. This is particularly striking in the agriculture sector. This may explain in part why their revealed comparative advantage has changed little over time. This may suggest that potentially net trade creation is less likely in RTAs such as MERCOSUR, in which the factor endowments of members are similar.

There is no strong evidence of trade diversion from trading partners outside the zone due to the RTAs. The risk to trading partners excluded from an RTA is that their trade with a country within the RTA, and

particularly their exports to RTA members, is diverted to its RTA partners. Evidence on this has been mixed in the three case studies. AFTA, for example, has been seen to be strongly net trade creating, i.e., it has created more trade than has been lost with countries outside the RTA. The Vinerian trade creating/trade distorting analysis sheds light on changes in trade patterns, but distortions introduced by RTAs should be considered in light of distortions that are prevalent in the baseline situation, i.e., outside the RTA in question.

Trade costs remain an important factor in agricultural trade. Despite lower costs in transportation and the process of miniaturisation of some products, trade costs still play a role in determining trade flows. They may play an even greater role in agricultural markets than in trade in other goods; undoubtedly they play a relatively minor role in the provision of services. Proxies used in the analysis here for trade costs, namely distance, easy access to the sea, and the obligation to cross numerous borders, are all shown to hamper trade flows significantly.

Historical trade patterns and traditional economic ties are also important determinants of trade flows. It has been shown that AFTA countries already trade more in agricultural goods with China and India, two major markets in the region, than do other countries (as a share of their total trade). It would be interesting to see if the bilateral agreements involving these two countries, when they are in place, reinforce this trend, given that trade with large partners in the region is already very high, relative to their global position.

In some instances, RTAs encourage producers which are not necessarily the most competitive at the world level, but so do high global MFN tariff rates. As demonstrated by the analysis of revealed comparative advantage, Argentina and Brazil have been increasingly trading among themselves in goods in which they have a comparative disadvantage. This can potentially be attributed in part to high tariffs in MERCOSUR which shield relatively inefficient local producers from global competition by. Alternatively, it may be due to high, sometimes prohibitive, tariffs in potential export markets outside the region. Finally, this result may *inter alia* also reflect the characteristics of the Brazilian and Argentinean markets themselves, consumer preferences or physical obstacles to trade (such as distance) that exist.

Some of the most entrenched barriers to trade remain in RTAs. Some of the most sensitive issues, such as subsidies, are not tackled at the regional level. Indeed, the export tax in Argentina on some processed products has created some distortions in trade of processed agricultural products despite the deep integration of MERCOSUR. Some of the trade policy instruments that are most supported by domestic lobbies can only be reduced or eliminated at the multilateral level.

The preceding analysis is consistent with the view that RTAs can reinforce the multilateral system, for example by putting into place a system of gradual trade liberalisation and by going beyond WTO rules. Countries trade more when an RTA is in place: trade creation is present within RTAs that are indeed implemented. But concluding and implementing RTAs will not replace multilateral liberalisation: some regions do not have sufficient complementarity of natural endowments, particularly as regards trade in agriculture, to benefit fully from regional liberalisation. The analysis in this paper has centred on the effects of South-South RTAs on the trade of their members as well as non-members in the agriculture sector. The implications of this analysis would benefit from being extended to sectors outside agriculture, or to North-South agreements, in order to ascertain whether these trends are confirmed. It is of particular interest to understand whether countries at different levels of development (*i.e.* engaged in North-South agreements) benefit from trade creation in the same way, and to what extent trade from partners at similar levels of development is diverted. It will also be relevant to confirm the findings in this paper, notably that the types of goods exported by RTA members change little, by extending the analysis to sectors outside agriculture.

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Appendix 1.

AFTA Provisions and Implementation

This appendix will examine the provisions in the ASEAN Free Trade Agreement, and will analyse its implementation. It aims to ascertain the depth of integration among members within the RTA.

The ASEAN Free Trade Area (AFTA) was agreed by all ASEAN members in January 1992, a quarter of a century after the creation of ASEAN (Association of Southeast Asian Nations). A number of developments prompted the ASEAN member countries to conclude the RTA (Hafez, 2004).

- ASEAN members were keen to establish closer, more structured cooperation at the end of the Cold War and the end of the Cambodian conflict.
- The potential failure of the Uruguay Round negotiations and the emergence of regionalism elsewhere, including the impending integration of the European common market in 1993 and the formation of NAFTA. Furthermore, ASEAN members, also members of APEC, were concerned that the APEC agenda may be heavily influenced by economically larger members such as China, Japan and the United States.
- ASEAN countries realised the potential benefits of trade liberalisation in the 1980s and 1990s. This was reinforced by increases in inward foreign investment. Between 1987 and 1991, over USD 42 billion of foreign direct investment flowed into Southeast Asia, mostly from Japan, followed by the United States and the European Union (Hafez, 2004). The structure of trade between ASEAN members also changed during the decade preceding the establishment of AFTA. In 1980, 28% of intra-ASEAN trade was in manufactured goods. In 1990, manufactures accounted for 61% of intra-ASEAN trade (World Bank, WDI).
- Leaders of ASEAN expressed concern about the potential diversion in trade and FDI by China. AFTA could offer a larger, dynamic market to attract FDI thereby increasing trade flows both with OECD countries and with China.

AFTA was signed with the aim of creating a free trade area by 2008. The original signatories were: Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand (ASEAN-6). Vietnam joined in 1995, Laos and Myanmar in 1997 and Cambodia in 1999. All four countries were required to join AFTA in order to join ASEAN, but were accorded longer time frames for implementing the preferential trading agreement.

Tariff liberalisation

The main mechanism by which the AFTA signatory countries agreed to open their markets to each other was through the Common Effective Preferential Tariff (CEPT). The gradual tariff reduction on goods emanating from other AFTA members was applied to manufactured goods and processed agricultural products in the first instance, allowing for specific products to be excluded. The CEPT was extended to unprocessed agricultural goods in 1996. Products included in the CEPT were those with at least 40% value added content produced or assembled in ASEAN countries. The original agreement allowed for

elimination of some non-tariff barriers and instituted safeguard measures and a consultative process in the case of dispute.

The original agreement provided for a 15-year period within which AFTA signatories would extend preferential market access. Tariffs on the “normal track” that were in excess of 20% in 1992 were to be decreased to 20% by 2001, to 15% by 2003, to 10% by 2005, and to between 0 and 5% by 2007. In practice, tariff reductions were accelerated following a decision at the 26th meeting of ASEAN Economic Ministers in 1994. They agreed that normal track tariffs in excess of 20% should be reduced to between 0 and 5% by 2003. “Fast track” tariffs were to be reduced on a specified list of products to between 0 and 5% by 2000.

The four newer ASEAN members have been accorded longer time frames to implement the tariff reductions. Vietnam is to have reduced all tariffs to a maximum of 5% by 2006, Laos and Myanmar by 2008 and Cambodia by 2010.

AFTA signatories have the option of excluding products from the CEPT in three cases: temporary exclusions, sensitive sectors and general exceptions. Temporary exclusions are accorded for a small number of products where tariff reduction has been delayed. A small number of products are deemed sensitive and the deadline for their tariff reduction to below 5% has been delayed until 2010 for the ASEAN-6 and 2015 for ASEAN-4. In practice, these are applied to two very sensitive sectors among ASEAN-6, rice and sugar, and to a greater number of sectors, all food and agriculture, among the newer ASEAN members.

General exceptions refer to products which a country deems necessary for “the protection of national security, public morals, the protection of human, animal or plant life and health, and the protection of articles of artistic, historic or archaeological value” (*Article 9*, CEPT-AFTA Agreement). In practice, however, this list of exceptions has grown in the case of some members. In 2001, Brunei included 202 products in the list of general exceptions. By 2004, the list had grown to 779. The newer AFTA members also have included large numbers of products as general exceptions (Table A1.1). It seems unlikely that the need for protection of national security, animal and plant life and historic or cultural value would extend to 1 745 product exclusions (in the case of Laos for example).

Table A1.1. Product exceptions to preferential market access within AFTA

	Number of lines included in CEPT (HS 8-digit)	Number of general exceptions	Number of sensitive products	Number of temporary exclusions
Brunei	10 571	779	0	
Indonesia	11 029	100	25 ^a	
Malaysia	12 502	89		
Philippines	11 014	27	19 ^b	
Singapore	10 706	0	0	
Thailand	11 030	0	0	
Cambodia	2 455	1 306		
Laos	2 963	1 745	78 ^c	437
Myanmar	8 607	48	17 ^c	631
Vietnam	10 144	424	89 ^c	34

All data refer to 2004 CEPT tariff schedules.

a. All sensitive products are in the rice sector.

b. All sensitive products refer to rice and sugar.

c. All sensitive products are food and agriculture

Source: Author's calculations from tariff schedules published by ASEAN Secretariat, <http://www.aseansec.org/18727.htm>

Preferential tariff rates accorded by AFTA members to each other have dropped significantly. In 1993, at the start of the CEPT tariff reduction programme, average tariffs were 12.7% among the ASEAN-6. In 2004, ASEAN-6 preferential rates equalled 2.2%, as compared to most favoured nation (MFN) average tariff rates of 7.2%. Among new members who continue to gradually implement CEPT reductions, the average tariff extended to AFTA members was 6.6% as opposed to 10.9% MFN facing non-members (Table A1.2).

Generally, ASEAN countries have relatively open trading regimes including vis-à-vis economies outside the region. Their tariffs applied to incoming goods that do not receive preferential access are closer to those entering many OECD countries than to those of many developing countries. As shown in Table A1.2, tariffs in the ASEAN-6 average 7.2%. This compares with average MFN tariff rates of 6.5% for OECD countries and 10.9% for non-OECD WTO members.¹⁷

Table A1.2: ASEAN Tariff rates – CEPT and MFN

	CEPT			MFN
	2004	2005	2006	
Brunei	1.4	1.3	1.2	4.8
Indonesia	2.5			9.8
Malaysia			2.2	9.7
Philippines	2.4			7.5
Singapore	0.0	0.0	0.0	0.0
Thailand	4.9			11.6
ASEAN-6	2.2	0.6	1.1	7.2
Cambodia	8.5		7.4	8.5
Laos	5.9	3.9	2.7	10.3
Myanmar	4.2	4.0	3.7	5.6
Vietnam	7.8	6.0	3.7	19.3
ASEAN-4	6.6	4.6	4.4	10.9

Source: Author's calculations from tariff schedules published by ASEAN Secretariat, <http://www.aseansec.org/18727.htm>

Non-tariff barriers

The 1992 AFTA agreement specified that signatories eliminate all quantitative restrictions and other non-tariff barriers (NTBs) between each other within a period of five years. In practice, this has not been fully implemented although successes exist in some areas. Progress on harmonization of standards has occurred in the pharmaceuticals and cosmetics industries. Mutual recognition agreements have been concluded in telecommunications equipment and electrical and electronic equipment.

The ASEAN Secretariat has conducted a survey of the most prevalent NTBs in trade within the region. (As the survey was conducted before the accession of the four newer members, data refer only to the original six members). Results are shown in Table A1.3. The non-tariff barrier affecting the largest number of tariff lines is customs surcharges. The customs surcharge, also called surtax or additional duty, is an *ad hoc* trade policy instrument to raise fiscal revenue or to protect domestic industry.

ASEAN has taken a number of steps to modernise and streamline customs administration in the context of AFTA. Initiatives have included the region wide adoption of the WTO valuation method in accordance with the WTO Valuation Agreement, the harmonization of customs procedures, and the

17. Figures based on simple average MFN tariffs for goods in 2004. Source: World Integrated Trade Solution (WITS).

adoption of common interpretation of the Harmonized System at the 8-digit (product) level. Other activities have included work on implementing customs post clearance audit (Customs PCA), finalisation of two protocols under the ASEAN Framework Agreement on the Facilitation of Goods in Transit, and development of a regional training plan and provision of technical assistance to the new members of ASEAN.

Table A1.3. Most Prevalent Non Tariff Barriers in AFTA countries

Non-tariff Barrier	Number of Tariff Lines Affected
Customs surcharges	2 683
Technical Measures	568
Product Characteristic Requirement	407
Additional Charges	126
Single Channel for Imports	65
State-trading Administration	10
Marketing Requirements	3
Technical Regulations	3

Source: *The ASEAN Secretariat*, <http://www.aseansec.org/10529.htm>.

Customs PCA is a priority area in ASEAN customs cooperation as it streamlines procedures at the border and increases efficiency by restricting checking of goods to an informed sample. Traditionally, checking of documents and goods submitted for import clearance takes place before the goods are released. Post clearance audit provides for checking to be performed subsequent to the release of the goods thus allowing for speedier clearance at entry points thereby facilitating trade. The concept of PCA entails a significant shift from current customs practice and requires significant changes to current goods clearance systems, including changes in legislation and retraining of staff to acquire the necessary skills and techniques to undertake effective auditing. The establishment of PCA also facilitates the implementation of the WTO Valuation Agreement, which emphasises the process of verification through post-import audit (US-ASEAN Business Council, <http://www.us-asean.org/afta.asp>).

Partnerships

ASEAN is pursuing a strategy of negotiation of closer economic relations with its major trading partners in the region. In September 2002, the ASEAN nations and Australia and New Zealand affirmed their intention to pursue a closer economic partnership.¹⁸ In November 2002, ASEAN and Japan announced in a Joint Declaration their intention to pursue a Comprehensive Economic Partnership. In 2003, they signed a framework agreement outlining intentions to establish a free trade area by 2012. Frameworks for preferential trading agreements were signed in 2003 and 2004 with China and India respectively.

This strategy may be motivated in part by the aim to counter the tendency of “hub and spoke” regionalism in Asia. So-called hub and spoke regionalism occurs when many small countries conclude bilateral agreements with a larger country – the “hub”. The smaller countries thereby increase their trade with the larger partner and, in this way, become increasingly dependent on demand in the “hub” market. Smaller countries in this situation also possess less negotiating power in concluding beneficial bilateral agreements. By concluding a number of these arrangements with larger “hubs”, and by concluding them as

18. Ministerial Declaration on the AFTA-CER Closer Economic Partnership, Bandar Seri Begawan, 14 September 2002 <http://www.aseansec.org/12780.htm>

an RTA group rather than individually, it is possible that the ASEAN countries will avoid the “hub and spoke” model of dependency of smaller countries on the trade policy of larger ones.

ASEAN-China Framework Agreement

The ASEAN-China Framework Agreement, signed in 2003, provides for an “early harvest” programme of rapid tariff elimination on specified non-processed agricultural goods, a gradual reduction of tariffs on products on a “normal track” of tariff reduction, the possibility of specifying some products as sensitive, and the elimination or reduction of some non-tariff barriers. Tariff reductions are performed in a reciprocal way between ASEAN-6 and China; ASEAN-4 countries are accorded longer implementation periods.

The “early harvest” programme provides for a quick reduction in tariffs on live animals, meat and edible meal offal, fish, dairy produce, other animal products, live trees, edible vegetables and edible fruits and nuts (Harmonized System codes 01-08). The programme does *not* provide for early tariff reduction on coffee, tea, spices, cereals, cocoa or processed agricultural products. Tariff reductions on products in the early harvest programme are significant. Products with MFN rates of 15% or less in China and the ASEAN-6 enter each other’s markets duty free starting in 2005. Products with MFN rates higher than 15% are subject to a 5% rate in 2005, and enter China/ASEAN-6 duty free starting in 2006.

Under the Trade in Goods Agreement, all other products, which are listed under the normal track¹⁹ will be traded duty free by 2010 (for ASEAN-6 and China) or 2015 (for ASEAN-4). Tariff reduction schedules for ASEAN-6 are outlined in Table A1.4 below. Some products, considered sensitive, are excluded from the normal track reductions but are subject to a ceiling.

Table A1.4: Bilateral preferential market access accorded by the ASEAN-6 and China
with respect to 2004 MFN rates

X = Applied MFN tariff rate	2005	2007	2009	2010
X ≥ 20%	20	12	5	0
15 ≤ X < 20%	15	8	5	0
10 ≤ X < 15%	10	8	5	0
5% ≤ X < 10%	5	5	0	0
X ≤ 5%	Standstill		0	0

Source: ASEAN Secretariat.

ASEAN-India Framework Agreement

The ASEAN-India Framework Agreement was drawn up on the same model as the ASEAN-China Framework Agreement, covering the same issues (early harvest, normal track tariff reductions, sensitive products and dissolution of NTBs). In practice, however, fewer products are included and time frames for implementation are longer than in the agreement with China. For example, the early harvest programme includes only 100 products, six of which are agricultural products: sardines, prepared tuna, cocoa butter, cocoa powder, pineapples and pineapple juice. Tariff elimination on the early harvest products is planned for October 2007 (for ASEAN-6 and India) and October 2010 (for ASEAN-4).

It is planned that the normal track products will enter India and ASEAN-6 (with the exception of the Philippines) duty free by 2011. Duty free reciprocal access is to be accorded between India and ASEAN-4 (plus the Philippines) by 2016. The schedule of tariff reductions and the list of products continues to be discussed at this time.

19. For a complete list of products, visit [http://www.aseansec.org/accfta tif/annex 1.zip](http://www.aseansec.org/accfta%20tif/annex%201.zip)

Appendix 2.

COMESA Provisions and Implementation

The Common Market for Eastern and Southern Africa (COMESA) was created in 1993. Its principle objective is to promote regional economic integration through development of trade and investment. COMESA now counts 19 members: Burundi, Comoros, Democratic Republic of the Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia and Zimbabwe (COMESA, 2007). A free trade area has been put into place since 2000. The annual COMESA Heads of State and Government meeting in May 2007 adopted a system of common external tariff in order to implement a customs union by December 2008. COMESA members aim to create a monetary union by 2025.

A free trade area was achieved in October 2000 when nine members eliminated their tariffs on products originating from partners within the FTA. The nine original members of the FTA were: Djibouti, Egypt, Kenya, Madagascar, Malawi, Mauritius, Sudan, Zambia and Zimbabwe. Burundi and Rwanda joined the FTA in 2004. Since then, Libya and Comoros joined the FTA, in 2005 and 2006 respectively, bringing the number of COMESA members included in the FTA to 13 out of 19. Seychelles is scheduled to join the FTA during 2007.

Members of the FTA accord duty-free access to products originating from other FTA members without exception. The duty-free access extended to COMESA members has been introduced gradually since 1993. Initial tariff reductions were 30% for food products and 50% for agricultural raw materials. Since 2000, full duty free access has been accorded within the FTA on all products without exception. A safeguard mechanism is in place to temporarily place duty on imports of some sensitive products. This safeguard is however granted only temporarily within COMESA, generally for a period of six months. The maximum safeguard granted within the FTA was for two years, non renewable, regarding duty on imports of sugar into Kenya.

COMESA Members not in the FTA that have reduced their tariffs vis-à-vis other COMESA members by at least 60% are eligible for preferential tariff rates when their goods enter FTA members' markets. All six of the COMESA members not in the FTA have reduced their tariffs by between 60 and 90%, and are therefore eligible for preferential access into FTA member countries.

In addition to reducing their tariffs on goods imported from within the RTA, COMESA members have simplified customs rules by adopting a single COMESA customs document to replace the previous multiplicity of documents (estimated to reach 32 documents in some countries). Automated processing of customs information through the ASYCUDA (Automated System for Customs Data and Management) system has been implemented in 13 COMESA countries, thereby harmonising and facilitating customs procedures and reducing delays in border crossings. COMESA has also implemented programmes to increase the efficiency of transport and communication networks. Some examples include harmonization of road transit charges and common carrier licenses throughout the region.

Progress has been made in the elimination or harmonization of non-tariff barriers within COMESA countries such as liberalisation of import licensing, removal of foreign exchange restrictions, removal of taxes on foreign exchange, removal of import and export quotas, removal of road blocks, easing of customs formalities, extending times the border posts are open, etc. (COMESA, 2007).

Rules of origin in the COMESA agreement are less stringent than those for AFTA or MERCOSUR. Goods qualify for preferential access if at least 40% of materials or 35% of processing takes place in the region. For some goods of particular import significance, such as investment goods, petroleum products and medicines, the qualifying threshold is 25% of local content.

Agriculture is important economically for COMESA members and therefore occupies a prominent place in the COMESA programme. Agriculture accounts for 32% of the region's GDP, provides a livelihood to about 80% of the region's labour force, accounts for about 65% of foreign exchange earnings and contributes more than 50% of raw materials to the industrial sector. There are large differences between countries, however, with the agriculture sector accounting for 17% of GDP in Egypt and Zambia, and 58% in the Democratic Republic of Congo. Productivity in the sector also varies widely between member countries, ranging from USD 138 per agricultural worker in Malawi to USD 1 189 in Egypt. Capitalisation in the agricultural sector is diverse, but generally low, ranging from less than one tractor per 1 000 agricultural workers in most COMESA countries, to 11 tractors per 1 000 agricultural workers in Egypt.

Agriculture is therefore a key sector in the COMESA agreement. The aim of COMESA's agricultural sector programs is to enable sustainable food security. COMESA supports projects promoting marketing of agricultural products, irrigation development, food security and agricultural research and technology.

Overlapping coverage of RTAs in Africa

In Africa, perhaps more than elsewhere, the overlapping web of RTAs and preferential arrangements is denser and more complicated. There is a large number of RTAs in Africa, with overlapping membership and therefore non-transparent implications for rules of origin. In addition, some of the agreements are implemented only partially, further decreasing transparency. There could be a number of reasons for this. One, certainly, is the relatively low level of trade between African countries. There is little vested interest in increasing intra-regional trade if there are few actors that have experienced the benefits of trade with regional partners. Additionally, many RTAs are in fact politically motivated; such motivation may decrease over time to reach low levels by the time of implementation. Also, implementation of an RTA (or any trade agreement) is relatively difficult given the infrastructure and administrative challenges at hand in many African countries.

Some of the other agreements affecting COMESA members are listed below.

- SACU (Southern African Customs Union): a five-member customs union, including South Africa, and including COMESA member Swaziland.
- SADC (South African Development Community) : preferential trading agreement including COMESA members Democratic Republic of Congo, Malawi, Mauritius, Seychelles, Swaziland, Zambia and Zimbabwe.
- EAC (East African Community): a customs union comprised of Kenya, Tanzania and Uganda. Kenya and Uganda are COMESA members; Tanzania rescinded COMESA membership in 2000. Although the EAC has implemented a common external tariff, the three countries have not formed a free trade area, and do not extend duty-free access to their markets among their partners in the customs union.
- ECCAS (Economic Community for Central African States): a group of 14 countries includes a wide-ranging set of issues including security issues. Members include COMESA members Burundi, Democratic Republic of Congo, and Rwanda.

- GSTP (Generalized System of Trade Preferences among Developing Countries): preferential agreement which includes COMESA members Egypt, Libya and Zimbabwe.
- GSP (Generalized System of Preferences): system of preferential access to markets of some OECD countries; 47 of the 48 Sub-Saharan African countries are eligible for GSP access.
- AGOA (African Growth and Opportunity Act): extends preferential access to the US market for goods originating in Sub-Saharan Africa or processed in Africa from US materials. All COMESA members are eligible for AGOA preferential access with the exception of Comoros, Eritrea, Libya, Sudan and Zimbabwe. In practice, many of the gains in trade through the AGOA programme have been in textiles, footwear and light manufacturing rather than the agriculture sector. AGOA provisions are such that intra-African trade should be stimulated as its rules of origin grant preferential access to goods that have been produced in any AGOA eligible country from US or African-origin materials.
- EPAs (Economic Partnership Agreements): The European Commission has since 2002 been negotiating reciprocal EPAs with African, Caribbean and Pacific countries grouped into six regions. Note that the COMESA countries are not negotiating as a single group raising the possibility that COMESA members may be subject to differential treatment in their trading activities with the EU. The EU is working towards the completion by December 2008, of a comprehensive EPA with ESA countries including COMESA members Seychelles, Zimbabwe, Mauritius, Comoros and Madagascar. Negotiations are continuing separately on an EPA with EAC states including COMESA members Burundi, Kenya, Rwanda and Uganda. Another EPA is currently being negotiated between the EU and SADC countries, among them COMESA member Swaziland.

Appendix 3.

MERCOSUR Provisions and Implementation

The objective of the Southern Cone Common Market -- MERCOSUR -- is to create one of the most integrated economic areas in the world. The Asunción Treaty, signed in 1991 by Argentina, Brazil, Paraguay and Uruguay, established a framework to put into place a free trade area among the four signatory countries. Three years later, the clearly stated objective was to form a customs union. Since the mid-1990s, MERCOSUR objectives include fully harmonizing the trade policy of its four members. In practice, however, the vast integration has been implemented unevenly.

Tariff Liberalisation

The Asunción Treaty included a tariff liberalisation programme (TPL) that set a schedule for intra-zone tariff reductions and a commitment to remove NTBs. Tariff reductions were progressive, linear and automatic, applied to 1 January 1991 tariff levels on imports from non-member countries of the Latin American Integration Agreement (LAIA). A fully applied TPL implied the elimination of intra-zone tariff barriers for Argentina and Brazil by 1 January 1995 and for Paraguay and Uruguay by 1 January 1996.

However, in Ouro Preto in December 1994, MERCOSUR members agreed on the creation of a customs union, *i.e.* including establishment of a common external tariff. In order to facilitate the move towards trade liberalisation and to placate domestic interest groups, several special regimes of adaptation were created. A list of exceptions to intra-zone free trade was established called the Regime of Adaptation (RAM). RAM called for the gradual tariff elimination leading to free intra-zone trade by 1 January 2000. The creation of the customs union, implying deeper integration, thereby surprisingly postponed the implementation of free intra-zone trade agreed in the Asunción Treaty (Berlinski, Vaillant *et al.*, 2006).

Today, duty-free access is provided to all goods produced within the zone with the exception of automobiles and sugar. These two sensitive sectors are subject to bilateral regimes that are not harmonized across the region.

Members agreed in Ouro Preto to converge to the Common External Tariff (CET) by 1999, with product-level exceptions lists included in the CET by 2001. Sectoral exclusions, in the capital goods and telecommunication and information technology sectors, were allowed until 2006. Some investment goods that are excluded from the CET are imported into some MERCOSUR countries at lower rates so as to reduce their cost to domestic industry. Exceptions to the CET persist as MERCOSUR countries have continued to apply exceptions on a product basis and the sectoral exclusions are still in use. In December 2003, Paraguay and Uruguay were allowed to retain 150 and 125 exempt articles respectively until 2010. Paraguay may retain an additional 399 exceptions until 2010. Products included in the basic CET list are subject to tariffs between 0 and 20%. There are 11 levels of tariffs between 0 and 20%, each level increasing by 2% (*i.e.* tariffs charged are 0 or 2 or 4 ... or 20%).

MERCOSUR countries' external tariff structures differ further from the CET due to their preferential agreements with third parties and defensive measures which have not been harmonized. Some countries also invoke across-the-board extra duties either on all imports (including from MERCOSUR countries) or on third-country imports. Following the currency crisis in 1999, for example, a 2% "statistical tax" was applied by Argentina on all goods from all destinations, including those within MERCOSUR. This tax has recently been lifted. Still in effect, however, is a 2% "proportional tax" applied on agricultural and fisheries goods by Paraguay and Uruguay.

Argentina has used a differential export tax (DET) to discourage exports of primary products and encourage processing and exporting of value-added products. Argentina applies an export tax of 27.5% on whole soybeans, 24% on soybean oil and soybean meal, and 5% on soy bio-diesel. This effectively subsidizes production of processed products through a tax on exports of primary products. Brazil had a similar policy in place, but it was eliminated in 1996.

All of these exceptions lead to variation in the common external tariff rate effectively levied by each member of MERCOSUR. Some exceptions, such as those resulting from preferential trading arrangements with third countries, exert downward pressure on the CET. Other exceptions, such as those resulting from sectoral exclusions, special taxes and defensive measures, exert upward pressure. The entire set of exceptions invariably leads to lesser transparency, greater uncertainty and higher costs for exporters and, as such, is likely to discourage trade.

Table A3.1 below, demonstrates the wide variation in the actual tariff levied by MERCOSUR members on imports from South American non-members. The average tariff on goods entering MERCOSUR from Mexico ranged from 1.3%, levied by Brazil, to 12.3% levied by Paraguay. These differences reflect distinct bilateral agreements which Mexico has concluded with individual MERCOSUR members. For some product groups, the tariff applied is higher than the agreed CET rate due to extra taxes levied by the importing country. This is the case for products included in the lists of exceptions. For example, “food, drink and tobacco products” in Argentina is subject to a non-preferential tariff rate of 18.2% on average, as opposed to the 16.8% CET rate.

One of the most important barriers to trade within MERCOSUR is the double taxation of imports from third countries. When a product is imported to a MERCOSUR country for re-export within MERCOSUR, or for re-export following some minor changes, the product is double-taxed. Duty is paid upon entry into both MERCOSUR countries, *i.e.* the CET is paid *twice* on the given good. Effectively, therefore, a system of rules of origin (ROO) exists which prevents duty free on-selling of products sourced outside MERCOSUR’s borders. This imperfect implementation of the common external tariff leads to missed trade and investment opportunities. Potential suppliers outside MERCOSUR, who would want to export to one MERCOSUR country and supply the entire MERCOSUR market from that country, are discouraged from doing so because their products will be liable for CET duty twice. Indeed, it has been noted that re-exports within the MERCOSUR zone are almost non-existent.

Note that the establishment of rules of origin is usually a necessity in the case of free trade areas, but not of customs unions. However, in the case of MERCOSUR, these rules simply reflect the underdeveloped nature of its CET framework. As pointed out above, significant exceptions to the CET ensure that MERCOSUR members effectively levy differential tariff rates on non-members, just as they would in a free trade area. Moreover, the lack of agreement over an effective system to redistribute CET revenue among members further necessitates the requirement for ROO to manage intra-MERCOSUR trade. Complete implementation of the CET is one of the main issues facing MERCOSUR. The aim is to solve this problem by 2009.

Non-tariff barriers

One of the objectives of MERCOSUR is to harmonize trade policy, particularly with regard to standards and sanitary and phyto-sanitary regulation. Many examples of challenges to exporters in the region exist in the agricultural sector. Some of these challenges could be reduced through greater harmonization and enhanced conformity assessment procedures. In the dairy sector, for example, Argentinean producers have communicated information on the many barriers to imports in the Brazilian market. Brazil subsidises dairy farmers and a significant share of imported Brazilian dairy products are purchased by state enterprises. Argentinean exporters have informed that barriers to import of fluid milk and powdered milk include import licenses, product standards, labelling, and inspections before clearance, excessive custom requirements, certificates of origin, and sanitary regulations.

Table A3.1: Imports into MERCOSUR: differences in CET, Applied Tariff and Charged Tariff¹

Origin Destination	Chile & Bolivia			Mexico			Rest of the Andeans			Rest of the World			Total Extra-zone		
	CET	Applied Tariff	Charged Tariff	CET	Applied Tariff	Charged Tariff	CET	Applied Tariff	Charged Tariff	CET	Applied Tariff	Charged Tariff	CET	Applied Tariff	Charged Tariff
Argentina															
Total	14.1	14.4	3.9	16.2	15.9	8.4	13	13.2	4	14.8	14.1	9.4	14.8	14.2	9.1
Agriculture, meat, etc	9.9	9.9	1.9	12.1	12.1	5.9	13	13	1.3	6.1	5.7	5	8.7	8.5	3.4
Food, drink and tobacco	17.6	17.8	6.3	19.3	19.3	14.5	17.4	17.3	3.6	16.5	18.3	16.3	16.8	18.2	13.3
Brazil															
Total	8.1	7.9	1.7	3.1	7.2	1.3	3.1	7.2	1.3	11.	12.5	8.8	11.6	12.7	7.2
Agriculture, meat, etc.	12.4	11.2	0.6	10.8	10.1	1.7	10.8	10.1	1.8	9.3	8.9	6.2	11.4	10.3	1.8
Food, drink and tobacco	16.7	15.7	7.4	16.9	16.4	2.8	16.9	16.4	2.8	14.6	15.0	12.6	15.6	16.1	5.9
Paraguay															
Total	11.8	3.2	2.1	14	11.9	12.3	14.1	12.5	13.1	13.5	12.2	11.2	13.4	11.7	10.7
Agriculture, meat, etc	5.6	2.7	2.7	n.a.			n.a.			10.6	10.2	10.4	8.3	6.7	6.8
Food, drink and tobacco	17.2	3.2	2.1	19.9	19.9	19.9	22.5	21.5	22.5	17.6	17.2	17.4	17.6	12.8	12.5
Uruguay															
Total	15.6	14.4	5.5	16.9	13.2	6.3	3.6	3.5	1.2	15.6	12	8.6	15	11.7	8
Agriculture, meat, etc.	11.2	11.2	2.7	12.2	12.2	6.8	13	13	1.5	10	8.5	3.9	10.7	9.5	3.3
Food, drink and tobacco	16.4	14	5.8	17.7	15.8	13.8	19	18.7	4.9	17.3	16.9	15.8	17.2	16.4	13

1. Differences between the CET and applied tariff are due to the presence of product and sectoral exceptions to the CET (*i.e.* exerting both downward and upward pressures). Differences between the applied and the charged tariffs are due to preferential treatment accorded in bilateral agreements by individual MERCOSUR members. Tariffs refer to weighted averages.
Source: Berlinski, Kume *et al.*, 2005.

Another sector that has posed market access challenges and led to disputes between Argentina and Brazil is trade in chickens and poultry meat. In the 1990s, Brazil was the third largest chicken producer in the world after China and the United States. With the advent of MERCOSUR, Brazil's exports to Argentina increased to about 10% of its total exports. In Argentina the Animal Health Ministry announced a certification requirement to ensure that chickens imported from Brazil were not affected with Newcastle disease. This increased costs for exporters by about \$300 for each truckload of cargo. Brazilian exporters were accused of dumping in the Argentine market; an anti-dumping margin of 40% was then applied to Argentinean imports of chicken from Brazil. In 1999 Argentina limited imports to 3,742 tons per month; however this measure was suspended in 2000 (Berlinski, Kume et al., 2006).

Economy-wide issues affecting implementation

There are a number of underlying reasons for the past uneven implementation of MERCOSUR: the most important is the macro-economic environment. This is most vividly illustrated by the currency crises at the end of the 1990s. In 1999, following the Asian currency crises, the Brazilian *real* fell by 40%. In addition, Argentina was in a situation of strong fiscal deficit. The Argentinean peso, on a fixed peg to the US dollar since 1991, could not easily be devalued to retain an acceptable trade balance within MERCOSUR. Argentinean exports became increasingly expensive, and Argentina could not continue honouring financial commitments. At the end of 2001, Argentina moved to a dual exchange rate system, adopting a preferential exchange rate peg for exports. In January 2002, Argentina abandoned the dual fixed peso exchange rate system and instituted a floating peg. The value of its currency thereby fell by 70%.

The Argentinean currency crisis affected its trade with MERCOSUR partners both directly and indirectly. In the first months after the crisis, the Argentine government put in place an export tax ("withholding") to increase tax collection. General rates of 5 and 10% were placed on manufacturing and primary products respectively. There were, however, certain exceptions, on which higher rates of up to 20% were applied. One example of an agricultural good subject to the higher export tax was wheat and wheat flour. As these staple foods were exported to Brazil, the Brazilian milling industry had to absorb the sudden increase in the price of its raw materials, at least in the short term.

Such macro-economic imbalance is compounded by the asymmetry that exists among MERCOSUR countries. Brazil is by far the largest economy in the region. (This issue will be further explored in the next section). Trade between Argentina and Brazil accounts for approximately 90% of MERCOSUR's total trade. Brazil has shown strong growth in recent years and has taken market share from the other MERCOSUR members in MERCOSUR intra-trade, as well as expanding exports significantly outside the region. This is due in part to productivity gains since the 1990s which have been brought about by to modernisation in some sectors, not least of all in agriculture. From 1994 to 2003, Argentina had a steady trade surplus with Brazil of about USD 1 million. Since 2003, Argentina has registered a growing deficit with Brazil, in contrast to its trade with the rest of the world.

The basic asymmetry prevalent in MERCOSUR implies that Argentina, Paraguay and Uruguay are far more dependent on trade with Brazil than is Brazil on its partners. Some elements of the common trade policy of MERCOSUR are modelled on Brazil's national trade policy. Despite these obvious asymmetries, there have been few provisions for special and differential treatment in the agreement, with the exception of allowing longer implementation periods in some cases for Paraguay and Uruguay.

MERCOSUR in future

There may be a trade-off in MERCOSUR's implementation between broad and deep integration. The only way to fully implement a customs union within MERCOSUR is through harmonization of trade and related policies. Another clear objective is to allow the free movement of persons and to harmonize across

service providers. This, with the liberalisation in flows of capital within the zone, would institute a common market. MERCOSUR has however negotiated accession of Venezuela to the customs union. Venezuela's import tariffs are significantly higher than the average CET in MERCOSUR, particularly in agricultural goods.

On July 4th 2006, a Protocol was signed with Venezuela outlining a timetable for Venezuela adhering to MERCOSUR. It stipulated that by 2010, Venezuela will adopt the Common External Tariff. Argentina and Brazil will have eliminated their tariffs on goods imported from Venezuela by 2010, and Uruguay and Paraguay by 2013. Venezuela will eliminate tariffs on all goods originating within the MERCOSUR region by 2012 (or 2014 for sensitive products). MERCOSUR also has five associate members: Bolivia, Chile, Colombia, Ecuador and Peru. These countries have generally negotiated preferential access to MERCOSUR member country markets (see Table A3.1). Mexico has observer status, and has a slightly preferential position in market access to MERCOSUR.

Appendix 4.

Gravity Model Estimation

In this appendix, the gravity model estimates and methodology are described. In particular, the model is used to estimate the degree of trade creation and trade diversion arising from the establishment of the three regional trade agreements. We use a panel dataset containing annual bilateral data for 55 (3-digit SITC) products comprising all agricultural products for the period 1981 to 2006, as available.²⁰ Countries included are all AFTA, COMESA and MERCOSUR members²¹, as well as all other countries in the top 15 agricultural exporters worldwide (*i.e.* European Union²², United States, Canada, China, Australia, Mexico, New Zealand, Russian Federation, Chile and India). The dataset contains 674 070 observations

For the purposes of this analysis, MERCOSUR is taken to have been established in 1992. COMESA is taken to have been established in 2000, year of the implementation of the FTA. Only COMESA countries that have adhered to the FTA are included in the COMESA grouping. AFTA's development is analysed in two distinct stages; an initial partially implemented stage ("AFTAPartial") during which AFTA members have only partially implemented the agreement, and a subsequent fully implemented stage ("AFTAFull"). For the ASEAN-6, the partially implemented stage covers the period 1994-2001, and the fully implemented phase from 2002-2004. For the ASEAN-4, the fully implemented stage has not yet been reached; the agreement is assumed to have been partially implemented since its inception (since 1995 for Vietnam, 1997 for Laos and Myanmar and 1999 in the case of Cambodia).

Santos Silva and Tenreyro (2006) argue that the traditional OLS approach to estimating log-linear models (including gravity models of trade) leads to biased, not just inefficient, estimates in the presence of heteroskedasticity. Given that most bilateral trade data sets exhibit heteroskedasticity, this paper tests the robustness of the results using a number of different methods. One is correction of the basic OLS model. Another uses a maximum likelihood Poisson version of the gravity model, regressing the value (not logged value) of trade on the usual set of logged covariates and dummy variables. Zero trade values are not included in the dataset.²³

The baseline fixed effects model is presented below.

-
20. The 41 exporting countries in our data set export to 207 destination countries.
 21. AFTA, COMESA and MERCOSUR are included in a single model for ease of reference; econometric results do not change significantly by including them in separate models.
 22. Given the European Union's common trade policy, the EU is treated as a single country for the purposes of this analysis.
 23. Zero trade flows are not included in the dataset for a number of reasons. Firstly, it is likely that zero trade flows are in fact in some cases data that has not been reported. Secondly, the dataset would increase significantly from its present size to about 11 million data points, making the exercise unwieldy. In any case, Linders and de Groot (2006) indicate that in principle including, or removing, zero trade flows do not significantly change regression results.

$$\begin{aligned}
\ln(EXPORTS)_{ijkt} = & \\
& \beta_0 + \beta_1 MERCOSUR_{ijt} + \beta_2 MERCOSUR_{ExpIn}_{it} + \beta_2 MERCOSUR_{ExpOut}_{it} + \\
& \beta_4 AFTAPartial_{ijt} + \beta_5 AFTAPartial_{ExpIn}_{it} + \beta_6 AFTAPartial_{ExpOut}_{it} + \\
& \beta_7 AFTAFull_{ijt} + \beta_8 AFTAFull_{ExpIn}_{it} + \beta_9 AFTAFull_{ExpOut}_{it} + \beta_{10} COMESA_{ijt} + \\
& \beta_{11} COMESA_{ExpIn}_{it} + \beta_{12} COMESA_{ExpOut}_{it} + \beta_{12} COMESA_{ExpOut}_{it} + \delta X_{ijt} + \alpha_i + \\
& \mu_i + \mu_j + \gamma_k + \varepsilon_{ijkt}
\end{aligned}$$

where $EXPORTS_{ijkt}$ denotes the value of bilateral exports from country i to country j in agricultural product k in year t ($t=1981-2006$ as available). The dummy variables $MERCOSUR_{ijt}$, $COMESA_{ijt}$, $AFTAPartial_{ijt}$, and $AFTAFull_{ijt}$ take the value one if, in year t , both countries i and j belong, respectively, to MERCOSUR, COMESA, AFTAPartial or AFTAFull. The purpose of these variables is to capture the impact of the RTA on trade between member countries – that is, trade creation. The dummy variables $MERCOSUR_{ExpIn}_{it}$, $COMESA_{ExpIn}_{it}$, $AFTAPartial_{ExpIn}_{it}$ and $AFTAFull_{ExpIn}_{it}$ take the value one if, in year t , only country i (the exporting country) belongs to MERCOSUR, COMESA, AFTAPartial or AFTAFull respectively. Similarly, the dummy variables $MERCOSUR_{ExpOut}_{it}$, $COMESA_{ExpOut}_{it}$, $AFTAPartial_{ExpOut}_{it}$, and $AFTAFull_{ExpOut}_{it}$ take the value one if, in year t , country i (the exporting country) is, respectively, not a member of MERCOSUR, COMESA, AFTAPartial or AFTAFull, but country j (the importing country) is a member in each case. The purpose of these variables is to capture the impact of an RTA on trade between member and non-member countries – that is, to capture the possibility of trade diversion.

Dummy variables were introduced to control for the possible effects of RTAs among countries in the control group of agricultural exporters. Notably, the trade creating and diverting effects of NAFTA and ANZCER were controlled for and measured in the same way as those for AFTA, COMESA and MERCOSUR.²⁴ As the effects of NAFTA and ANZCER are not the focus of this paper, however, the results are not reported here.

In the model presented above, X_{ijt} represents a matrix of explanatory variables, mostly country characteristics, which attempt to explain bilateral trade between countries i and j . The explanatory variables included in matrix X are defined in Table A4.2. Year dummy variables, α_t , are included to correct for unobserved heterogeneity across time. Individual country fixed effects for the exporting and importing countries are captured by μ_i and μ_j . Product fixed effects are captured by γ_k . The role of the country and product dummy variables is to correct for unobserved, but time invariant, heterogeneity between countries and over products. These fixed effects will correct (albeit not precisely) for factors that affect trade flows such as differences in trade costs, differing demand structures, exceptionally high tariffs or non-tariff barriers on some products, etc. A second model is tested using country pair fixed effects rather than individual country fixed effects in order to better account for any common (or dissimilar) characteristics between the bilateral country pairs that could potentially affect their trade flows.

The estimation results are provided in Table A4.1. GDP is everywhere positive and significant, as would be expected. Distance and the effect of one or the other of the countries being landlocked is everywhere negative and significant, as would be expected. The traditional gravity model explanatory variables such as common language and common colonial history are explicitly expressed in the first and third models and, are significant in both cases, and are found to have the expected effect on trade flows. The signs and significance of the RTA dummy coefficients remain largely unchanged between different

24. Note that we have not tried to account for all possible RTAs involving countries in the dataset. In addition to AFTA, COMESA and MERCOSUR, we also correct for the impact of NAFTA and ANZCER because we have judged these to be the most developed and largest RTAs involving countries in our dataset. In the same way, we also do not account for overlapping RTAs. Note that the increasing popularity of RTAs, has resulted in many countries being members of multiple RTAs simultaneously.

model specification, with the exception of COMESA and MERCOSUR trade with the rest of the world. In the interests of making our results more easily comparable with those which already exist in the literature, we use the log-linear OLS results for the analysis in the main body of the paper. See Table A4.2 for a description of explanatory variables and Table A4.3 for information regarding multi-collinearity.

Table A4.1: Estimation Results

	Specification 1	Specification 2	Specification 3
	OLS ¹	OLS ¹	Poisson
MERCOSUR _i ExpIn	-.087 (.022)	-.125 (.022)	.170 (.046)
MERCOSUR _i ExpOut	.343 (.039)	.257 (.044)	-.421 (.074)
MERCOSUR _{ij}	.594 (.050)	.727 (.071)	1.117 (.088)
AFTAPartial _i ExpIn	-.175 (.019)	-.230 (.020)	-.049 (.048)
AFTAPartial _i ExpOut	.336 (.027)	.291 (.029)	.313 (.045)
AFTAPartial _{ij}	.220 (.034)	.246 (.380)	.091 (.064)
AFTAFull _i ExpIn	-.300 (.021)	-.382 (.023)	-.122 (.057)
AFTAFull _i ExpOut	.370 (.036)	.333 (.380)	.295 (.059)
AFTAFull _{ij}	.464 (.044)	.429 (.045)	.084 (.073)
COMESA _i ExpIn	.094 (.026)	.001 (.026)	-.186 (.067)
COMESA _i ExpOut	-.105 (.036)	-.225 (.037)	-.263 (.098)
COMESA _{ij}	.266 (.060)	.463 (.067)	-.162 (.136)
Ln(GDP _i *GDP _j)	.376 (0.19)		.328 (.052)
Ln(DISTANCE _{ij})	-.537 (.006)		-.321 (.014)
LANDLOCKED	-.551 (.047)		-1.52 (.132)
BORDER	.460 (.017)		.601 (.034)
COMMON LANGUAGE	.085 (.010)		.097 (.026)
COLONY	.459 (.021)		.309 (.037)
COMMON COLONY	.238 (.016)		.514 (.044)
GDP reporter		.438 (.029)	
GDP partner		.495 (.024)	
Constant		-19.00	-7.33
Time fixed effects	Yes	Yes	Yes
Individual country fixed effects	Yes	No	Yes
Country pair fixed effects	No	Yes	No
Product fixed effects	Yes	Yes	Yes
R-squared	0.25	0.30	(pseudo) .52

1. Corrected for heteroskedasticity (using robust standard errors)

Standard errors are in parenthesis.

** and * indicate significant at the 1% and 5% level respectively. See Table A4.2 for variable descriptions.

Table A4.2. Variable Descriptions

Variable Name	Description
$Ln(GDP_i * GDP_j)$	Natural log of the product of GDPs in constant prices of bilateral country pairs.
$Ln(DISTANCE_{ij})$	Natural log of distance in kms between the capital cities of country i and j .
$LANDLOCKED_{ij}$	=1 if either country i or country j or both are landlocked; 0 otherwise.
$BORDER_{ij}$	=1 if country i and j share a border; 0 otherwise.
$COMMON\ LANGUAGE_{ij}$	=1 if country i and j share the same language; 0 otherwise.
$COLONY_{ij}$	=1 if either country i or j was at any time a colony of the other; 0 otherwise.
$COMMON\ COLONY_{ij}$	=1 if countries i and j have been colonies of the same country; 0 otherwise.

Table A4.3; Correlation matrix

	log_gdps	log_dist	landlocked	contig	comlang_off	colony	comcol	mercosurij	mercosurEx~n	mercosurEx~t	naftaij	naftai	anzcerij	anzceri
log_gdps	1.000													
log_dist	0.304	1.000												
landlocked	-0.245	-0.158	1.000											
contig	-0.101	-0.559	0.191	1.000										
comlang_off	-0.199	-0.221	0.017	0.112	1.000									
colony	0.067	-0.020	0.021	0.048	0.175	1.000								
comcol	-0.303	-0.251	0.045	0.117	0.189	-0.062	1.000							
mercosurij	-0.013	-0.171	0.077	0.264	0.029	-0.018	-0.025	1.000						
mercosurEx~n	0.036	0.048	0.027	0.071	-0.054	-0.028	-0.083	0.302	1.000					
mercosurEx~t	0.041	-0.071	0.046	0.153	-0.002	-0.029	-0.042	0.600	0.159	1.000				
naftaij	0.127	-0.100	-0.025	0.179	0.017	-0.015	-0.021	-0.006	-0.019	-0.010	1.000			
naftai	0.341	0.123	-0.054	-0.112	0.061	0.004	-0.127	-0.036	-0.070	0.032	-0.030	1.000		
anzcerij	0.006	-0.055	-0.018	-0.014	0.079	-0.010	-0.015	-0.004	-0.014	-0.007	-0.003	-0.021	1.000	
anzceri	-0.040	0.205	-0.082	-0.098	0.098	-0.008	-0.101	-0.029	-0.078	-0.022	-0.024	-0.088	-0.017	1.000
asean_fullij	0.004	-0.104	-0.029	0.065	0.010	0.000	0.023	-0.007	-0.012	-0.012	-0.006	-0.016	-0.004	-0.010
asean_full~n	-0.043	0.046	-0.019	-0.053	-0.090	-0.032	0.045	-0.019	-0.062	-0.005	-0.016	-0.070	-0.011	-0.050
asean_full~t	0.035	0.020	-0.029	-0.028	-0.011	-0.021	0.009	-0.008	0.014	-0.014	-0.007	0.017	-0.005	0.032
asean_partij	-0.058	-0.220	-0.026	0.120	-0.025	-0.025	0.057	-0.010	-0.033	-0.017	-0.008	-0.051	-0.006	-0.041
asean_part~n	-0.075	0.075	-0.033	-0.073	-0.114	-0.036	0.068	-0.025	-0.082	-0.003	-0.021	-0.084	-0.015	-0.058
asean_part~t	0.033	0.041	-0.035	-0.015	-0.009	-0.014	-0.005	-0.013	0.005	-0.022	-0.011	0.046	-0.008	0.077
comesaij	-0.101	-0.102	0.070	0.060	0.056	0.013	0.098	-0.005	-0.015	-0.008	-0.004	-0.024	-0.003	-0.019
comesaExpln	-0.111	-0.091	0.080	0.010	0.045	0.007	0.045	-0.013	-0.042	-0.011	-0.011	-0.047	-0.007	-0.042
comesaExpOut	-0.055	0.003	0.041	0.001	0.008	-0.021	0.059	-0.009	0.008	-0.014	-0.007	-0.001	-0.005	-0.004

	asean_fullij	asean_full~n	asean_full~t	asean_partij	asean_part~n	asean_pa	comesaj	comesaExpln	comesaExpOut
log_gdps									
log_dist									
landlocked									
contig									
comlang_off									
colony									
comcol									
mercosurij									
mercosurEx~n									
mercosurEx~t									
naftaij									
naftai									
anzcerij									
anzceri									
asean_fullij	1.000								
asean_full~n	-0.019	1.000							
asean_full~t	-0.008	0.017	1.000						
asean_partij	-0.010	-0.027	-0.012	1.000					
asean_part~n	-0.025	-0.067	-0.030	-0.036	1.000				
asean_part~t	-0.013	-0.035	-0.016	-0.019	-0.021	1.000			
comesaj	-0.005	-0.012	-0.006	-0.007	-0.016	-0.009	1.000		
comesaExpln	-0.008	-0.034	0.029	-0.018	-0.045	-0.013	-0.008	1.000	
comesaExpOut	-0.008	0.080	-0.010	-0.012	-0.008	-0.016	-0.006	0.003	1.000

Appendix 5.

Literature Review: Comparative Table of Estimates of the Trade Impacts of AFTA, COMESA and MERCOSUR

Paper	Impact of MERCOSUR (coefficients)	Comments
Carrère (2003)	MERCOSUR _{ij} : 1.42*** MERCOSUR _{i, importer} : -1.91*** MERCOSUR _{i, exporter} : 0.89*** (NB: importer subscript implies only importer is in RTA. Exporter subscript implies only exporter member of RTA.)	Model was developed to measure differences between preferential market access agreements and monetary union. Transport costs are included explicitly. Data refer to 1962-96.
Carrère (2004)	MERCOSUR _{ij} : -0.9 MERCOSUR _{i, importer} : -1.09*** MERCOSUR _{i, exporter} : -0.18 (NB: importer subscript implies only importer is in RTA. Exporter subscript implies only exporter member of RTA.)	Considers trade diversion effects separately depending on whether the importing or the exporting country is in the RTA. MERCOSUR is trade diverting: negative coefficient when only importer is a member.
Cernat (2001)	MERCOSUR _{ij} : 0.84*** MERCOSUR _{i, importer} : -0.36***	
Gaulier, Jean and Ünal-Kesenci (2004)	MERCOSUR _{ij} : 0.89** (MERCOSUR _i not tested in this model).	Models all countries of the world from 1967-2001. Country pair fixed effects are used.
Ghosh and Yamarik (2004)	MERCOSUR _{ij} : 0.1193 to 4.1574 MERCOSUR _i : -0.0916 to 1.3351	Extreme bounds analysis used. The extreme bounds suggest that MERCOSUR is trade creating, but not necessarily trade diverting.
Ghosh and Yamarik (2005)	MERCOSUR _{ij} : 1.3947 to 2.7841 MERCOSUR _i : 0.1999 to 0.8846	As above.
Gilbert, Scollay and Bora (2001)	MERCOSUR _{ij} : 0.42 (merchandise); 0.41 (manufacturing); 1.25*** (agriculture); -2.5*** (services). MERCOSUR _i : -0.16*** (merchandise); -0.28 (manufacturing); 0.90*** (agriculture); -1.12*** (services).	1984-1998

Paper	Impact of MERCOSUR (coefficients)	Comments
Hufbauer and Schott (2007)	MERCOSUR _{ij} : 1.01*** MERCOSUR _{i, importer} : 0.65*** MERCOSUR _{i, exporter} : 0.37***	Estimates cited here refer to agricultural goods only based on a fixed effects 3-step OLS procedure. Data are for 1976-2005.
Lee and Park (2005)	MERCOSUR _{ij} : 1.059*** MERCOSUR _i : 0.316***	1948-1997
Mayer and Zignago (2005)	MERCOSUR _{ij} : 1.06***	Model was developed to assess the impact of market access to Northern markets on Southern trade flows. Effects of an RTA on intra-trade also simulated. Strong trade creating effect of MERCOSUR is attributed to reduction in market fragmentation within the zone. Data refer only to manufacturing.
Rojid (2007)	MERCOSUR _{ij} : 1.38*** MERCOSUR _{i, importer} : -0.18*** MERCOSUR _{i, exporter} : -0.61***	Export flows of 147 countries for a period of 21 years (1980-2001). Total exports only were used (<i>i.e.</i> not at the product level). Tariffs are accounted for explicitly. Estimation using a Tobit model.
Soloaga and Winters (2000)	MERCOSUR _{ij} : 2.28*** (1980-82); 2.49*** (1986-88); 2.15*** (1995-96). MERCOSUR impact on overall bloc imports: -1.06*** (1980-82); -1.32*** (1986-88); -0.71*** (1995-96). MERCOSUR impact on overall bloc exports: 0.27* (1980-82); -0.03 (1986-88); -0.06 (1995-96).	
Carrère (2003)	AFTA _{ij} : 1.44*** AFTA _{i, importer} : 1.27*** AFTA _{i, exporter} : 2.56*** (NB: importer subscript implies only importer is in RTA. Exporter subscript implies only exporter member of RTA.)	Model was developed to measure differences between preferential market access agreements and monetary union. Transport costs are included explicitly. Data refer to 1962-96.

Paper	Impact of AFTA (coefficients)	Comments
Carrère (2004)	AFTA _{ij} : 0.88*** AFTA _{i, importer} : -0.48*** AFTA _{i, exporter} : 0.76*** (NB: importer subscript implies only importer is in RTA. Exporter subscript implies only exporter member of RTA.)	Considers trade diversion effects separately depending on whether the importing or the exporting country is in the RTA. Gravity model estimated using instrumental variables technique. Outcome: trade creation; trade diversion (negative coefficient on importer dummy). Exporter who is a member of AFTA also exports more to non-members.
Cernat (2001)	AFTA _{ij} : 1.79*** AFTA _{i, importer} : 1.34***	
Elliot and Ikemoto (2004)	AFTA _{ij} : 2.03*** AFTA _{i, importer} : 0.83*** AFTA _{i, exporter} : 0.82***	Considers trade diversion effects separately depending on whether the importing or the exporting country is in the RTA.
Gaulier, Jean and Ünal-Kesenci (2004)	AFTA _{ij} : 0.84*** AFTA _i : 0.42***	Models all countries of the world from 1967-2001. Country pair fixed effects are used.
Ghosh and Yamarik (2004)	AFTA _{ij} : -0.4193 to 2.2501 AFTA _i : -0.3524 to 0.7738	Extreme bounds analysis used. The extreme bounds suggest that AFTA may be neither trade creating nor trade diverting.
Ghosh and Yamarik (2005)	AFTA _{ij} : -0.5042 to 1.2762 AFTA _i : -0.6421 to 0.3523	Extreme bounds analysis used. The extreme bounds suggest that AFTA may be neither trade creating nor trade diverting.
Gilbert, Scollay and Bora (2001)	AFTA _{ij} : 0.65*** (merchandise); 0.63*** (manufacturing); 0.32*** (agriculture); 1.08*** (services). AFTA _i : 0.54*** (merchandise); 0.54*** (manufacturing); 0.45*** (agriculture); 1.01*** (services).	1984-1998
Hufbauer and Schott (2007)	AFTA _{ij} : 0.82*** AFTA _{i, importer} : 0.23*** AFTA _{i, exporter} : 0.18***	Estimates cited here refer to agricultural goods only based on a fixed effects 3-step OLS procedure. Data are for 1976-2005.
Koo, Kennedy and Skripnitchenko (2006)	AFTA _{ij} : 2.369*** AFTA _i : 0.817***	Includes only trade in agricultural goods.
Lee and Park (2005)	AFTA _{ij} : 0.237 AFTA _i : 0.437***	1948-1997
Mayer and Zignago (2005)	AFTA _{ij} : 1.59***	Model was developed to assess the impact of market access to Northern markets on Southern trade flows. Effects of an RTA on intra-trade also simulated. Strong trade creating effect of AFTA is attributed to reduction in market fragmentation within the zone. Data refer only to manufacturing.

Paper	Impact of AFTA (coefficients)	Comments
Soloaga and Winters (2000)	AFTA _{ij} : 0.18 (1980-82); 0.09 (1986-88); -1.06*** (1995-96). AFTA impact on overall bloc imports: 0.15 (1980-82); 0.3** (1986-88); 0.82*** (1995-96). AFTA impact on overall bloc exports: 0.7*** (1980-82); 0.67*** (1986-88); 0.99*** (1995-96).	
Tang (2005)	AFTA _{ij} : 1.548*** AFTA _i : 0.709***	1989-2000
Carrère (2003)	COMESA _{ij} : 0.47 COMESA _{i, importer} : 0.07 COMESA _{i, exporter} : -1.45*** (NB: importer subscript implies only importer is in RTA. Exporter subscript implies only exporter member of RTA.)	Model was developed to measure differences between preferential market access agreements and monetary union. Data are at the detailed product level. Transport costs are included explicitly. Data refer to 1962-96.
Gbetnkom (2006)	COMESA _{ij} : 3.36*** COMESA _i : -0.60***	Results reported are for the model using data from 1998-2002. Trade data refer to aggregate total exports.
Musila (2005)	COMESA _{ij} : between .461** and .748** COMESA _{i, importer} : insignificant to .125*** COMESA _{i, exporter} : insignificant to .555* (NB: importer subscript implies only importer is in RTA. Exporter subscript implies only exporter member of RTA.)	Uses weighted least squares over data from 1991-1998, comparing coefficients for single years over the nine-year period. Compares COMESA trade creation and diversion with ECCAS and ECOWAS.
Rojid (2007)	COMESA _{ij} : 1.19*** COMESA _{i, importer} : -0.36*** COMESA _{i, exporter} : -0.46*** (NB: importer subscript implies only importer is in RTA. Exporter subscript implies only exporter member of RTA.)	Export flows of 147 countries for a period of 21 years (1980-2001). Total exports only were used (i.e. not at the product level). Tariffs are accounted for explicitly. Estimation using a Tobit model.

NB: *, **, *** denote significance at 10%, 5% and 1% level, respectively.