

# The ASEAN Free Trade Agreement

## Impact on Trade Flows and External Trade Barriers

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## Abstract

Using detailed data on trade and tariffs from 1992–2007, the authors examine how the ASEAN Free Trade Agreement has affected trade with nonmembers and external tariffs facing nonmembers. First, the paper examines the effect of preferential and external tariff reduction on import growth from ASEAN insiders and outsiders across HS 6-digit industries. The analysis finds no evidence that preferential liberalization has led to lower import growth from nonmembers. Second, it examines the relationship between preferential tariff reduction and MFN tariff reduction. The analysis finds that preferential liberalization tends to precede external tariff liberalization. To examine whether this tariff

complementarity is a result of simultaneous decision making, the authors use the scheduled future preferential tariff reductions (agreed to in 1992) as instruments for actual preferential tariff changes after the Asia crisis. The results remain unchanged, suggesting that there is a causal relationship between preferential and MFN tariff reduction. The findings also indicate that external liberalization was relatively sharper in the products where preferences are likely to be most damaging, proving further support for a causal effect. Overall, the results imply that the ASEAN agreement has been a force for broader liberalization.

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This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the department to explore effects of regional trade agreements. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [cfreund@worldbank.org](mailto:cfreund@worldbank.org).

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# **The ASEAN Free Trade Agreement: Impact on Trade Flows and External Trade Barriers<sup>\*</sup>**

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## **I. Introduction**

Regional integration has become the main form of trade liberalization since the early 1990s. After the conclusion of the Uruguay Round in 1994, no significant progress has been made at multilateral liberalization. By contrast, a new regional trade agreement (RTAs) is announced almost every month. According to the World Trade Organization, more than 300 RTAs are currently in force and all but one (Mongolia) of its 153 members participate in at least one of those arrangements. Given the rising prominence of bilateral and regional trade liberalization, it is important that we understand their implications for world trade.

This is even more important because, unlike multilateral liberalization, which most economists believe to be largely beneficial for both liberalizing countries and bystanders, preferential liberalization is controversial. The reason comes from its inherent discriminatory nature: when forming an RTA, members agree to lower trade barriers to each other but their tariffs on imports from outsiders remain unconstrained. This can induce members to substitute inefficiently produced imports from bloc members for imports previously sourced efficiently from nonmember countries. Such trade diversion harms the nonmembers through lost markets, as well as the members through reduced tariff revenue. However, like broader trade liberalization, the RTA is also likely to enhance trade of the goods that are efficiently sourced within the bloc. This trade creation will enhance welfare. These two forces suggest that preferential liberalization can in principle be either welfare-enhancing or welfare-reducing. Ultimately, the verdict must be empirical, and may be different for different trading blocs. Trade creation forces may prevail over trade diverting ones in some cases, but the reverse could be true in other cases.

In this paper, we assess the consequences of the ASEAN Free Trade Agreement (AFTA) on trade and external tariffs. AFTA was formed in 1993 by Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand, and in the second half of the 1990s it expanded to incorporate Vietnam, Laos, Myanmar and Cambodia. Internal trade liberalization within the bloc has not been as abrupt as in some other trading blocs (e.g. NAFTA). Instead, liberalization has evolved gradually, though steadily. Furthermore, there are significant differences in

the speed and size of tariff reductions across countries and across products. This variation helps us to assess how preferential liberalization has affected trade and tariffs.

We first examine trade effects. We find that the formation of the trade bloc has had a meaningful positive impact on the trade flows among members. Interestingly, this does not seem to have happened at the expense of trade with outsiders. Growth of imports from nonmembers did not falter after the formation and the enlargements of AFTA. Nor is growth in imports from nonmembers significantly different from growth in imports from members subsequent to AFTA.

To examine the effect of AFTA on trade in more detail, we focus on the impact of preferential and multilateral tariff changes on intra-bloc import growth and import growth from excluded countries. For the analysis, we rely on detailed data on preferential and MFN applied tariffs at the product level for all ASEAN members, since the bloc was created in 1993 through 2007. This allows us to use a large set of fixed effects that control for a wide range of unobserved shocks. We find strong evidence that reductions in MFN tariffs have stimulated trade with nonmembers, but no evidence that preferential tariff reduction has reduced trade with nonmembers.

Next, we examine the effect of preferential tariff reduction on external tariffs. It is possible that preferential and MFN tariffs are related to each other, and that governments respond to changes in the preferential tariffs by adjusting MFN tariffs. We therefore proceed to analyze the reaction of the bloc members' trade policies vis-à-vis outsiders. Specifically, we ask: Has the reduction of tariffs on within-ASEAN trade led its members to change their barriers on imports from excluded countries? If so, have they gone up or down as a result of ASEAN, and by how much?

Several theoretical forces have been advanced suggesting that the formation of a free trade agreement such as AFTA should induce changes in external tariffs. But just as in the trade creation/trade diversion debate, there are reasons supporting changes in either direction. Once again, the resolution of the debate must be empirical.

Our dataset provides enough variation to allow us to obtain very precise estimates on whether products with relatively large preferences have been liberalized or protected to the same extent as other products. It is also helpful that the ASEAN members generally set their applied MFN tariffs well below their bound rates at the World Trade Organization, so we do not need to worry with this potential institutional constraint.

In line with recent analyses of regionalism in developing countries, our results imply that AFTA is a “building bloc” to free trade. There is strong evidence that preferences induce a faster decline in external tariffs than otherwise would occur. The results are both statistically and economically significant. For example, in a country where imports of a certain product from outsiders faced a 10% MFN tariff but were granted duty free access if stemming from other ASEAN members, the member would subsequently tend to reduce its MFN tariff on that product by between 2½ and 4½ percentage points.

While the correlation between changes in external and preferential tariffs is unquestionable, determining causality is trickier. For example, it may be that some products are easier to liberalize than others, and trade in those products tends to be liberalized both regionally and multilaterally. We use three main distinct strategies to determine if this is a causal effect and find evidence that it is. First, evidence of “tariff complementarity” remains strong if we use lagged changes in preferential tariffs (or preferential margins) as our main regressor. Second, we look for and find differential effects precisely when either the theory or the practice tells us we should find them. Specifically, no tariff complementarity arises when the margin of preferences is too small to be meaningful for exporters. Furthermore, stronger tariff complementarity is obtained in sectors where the margin of preferences is meaningful and the share of intra-bloc imports is higher, as theory suggests.

Third, we employ an instrumental variables approach that takes advantage of a unique feature of our dataset: the *agreed* speed and depth of internal liberalization of the six original members in their 1992 negotiations. As it turns out, observed changes in preferences have not corresponded to the planned ones in 1992. Numerous reasons may have caused this discrepancy. For us, this is especially valuable because the

planned internal liberalization can serve as an instrument for the actual one. While they are strongly correlated, the negotiated preferences should not have an independent effect on the incentives of countries to alter their external tariffs. To strengthen this rationale, in the IV regressions we restrict the sample to the post-Asian crisis period, during which trade policies were significantly affected. Interestingly, the qualitative results of our IV and OLS estimations are very similar (quantitatively, they are higher under the IV procedure). Replacing the actual with the planned preferential tariffs in the OLS estimation also delivers similar results.

Taking all of our results together, we conclude that AFTA has promoted trade within the bloc without hurting trade with outsiders. An important reason for this is the unilateral reductions in external tariffs that ASEAN members implemented as a result of their liberalization vis-à-vis each other. These reductions suggest that AFTA provides an important contribution to the global process of multilateral liberalization.

The remainder of this paper is organized as follows. In the next section we discuss the related theoretical literature and the empirical findings. We provide a general view of ASEAN and discuss the data in Section III. In Section IV, we examine the impact of tariffs on trade. In Section V, we develop the empirical analysis on the effects of AFTA on external tariffs. Section VI concludes.

## **II. Trade creation, trade diversion, and import barriers on outsiders**

We know since Viner (1950) that the formation of a free trade agreement (FTA) can lead to trade creation and/or trade diversion. The former arises when the FTA promotes trade among the members without disrupting trade with nonmembers, and tends to be efficiency-enhancing. By contrast, trade diversion arises when the FTA promotes trade among members at the expense of trade with bloc outsiders, and tends to be efficiency-reducing.

There have been attempts to pin down theoretically the characteristics that make FTAs more trade creating or more trade diverting. Frankel (1997) develops the “natural trading partners” hypothesis, which states broadly that agreements between

countries that already trade significantly (in particular geographically close countries and those that share cultural characteristics that reduce transaction costs, such as language) are the ones most likely to be trade creating. Although theoretically this does not need to always hold, as Bhagwati and Panagariya (1999) point out, Frankel (1997) finds evidence consistent with the natural trade partners hypothesis in a number of regression analyses based on the gravity equation with country-level trade flows.

Lee and Shin (2006) extend the approach of Frankel (1997) and estimate a gravity model with year dummies and with both random and fixed effects to assess trade creation and trade diversion in 175 countries using data from 1948 to 1999. The key trade creation variable is a dummy that is one if both countries are members of a common RTA; the key trade diversion variable is a dummy that is one if one country belongs to an RTA and the other does not belong to that RTA. Lee and Shin interact these variables with geographical and common language variables to identify whether trade creation and trade diversion are different for “natural” trade patterns.

In most specifications, Lee and Shin (2006) confirm that RTAs increase bilateral trade between members. The magnitudes are around 50 percent, but if the countries share a common border this effect increases to up to 200 percent. Similarly, the closer the countries are from each other, the larger is trade creation. On the other hand, RTAs are never found to reduce trade between members and nonmembers significantly. In fact, in most specifications RTAs are estimated to *increase* trade between members and nonmembers, from 6 to 15 percent. Trade with nonmembers grows more for RTAs with a smaller average distance between their members and when more members of the RTA have common borders or share a common language. Having the trade creation and trade diversion estimates in hand, Lee and Shin then predict the average trade impact of several proposed RTAs in Asia. They find in particular that the trade effects of AFTA are significantly positive.<sup>1</sup>

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<sup>1</sup> Lee and Park (2005) develop a similar analysis, also predicting significant trade creation but no trade diversion from the formation of Asian RTAs, including the expansion of AFTA to incorporate China, Japan and Korea.

Clausing (2001) develops a detailed (at the product-level) analysis of the Canada-United States free trade agreement (CUSTA) of 1988. She also finds that trade creation tends to be the rule, and trade diversion the exception, in most sectors.<sup>2</sup> A somewhat different picture is presented by Chang and Winters (2002), who find evidence that the formation of Mercosur hurt outsiders. However, Mercosur is distinct from CUSTA, NAFTA and all the Asian RTAs, as it is a customs union (CU), rather than a free trade agreement.<sup>3</sup>

Now, while structural characteristics of FTA members can make the bloc more or less prone to be trade creating/diverting, perhaps even more critical is to understand the members' trade policy reactions to the formation of the bloc, in particular their incentives to alter their trade taxes on the imports from outsiders. This follows from two simple observations. First, the country's external tariffs can be altered unilaterally. Second, the higher the difference between a member's preferential tariffs and its external tariffs, the greater is the discrimination and the scope for trade diversion. Thus, if the formation of a preferential trading bloc is accompanied by reductions in external tariffs, the arrangement is more likely to enhance aggregate world welfare without harming excluded countries. In contrast, if the trading bloc raises trade barriers against excluded countries (or fails to reduce them), diversion of external trade to bloc members is more likely, harming outsiders and possibly countries in the bloc as well. Therefore, the trade, as well as the welfare consequences of an RTA, depends critically on the member countries' tariff response. But if the original choice of MFN tariffs resulted from economic and political considerations by the government, those motives would lead to different outcomes when constrained by the presence of preferential rates. Accordingly, we should indeed *expect* the external tariffs to change after the formation of a trading bloc.

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<sup>2</sup> In a more structural approach, Krishna (2003) estimates trade diversion and trade creation in 24 hypothetical bilateral trade agreements, finding that in 80 percent of the cases trade creation outweighs trade diversion. Furthermore, Baier and Bergstrand (2007) show that, if one takes into account the endogeneity in the formation of trading blocs, the trade impact of RTAs is much larger than conventional estimates suggest.

<sup>3</sup> In CUs, unlike in FTAs, members are required to align their external tariffs. This can lead to very different tariff-setting behavior, as Estevadeordal et al. (2008) confirm to be the case for Latin America's trading blocs.

There is a sizeable theoretical literature that explores the optimal external tariff response of countries following the formation of FTAs. In a standard model, with a welfare-maximizing government, optimal external tariffs are likely to fall in a free trade area precisely to limit the welfare costs of trade diversion [Bagwell and Staiger (1999), Freund (2000), Bond et al. (2004)]. The intuition is that the welfare cost of trade diversion induces governments to lower external tariffs to recapture tariff revenue and improve economic efficiency.

When political-economy motives are incorporated, the results are ambiguous. For example, Richardson (1993) and Ornelas (2005a, 2005b) find that, upon the formation of a free trade area, lobbying will decline and external tariffs fall, as the import-competing sector contracts and becomes weaker politically. This force will be more important, the greater the share imports stemming from the bloc partners. However, in a different model, Panagariya and Findlay (1996) find that countries in a free trade area will raise protection against outsiders because lobbying in favor of tariffs against the partner will be diverted to lobbying for a greater external tariff. Furthermore, it is not just existing trade blocs that matter. As Bagwell and Staiger (2004) show, the mere potential for a future trade agreement may affect the extent of current tariff reduction that can be negotiated multilaterally. The threat of “bilateral opportunism” reduces the extent of multilateral tariff reduction because current global trade agreements can be later diluted by bilateral preferences.

By contrast, the empirical literature on the effect of RTA formation on external tariffs is still in its infancy. Bohara, Gawande and Sanguinetti (2004) examine tariff adjustments in Argentina following the formation of Mercosur, finding some support for the hypothesis that the decline of industries driven by the formation of a trading bloc leads to lower external tariffs. Similarly, Estevadeordal et al. (2008) examine the direct impact of changes in preferential tariffs on changes in MFN tariffs in ten Latin American countries and one hundred industries over 12 years. Using a number of empirical techniques to extract causality, they find that preferences in free trade areas lead to a decline in external tariffs, whereas the effects are negligible in customs unions. In contrast, Limão (2006) finds that the United States was more reluctant to lower tariffs in the Uruguay Round for products where preferences were

granted. His results imply that trade preferences lead to less multilateral tariff reduction. Limão and Karacaovali (2008) find similar results for the European Union.

Recently, Lendle (2007) has developed the first analysis of the trade policy reactions to regionalism in Asia. Specifically, Lendle evaluates whether products receiving preferential treatment in Indonesia, Malaysia, Philippines and Thailand under the ASEAN Free Trade Agreement underwent greater reduction in MFN tariffs during the late 1990s and early 2000s than goods that did not receive preferential treatment. The approach resembles that of Limão (2006), in that he estimates the change in the MFN tariff from the mid-1990s to the early 2000s (the precise years vary with the country in analysis due to data availability) on a dummy that represents whether the country offered preferential treatment under AFTA. Lendle finds evidence of tariff complementarity for Indonesia, the Philippines and Thailand, where the MFN tariffs of preferential products were reduced by more (between one and five percentage points) than for non-preferential products. In contrast, the results for Malaysia, which has the lowest average MFN among the four countries studied, are somewhat mixed, varying according to the specification. While Lendle's study is very instructive about the developments in internal and external liberalization in ASEAN, it does not take into account the variations in the extent and the speed of intra-bloc liberalization, which are significant.

### **III. The ASEAN Free Trade Agreement**

The ASEAN Free Trade Agreement was signed by Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand in 1992, entering into force in 1993. It consisted of a schedule of preferential tariff reductions, to be implemented progressively until 2008 (later postponed to 2010). Goods were divided in five categories: Inclusion List-Fast Track (IL-FT); Inclusion List-Normal (IL-N); Temporary Exclusion List (TEL); Sensitive List (SL); and General Exceptions (GE). The group titles reveal their meanings quite accurately. IL-FT goods were expected to have preferential tariffs reduced to 0-5% by 2000, while IL-N products had until 2003 to reach that level. TEL items were expected to be phased into the Inclusion List by 2000 for most manufactured products, and by 2003 for unprocessed agricultural

products. SL goods corresponded mainly to unprocessed agricultural products that were granted a more flexible arrangement for phasing into the Inclusion List. Finally, GE products were permanently excluded from the agreement. In the second half of the 1990s, four other countries (Cambodia, Laos, Myanmar and Vietnam) joined the group. They were incorporated into the existing scheme for preferential liberalization, although with more flexibility both with respect to the products added to the Inclusion List and with respect to the timing of liberalization.

Overall, AFTA has proved to be a “deep” free trade agreement, at least relative to other arrangements among developing countries (probably second only to Mercosur in this respect). There are several reasons for that. First, because of AFTA’s coverage is comprehensive (over 90 percent of product classifications were in the Inclusion List from the outset of the liberalization program). Second, the liberalization program is very ambitious, ultimately requiring free/near-free trade within the area for the large majority of products. Third, and most importantly, AFTA members have indeed—unlike members of many other developing-country trading blocs—largely stuck to their announced goal of reaching near free intra-bloc trade.

AFTA’s successful implementation does not imply, however, that the 1992 original preference-granting schedule has been followed strictly by its signatories. In fact, there have been numerous updates and amendments to the schedule.<sup>4</sup> It is not uncommon for members to move slower than the schedule originally specified, and sometimes they actually move faster. This implies that actual liberalization, while correlated, is not fully dictated by the previously negotiated tariffs. This feature of AFTA turns out to be very useful for our identification strategy of the effects of preferences on countries’ choices of MFN tariffs, as we discuss in section V. Other features of the AFTA liberalization process are useful for our analysis as well. First, the speed and degree of intra-bloc liberalization vary across products and across member countries, as well as over time, generating significant variation in our dataset. Second, particularly large changes in the liberalization process were brought about during the Asian crisis of 1997-1998, which can be safely regarded as exogenous to

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<sup>4</sup> For example, agricultural goods were incorporated only in the early 2000s to the schedules. See Lendle (2007) for a brief description of those changes and <http://www.aseansec.org/4920.htm> for details.

AFTA. Third, as in any free trade agreement (but unlike in customs unions), bloc members are fully independent to define their external (MFN) tariffs.<sup>5</sup>

In parallel to the broader tariff negotiations under AFTA, other specific, sectoral liberalization programs (e.g. in information technology products and in automobiles) were also implemented by ASEAN members in the early 2000s, accelerating the liberalization process within the bloc. To the extent that these sectoral agreements affected the tariffs of the ASEAN members, their impact is incorporated in our analysis. Other institutional elements that are likely to affect our relationships include non-tariff barriers (NTBs) and schemes like the members' duty drawback system (which provides duty-free treatment of imported intermediate goods for producing exported final goods).<sup>6</sup> We do not incorporate those issues explicitly mainly because of unavailability of appropriate data. While we do not expect NTBs or the bloc's duty drawback system to be the driving forces in our analysis, their effects are nevertheless subsumed in our estimations, which provide the net effect of preferences on external tariffs.<sup>7</sup>

### III.1 – Data

We work with a comprehensive data set that includes information on trade, MFN tariffs and preferential tariffs, implemented and scheduled, for all ten members of the ASEAN Free Trade Area. The information on preferential tariffs was provided by the ASEAN Secretariat.<sup>8</sup> The implemented rates are those actually employed by the member countries. The main novelty of the dataset is the scheduled rates, which are the ones the members planned to apply when the AFTA negotiations were concluded, in 1992. The MFN tariffs and the trade data at the HS 6-digit level come

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<sup>5</sup> On certain occasions, MFN rates have actually dropped *below* the preferential rates for AFTA members (see e.g. Ando 2007). Naturally, preferences become redundant in those cases, and AFTA exporters simply use the prevailing MFN rate. Accordingly, in our empirical analysis we set the preferential tariffs to the level of their MFN counterparts when we observe such discrepancies.

<sup>6</sup> We thank Fukunari Kimura for pointing this out.

<sup>7</sup> NTBs are likely to weaken the relationship between preferential and MFN tariffs. For example, a large preferential margin may be innocuous in the presence of NTBs on intra-ASEAN trade, therefore having no effect on the governments' incentives to alter external tariffs. Similarly, if the NTBs are on non-ASEAN imports, MFN tariffs become less important, and governments may not bother to change them despite sizable preferential margins. Duty drawbacks may work in the opposite direction. As Cadot et al. (2003) show theoretically and confirm for Mercosur, duty drawbacks provide an additional reason for external tariffs to fall after the formation of a regional trading bloc.

<sup>8</sup> We thank the Asian Development Bank for very helpful assistance in obtaining the data.

from the World Integrated Trade System. An important advantage of our data is that they are very disaggregated, at the product (6-digit) level. Furthermore, we have a long sample, ranging from 1993 to 2007 (plus data in previous years for trade flows and MFN tariffs). On the negative side, the panel is unbalanced, with a significant amount of missing data, especially in the first half of the sample.

The aggregate trade data used in Section III.3 are from the IMF direction of trade statistics. These data go back further than the WITS data and a great effort is made to ensure they capture aggregate bilateral flows.

### **III.2 – Tariffs**

Table 1 shows the (simple) average preferential and MFN tariffs, plus the difference between the two (*margin*), for each of the ten ASEAN members since the outset of AFTA in 1993 (or since the entry year for the later entrants). Blank spaces reflect missing data (the year 2001 is not shown because preferential tariffs are missing for all members that year). The overall trend is of falling MFN and preferential rates, but this is not always the case, even though we are looking at average levels. The most notable exception is Thailand, where during the Asian crisis MFN tariffs temporarily peaked at high levels.

These points become clearer when we look at figure 1, where we display the time series of the three variables from table 1 for the countries where data is available for most years, Indonesia, Malaysia, and the Philippines. The downward trend in intra-ASEAN tariff rates is very transparent for all of them, although the speed and the magnitude of the changes vary, both being higher for the initially more protected countries, Indonesia and Philippines. In those countries external tariffs have fallen as well, but the changes have been minimal since 2003. The pattern of the average MFN tariff in Malaysia has been more erratic, having gone up right after the Asian currency crisis and come down only slightly since 2005, but remaining above the pre-crisis level. With respect to the average margin of preference, the pattern again differs among the three countries: it is generally (but not always) increasing for Indonesia and Malaysia, and it is mostly (but not always) decreasing in the Philippines, reflecting the large drops in the MFN tariff there. Figure 1 therefore makes clear the

large degree of variation in external and preferential tariffs in our sample, even when we look at average levels.

### **III.3 – Aggregate trade**

We now look at aggregate trade data for the six original ASEAN members to examine how trade patterns change following the implementation of trade preferences.<sup>9</sup> The purpose is to identify whether there are significant trend changes in the trade growth with members and nonmembers subsequent to the agreement.

Figure 2 shows the share of imports that stems from ASEAN members, collectively and for each of the six individual countries, 13 years before and after the introduction of preferences in 1993. The figures show that, for the bloc as a whole and for most members, the share of imports coming from partner countries has increased steadily since 1993, although no clear trend is visible before that year. This suggests that the preferences were effective in affecting trade patterns. However, it does not hint at whether this reflects the prevalence of trade diversion or trade creation, since both imply an increase in the share of preferential imports.

In figure 3 we then plot, for the same period, the volumes of intra-AFTA imports and imports from outside the bloc. The figures suggest no evidence of important trade diversion, as imports from AFTA nonmembers kept increasing after the formation of the bloc in most years for all countries.<sup>10</sup> Imports from within the bloc increased at a higher pace, though, which explains the rise in the share of intra-AFTA trade. These trends are consistent with trade creation dominating trade diversion in AFTA, although other explanations are also plausible. The figures also make clear that import growth with members and with nonmembers are highly correlated, implying that other factors besides AFTA are important drivers of aggregate trade growth.

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<sup>9</sup> Trade data for the four late entrants are available only for recent years.

<sup>10</sup> The important exception is 1997, where trade flows fell significantly. That drop was largely unrelated to AFTA, however, reflecting instead the Asian currency crisis. In fact, in that year imports from members and nonmembers fell alike.

Table 2 shows the mean growth rates of external and internal imports before and after 1993. While several factors beyond AFTA have probably affected trade growth rates in the ASEAN countries (the currency crisis of 1997-1998 being only the most prominent one), a few regularities are worth noting. First, intra-AFTA trade grows faster than external trade in five of the six original members even in the *pre*-agreement period (the only exception being Indonesia). This suggests that the choice of members was not random, but rather influenced by their growing trade ties. In the post-agreement period, internal trade growth was faster than external import growth in all countries, and by a significantly larger margin than it was before 1993.

Although using aggregate trade data obviously makes the sample very small, we can still perform t-tests on the difference in the means of the pre-union and post-union growth rates and also between the growth rate of internal trade and trade with nonmembers. As the results reported in table 2 show, the t-tests of the difference in the mean growth rates before and after the agreement are not conclusive. On the other hand, the difference in the mean growth rates of imports from members and nonmembers are different enough for Indonesia and the Philippines in the post-AFTA period that the t-test on their difference is statistically significant, despite the very small sample.

Furthermore, if increased trade with bloc members displaced imports from third countries, we would expect to see a decline in the correlation between internal and external trade growth subsequent to the formation of AFTA. However, as shown in the last column of table 2, the correlation between external trade growth and internal trade goes up in five out of the six countries—and by a large amount in Thailand and the Philippines. The correlation falls in the post-1993 period only in Brunei, and the drop was minimal.

#### **IV. The effect of tariffs on trade in ASEAN**

Having looked at the pattern of aggregate trade and average tariffs in the ASEAN countries, we turn now to examine the relationship between imports and

tariffs. Specifically, we study how MFN and preferential tariffs affect import growth from AFTA members and from outsiders.

For this exercise, as well as for our study of the relationship between the two types of tariffs in the next section, we aggregate the yearly data in three-year periods. This helps to downplay unnecessary noise in the dataset due to missing data. The six periods are: 1. the pre-AFTA period (before 1993); 2. the early years of the agreement (1993-1995); 3. the Asian crisis period (1996-1998); 4. the post-crisis period (1999-2001); 5. the effective integration of the new members (2002-2004); 6. further intra-bloc liberalization by all members (2005-2007). We lose little with this approach, since the dataset remains very large.

To control for other factors that might affect trade patterns, we run the following regression:

$$(1) \quad d\ln(M_{ijt}) = \gamma_{jtg} + \beta_1 dPREF_{ijt} + \beta_2 dMFN + \varepsilon_{ijt} ,$$

where  $M_{ijt}$  corresponds to imports of product  $i$ , country  $j$ , period  $t$ , from group  $g =$  members, nonmembers.  $PREF_{ijt}$  denotes the preferential tariff (in percentage points) enjoyed by exporters of good  $i$  to country  $j$  in period  $t$ , whereas  $MFN_{ijt}$  corresponds to the tariff (in percentage points) that non-ASEAN exporters have to incur.  $d$  indicates first difference.  $\gamma_{jtg}$  is a country-period fixed effect for group  $g$ . The country-year effects control for general liberalization and business cycle effects. To account for trends in country-specific demand for good  $i$ , we also try including country-product fixed effects in the regression. In addition, we run the regression using both the percentage point change in tariffs ( $dPREF$  and  $dMFN$ ) and the percent change in tariffs ( $d\ln(1+MFN/100)$  and  $d\ln(1+PREF/100)$ ). The advantage of the percentage point change is that it puts more weight on large changes. The advantage of the percent change is that the coefficient can be interpreted as an elasticity.

Coefficient  $\beta_1$  represents the quasi-elasticity or elasticity of imports from group  $g$  with respect to the preferential rate,  $PREF$ , for given MFN tariff.<sup>11</sup> A

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<sup>11</sup> Notice that we look at the effect on  $\ln(1+PREF/100)$  on  $\ln(M)$ . Thus,  $\beta_1$  tells us how much  $M$  changes, in percentage terms, when  $(1+PREF/100)$  increases by 1%. Since  $PREF/100$  is in general

negative  $\beta_1$  implies that, if *PREF* rises (thereby increasing the cost of imports from members and lowering the margin of preferences), imports from group *g* fall. We expect this to be the case when *g* = members, unless preferences are not being effectively used. In contrast, we expect  $\beta_1 \geq 0$  when *g* = nonmembers, with a greater value indicating greater trade diversion effects. Coefficient  $\beta_2$  represents the impact of changes in the MFN tariff, for given *PREF*, on changes in imports from group *g*. A negative  $\beta_2$  implies that, if the MFN tariff rises (thereby increasing the cost of imports from nonmembers as well as the margin of preferences), imports from group *g* fall. We expect this to be the case when *g* = nonmembers. In contrast, an estimated  $\beta_2$  of any sign is conceivable when *g* = members. If preferences are used for most products,  $\beta_2 > 0$  for *g* = members is likely as a result of trade diversion. But if preferences are not effectively used, even imports from within the bloc are negatively affected by increases in the MFN rates.<sup>12</sup> In that case,  $\beta_2 < 0$  for *g* = nonmembers as well.

Table 3 reports the results.<sup>13</sup> The first two columns show the outcomes of the regressions on tariffs in first differences. Imports from ASEAN outsiders are, as expected, negatively impacted by the members' MFN tariffs. Intra-ASEAN trade is negatively affected only by the preferential rates. Surprisingly, preferential tariffs appear to lower also imports from bloc outsiders. This is broadly consistent with some analyses that indicate that much of intra-ASEAN trade is in intermediate goods (e.g. Fouquin, Hiratsuka and Kimuara 2006), with the implication that trade with bloc members and nonmembers are complementary.<sup>14</sup> Note, on the other hand, that the

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small relative to unity, a 1% change in  $(1+PREF/100)$  can be approximated by a one percentage point change in *PREF*. Similar interpretation applies to  $\beta_2$ .

<sup>12</sup> A typical concern among ASEAN analysts is indeed that preferential margins have become too small in most sectors to have a practical effect. After all, eligibility to the preferential rate requires complying with complex rules of origin, which often imply large administrative costs. If the margin of preference is too low, it will then be best to simply use the MFN rate to avoid incurring in such an administrative burden. Several scholars (e.g. Baldwin 2006) have indeed claimed that the utilization rates are very low in ASEAN, around just five to ten percent. Manchin and Pelkmans-Balaoing (2008) note, however, that it is unclear what the primary source of this information is, since the ASEAN Secretariat does not publish information about utilization rates. Still, since a significant fraction of the preferential margins seem indeed too low to be useful, the preferential system under AFTA may have little practical importance for the trade flows in the region. In fact, Manchin and Pelkmans-Balaoing (2008) find that preferences have a positive effect on intra-bloc trade only when the preferential margins are very high—over 25 percentage points.

<sup>13</sup> In these and the subsequent regressions, we use robust standard errors and cluster observations at the country-product level.

<sup>14</sup> The negative effect of each tariff on imports from both bloc insiders and outsiders may reflect also income effects, in addition to the substitution effects they are designed to capture. We thank Warwick McKibbin for this observation.

magnitudes are consistent with preferences in ASEAN being operative: imports from excluded countries appear to be *more* negatively affected by the MFN tariffs than by the preferential rates. The next two columns report results with the percentage change in tariffs, the results are qualitatively similar.

Preferences may, however, be correlated with trends in country-specific demands for individual products. This would generate trends in imports; if tariffs are correlated with those trends, which is plausible, then regression (1) would be misspecified, misattributing part of the effects of such trends on trade to tariffs. To avoid this problem, we run equation (1) with country-product fixed effects. Columns 5-8 report the results. Only the statistically significant negative effect on MFN tariffs on imports from excluded countries remains intact, whether in first differences or percentage changes. Again the results do not support evidence of significant trade diversion.

Finally, there is a danger of reverse causality if trade growth affects tariff changes. For example, an import surge could lead to higher MFN tariffs, thus leading to an upward bias in its coefficient. In the final four columns, we rerun the regressions using the lagged tariff changes as instruments for contemporaneous changes. The results point to stronger effects of tariff reductions on trade, suggesting that reverse causality is indeed a concern. Again, there is no evidence of reductions in preferential tariffs reducing trade from nonmembers.

To properly identify the impact of preferences in ASEAN, it is however necessary to understand how those preferences affect the policies of ASEAN members toward outsiders. Members agreed on a schedule of preferential tariff reduction starting in 1992, updating and adjusting it overtime. Meanwhile, most of them also cut their own MFN tariffs significantly, thus generating relatively low preferential margins. Were these large MFN tariff reductions influenced by the members' decision to liberalize preferentially? This is what we seek to answer in the next section.

## V. Preferences and external tariffs in ASEAN

We study in this section whether/how ASEAN governments altered their trade policies vis-à-vis outsiders following the introduction and deepening of preferences under AFTA.

Naturally, several factors (political economy forces, currency crisis, fiscal needs, etc.) affect a country's external tariffs. We account for these factors by using a large variety of fixed effects, as in the trade regressions of the previous session. Those that are constant overtime are eliminated in the regressions when we take first differences. Thus, we estimate the following regression:

$$(2) \quad \Delta MFN_{ijt} = \gamma_{ij} + \gamma_{jt} + \alpha \Delta PREF_{ijt} + \upsilon_{ijt},$$

where  $\gamma_{ij}$  is a country-product fixed effect and  $\gamma_{jt}$  is a country-period fixed effect. Notice that, since equation (2) is specified in first-differences, these fixed effects correspond effectively to fixed *trend* effects, rather than fixed level effects. For robustness, we therefore report results both with and without these fixed effects. In equation (2), a positive coefficient  $\alpha$  would support a “building blocs” view of preferential liberalization, where lower preferential tariffs are associated with lower external tariffs. In contrast, a negative  $\alpha$  would support a “stumbling blocs” view of preferential liberalization, where lower preferential tariffs are associated with higher external tariffs.

Despite our large number of fixed (trend) effects, there may still be forces omitted in regression equation (2) that induce governments to alter both their preferential and external tariffs. This would tend to make our estimated coefficient  $\alpha$  statistically significant, but causality would not follow from *PREF* to *MFN*. We adopt a number of strategies to check whether the results from the basic regression correspond indeed to causation.

First, we re-run (2) with lagged  $\Delta PREF$ . This neutralizes the effects of omitted variables that affect both *MFN* and *PREF* contemporaneously. Second, we introduce

in the regression, in turn,  $\Delta MFN_{ij,t-1}$  and  $MFN_{ij,t-1}$ , to control for autocorrelation in  $\Delta MFN$  and for the fact that it is easier to lower MFN by more if it is high. Third, we replace lagged  $\Delta PREF$  with the *planned* changes in preferential tariffs, agreed upon when AFTA was created, in 1992. Future shocks that might have affected the actual changes in  $PREF$  and MFN did not play a role in the negotiation of the preferential rates in 1992 ( $PREF92$ ), unless they were fully anticipated. Finally, we also regress  $\Delta MFN$  on the lagged changes in preferential *margins*, defined as the difference between the MFN and the preferential rates. Notice that the interpretation of the coefficient on lagged changes in the preferential margins is different: a negative coefficient indicates tariff complementarity (a higher preferential margin induces lower MFN tariffs), while a positive coefficient suggests tariff substitutability.

Table 4 reports the results. All regressions indicate a strong complementarity between changes in preferential tariffs and changes in MFN rates: if the former falls, the latter falls as well. This is observed whether we look at the preferential rates directly, the planned preferential rates, or the preferential margins. In addition, the results are not sensitive to the inclusion of country-product fixed effects. The magnitudes are also economically significant, ranging from .24 to .47 (for the preferential rates). This implies that a reduction of 10 percentage points in the intra-AFTA import tariff leads to a fall between 2.4 and 4.7 percentage points in the country's external tariff in the subsequent period. In the remaining regressions, to be conservative, we only report results with the full set of fixed effects.

As indicated earlier, a concern about ASEAN is that preferences may not be used if the difference between intra-ASEAN and MFN rates is not sufficiently large. If so, the economic and political channels through which intra-bloc liberalization affects governments' incentives to liberalize unilaterally against outsiders may be muted, or at least be weaker. Similarly, theory indicates that the impact of preferences on external tariffs should be more significant, the more important intra-bloc imports are. Looking for differential effects in products where the margin of preference is meaningful, as well as where intra-bloc imports are more or less prominent, can therefore provide a finer test for our hypothesis that changes in MFN tariffs are indeed being driven by changes in preferences.

To look at these issues, we first construct the indicator variable *BIGM*, which is unity if the margin of preference is above  $x$ . We experiment with different thresholds:  $x = \{2.5, 5, 7.5\}$ . We then run the following regression:

$$(3) \quad \Delta MFN_{ijt} = \gamma_{ij} + \gamma_{jt} + \alpha \Delta PREF_{ijt-1} + \beta (\Delta PREF_{ijt-1} * BIGM_{ijt-1}) + \rho BIGM_{ijt-1} + \upsilon_{ijt}.$$

Coefficient  $\rho$  tells us whether the presence of a large margin of preference has an independent impact on the changes in MFN tariffs. Coefficient  $\beta$ , on the interaction between  $\Delta PREF$  and *BIGM*, indicates in turn whether the relationship between preferential and MFN tariffs is different in the presence of a large preferential margin.

Second, we define the variable *WGHT* as the share of imports coming from ASEAN members. Since this share is affected by the MFN tariffs after the introduction of AFTA, we use the share of imports from ASEAN members from the period right before AFTA came into force (i.e., 1992 or the first period for which trade data is available prior to 1993). We then interact *WGHT* with *BIGM*:<sup>15</sup>

$$(4) \quad \Delta MFN_{ijt} = \gamma_{ij} + \gamma_{jt} + \alpha \Delta PREF_{ijt-1} + \beta (WGHT_{ij} * BIGM_{ijt-1}) + \upsilon_{ijt}.$$

This approach is analogous to that followed by Estevadeordal et al. (2008). If  $\beta > 0$ , it indicates that, when the margin of preference is significant, higher intra-bloc imports lead to higher external tariffs, or “tariff substitutability,” whereas  $\beta < 0$  reflects “tariff complementarity.”

Results are displayed in table 5. The first three columns show the results for regression (3) for each of the considered thresholds for *BIGM*. The presence of a large margin of preference by itself induces a reduction in the MFN tariff. Furthermore, the tariff complementarity obtained in the previous regressions is considerably stronger when a large margin is present. In fact, as the first column of table 5 indicates, tariff complementarity vanishes for products where the preferential margin is below 2.5,

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<sup>15</sup> Notice that, since *WGHT* does not vary overtime, its independent effect is fully absorbed by the fixed effect  $\gamma_{ij}$ .

confirming that margins that are too small are ineffectual. This result mirrors those obtained by Estevadeordal et al. (2008) for Latin America.

The last three columns show the results for regression (4) for each of the three thresholds for *BIGM*. Again, we find tariff complementarity and that the presence of a large margin of preference by itself leads to reductions in the external tariff. We also observe that a higher intra-bloc share of imports is associated with reductions in the external tariffs. However, this effect is statistically significant only when the margin of preference is at least 7.5 percentage points. This result is in the same spirit of those of Estevadeordal et al. (2008) for Latin America,<sup>16</sup> but is quantitatively different, as there *WGHT* proved to play a role in pushing external tariffs down even for margins that were just above 2.5 percentage points. One possible explanation for this difference is the level of aggregation. While our data for ASEAN is at the product level, Estevadeordal et al.'s data is much more aggregated, at the industry level (about 100 of them). Thus, the finding in the Latin America study that higher shares of intra-bloc imports drive MFN tariffs down even for relatively small preferential margins may be driven simply by its high level of aggregation.

Overall, our results in tables 4 and 5 provide extensive evidence that ASEAN countries dropped their MFN tariffs following reductions in preferential rates. Furthermore, our findings that this effect is stronger for goods where the margins and the (pre-agreement) share of intra-bloc imports are higher provide considerable support for a causal relationship. Still, if future changes in MFN tariffs are anticipated by the governments, their previous changes in preferential rates may simply reflect those anticipated lower MFN rates—i.e., our regressions may be capturing reverse causality. Relatedly, omitted variables that affect changes in both external and (with a lag) intra-bloc tariffs may be affecting our results as well.

To address these issues, we adopt an instrumental variable approach, where we instrument actual changes in preferential tariffs with the *planned* ones by the original six members in 1992, as outlined in their original schedule. Moreover, we

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<sup>16</sup> This result is related also to Manchin and Pelkmans-Balaoing's (2008) finding that preferences affect intra-ASEAN trade only if the preferential margin is very high—in their case above 25 percentage points.

restrict the sample to period 4 (i.e., after 1998) onwards. Our rationale is as follows. First, it is largely implausible that actual changes in MFN tariffs in the post-Asian crisis period were anticipated in 1992, affecting those planned changes in intra-bloc trade restrictions. The same is true for shocks that could have affected both  $\Delta MFN$  and lagged  $\Delta PREF$  after the Asian currency crisis. Second, while planned and actual preferential changes are clearly correlated (the correlation drops from 0.99 in period 2 to 0.34 in period 6, falling monotonically overtime), one can safely argue that planned preferences in 1992 did not independently affect the willingness of governments to alter their external trade policies after the Asian crisis of 1997-1998.

We show the results for these IV regressions in the first two columns of table 6, where we instrument contemporaneous and lagged  $\Delta PREF$  with contemporaneous and lagged  $\Delta PREF92$ , respectively.<sup>17</sup> The results reinforce our previous findings and in particular the causality mechanism: changes in preferential rates appear to have indeed caused subsequent changes in external tariffs in the same direction. Furthermore, this complementarity effect is stronger in the instrumented regressions.

Finally, in the last two columns of table 6 we adopt a GMM procedure, adding lagged levels of preferential tariffs to instrument for lagged changes. In this specification, we also control for the lagged level of the MFN tariff to ensure our results are not driven by the fact that high tariffs can be reduced more substantially. It is also instrumented with lags. The tariff complementarity results remain strong. In addition, we do find a negative coefficient on lagged MFN, suggesting that higher tariffs do tend to be reduced more.

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<sup>17</sup> First-stage results, omitted, confirm the strong correlation between  $\Delta PREF$  post-period 3 and  $\Delta PREF92$ .

## VI. Conclusion

In this paper we study how the formation of the ASEAN Free Trade Agreement, established in 1993, has affected trade flows and trade policies vis-à-vis outsiders. AFTA provides a unique opportunity to analyze the effects of preferential trade integration, in that it involves ten countries that have been lowering tariffs on each other's imports over time at very different paces across products. Moreover, very detailed data are available, and not only for the pace of actual preferential liberalization, but also for the members' planned schedule of liberalization at the inception of AFTA in 1992.

We find that AFTA has been broadly benign, in the sense that it does not seem to be promoting trade within the bloc at the expense of trade with nonmembers. Furthermore, we find strong evidence that AFTA members have been responding to lower internal tariffs by reducing also their trade barriers on imports from outsiders. In this sense, AFTA has been clearly beneficial for the promotion of freer world trade.

These findings corroborate those of Estevadeordal et al. (2008) for Latin America (and to a lesser extent also those of Lendle 2007 for some ASEAN members), reinforcing the view that regionalism promotes external liberalization and can be viewed as a "building bloc" toward free trade. On the other hand, our findings contrast sharply with those of Limão (2006) and Karacaovali and Limão (2008) for the United States and the European Union, which imply that regionalism constitutes a break on external liberalization and should be regarded instead as a "stumbling bloc" to global free trade.

Why do we have such discrepant results across studies and trading blocs? While we cannot know for sure, one factor that is very likely behind these divergent results is indeed the stark difference between the countries analyzed in those studies. Since the multilateral system has not enforced much tariff reduction on developing countries, tariffs are relatively high there, creating a large potential for trade diversion. Lower external tariffs moderate that loss. The results of Estevadeordal et al. and of this paper suggest that this force is important in explaining changes in MFN tariffs of developing countries involved in free trade areas. In contrast, Limão focuses

on industrial countries. Tariffs were already quite low in the United States and the European Union at the onset of the Uruguay Round, which reduces the importance of this channel. In addition, the theoretical underpinnings that Limão uses to justify the importance of preferences in North-South agreements rely on regional blocs being formed for non-economic reasons—preferential treatment given in exchange for non-economic benefits, such as cooperation on migration, drug trafficking or a global political agenda. This is not the case in South-South trade agreements, including AFTA, where the main goal is to exchange market access. Further research to confirm/disprove these presumptions would be very welcome.

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Table 1 – MFN and preferential tariffs

country		1993	1994	1995	1996	1997	1998	1999	2000	2002	2003	2004	2005	2006	2007
<b>ASEAN-6</b>															
Brunei	MFN				3.75		2.76	2.71	2.68	2.63	2.63	2.6	2.14	2.11	2.61
	PREF	3.64	2.54	2.42	1.87		1.31	1.37	1.19	0.94	0.97	0.94			1.01
	Margin				1.88		1.45	1.34	1.49	1.69	1.66	1.66			1.6
Indonesia	MFN	17.88		15.06	13.57	12.35	12.35	8.81	8.25	6.89	6.9	6.95	6.95	6.95	6.91
	PREF	16.03	16.03	14.36	9.48	8.1	6.7	5.19	4.57	3.63	2.14	2.2	1.51	1.5	1.5
	Margin	1.85		0.7	4.09	4.25	5.65	3.62	3.68	3.26	4.76	4.75	5.44	5.45	5.41
Malaysia	MFN	11.06			6.77	6.21	6.26	8.17	8.36	8.35	8.35		7.35	7.18	7.18
	PREF	7.27	6.77	6.29	4.18	3.78	3.17	2.9	2.96	2.64	2.18		2.1	2.01	0.69
	Margin	3.79			2.59	2.43	3.09	5.27	5.4	5.71	6.17		5.25	5.17	6.49
Philippines	MFN	23.01	22.16	20.27	14.39	14.62	14.79	9.62	7.71	6.08	6.28	6.27	6.27		6.26
	PREF	12.41	11.36	10.62	9.57	9.22	7.78	7.37	5.09	4.05	1.98	2.05	2.05		1.97
	Margin	10.6	10.8	9.65	4.82	5.4	7.01	2.25	2.62	2.03	4.3	4.22	4.22		4.29
Singapore	MFN			0	0.32	0.07	0.07	0.06		0	0	0	0	0	0
	PREF			0						0	0	0	0	0	0
	Margin			0						0	0	0	0	0	0
Thailand	MFN				23.71		23.71	43.33	16.4		15.36				
	PREF	20.01	20.01	18.38	14.09		10.3	9.75	5.96	4.85	2	2.01			
	Margin				9.62		13.41	33.58	10.44		13.36				

(cont.)

Table 1 – MFN and preferential tariffs (cont.)

<b>+ 4</b>											
Cambodia	MFN				16.46	16.41	16.41	15.81	14.26		14.18
	PREF					8.87	7.83		9.08		6.85
	Margin					7.54	8.58		5.18		7.33
Laos	MFN	10.34	10.33	10.33	10.34			10.33	9.71		9.71
	PREF			7.21				6.15	3.88		1.57
	Margin			3.12				4.18	5.83		8.14
Myanmar	MFN	5.54	5.51	5.49	5.51	5.51	5.51	5.51	5.6		5.6
	PREF				4.8	4.81	4.26	4.29			3.36
	Margin				0.71	0.7	1.25	1.31			2.24
Vietnam	MFN	4.47	12.43	13.08			16.03	16.81	16.81	16.81	16.81
	PREF	3.71	7.39	7.54	6.86	6.57	5.5	4.08	2.27		2.35
	Margin	0.76	5.04	5.54			9.46	11.31	12.73	14.54	14.46

Source: WITS and ASEAN Secretariat.

Table 2 – Growth rates of ASEAN imports

<b>Brunei Darussalam</b>					
	ASEAN	ROW	t-test	p-value	correlation
1980-1993	10.45	6.91	0.85	0.41	0.351
1993-2007	5.37	-1.07	0.49	0.64	0.330
t-test	0.62	0.68			
p-value	0.54	0.50			
<b>Indonesia</b>					
	ASEAN	ROW	t-test	p-value	correlation
1980-1993	5.43	7.97	-0.28	0.78	0.677
1993-2007	14.49	4.93	<b>3.04</b>	0.01	0.813
t-test	0.78	0.45			
p-value	0.44	0.66			
<b>Malaysia</b>					
	ASEAN	ROW	t-test	p-value	correlation
1980-1993	12.57	10.37	0.81	0.43	0.786
1993-2007	9.87	8.40	0.78	0.45	0.886
t-test	0.53	0.33			
p-value	0.60	0.74			
<b>Philippines</b>					
	ASEAN	ROW	t-test	p-value	correlation
1980-1993	7.78	4.97	0.53	0.61	0.575
1993-2007	14.51	7.81	<b>3.50</b>	0.00	0.836
t-test	1.01	0.48			
p-value	0.32	0.63			
<b>Singapore</b>					
	ASEAN	ROW	t-test	p-value	correlation
1980-1993	10.21	8.93	0.59	0.57	0.819
1993-2007	10.43	7.95	1.41	0.18	0.9
t-test	0.04	0.19			
p-value	0.97	0.85			
<b>Thailand</b>					
	ASEAN	ROW	t-test	p-value	correlation
1980-1993	12.94	12.01	0.21	0.84	0.647
1993-2007	10.19	7.79	1.14	0.27	0.9
t-test	0.40	0.58			
p-value	0.69	0.57			

Source: WITS.

Table 3 – The Effect of Tariffs on Trade

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	dlnROW	dlnREG	dlnROW	dlnREG	dlnROW	dlnREG	dlnROW	dlnREG	dlnROW	dlnREG	dlnROW	dlnREG
dmfn	- 0.005*** [0.001]	0.001 [0.001]			- 0.004*** [0.001]	0.002 [0.002]			- 0.010*** [0.004]	-0.007 [0.006]		
dpref	-0.003** [0.001]	- 0.006*** [0.002]			0.003 [0.002]	0 [0.004]			- 0.022*** [0.008]	- 0.049*** [0.014]		
dlnmfn			- 0.574*** [0.115]	0.203 [0.194]			- 0.633*** [0.169]	0.19 [0.303]			- 2.227*** [0.520]	-0.928 [0.927]
dlnpref			-0.426** [0.178]	- 0.925*** [0.260]			0.249 [0.308]	-0.273 [0.489]			-1.498 [1.179]	- 6.520*** [2.035]
Observations	65386	51891	53749	42301	65386	51891	53749	42301	46739	37919	36927	29726
R-squared	0.088	0.018	0.076	0.017	0.388	0.343	0.403	0.365	0.072	0.013	0.056	0.008
Fixed Effects												
Country-Year	X	X	X	X	X	X	X	X	X	X	X	X
Country-Product					X	X	X	X				

Robust standard errors in brackets

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1



Table 4 – The Effect of Preferences on External Tariffs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dpref	0.34***				0.25***			
	[0.01]				[0.02]			
L.dpref		0.33***				0.30***		
		[0.01]				[0.02]		
L.dpref92			0.47***				0.28***	
			[0.01]				[0.03]	
L.dmarg				- 0.24***				- 0.36***
				[0.01]				[0.01]
Observations	100694	66212	45852	63352	100694	66212	45852	63352
R-squared	0.40	0.34	0.32	0.384	0.58	0.56	0.50	0.72
Fixed Effects								
country-year	X	X	X	X	X	X	X	X
country-product					X	X	X	X

Robust standard errors adjusted for clustering at the country-product level in brackets.

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

Table 5 – The Effect of Preferences on External Tariffs: high preferential margins and high weights

	(1)	(2)	(3)	(4)	(5)	(6)
	margin=2.5	margin=5	margin=7.5	margin=2.5	margin=5	margin=7.5
L.dpref	-0.01	0.03**	0.07***	0.36***	0.36***	0.35***
	[0.01]	[0.01]	[0.01]	[0.02]	[0.02]	[0.02]
L.dpref * L.bigm	0.36***	0.34***	0.32***			
	[0.02]	[0.02]	[0.02]			
L.bigm	-1.99***	-2.34***	-2.18***	-3.02***	-3.34***	-3.29***
	[0.13]	[0.15]	[0.19]	[0.17]	[0.19]	[0.21]
wght * L.bigm				-0.24	-0.49	-1.59**
				[0.74]	[0.75]	[0.77]
Observations	66212	66212	66212	34234	34234	34234
R-squared	0.58	0.59	0.58	0.55	0.55	0.55

All regressions run with country-period and country-product fixed effects. Robust standard errors adjusted for clustering at the country-product level in brackets.

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

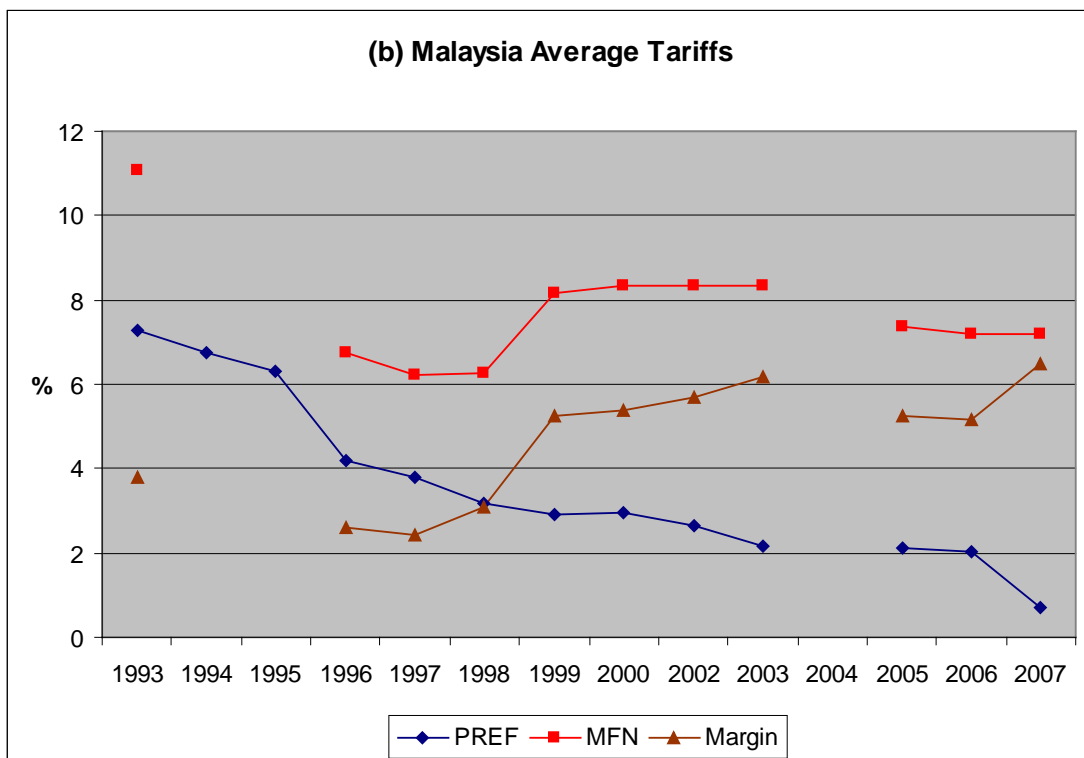
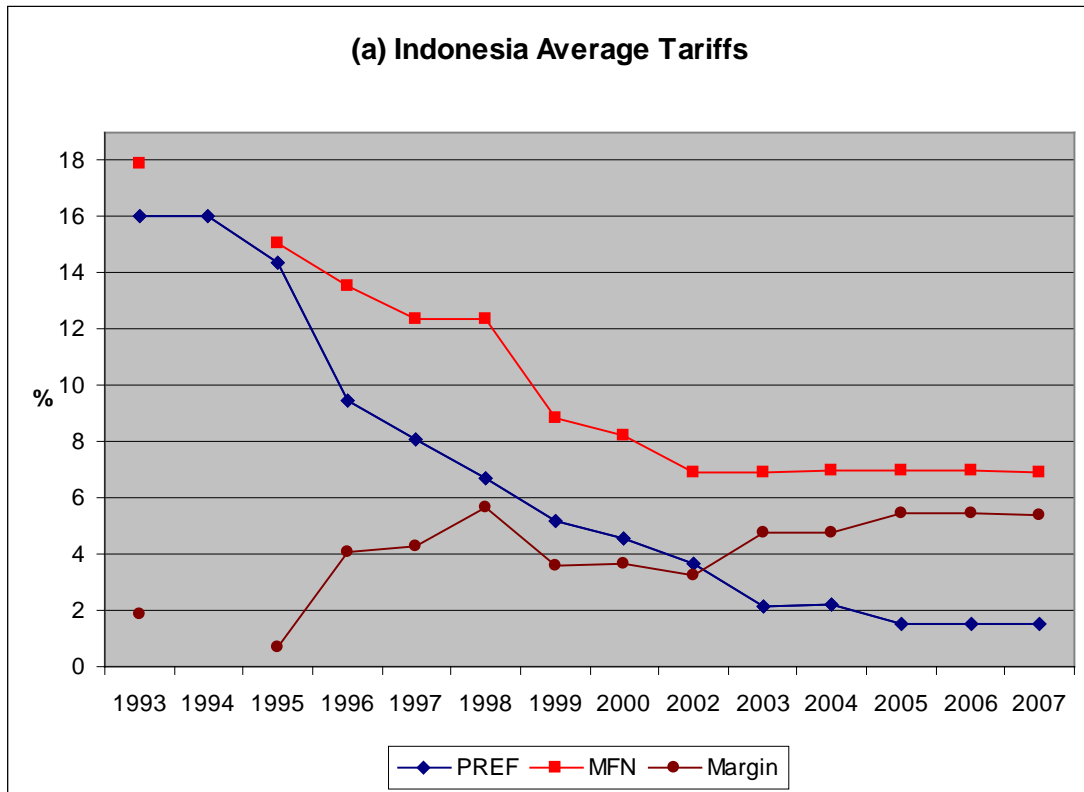
Table 6 – The Effect of Preferential Tariffs on External Tariffs; IV and GMM

	(1)	(2)	(3)	(4)
	IV	IV	GMM	GMM
dpref	0.77***		1.55***	
	[0.04]		[0.03]	
L.dpref		0.54***		1.00***
		[0.02]		[0.03]
L.mfn			-0.11***	-0.32***
			[0.01]	[0.01]
Observations	45916	45852	67415	70834
R-squared	0.05	0.10		

All regressions run with country-period and country-product fixed effects (demeaned in the IV regressions). Robust standard errors adjusted for clustering at the country-product level in brackets.

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

Figure 1 – Average tariffs, selected countries



(c) Philippines Average Tariffs

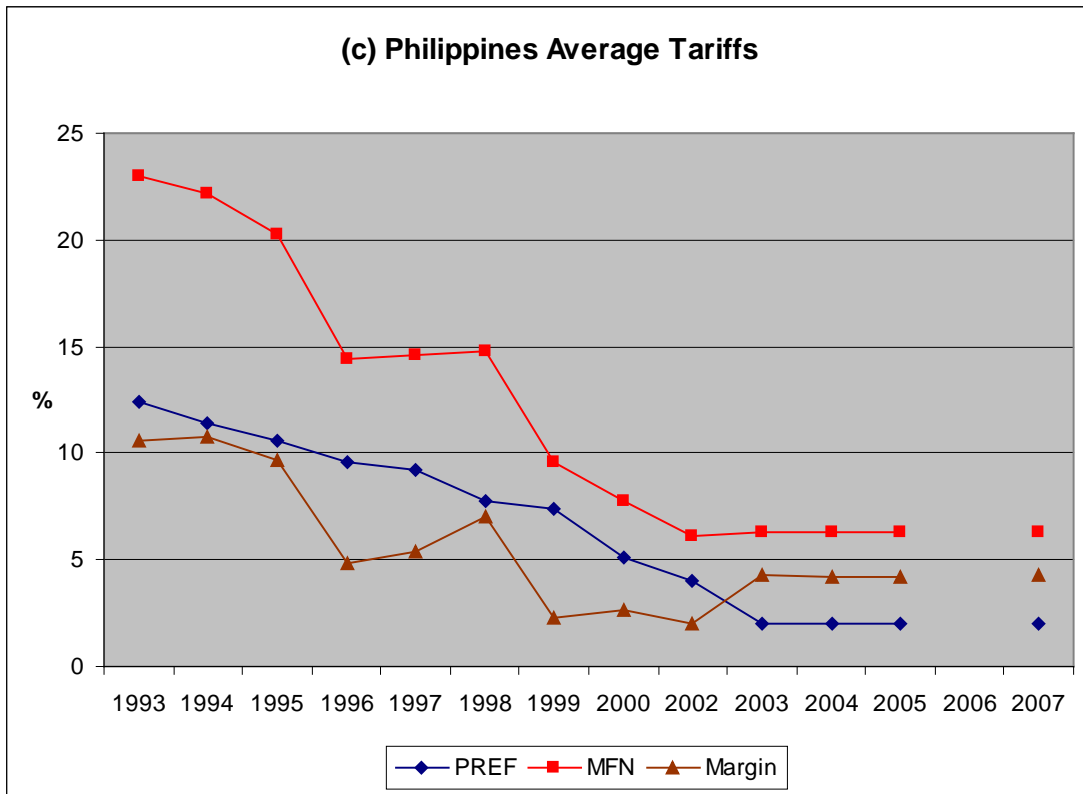
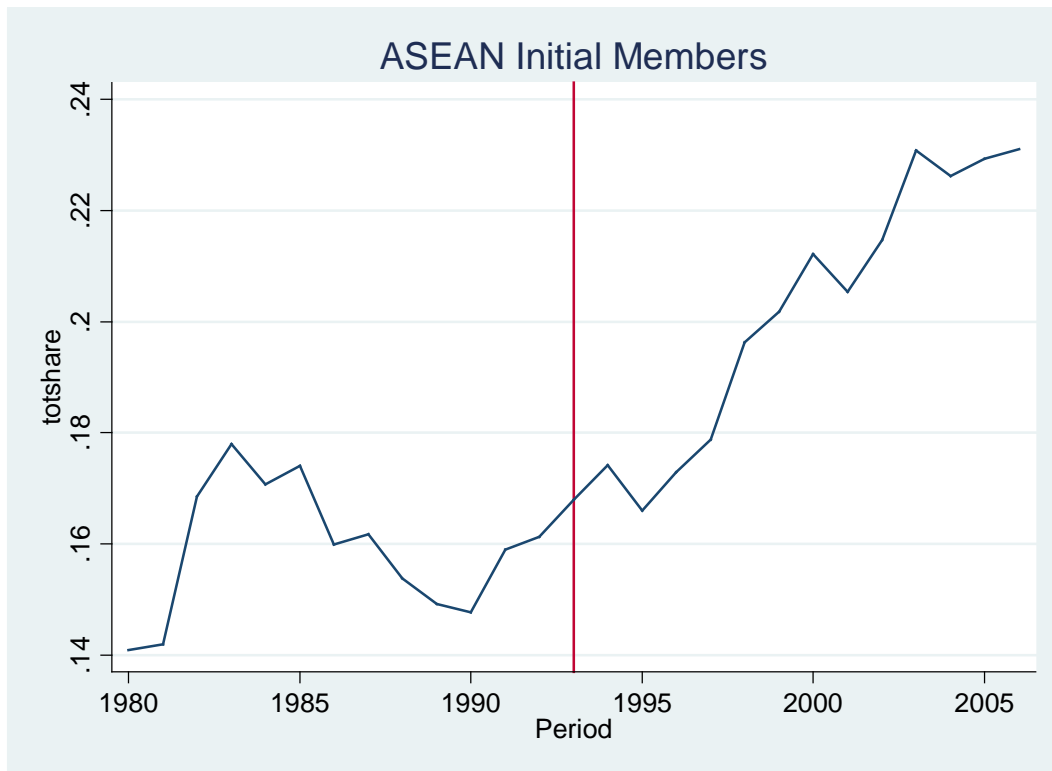


Figure 2 – Share of intra-ASEAN trade

(a) All initial members



(b) By country

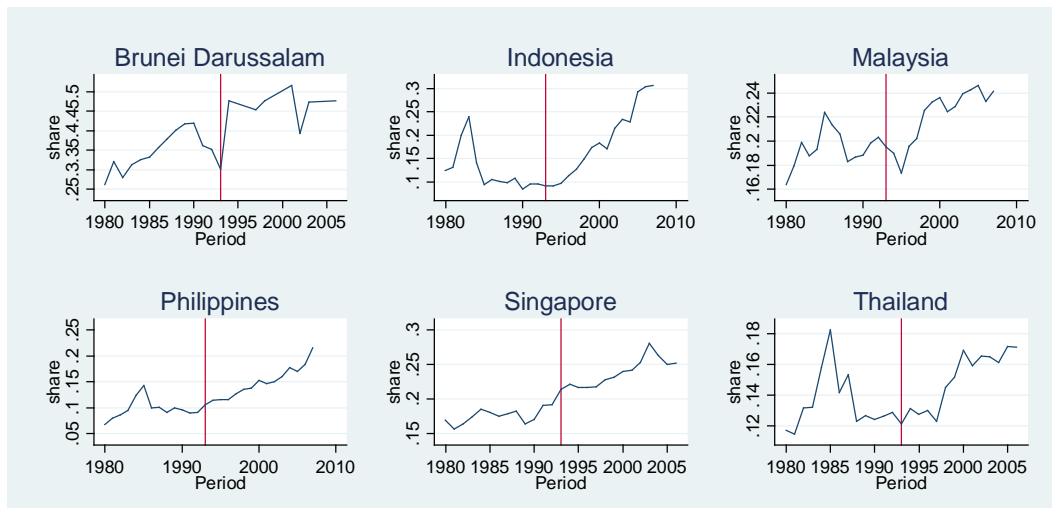
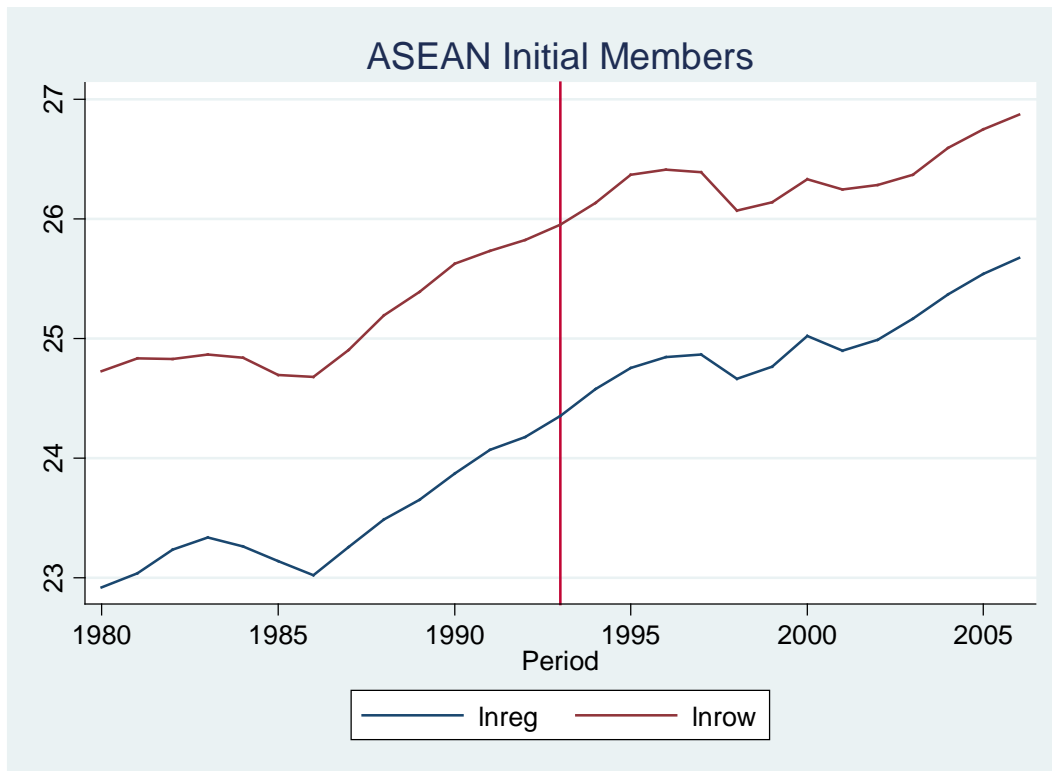


Figure 3 – ASEAN intra-bloc and external imports (in logs)

(a) All initial members



(b) By country

