
Markets Matter: The Potential of Intra-Regional Trade in ASEAN and Its Implications for Asian Regionalism*

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Abstract

This paper attempts to shed new light on further deepening the economic integration process in Southeast Asia using a quantitative assessment of the potential for further developing intra-regional trade. It is evident that ASEAN's export space is expanding faster than the world average and that there is still room for ASEAN countries to further develop the role of their intra-regional trade. To improve its export potential, ASEAN should liberalize trade not only intra-regionally but also globally. It could be in ASEAN's interest to accelerate the pace of regional integration under frameworks that involve the participation of non-ASEAN countries, especially an ASEAN Framework for Regional Comprehensive Economic Partnership.

1. Introduction

It is generally accepted that in Southeast Asia, the de facto regionalization process that historically centered around Japan has dominated the de jure regional integration process

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in the context of ASEAN. The former process has been described as a bottom-up process of gradual industrialization following a “flying geese” pattern, supported by the development of a dense network of trade and investment linkages from the late 1950s to the mid 1980s, with primary (Japan) and secondary tiers (South Korea, Hong-Kong, Taiwan, Singapore). The emergence of China has modified the structure of the system but not necessarily its functional logic. The Chinese take-off was especially spectacular since the 1990s. The Chinese economy has attracted large quantities of foreign direct investment (FDI) and has been connected to global and regional production networks.

After the 1997–98 Asian financial crisis, more policy coordination and cooperation in the areas of international trade and finance took place in the wider region. Although the institutionalization of the “ASEAN-plus” process(es) might still remain shallow (Baldwin 2004; 2006), regular meetings have been organized since then between ASEAN and Japan, China, and Korea (ASEAN+3). These meetings are organized on a yearly basis with two parallel structures: ASEAN+1 and ASEAN+3, including annual meetings of ASEAN+3 ministers of foreign affairs, trade, investment and finance. This “ASEAN-plus” framework has been further extended to ASEAN+6 by recruiting Australia, New Zealand, and India to the group.

From a comparative perspective, the ASEAN case is thereby singled out as a counter-model for the EU. It is associated with features such as: low levels of institutionalization, pragmatism, bottom-up or de facto regionalization, regional production platforms, and so on. The positive features of this “model” are often emphasized, although in recent years there have also been calls for deepening the institutionalization of ASEAN.

This paper attempts to shed new light on further deepening the economic integration process in Southeast Asia by using a quantitative assessment of the potential for further developing intra-regional trade. The paper is organized as follows: Section 2 reviews the literature and the scores of some indicators that will be presented for a selection of regional integration schemes. Section 3 further analyzes the relative export potential for ASEAN countries. Section 4 provides some policy-oriented concluding remarks based on our findings.

2. The “Asian way” of regional integration

Since the 1960s, Japan has played a crucial role in regional cooperative operations and it led the process of industrialization in East and Southeast Asia. Other East Asian economies started to follow Japan in sequence to upgrade their industries from relatively low value-added activities to relatively high value-added activities. This “flying geese” pattern of growth demonstrates how cross-sector shifts of comparative advantages

from relatively labor-intensive production to relatively capital-intensive or technology-intensive production can lead to industrialization and economic growth.

Since the early 1990s, with the slowdown of the Japanese economy and the rise of China and South Korea, the “flying geese” formation gradually evolved to “Factory Asia”, where “formerly national production processes have been unbundled and dispersed to the lowest cost location in East Asia” (Baldwin 2006, 25). Accordingly, the process of regional integration in East Asia has entered a stage in which two regional hubs of economic activity co-exist: Japan serves as a hub of high technology, and China is emerging as a hub of labor-intensive activities (Baldwin 2004; Chen 2008; Chen and De Lombaerde 2011).

This pathway of regional economic growth leads to a number of characteristics of Asian regionalism: First, de facto regionalization outweighs formal (de jure) regionalism. Asian regionalism is mainly market-driven and constructed around partnerships between the private sector, playing a crucial role in the process, and the state (Cuyvers 2014). Second, and somewhat uncritically, European and Asian regionalism are usually associated with “closed” and “open” regionalism, respectively. That is, whereas the EU has often been associated with “Fortress Europe”, Asian regionalism (in particular that of ASEAN) is much more directed towards the economic partner countries outside ASEAN because of the relative dependence of ASEAN member countries on the rest of the world for goods, services, investment, and technology—that is, ASEAN is relatively open towards third countries (Kimura and Ando 2005; Ando and Kimura 2013). Third, Asian regionalism is characterized by the absence of a unique center of influence or a clear regional leader (De Lombaerde 2014) and show a complex network of bilateral free trade agreements (FTAs) instead—the so-called “spaghetti bowl” (Bhagawati 1995) or “Asian noodle bowl” (Baldwin 2007).

The de facto regionalization of ASEAN economies can be measured by a set of indicators (see Table 1). The intra-regional trade share of ASEAN is currently around 25 percent. The development model in the region has been export-oriented, and countries have been competing for outsourced tasks from advanced economies (Cuyvers and Dumont 2005; Kimura and Ando 2005; Wakasugi, Ito, and Tomiura 2008). The emergence of “Factory Asia” has therefore also been encouraging competitive unilateral liberalization. Although the share of intra-regional trade has been increasing continuously since 1995, the score of intra-regional trade intensity did decline from 4.2 percent in 2005 to 3.4 percent in 2010. This means that the growth of intra-regional trade that has taken place during this period has been overcompensated for by the increase in size of the regional economy.

The openness of the ASEAN region, as measured by the ratio of extra-regional trade on regional GDP, first increased from 76.6 percent in 1995 to 89.6 percent in 2005, and

Table 1. Selected ASEAN integration indicator scores (%)

	1995	2000	2005	2010
Intra-regional trade share ^a	21.1	22.7	24.9	24.7
Intra-regional trade intensity ^a	3.1	3.7	4.3	3.7
Openness of regional economies ^b	76,6	85,5	89,6	78,7
Intra-regional shares of trade in parts and components ^c	25.8	24.5	25.0	24.2
Intra-regional FDI inflows as a share of total FDI ^d	15.0	5.8	11.9	17.9 ^f
Average AV duties ^e	3.6	3.0	1.7	0.8

Note:

a. Source: ARIC online database.

b. Openness of the regional economies is measured by the ratio between extra-regional trade (extra-regional imports plus extra-regional exports) and regional GDP. Source: Authors' calculation based on data retrieved from UNCTAD database.

c. The definition of trade in parts and components is based on Ng and Yeats (2003). Source: Authors' calculation based on data retrieved from UN COMTRADE database.

d. Source: ADB database.

e. Source: Authors' calculation based on data retrieved from WTO tariffs database.

f. Data of year 2014. Source: ASEANstats Database.

then decreased to 78.7 percent in 2010. The first phase can be explained by the wave of economic globalization and the region's fast integration into the global economy, and the second phase seems to be consistent with the fact that regional economic integration has been a rising trend in Asia since 2000. In comparison with other regions, however, the level of extra-regional economic openness is clearly higher for ASEAN. As evidence of intensive intra-regional production sharing, about one-quarter of ASEAN's trade in parts and components occurred within the region. Although, in relative terms, the intra-regional share for ASEAN did not change significantly over time, the overall size of ASEAN's trade in parts and components, both intra-regionally and extra-regionally, did increase by over 160 percent during the period between 1995 and 2010.

Turning now to investment flows, the intra-regional share of total FDI inflows in ASEAN is still much below EU levels (more than 50 percent).¹ What is striking here is that the 1997–98 Asian financial crisis seems to have had a great (negative) impact on intra-regional FDI flows. Generally speaking, it appears that de facto regional integration in ASEAN has been largely driven by trade, much less by investment. Moreover, the intra-ASEAN flows of parts and components are likely to be driven proportionately more by FDI from outside the region than by intra-ASEAN FDI.

Finally, de jure regional integration is more difficult to quantify. Given that average ad valorem tariff levels in ASEAN have now also fallen below 1 percent, an additional reduction seems to garner limited impact. A greater impact can be expected from nontariff

1 According to data published by EUROSTAT for EU28. ADB data show figures for intra-ASEAN FDI inflows of around 15 percent of total FDI in the 1990s. Towards the end of the 1990s and at the beginning of the 2000s these figures drop to levels below 10 percent, after which there is some partial recovery in these flows.

Table 2. ASEAN trade and investment, 2014

COUNTRY	GDP (billion USD)	Trade in goods (billion USD)		Trade in services (billion USD)		FDI inflow (billion USD)			
		Export	Import	Export	Import	Total	Equity	Other capital	Reinvested earning
Brunei Darussalam	17.1	10.6	3.6	1.1	1.7	0.6	0.1	0.1	0.3
Cambodia	16.8	10.7	19.0	3.8	1.9	1.7	1.7	0.0	0.0
Indonesia	888.5	176.3	178.2	23.5	33.5	22.3	12.5	5.0	4.8
Lao PDR	12.0	2.6	2.7	0.8	0.5	0.9	n.a.	n.a.	n.a.
Malaysia	338.1	233.9	208.9	41.9	45.3	10.7	6.7	1.5	2.5
Myanmar	64.3	11.0	16.2	3.2	1.9	0.9	n.a.	n.a.	n.a.
Philippines	284.8	61.8	67.8	24.8	20.0	6.2	2.0	3.3	0.8
Singapore	307.9	409.8	366.2	140.4	141.6	72.1	57.3	10.4	4.4
Thailand	404.8	227.6	228.0	55.3	53.2	11.5	4.6	1.0	5.9
Vietnam	186.2	148.1	145.7	10.9	14.5	9.2	5.0	4.2	0.0
ASEAN	2520.5	1292.4	1236.2	305.8	314.0	136.2	89.9	25.6	18.8

Source: ASEANstats database, ASEAN Secretariat, available at <http://aseanstats.asean.org/> (last visited on 15 February 2016).

measure reductions, including technical barriers and barriers based on national legal requirements that are generally more difficult to measure.

3. ASEAN's export potential

Table 2 shows the importance of foreign trade for individual ASEAN economies. The exports to GDP ratio ranges from about 23 percent in Indonesia and Myanmar to nearly 180 percent in Singapore. Despite the fast growth of trade in services, trade in goods still accounts for the largest proportion in their international trade and investment profiles. In 2014, the ratio between trade in goods, trade in services, and FDI was 19:5:1. As a group, ASEAN is a net exporter of goods but a net importer of services. The surplus generated from trade in goods was big enough to cover the deficit from trade in services. The overall trade surplus corresponded to around 2 percent of the region's annual GDP.

Generally speaking, a large share of ASEAN's economic growth can be attributed to exports. Eight of ASEAN's top ten trading partners are Asian economies. Based on its current trade pattern (see Table 3), the Regional Comprehensive Economic Partnership (RCEP) already covers a regional market that represents nearly 60 percent of ASEAN total trade and contributes over 40 percent of inward FDI. The "big three"—Japan, Korea, and China—together account for one-fourth of ASEAN's exports, one-third of its imports, and one-fifth of its FDI inflow in 2014.

Despite the already high degree of economic interdependence, is there still space for ASEAN to export more to the regional market? How important is RCEP for ASEAN from the perspective of ASEAN's export potential? To answer these questions, we adopt a forward-looking position based on empirical data and simulate its evolution over time as the basis for exploring the possible correlation between deepening regional integration and the expansion of ASEAN's exports.

Table 3. ASEAN's major trading partners (merchandise) 2014

Partner	Export ^a	Import ^a	Total trade	Trade balance	Inward FDI flow ^a	FTA (year of entry into force) ^{b,c}
WORLD	1292.4	1236.2	2528.6	56.2	136.2	
ASEAN+6	746.9	737.1	1484.0	9.9	58	No ⁱ
ASEAN+3	651.9	683.3	1335.2	-31.4	51.1	No
Intra-ASEAN	329.6	278.6	608.2	51.1	24.4	Yes (1992)
China	150.4	216.1	366.5	-65.7	8.9	Yes (2007) ⁱⁱ
EU	132.5	115.8	248.3	16.7	29.3	No
Japan	120.2	108.8	229.0	11.4	13.4 ⁱⁱⁱ	Yes (2008) ^{iv}
United States	122.4	90.1	212.4	32.3	13.0	No
Republic of Korea	51.6	79.8	131.4	-28.2	4.5	Yes (2009)
Taiwan	39.5	68.8	108.3	-29.4	n.a.	No
Hong Kong	85.3	14.1	99.4	71.2	n.a.	No
Australia	45.3	25.0	70.4	20.3	5.7	Yes (2010)
India	43.3	24.4	67.7	18.9	0.8	Yes (2010) ^v

Source:

a. ASEANstats database, ASEAN Secretariat, available at <http://aseanstats.asean.org/> (last visited on 15 February 2016).

b. Asia Regional Integration Center (ARIC), available at <https://aric.adb.org/> (last visited on 8 October 2015).

c. WTO Regional Trade Agreements gateway, available at https://www.wto.org/english/tratop_e/region_e/region_e.htm (last visited on 8 October 2015).

Note: Unit: billion USD.

i. ASEAN has signed FTAs with each of the six. RCEP negotiation under the ASEAN+6 framework is still under negotiation. It is expected to be concluded by the end of 2016.

ii. In November 2015, ASEAN and China signed an FTA upgrade protocol (ACFTA 2.0).

iii. The annual FDI inflow from Japan in ASEAN reached a historical high of 21.8 billion USD in year 2013, but then decreased by one-third in 2014.

iv. Years of entry into force: 2008 for Singapore, Japan, Vietnam, Laos PDR, and Myanmar; 2009 for Brunei Darussalam, Malaysia, Thailand, and Cambodia; 2010 for Philippines. The entry into force for Indonesia is pending based on ARIC record.

v. Years of entry into force: 2010 for India, Malaysia, Singapore, Thailand, Brunei Darussalam, Myanmar and Vietnam, and Indonesia; 2011 for Lao PDR, Philippines, and Cambodia.

3.1 The model

Redding and Venables (2004) presents a method to derive a supplier access indicator and a market access indicator by decomposing countries' bilateral trade flows. A similar approach was adopted by Head and Mayer (2004) and Mayer (2009). Our theoretical framework for the analysis in this paper is based on the earlier work.

Equation (1) shows that the bilateral export from i (the exporting country) to j (the importing country), denoted by X_{ij} , can be expressed as a share (m_i) of j 's total import M_j .

$$X_{ij} = m_i \cdot M_j \quad (1)$$

Three factors affect country i 's share in j 's import profile, m_i : i 's general export competitiveness, A_i ; the degree of market competitiveness in country j , Φ_j ; and the trade cost between i and j , δ_{ij} . From the import country's perspective, Φ_j is essentially a set of market opportunities that it offers to all its trade partners, and each partner's market share is fundamentally determined by the country's effective competitiveness but has to face

a trade cost of δ_{ij} when exporting to j . Therefore, j 's overall market potential for foreign producers can be expressed by $\Phi_j = \sum_h A_h \cdot \delta_{hj}$, where V is defined as a set of country j 's trade partners and $h \in V$. This allows us to rewrite equation (1) into equation (2):

$$X_{ij} = m_i \cdot M_j = (A_i \cdot \delta_{ij} \cdot \Phi_j^{-1}) \cdot M_j. \tag{2}$$

Country i 's total exports X_i can thus be expressed as the sum of bilateral trade flows with its trade partners:

$$X_i = A_i \cdot \sum_h \delta_{ih} \cdot M_h \cdot \Phi_h^{-1}. \tag{3}$$

By defining $s_{h,m}$ and $s_{h,x}$ as country h 's share in the world total imports and exports respectively, country i 's share in the world total exports ($s_{i,x}$) becomes a product of i 's competitiveness and a set of market opportunities that country i gains worldwide, which is the sum of all of its trade partners' overall market potential Φ_h weighted by the trade cost to access these markets δ_{ih} and the relative importance of country j 's market in the global economy $s_{h,m}$, as equation (4) shows.²

$$s_{i,x} = A_i \cdot \left(\sum_h \delta_{ih} \cdot s_{h,m} \cdot \Phi_h^{-1} \right), \tag{4}$$

where $s_{h,m} = M_h/M$, $s_{h,x} = X_h/X$, $M = X$, and $i \neq h$.

To simplify, we call the set of market opportunities that country i gains worldwide as i 's overall export space (Ω_i), and the set of market opportunities that country i offers to foreign suppliers as i 's overall import space (Φ_i). Respectively, these are comparable to the supplier access indicator and the market access indicator in Redding and Venables (2004).

$$\Omega_i = s_{i,x}/A_i = \sum_h \delta_{ih} \cdot s_{h,m} \cdot \Phi_h^{-1}. \tag{5}$$

$$\Phi_i = \sum_h \delta_{hi} \cdot s_{h,x} \cdot \Omega_h^{-1}. \tag{6}$$

Suppose that all firms are symmetric (firms in the same country produce the same quantity q_i and charge the same price p_i) and the production structure is rigid in the short term (there are no changes in the product variety), all changes in country i 's export competitiveness are solely reflected in the price.

$$A_i = N_i \cdot p_i^{1-\sigma}. \tag{7}$$

2 The term in parentheses is a set of market opportunities that country i owns worldwide.

Combining equations (5) and (7) into equation (8), we see that p_i is positively related to the country's overall export potential Ω_i :

$$p_i = \left[\frac{S_{i,x}}{N_i \cdot \Omega_i} \right]^{1-\sigma} = \left[\frac{p_i \cdot q_i}{X \cdot \Omega_i} \right]^{1-\sigma} = c \cdot \Omega_i^{\frac{1}{\sigma}}, \text{ where } c \text{ is a constant.} \quad (8)$$

On the other hand, one can see that the set of alternatives for consumers in country j (Φ_j) is inversely related to the price index of imported products in the market (P_j),

$$\Phi_j = P_j^{\sigma-1}. \quad (9)$$

Intuitively, we can expect a lower price to be associated with a higher degree of competition among foreign suppliers in the market. From equation (2), bilateral trade between countries i and j can be expressed as

$$X_{ij} = A_i \cdot \delta_{ij} \cdot (M_j \cdot P_j^{1-\sigma}). \quad (10)$$

This structure can be incorporated easily into a gravity equation where the countries' bilateral trade is determined by three groups of factors: factors related to the exporting country's capacity to export $f(\cdot) = A_i$, factors related to the importer's capacity to import $g(\cdot) = M_j \cdot P_j^{1-\sigma}$, and the bilateral trade resistance δ_{ij} . The overall export space of country i can thus be estimated by

$$\hat{\Omega}_i = \sum_h \hat{\delta}_{ih} \cdot \hat{g}_h, h \in V. \quad (11)$$

3.2 Variables and data

This study aims to estimate market potential in a regional context and investigates its correlation with the process of further regional integration. A technical challenge is to choose variables that can properly capture the characteristics of the three groups of factors mentioned above. Recent studies that use different augmented gravity models, such as Kimura and Lee (2006), Mayer (2009), and Corcos et al. (2012), have introduced and suggested some candidate variables/indices to be used in addition to the standard variables in the gravity equation. We opted for GDP, Internet access and usage, economic freedom, WTO membership, paved roads, and the stock of inward FDI as variables to describe a country's economic characteristics. Trade resistance between countries is measured by geographic distance and weighted average bilateral tariff³ level as proxies of the geographic and political friction, respectively, together with two complementary dummy variables

3 As mentioned before, nontariff measure reductions are likely to be the main source of liberalization gains in the future. Thus far, however, we do not have reliable quantitative data on nontariff measures. This evidently is a drawback of our model estimations presented in this paper.

to capture the additional trade-inducing effects of having common languages and contiguous territories. Appendix A provides the details of each variable and the corresponding data sources.

In our analysis, we use a panel data set of global bilateral aggregate trade flows, covering the period from 1995 to 2014, allowing us to take both the cross-sectional characteristics and time-variant changes into account. By observing the changes of dependent variables in these two dimensions we control for some omitted variables without the need for direct measurement of these factors.

The assumption of whether these omitted variables are constant over time and/or whether they are cross-sectional determine the choice of the regression model. In principle, the fixed effects model is applied to determine the existence of true differences among the estimated mean of sector-specific errors; and the random effects model is used for the analysis on variant components, since all effects are assumed to have a zero mean. The tradeoff between the two models is related to efficiency and consistency (Chen 2008).

Instead of imposing extra assumptions on the model, Hausman's test is conducted to assess the econometric justification of using random effect estimations. The Hausman test results reject the null hypothesis of non-systematic difference between fixed effect estimators and random effect estimators (see Table 4). Because of the inconsistency of random effects estimators, we therefore will use the fixed effects model in our analysis.

3.3 Results

GDP has positive impacts on bilateral trade from both the supply and demand sides, but with different elasticities. Roughly speaking, a change of 1 percentage point in the importer's GDP will be equivalent to a change of 3 percentage points in the exporter's GDP regarding the direct impacts on bilateral trade. This is consistent with the knowledge that the world economy is dominated by the buyer's markets. A large market has a large consumption capacity and therefore a large (potential) demand.

Relatively speaking, countries with better Internet access tend to export more and import less. This demonstrates that the increased usage of Internet in a country can effectively increase the competitiveness of its products/services (for instance, accessing the Internet can improve workers' skills and knowledge and consequently their productivity), as well as improving broader production lifecycle processes such as design, marketing, transportation, supply chain management, and so on.

The coefficient of the Index of Economic Freedom is generally positive. As economic freedom goes together with increasing economic openness towards the rest of world, it is

Table 4. Results of Hausman tests

	Fixed effect estimators	Random effect estimators	Hausman's comparison
r_lgdp	0.786*** (0.013)	0.820*** (0.009)	-0.033 (0.010)
p_lgdp	0.370*** (0.013)	0.883*** (0.009)	-0.514 (0.009)
r_internet	0.015*** (0.003)	0.033*** (0.003)	-0.018 (0.000)
p_internet	-0.021*** (0.003)	-0.039*** (0.003)	0.018 (0.000)
r_free	0.003*** (0.001)	0.007*** (0.001)	-0.005 (0.000)
p_free	0.007*** (0.001)	0.011*** (0.001)	-0.004 (0.000)
r_wto	0.309*** (0.021)	0.211*** (0.020)	0.099 (0.007)
p_wto	0.202*** (0.019)	0.113*** (0.018)	0.089 (0.006)
r_lpvad	0.004*** (0.000)	0.007*** (0.000)	-0.002 (0.000)
p_lpvad	0.006*** (0.000)	0.009*** (0.000)	-0.002 (0.000)
r_linstock	0.035*** (0.007)	-0.140** (0.007)	0.175 (0.003)
p_linstock	0.024** (0.006)	-0.028*** (0.006)	0.051 (0.002)
Tariff	-0.358*** (0.030)	-0.234*** (0.030)	-0.125 (0.002)
Ldist	-1.100*** (0.007)	-1.266*** (0.021)	
Contig	1.588*** (0.041)	1.387*** (0.115)	
Comlng	0.749*** (0.020)	1.075*** (0.054)	

Note: Stata output of the Hausman test:

b = consistent under H_0 and H_a ; obtained from xtreg

B = inconsistent under H_a , efficient under H_0 ; obtained from xtreg

Test: H_0 : difference in coefficients not systematic

$$\chi^2(13) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 9179.21$$

$$\text{Prob} > \chi^2 = 0.0000$$

***Statistically significant at the 1 percent level; **statistically significant at the 5 percent level; *statistically significant at the 10 percent level.

intuitively clear that imports grow as the market becomes more open to foreign suppliers; on the exporting side, the competition induced by economic openness tends to make the domestic industry stronger and more competitive in the long run, supporting increasing exports in the global market. This does not exclude the fact that in the short term the inflow of foreign competitors may crowd out some domestic producers from the industry and cause exports to contract temporarily.

WTO membership, in turn, is a strong factor in the promotion of exports and imports. Moreover, bilateral trade flows between WTO member states are on average 70 percent larger than those between non-WTO member countries. Under a multilateral framework

of trade liberalization, countries open their domestic markets in exchange for better access to the global market.

The positive effects of infrastructure are also significant. For both importing and exporting countries, building infrastructure can facilitate logistics and transportation and therefore reduce trade costs. There is little difference between infrastructure's impacts on exports and on imports. It is estimated that an additional 1 percent increase in paved roads may cause countries' bilateral trade to increase by 0.4 to 0.6 percent.

The index of the FDI stock, although imperfect for measuring international trade-related capital flows, does provide insights for the relationship between trade and FDI. Our estimations show that a country's inward FDI stock and its foreign trade (both imports and exports)⁴ are positively correlated, which probably is related to the association of inward FDI with technology transfer and knowledge spillover, such that the host country becomes more competitive and thus exports more. Alternatively, inward FDI in labor-abundant countries is often related to export-oriented manufacturing and assembly operations. On the other hand, the increasing FDI inflows can also be interpreted as indicating a country's positive economic outlook and expanding market potential, which will encourage more imports.

The estimated coefficients of three variables measuring trade resistance (or facilitation)—geographical distance, common language, and contingent territory—are in line with what theory predicts. There is a negative correlation between the countries' geographical distance and the size of bilateral trade flows. It is also evident that common language and contingent territory are positive factors that stimulate bilateral trade.

Finally, the most revealing result is the impact of tariff duties on bilateral trade—this is negative and highly significant. On average, bilateral trade will increase by about 3 percent when the ad valorem import tariff rate imposed by the importing country decreases by 10 percent, starting from 100 percent. The marginal effect of import tariff reduction increases, however, as the tariff rate approaches zero, such that the removal of the last 10 percent tariff duty (bringing it to zero) will, in general, induce a 5 percent increase in bilateral trade.

3.4 Capturing the regional fixed effects

To illustrate the unique trade pattern of ASEAN and East Asia, and to capture its general characteristics, we add three dummy variables to the basic model to distinguish between

4 The coefficient of the exporting country's stock of inward FDI presents the lowest degree of statistical significance in our fixed effect estimations of the basic model, however.

Table 5. Decomposing the regional fixed effects

	Basic model	ASEAN	ASEAN	EU	EU	MERCOSUR	MERCOSUR
Ldist	-1.111*** (0.007)	-1.097*** (0.007)	-1.225*** (0.007)	-1.003*** (0.008)	-1.008*** (0.008)	-1.111*** (0.007)	-1.136*** (0.007)
Contig	1.532*** (0.040)	1.522*** (0.040)	1.384*** (0.040)	1.544*** (0.040)	1.732*** (0.039)	1.484*** (0.040)	1.440*** (0.040)
Comlng	0.717*** (0.020)	0.727*** (0.020)	0.813*** (0.019)	0.792*** (0.020)	0.931*** (0.019)	0.712*** (0.020)	0.699*** (0.020)
Import dummy ⁱ			0.905*** (0.024)		0.111*** (0.015)		-0.473*** (0.031)
Export dummy ⁱⁱ			1.991*** (0.024)		1.539*** (0.016)		1.441*** (0.032)
Intraregional dummy ⁱⁱⁱ		2.272*** (0.099)	-0.614*** (0.104)	1.404*** (0.033)	0.081** (0.038)	1.505*** (0.173)	0.566*** (0.177)

Note: ***Statistically significant at the 1 percent level; **statistically significant at the 5 percent level; *statistically significant at the 10 percent level.

i. value = 1 if the export country comes from region R, otherwise value = 0;

ii. value = 1 if the import country comes from region R, otherwise value = 0;

iii. value = 1 if both trade partners come from the same region R, otherwise value = 0.

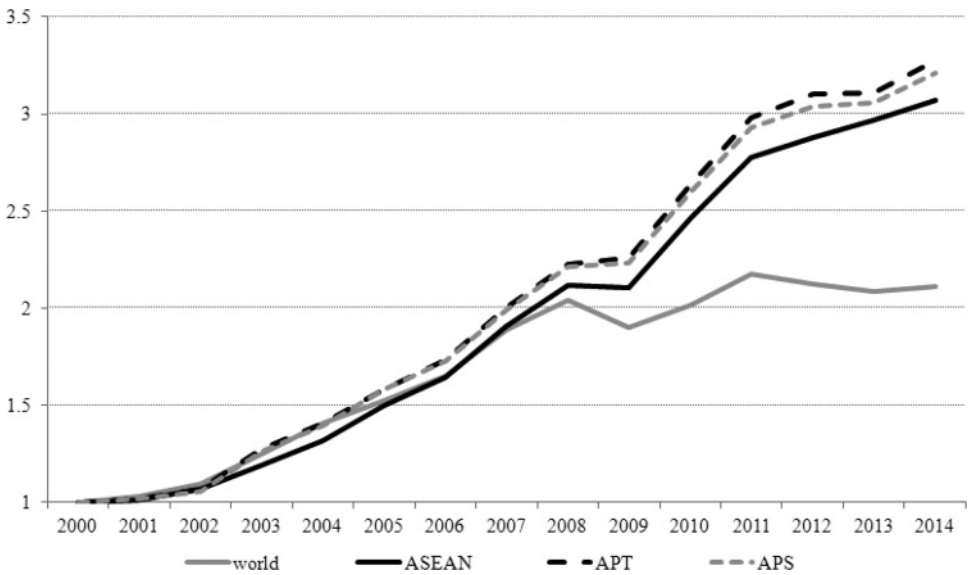
three subcategories of intra-regional trade bias (imports, exports, and net additional preference to trade with partners from the same region) (see Table 5).

The estimation results for the EU and MERCOSUR (Argentina, Brazil, Paraguay, Uruguay and Venezuela), which are included for the sake of comparison, provide evidence that ASEAN countries are in general more foreign trade-oriented; both on the export and the import side, they trade much more than the world's average. When taking the ASEAN countries' pro-export and pro-import characteristics into account, however, an additional preference for intra-regional trade is not visible. On the contrary, a negative intra-regional bias is observed. Nonetheless, our estimation results show that when comparing trade between pairs of ASEAN countries with trade between pairs of countries otherwise under the same conditions, the former more than doubles the latter. It is interesting to compare these findings with the results for the EU and MERCOSUR. These country groupings also export substantially more than the world average. The import bias is much smaller for the EU (around 10 percent), and even negative for MERCOSUR. In both cases the intra-regional dummy is significant. As higher values for the dummy in the case of MERCOSUR is not due to deeper integration, it might be hypothesized that the specific situation of MERCOSUR, characterized by the absence of important nearby trade partners in the broader region and contrasting with the EU and ASEAN, may possibly have inflated the dummy. Compared with ASEAN, the EU shows weaker export and import biases.

3.5 Market potential

Based on the derivation in Section 3.1, the value of region R 's export potential index is simply $\Omega_R = \sum_{h \in R} \Omega_h$. Figure 1 depicts the growth path of market potential in ASEAN, ASEAN+3, and ASEAN+6, using 2000 as the baseline year.

Figure 1. Changes in market space, 2000–14



Note: APT = ASEAN+3; APS = ASEAN+6.

Overall, ASEAN’s export space is expanding at an annual rate of growth that is higher than the world’s average, particularly after 2009. The estimation shows that ASEAN’s export space in 2014 is three times that of 2000, given the average annual growth rate of 8.3 percent. Moreover, this growth is continuous and smooth. From 2000 to 2014, the only year the growth slowed down is between 2008 and 2009 when the export space of most main trade countries contracted because of the global economic crisis. Looking at a broader region, ASEAN+3 as a group has improved its market potential even faster than that of ASEAN itself during that period.

In 2014, ASEAN accounted for nearly 4 percent of the world’s total export space, as compared with only 2.5 percent in 2000. This trend somehow indicates the increasing demand for products made in ASEAN and reflects the region’s generally growing export capacity. The progress of regional integration among ASEAN member states could be a positive factor contributing to regional market capacity building.

Table 6 presents the ratio of intra-regional and extra-regional export space for ASEAN as well as that of within/outside ASEAN+3 and ASEAN+6 based on the respective export characteristics (the “ideal” ratio) and the ratio calculated using actual trade statistics (the “actual” ratio). For comparison, we list the 1995–99 and the 2010–14 average levels.

Table 6. Export potential vs. actual exports, 1995–99 vs. 2010–14

	Estimated export space		Actual exports	
	1995–99	2010–14	1995–99	2010–14
ASEAN				
Intra-regional	41.8%	42.7%	19.5%	22%
Extra-regional	58.2%	57.3%	80.5%	78%
Within ASEAN+3	63.6%	73.5%	43%	58.9%
Outside ASEAN+3	36.4%	26.5%	57%	41.1%
Within ASEAN+6	72.1%	79%	55%	67.9%
Outside ASEAN+6	27.9%	21%	45%	32.1%
EU				
Intra-regional	87%	82.5%	61.9%	62.9%
Extra-regional	13%	17.5%	38.1%	37.1%
MERCOSUR				
Intra-regional	72.9%	61.6%	23.9%	12.4%
Extra-regional	27.1%	38.4%	76.1%	87.6%

Note: We use the import data shown in the import country's balance sheet to measure the actual export flows instead of directly using the export data. For instance, we use country B's reported imports from country A to measure the actual export flow from A to B. This is because imports are normally calculated based on Cost, Insurance, and Freight, which is indeed closer to the price faced by the domestic consumers or producers.

First, considering the ASEAN market, the estimated ideal ratio of intra- and extra-regional export was approximately 2:3, whereas the actual ratio was about 1:4. The ratio shows no significant change overtime. When looking at the expansion of ASEAN's intra-regional export space and the actual aggregated intra-regional trade flows in absolute measures, however, by 2014 both figures have increased by over four times compared with the scale in 1995, which provides strong evidence of ASEAN's progress in economic integration and its increasing export capacity. The gap between the ideal and actual ratio, however, hints that there is still a significant amount of space for ASEAN countries to further strengthen the intra-regional market.

From a broader regional perspective, however, Southeast Asian countries have not only made progress with integration within ASEAN but also within the extended region such as the ASEAN+3 or ASEAN+6 frameworks. Based on the estimations, the overall market space that ASEAN+6 could offer to ASEAN exports in 2014 (80.7 percent) was already quite close to the space that the integrated EU market could offer to its member states (82.7 percent) for the same year. In reality, around two-thirds of ASEAN's exports go to the ASEAN+6 market in 2014. The formation of RCEP, an arrangement among ASEAN+6 member states, will further secure ASEAN's export market, and consequently provide a supportive regional environment for the economic development of ASEAN member states.

3.6 Scenario analysis

Our model demonstrates that an exporting country can expand its export space by either strengthening its export capacity and/or reducing trade resistance, and the

Table 7. Impact of trade liberalization on ASEAN's export potential

	2015	2016	2017	2018	2019	2020
Scenario 1	23.75%	23.88%	23.94%	23.92%	23.90%	23.85%
Scenario 2	36.54%	36.76%	36.81%	36.85%	36.90%	36.97%
Scenario 3	38.75%	39.05%	39.12%	39.20%	39.29%	39.39%

improvement of a region's export potential could also be achieved by further facilitating the intra-regional exchange of goods and services. To show ASEAN's potential gains of extra export space via further trade liberalization and facilitation (Table 7) the following scenarios are simulated:

- Baseline: All countries keep their effective tariff rates of 2014 and other export-related characteristics (such as trade infrastructure and economic freedom) unchanged in the following years.
- Scenario 1: Full tariff elimination within the ASEAN community from 2015.
- Scenario 2: ASEAN member states receive full duty-free access to the ASEAN+3 market from 2015.
- Scenario 3: ASEAN member states receive full duty-free access to the ASEAN+6 market from 2015.

The simulation results of Scenario 1 show that the full removal of import duties on intra-regional trade within ASEAN will enhance intra-regional trade and expand the region's overall export space by almost one quarter. That is, tariff elimination would potentially have a significant positive effect on ASEAN's trade.

In comparison, the potential duty-free access to a broader regional market may induce an additional 12 to 16 percent increase in ASEAN's export space in the next five years. If ASEAN can obtain free access to the ASEAN+6 market under the RCEP, its overall export space will increase by almost 40 percent over time. In Scenarios 2 or 3, the share of intra-regional trade space within ASEAN is lower than that in Scenario 1 where ASEAN only eliminates tariffs among the ten member states, but it is not much different from the baseline level. Relatively speaking, it seems less likely that trade liberalization under the ASEAN+6 framework generates much trade diversion from within ASEAN to the six neighboring markets compared with the current status quo.

From the global perspective, if ASEAN member states can obtain duty-free access to the ASEAN+6 market, the overall world trade space will expand by 1.7 percent; if free trade would only occur within the ASEAN community, we could still see an almost 1 percent increase in the overall world trade space (Table 8). This is quite significant when considering ASEAN's relatively small share in world GDP.

Table 8. Impact of trade liberalization on the overall world export potential

	2015	2016	2017	2018	2019	2020
Scenario 1	0.96%	0.99%	1.01%	1.02%	1.03%	1.05%
Scenario 2	1.48%	1.53%	1.55%	1.57%	1.60%	1.63%
Scenario 3	1.57%	1.62%	1.64%	1.67%	1.70%	1.73%

4. Concluding remarks

In the qualitative literature on regional economic integration, ASEAN is usually singled out as a counter-model to the EU, characterized by relatively high degrees of de facto integration in combination with relatively low degrees of de jure integration. When contrasting this image with a series of cross-regional indicators, it appears that it should probably be more nuanced. The de facto relative importance of intra-regional trade, investment, and/or migration flows are close to the global average level. This seems to suggest that regional economic integration in ASEAN is not necessarily deeper than in several other regions, as measured by these outcome indicators. This also implies, however, that further gains from deepened intra-regional interdependence can be expected. Yet, the relative openness of the ASEAN region was confirmed, such that important additional benefits will come from further reductions of trade barriers vis-à-vis the rest of the world.

The augmented gravity model used to estimate ASEAN's export space provided an overall satisfactory fit. Intra-regional trade biases were observed for the regions, with ASEAN thereby finding itself in an intermediate position, because of its intra-regional trade bias being somehow masked by its generally strong trade orientation. We found that ASEAN's average intra-regional trade levels are approximately twice as much as the corresponding levels among other countries under the same conditions.

It has been observed that ASEAN's export space is expanding faster than the world average and that further progress of regional integration among the ASEAN member states can be an additional positive factor contributing to its regional export capacity. Our estimation shows that there is still space for ASEAN countries to further develop intra-regional trade.

Nevertheless, the process of regional integration will still need more driving force from the market engine. Tariff elimination can still have significant impacts on improving ASEAN's export potential, even though the average tariff rate within the region is already close to zero. It is true that with trade liberalization, industries in developing countries will face strong competition from advanced economies, but this will at the same time push these countries to improve their export capacity and benefit from more business opportunities that will come along with an expanding global export space. It is in ASEAN's

interests to accelerate the pace of regional integration under frameworks that involve also the participation of non-ASEAN countries, especially the RCEP.

Although RCEP is not a pure south–south free trade initiative; it does involve many developing and less-developed countries in the Asia-Pacific region. The initiative aims to build a “modern, comprehensive, high-quality, and mutually beneficial FTA” by consolidating the existing ASEAN+1 FTAs with the emphasis on strengthening ASEAN’s centrality in regional economic integration, and committing to the compatibility of RCEP’s rules with the trade principles of the WTO. In this regard, RCEP seems to be a pragmatic way to regionalize the sophisticated global production networks via the reduction of trade barriers and setting of new rules that are consistent with WTO agreements, the facilitation of technology transfers and factor mobility, the rationalization and better administration of rules of origin, and the improvement of trade governance.

The formation of a free trade area under the ASEAN+6 framework carries a large potential for export growth and economic development, although the conclusion of RCEP should be seen as a milestone, not an ultimate achievement, of ASEAN’s long-term mission to build a competitive region with equitable development and deep involvement into global value chains. The more quickly the agreement is concluded and the higher the quality it achieves, the more easily can Asia move forward to the next stage architecture of regional integration.

References

- Ando, Mitsuyo, and Fukunari Kimura. 2013. Evolution of Machinery Production Networks: Linkage of North America with East Asia. *Asian Economic Papers* 13(3):121–160.
- Baldwin, Richard. 2004. The Spoke Trap: Hub and Spoke Bilateralism in East Asia. KIEP Discussion Paper No. 04–02. Seoul: Korea Institute for International Economic Policy.
- Baldwin, Richard. 2006. Multilateralizing Regionalism: Spaghetti Bowls as Building Blocks on the Path to Global Free Trade. *The World Economy* 29(11):1451–1518.
- Baldwin, Richard. 2007. Managing the Noodle Bowl: The Fragility of East Asian Regionalism. CEPR Discussion Paper No. 5561. London: The Centre for Economic Policy Research.
- Bhagwati, Jagdish. 1995. U.S. Trade Policy: The Infatuation with Free Trade Areas. In *The Dangerous Drift to Preferential Trade Agreements*, edited by Jagdish Bhagwati and Anne O. Krueger, pp. 1–18. Washington DC: The AEI Press.
- Chen, Lurong. 2008. The Market Driven Trade Liberalization and East Asian Regional Integration. HEI Working Papers No. 12/2008. Geneva: The Graduate Institute.
- Chen, Lurong, and Philippe De Lombaerde. 2011. Regional Production Sharing Networks and Hubness in Latin America and East Asia: a Long-term Perspective. *Integration & Trade* 15(32):17–34.
- Corcus, Gregory, Delphine Irac, Giordano Mion, and Thierry Verdier. 2012. The Determinants of Intrafirm Trade. CEP Discussion Paper No. 1119. Brussels: Centre for European Policy Studies.

Cuyvers, Ludo. 2014. Some Tough Facts about ASEAN’s Institutional Stalemate. *Europe’s World* 27:87–88.

Cuyvers, Ludo, and Michel Dumont. 2005. Tigers, Pussycats and Flying Geese: The Faunal Characteristics of Economic Growth in South-East Asia. In *Transnational Corporations and Economic Development: From Internationalisation to Globalisation*, edited by Ludo Cuyvers and Filip De Beule, pp. 122–140. Hampshire, UK: Palgrave MacMillan.

De Lombaerde, Philippe. 2014. Measuring and Modeling Regional Power and Leadership. *Journal of Policy Modeling* 36(S1):1–5.

Head, Keith, and Thierry Mayer. 2004. Market Potential and the Location of Japanese Investment in the European Union. *Review of Economics and Statistics* 864:959–972.

Kimura, Fukunari, and Mitsuyo Ando. 2005. Two-dimensional Fragmentation in East Asia: Conceptual Framework and Empirics. *International Review of Economics and Finance* 14(3):317–348.

Kimura, Fukunari, and Hyun-Hoon Lee. 2006. The Gravity Equation in International Trade in Services. *Review of World Economics* 142(1):92–121.

Mayer, Thierry. 2009. Market Potential and Development. CEPII Working Paper No. 09–24. Paris: Centre d’Études Prospectives et d’Informations Internationales.

Ng, Francis and Alexander Yeats. 2003. Major Trade Trends in East Asia: What Are Their Implications for Regional Cooperation And Growth. Policy Research Working Paper Series No. 3084, The World Bank.

Redding, Stephen, and Anthony Venables. 2004. Economic Geography and International Inequality. *Journal of International Economics* 621:53–82.

Wakasugi, Ryuhei, Banri Ito, and Eiichi Tomiura. 2008. Offshoring and Trade in East Asia: A Statistical Analysis. *Asian Economic Papers* 7(3):101–124.

Appendix A: Description and data sources of exogeneous variables

Variable	Description	Data source
Gross domestic product (GDP)	The sum of the gross value added of products and services produced within a country in a year. For an exporting country, this is an indicator of its total economic output, and therefore a mirror of its production capacity. For an importing country, this is a measure of its overall market capacity or consumption potential.	The World Bank World Development Indicators (WDI) database
Internet access and usage (INTER)	The percentage of the total population accessing the Internet. The Internet is an important channel for knowledge acquisition, communication, and productivity improvement. The popularity of using the Internet is an important measure of a country’s advance in information and communication technology (ICT); the development of ICT will have a positive effect on a country’s total productivity frontier (TPF).	The World Bank World Development Indicators (WDI) database
Economic freedom (FREE)	This is a proxy of a country’s overall degree of trade liberalization. Intuitively, countries with freer trade policies trade more, whereas countries with more restrictive policies trade less.	The Heritage Foundation Index of Economic Freedom
WTO membership (WTO)	A dummy variable, of which the value equals zero for years before the country’s entry to WTO and equals one for years afterwards. WTO membership provides a stable institutional framework for trade relations.	The World Trade Organization (WTO)
Paved roads (PAVED)	The share of paved roads is an indicator of the level of a country’s physical infrastructure. A proper level of infrastructure can improve efficiency, save time, lower trade risks, and therefore facilitate international trade.	The World Bank World Development Indicators (WDI) database

Appendix A: Continued.

Variable	Description	Data source
Inward foreign direct investments stock (FDI)	The size of a country's FDI pool. The bilateral capital and trade flows are highly relevant. Inward FDI can be a proxy of a country's openness, market stability, technological progress, and economic perspective.	UNCTAD FDI database
Distance (DIST)	The geographic distance in kilometers between the countries' capitals. This is a proxy of transportation costs and related costs of international trade. As it is positively related with trade costs, it has a negative impact on trade flows.	CEPII database
Simple average bilateral tariff level (TARIFF)	The direct measure of the bilateral tariff rate can be a proxy of de facto policy friction of bilateral trade. Its accuracy for our purpose may be affected by the existence of various nontariff barriers, however.	TRAINS database
Common language (COMLNG)	A dummy variable, of which the value equals one for countries that share at least one same official language and equals to zero otherwise.	CEPII database
Contingent territory (CONTIG)	A dummy variable, of which the value equals one for countries that share border and equals to zero otherwise.	CEPII database