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EU-Asia Free Trade Areas? Economic and Policy Considerations

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Abstract

In this paper, we analyzed key aspects of the changing economic relationship between the European Union (EU) and Asia, and explored the potential economic ramifications of deeper EU-Asian economic cooperation. We also investigated the possible costs to the EU of remaining “disengaged” from the Asian integration process and the likely impact of multi-nested EU-Asian trade agreements. Our empirical review of CGE models revealed trivial effects of several possible EU-Asian accords (e.g., EU-India, EU-ASEAN, EU-Republic of Korea). In part, this is a result of relatively small trade shares, open markets, and restrictions in the models, particularly in that they excluded behind-the-border effects. We also presented two CGE models that estimated the potential negative effects of Asian/Asia-Pacific regional accords on the EU, and likewise found small effects. Nevertheless, using a highly-disaggregated (partial-equilibrium) approach, we argued that high-quality FTAs in Asia could be quite detrimental to the EU, particularly in key sectors. The push toward a Free Trade Area of the Asia Pacific could be particularly worrisome to the EU. We therefore concluded that it makes sense for the EU to be more aggressive in pursuing prospective trade agreements with Asia.

JEL Classification: F13, F15

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1. INTRODUCTION

Asian economic integration has been proceeding at a vigorous pace in recent years. The Association of Southeast Asian Nations (ASEAN) has essentially completed its regional free-trade area (AFTA) and has now committed itself to a single market and production base in the form of the ASEAN Economic Community (AEC) by 2015. It has also set in place free-trade areas (FTAs) with several countries, including Australia, India, Japan, New Zealand, People's Republic of China (PRC), and Republic of Korea (hereafter Korea). Singapore has many bilateral FTAs, including its "model" P4 FTA with Brunei, New Zealand, and Chile, which has attracted considerable interest from the United States (US). Japan and Korea have several other FTAs currently being implemented or negotiated. In addition, significant financial arrangements have been established in the region, such as the Asian Bond Pool, the Chiang Mai Agreement, and the Executive Meeting of East Asian and Pacific Central Banks. At the 7th Asia-Europe Meeting (ASEM) in October 2008, the ASEAN+3 (i.e., ASEAN, Japan, Korea and PRC) stipulated their intention to form an US\$80 billion liquidity fund to deal with the global financial crisis that began in September 2008. Considering that none of these agreements were evident a decade ago—with the exception of a partially-implemented AFTA—we can easily conclude that the region has been a recent and active member of the emerging FTA club.

But the regionalism movement in Asia has not been limited to regional economies. In fact, there are more inter-regional accords made by Asian economies than there are intra-regional ones (ADB 2008). The US, for example, has an FTA with Singapore and has signed (though not ratified) one with Korea. Aside from its "Bilateral Trade Agreement" with Viet Nam and Laos, it also has two relatively advanced pacts with Thailand and Malaysia that are currently on hold, with views to expand to other ASEAN countries under the Enterprise for ASEAN Initiative. The US is likewise pushing for a "Free Trade Area of the Asia-Pacific" (FTAAP), an idea which was supported at the November 2008 APEC Summit in Lima, Peru.

It is curious then that the European Union (EU), which is considered the "mother of all regionalism," has been conspicuously absent from the Asian FTA scenario. The EU has discussed a possible FTA pact with ASEAN but is a long way from finalizing it. It has considered accords with Korea and PRC, but nothing has come of them. The biannual ASEM is mainly a vehicle to discuss general issues, not economic cooperation per se.

Now, the EU has been occupied with many other pressing issues, including the expansion of its membership, its "Neighborhood Policy" with European non-members, the complicated nature of the accession of Turkey, the "Economic Partnership Agreements" (EPAs) with former colonies of its member states (replacing the former Lomé agreements), and the World Trade Organization (WTO) Doha Development Agenda negotiations, which is not an easy task given the competing interests in the EU27. All of these have salient political and economic dimensions.

Still, there are costs associated with remaining complacent as Asian FTAs continue to rise in importance. Moreover, most Asian countries are generally excluded from the so-called European "Pyramid of Preferences", under which the EU conducts over three-fourths of its trade. Such a disadvantage is costly as the EU is the largest single market in the world, with a diverse mix of mature developed countries and dynamic emerging markets.

The purpose of this paper is to look at the economics associated with this lack of formal integration across the Eurasian continent. We approached this question from several angles, but focusing on the economics of the issue—we only included political questions on a "need to know" basis. The paper begins with a statistical review of the EU-Asian economic relationship. Section III considers the economic implications of potential Asian integration accords for the EU, as well as potential EU-Asia agreements. We then summarized relevant

Computable General Equilibrium (CGE) models which have estimated the effects of various configurations of Asian regionalism. We also used our own disaggregated approach in order to uncover key EU exports that could face potential trade and investment diversion. Section IV presents our conclusion.

2. THE EU-ASIAN ECONOMIC RELATIONSHIP

Asia continues to be the most dynamic region in the world. By any measure, Asian economic growth and development since the 1990s have been remarkable, particularly in East Asia. Two relevant features of this growth are discussed below.

First, the internationalization of Asian economies has been in many ways phenomenal. The ASEAN transitional economies have essentially been transformed from autarky to considerably open economies over the past two decades of reform. Viet Nam, for example, saw its share of exports (imports) as a percentage of GDP rise from 7% (17%) to 66% (74%) over the 1985 to 2004 period, that is, even before it joined the WTO in 2007. Other countries also registered impressive changes, with the two Asian giants of India and PRC significantly expanding their shares of exports and imports in GDP, as well as their global presence.

Economic liberalization, particularly of commercial policies, has been behind this internationalization of developing Asian economies, and there has generally been a strong correlation between measures of interaction with the global economy (e.g., through rising shares of trade) and economic prosperity. The opening up of transitional ASEAN economies, PRC, and India has paid the greatest dividends and offers the most dynamic markets for a developed region like the EU.

Second, there is strong empirical support for the rise of an “Asian economy” based on multinational corporation network-building, using the diversity of the region to create a vertical division of labor that reaps greater efficiencies through fragmented trade. For example, Rana (2006) uses a gravity model to show that there has been a rise in economic symmetry that derives from an increase in intra-regional trade, which in turn is being led by rising intra-industry trade. In other words, the post-crisis Asian economy has become more close-knit through a process of vertically-integrated production networks and fragmented trade. If there is one overriding economic goal for Asian regionalism, it is arguably to facilitate this process. Hence, Asian regionalism is being designed to encourage multinational investments and open up regional markets, by creating a healthy atmosphere for international trade and investment (ADB 2008). Asian regionalism today is the opposite of “Fortress Asia.”

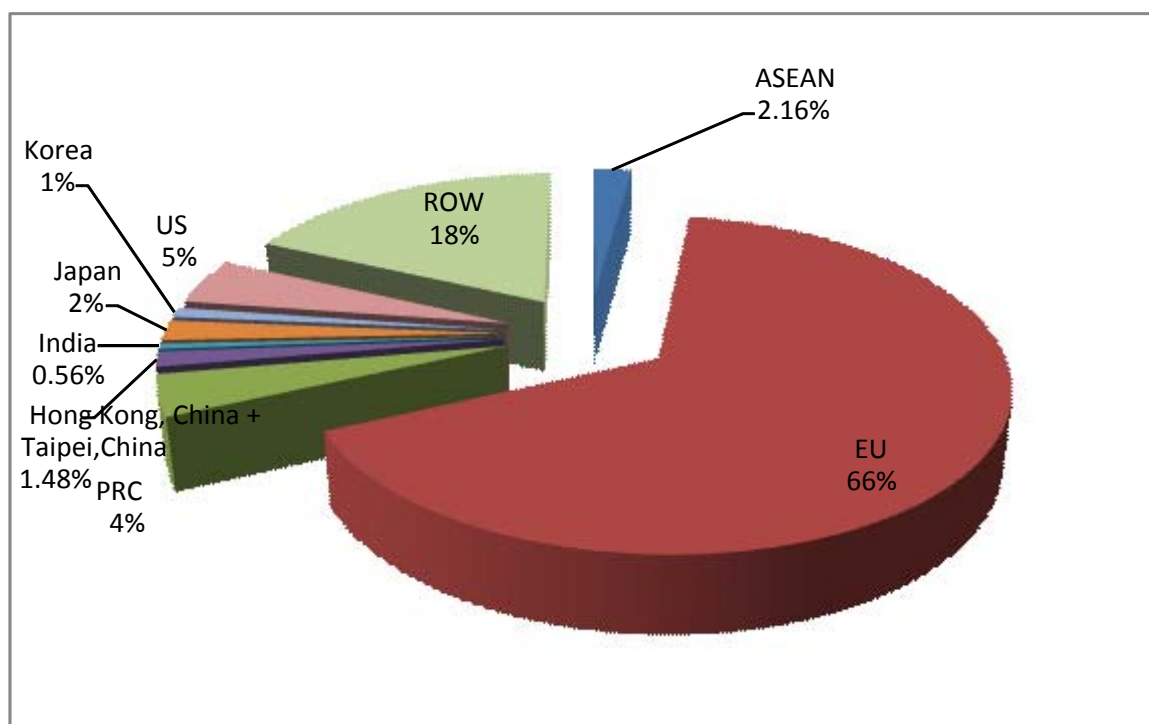
Thus, Europe finds a dynamic, increasingly-open region in Asia which, through its FTAs, demonstrates a revealed preference to bring down barriers to global economic interchange. This is certainly the kind of region the EU would want to do business with. Or is it doing enough business without formal regional agreements? Below, we look more in-depth at the EU-Asian economic relationship.

2.1 Direction of Trade

Both the EU and Asia have been key players in the growth of international trade. Taken as a region, the EU is by far the largest global trader. It has expanded from six Western European countries in 1957 to 27 countries, with the most recent member-states, Bulgaria and Romania, joining in 2007. More are in the process of accession negotiations, in sizes ranging from Macedonia to Turkey. Its economy is larger than that of the United States.

Two-thirds of the EU's international trade is intra-regional, which has increased from 61% in 1990 to 66% in 2006 (Figure 1).¹ Nevertheless, the share of ASEAN and PRC has also been on the rise, with PRC in particular intensifying its interaction with the EU. Japan's share of EU exports has fallen in half to only 2% and imports to even less than that.

Figure 1: Direction of EU Exports, 2006



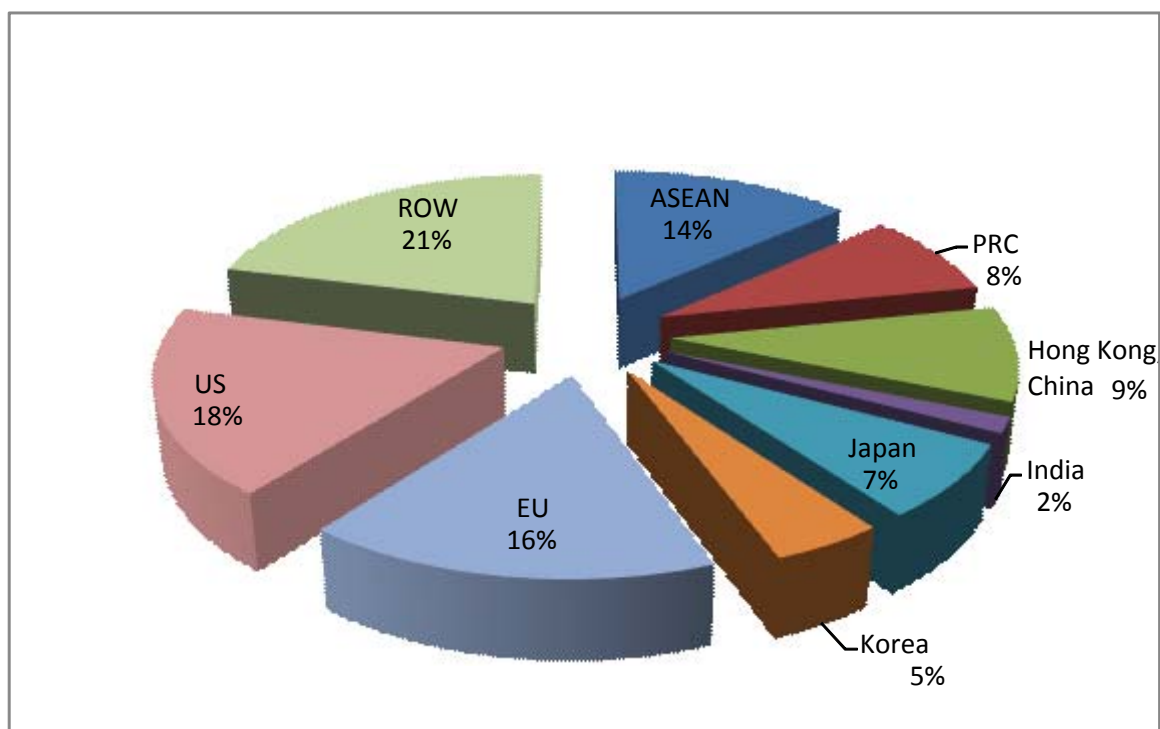
Notes: ASEAN = Association of Southeast Asian Nations, EU = European Union, Korea = Republic of Korea, PRC = People's Republic of China, ROW = Rest of the world, US = United States

Sources: UN COMTRADE database; UNCTAD Handbook of Statistics.

The share of the EU in Asian trade is greater, given its size in the global economy and the role of EU multinationals in the region. The EU accounted for 16% of Asia's exports in 2006 (Figure 2), lesser than the US (18%) but greater than Japan and Korea combined. This is a slight increase from 1990, in stark contrast to the US whose share has declined precipitously from 25%.²

¹ UN COMTRADE database.

² Ibid.

Figure 2: Direction of Asian Exports, 2006

Notes: ASEAN = Association of Southeast Asian Nations, EU = European Union, Korea = Republic of Korea, PRC = People's Republic of China, ROW = Rest of the world, US = United States; Direction of trade data unavailable for Asia-Taipei, China.

Sources: UN COMTRADE database; UNCTAD Handbook of Statistics.

2.2 Sectoral Trade Flows

Table 1 shows the composition of EU-Asian exports in 2006, using the sectoral composition of world trade as a benchmark. As expected, the “machinery and equipment” category is the most important component of EU exports to Asia in all markets. The share of this sector in EU exports to Asian countries is higher (sometimes significantly so) than its share in world trade, with the exceptions of Japan and (marginally) India. “Other manufactures” and “chemicals” are the other key EU exports to Asia.

Table 1: Direction of EU Exports to Major Asian Markets by Sector, 2006
(1-digit SITC)

Product Category	Major Asian Markets for EU Exports (as percentage of total exports)					
	World	ASEAN	PRC	India	Japan	Korea
Food and live animals chiefly for food	3.37	2.88	0.97	0.84	5.38	2.93
Beverages and tobacco	1.55	1.65	0.41	0.25	2.77	1.32
Crude materials, inedible, except fuels	2.15	1.80	7.55	3.66	3.21	2.67
Mineral fuels, lubricants and related materials	4.87	2.40	0.39	0.80	0.34	0.22
Animal and vegetable oils, fats and waxes	0.22	0.09	0.05	0.05	0.35	0.36
Chemicals and related products, nes	14.66	12.58	8.49	8.37	20.01	15.35
Manufactured goods classified chiefly by materials	14.58	11.47	13.02	34.19	9.79	11.95
Machinery and transport equipment	42.73	54.97	58.82	41.63	34.67	44.21
Miscellaneous manufactured articles	11.39	8.50	6.33	6.66	20.13	17.13
Commodities and transactions not classified elsewhere	4.49	3.67	3.98	3.54	3.34	3.87
Total (US\$ Billion)	1534.26	60.55	79.29	30.23	55.26	28.32

Notes: ASEAN = Association of Southeast Asian Nations, Korea = Republic of Korea, PRC = People's Republic of China, SITC = Standard International Trade Classification.

Source: UN COMTRADE database.

Table 2 shows that Asian exports to the EU are also dominated by “machinery and equipment.” This reflects in part the role of EU multinationals in Asian trade, with this sector picking up a good deal of the trade in components. The other major sector is “miscellaneous manufactures,” followed by “other manufactures.” “Chemicals” are fairly insignificant in Asian exports to the EU; its share is less than that of Asian world trade.

A few general conclusions can be gleaned from these data. First, the EU remains a major trading partner for Asia, and its share of Asian exports has been rising despite the large increase in intra-Asian trade. Meanwhile, Asia's share in EU's trade has also been growing, albeit lesser than the EU's share of Asian trade. Second, the composition of EU-Asian trade is consistent with a mature relationship based on production networking and increasing intra-industry trade.

Table 2: Direction of Asian Exports to Major Markets by Sector, 2006
(1 digit SITC)

Product Category	Major Markets for Asian Exports (as percentage of total exports)									
	World	ASEAN	PRC	HKG	IND	JPN	KOR	EU	US	ROW
Food and live animals chiefly for food	2.64	2.78	1.14	1.32	0.74	6.86	3.06	2.27	2.08	3.09
Beverages and tobacco	0.20	0.54	0.10	0.28	0.04	0.21	0.07	0.09	0.04	0.23
Crude materials, inedible, except fuels	2.05	1.45	6.68	0.40	3.93	4.42	3.86	1.75	0.82	1.29
Mineral fuels, lubricants and related materials	6.16	12.43	6.29	4.20	13.45	13.88	10.88	1.28	1.75	6.41
Animal and vegetable oils, fats and waxes	0.55	0.50	1.17	0.04	3.22	0.22	0.15	0.66	0.17	0.83
Chemicals and related products, nes	7.14	8.43	14.08	4.45	12.96	5.20	11.33	6.33	4.23	7.27
Manufactured goods classified chiefly by materials	14.11	15.25	12.43	12.70	16.93	13.17	21.31	11.87	11.01	17.67
Machinery and transport equipment	50.54	49.21	48.00	59.31	42.46	35.82	36.63	54.68	58.62	46.86
Miscellaneous manufactured articles	14.57	6.69	7.82	15.29	5.16	19.32	10.90	19.15	19.87	13.64
Commodities and transactions not classified elsewhere in the SITC	2.05	2.72	2.30	2.02	1.10	0.90	1.80	1.92	1.41	2.71
Total (US\$ Billion)	2,825.96	380.20	236.80	263.72	43.19	203.89	125.62	457.60	518.97	595.98

Notes: ASEAN = Association of Southeast Asian Nations, EU = European Union, HKG = Hong Kong, China, IND = India, JPN = Japan, Korea = Republic of Korea, PRC = People's Republic of China, ROW = Rest of the world, SITC = Standard International Trade Classification, US = United States.

Source: UN COMTRADE database

We looked more carefully at disaggregated data to identify the most significant EU exports to Asia in Section IV. As a final exercise, we considered the pattern of EU's trade with Asian countries, both relative to each other and in a global context. This approach gave us some intuitive information about the "normalcy" of EU exports to the region. We used the Spearman Rank Correlation Coefficient technique, which correlates the ranking of two series (in this case, the structure of EU exports to various markets). Its domain is -1 (perfect negative correlation) to $+1$ (perfect correlation). As this approach has a clear upward bias, we used highly disaggregated data (HS 6-digit) in the correlations, yielding between 3,000 and 4,000 observations for 2007. In doing this, we were able to correlate EU exports to each Asian market and the world. The results are presented in Table 3.

The correlations of EU exports to Asian economies and the world tend to be above 0.7, with the exceptions of India (0.66) and Viet Nam (0.6). Given that 1.0 would be a perfect correlation, these are moderately high estimates. Exports to Singapore (0.75) are the most consistent with overall EU exports. In addition, there seems to be considerable variance in EU exports to various Asian economies, with exports to Viet Nam and Japan (0.42) and Viet Nam and Singapore (0.48) being the most dissimilar.

Table 3: Correlations of EU Exports to Asian Economies
(Spearman Rank Correlation Coefficients)

Country	PRC	INO	JPN	KOR	MAL	PHI	IND	SIN	VIE	THA
PRC	1									
Indonesia	0.658	1								
Japan	0.6223	0.494	1							
Korea	0.7515	0.588	0.728	1						
Malaysia	0.6834	0.673	0.569	0.6569	1					
Philippines	0.5839	0.593	0.51	0.5843	0.6245	1				
India	0.7828	0.664	0.539	0.6641	0.6693	0.541	1			
Singapore	0.6838	0.583	0.622	0.6888	0.7042	0.585	0.6	1		
Viet Nam	0.5996	0.606	0.421	0.5214	0.5555	0.555	0.6	0.48	1	
Thailand	0.7237	0.695	0.594	0.6682	0.7023	0.639	0.7	0.64	0.63	1
World	0.774	0.661	0.731	0.772	0.7326	0.63	0.7	0.75	0.6	0.722

Notes: IND = India, INO = Indonesia, JPN = Japan, Korea = Republic of Korea, MAL = Malaysia, PHI = Philippines, SIN = Singapore, PRC = People's Republic of China, THA = Thailand, VIE = Viet Nam; All observations are included if data are recorded for both countries. All coefficients are statistically significant at 99% level of confidence.

2.3 Foreign Direct Investment

Foreign direct investment (FDI) is another important expression of economic interaction. Indeed, the two are closely linked.³ All bilateral FTAs between Asian and Organisation for Economic Co-operation and Development (OECD) countries include investment provisions. Some of these provisions, like those of the Singapore-US FTA, are quite extensive, even including Mode 3 services. The ASEAN Comprehensive Investment Area (ACIA), which is slated to be launched at the end of 2008 as part of the AEC project, emphasizes national treatment, liberalization, and best practices. FDI will no doubt be a priority in any Asia-EU FTA. In fact, while Europeans have had a hard time negotiating investment provisions in their EPAs with former colonies and at the WTO⁴, they will likely have much less difficulty in doing this with Asian partners. For example, the ASEAN Investment Area, which precedes the ACIA, actually has a provision for extending national treatment to non-partner investors by 2020.⁵ This is no coincidence given the importance of non-partners as sources of FDI.

Table 4 shows EU investment in all ASEAN countries over the period 1995-2006. The EU clearly is the most important foreign investor in ASEAN over this period, with US\$101 billion in cumulative investments, which is almost as much as that of the US and Japan put together and three times of intra-ASEAN FDI. As in the case of other OECD countries, Singapore receives the lion's share of EU's investment, followed by Malaysia and Thailand. The UK and the Netherlands are the most important EU investors in the region.

³ See, for example, ADB (2008), Chapter 3.

⁴ One reason for the failure of the WTO Cancun Ministerial in 2003 was related to the EU's push for investment provisions in the Doha Development Agenda discussions.

⁵ The date was 2010 for partner countries.

Table 4: FDI Flows to ASEAN Countries by Source, 1995-2006
(US\$ Million)

FDI Source	Host Country									Total
	BRU	INO	LAO	MAL	MYA	PHI	SIN	THA	VIE	
Japan	414	3,369	20	8,936	120	3,243	16,301	20,099	2,765	55,266
US	90	1,972	6	13,643	406	3,461	23,303	6,397	915	50,192
Canada	14	113	3	378	62	8	1,232	518	48	2,376
EU	6,990	7,823	189	11,427	1,887	1,795	58,294	9,809	3,737	101,951
France	139	983	167	355	729	276	2,805	763	1,084	7,301
Germany	20	1,210	1	4,187	9	-291	-684	2,060	82	6,594
Netherlands	2,637	4,308	0	1,642	8	627	20,218	453	1,519	31,412
UK	4,178	1,238	9	3,741	1,137	847	29,554	5,270	864	46,837
PRC	8	873	42	114	197	306	967	46	294	2,847
ANIEs	77	1,240	124	2,818	302	1,152	7,050	5,636	5,481	23,881
Korea	39	1,040	111	196	56	245	1,092	500	1,785	5,065
Hong Kong, China	33	162	2	1,895	247	699	1,693	3,638	1,476	9,844
Taipei, China	5	38	10	728	0	207	4,265	1,497	2,220	8,972
ASEAN	1,429	4,428	281	9,030	1,051	1,247	9,401	7,778	3,254	37,900
Brunei Darussalam		-28	0	298	0	0	218	11	3	502
Cambodia	0	0	0	3	0	0	6	18	1	28
Indonesia	57		0	280	41	39	4,092	54	61	4,625
Lao PDR	0	0		0	0	0	1	-1	12	12
Malaysia	240	1,344	97		57	88	4,536	470	612	7,445
Myanmar	0	0	0	0		0	100	3	0	104
Philippines	5	13	0	97	4		273	234	49	675
Singapore	1,119	2,955	6	8,097	750	1,116		6,983	2,000	23,026
Thailand	8	144	168	215	198	4	142		517	1,396
Viet Nam	0	0	9	38	0	0	33	6		86

Notes: ANIEs = Asian Newly Industrializing Economies, ASEAN = Association of Southeast Asian Nations, BRU = Brunei Darussalam, EU = European Union, INO = Indonesia, Korea = Republic of Korea, LAO = Lao People's Democratic Republic, MAL = Malaysia, MYA = Myanmar, PHI = Philippines, PRC = People's Republic of China, SIN = Singapore, THA = Thailand, UK = United Kingdom, US = United States, VIE = Vietnam.

Source: UN COMTRADE database.

3. EMPIRICAL ESTIMATES

As EU integration has such a long history, any effects on Asia have mainly already been absorbed.⁶ The EU's integration of Bulgaria and Romania in 2007 should have a negligible impact on Asia given their small size and the fact that they have been implementing accession-related measures since 1997. Investment diversion may happen, but it will no doubt be small. And Asia could well find new markets in newly-acceding countries. The EPAs should also have little effect, particularly since majority of these countries already have duty-free access to the EU market through the "everything but arms" initiative. True, the EPAs will be reciprocal, but African markets are insignificant for most Asian economies,

⁶ For a review and assessment of the effects of the Single Market Programme on Asia, see Kreinin and Plummer (2002).

except for imports of natural resources. Hence, to the extent that EU integration has affected Asia, the ramifications should already be evident. But what would be the effect of Asian regionalism on the EU? And what would be the effects of potential EU accords with Asian countries?

We answer these questions from two perspectives. First, we reviewed the CGE literature and surveyed the potential effects of EU-Asian accords and the implications of various configurations of Asian arrangements on the EU. Second, we used a disaggregated technique to capture the most important products that will likely face trade diversion in the event of an Asian FTA or subgroups thereof. We argue that these will be important from the political-economy perspective.

Before starting, we should be explicit about what we mean by “Asian regionalism.” What will be the optimal configuration of Asian countries? In general, wider FTA arrangements in Asia are expected to be better than smaller ones, as suggested by the theory of preferential trade agreements and underscored in such studies as Kawai and Wignaraja (2008). They suggested that an Asia-wide FTA would be ideal from an economic point of view, but considering the strategic and political importance of the US in Asia, perhaps an East Asia+NAFTA accord, or even the FTAAP, would be best. In fact, the prospects of an Asia-wide FTA without the participation of the United States are quite small due to political constraints.

To date, there is no accord between Northeast Asian countries, which constitute the “+3” of the ASEAN+3. The reasons are basically political. The result has been a series of bilateral arrangements, as well as “ASEAN+1” accords. Nevertheless, these political constraints may be loosening up. Plummer and Wignaraja (2007) noted that the FTA movement may improve political and economic relationships throughout the region, subsequently reducing political obstacles to regional integration endogenously.

Nevertheless, an Asia-wide FTA is probably a medium-term prospect. In the short-run, we will likely see the continuation of bilateral and multilateral arrangements, with both regional and extra-regional partners. To the extent that the EU remains outside this web, it could potentially suffer from trade and investment diversions, as well as non-traditional costs.

What would be the optimal size of an EU-Asia FTA? Certainly, the ASEM group would be a candidate. It has been in existence for 12 years and, after the accessions of Bulgaria, India, Mongolia, Pakistan, Romania and the ASEAN Secretariat in 2008, it now has 45 partners.⁷ However, while economic cooperation issues are discussed in ASEM every two years, its accomplishments have been minimal. It is not a negotiating forum, and the diversity of membership would make an ASEM-FTA difficult to envision. Even if it were to be considered, the diversity of economic interests in the group would lead to a shallow accord that is based on a “lowest common denominator” approach. In fact, even the ASEAN+1 arrangements (from the ASEAN-PRC accord to the agreements signed in 2008, e.g., ASEAN-India, and ASEAN-Australia/New Zealand) seem to be soft in terms of product and sectoral coverage.

The EU has already had several meetings with its ASEAN counterparts to set the agenda for a possible EU-ASEAN accord. This will be difficult to accomplish in the short-run due to political issues (e.g., Myanmar, uncertainties in Thailand and Malaysia). Deep integration will be very challenging, as has been the case for the Malaysia-US and Thailand-US negotiations. The EU has also studied the possibility of a bilateral FTA with PRC, but this is a highly-charged issue in the EU (as well as in the United States). In short, the EU faces a variety of complications in negotiating FTAs with Asia, but we believe that the most probable outcome will be a series of bilateral FTAs with “path-finding” countries. Such a proliferation of bilateral FTAs has the usual “spaghetti-bowl” costs, which is why we note in our last section that EU accords with Asian countries need to be firmly grounded in the WTO and

⁷ In addition to the new six, this would include the EU25, ASEAN10, PRC, Japan, and Korea.

embrace best practices, instead of just basing them on minimum standards to pass the WTO's Article XXIV criteria.

3.1 Estimates of Various Configurations of EU-Asia Accords: CGE Models

There are several CGE studies that have estimated the potential ex-ante effects of various EU-Asian accords. Francois (2007) estimated the effects of a few potential scenarios in the case of an EU- Korea agreement. He set up three possible scenarios, varying from a "soft" (partial) agreement to a full FTA. The intermediate case included a full reduction of manufacturing tariffs, a 50% reduction in barriers to trade in services, and a 40% reduction in agricultural protection without trade facilitation. Most of the gains in all scenarios were derived from liberalization of trade in services. The welfare effect of this scenario would be an increase of €2.2 billion (0.03% of GDP) and €4.3 (1.01% of GDP) for the EU and Korea, respectively. The full FTA scenario would essentially double the gains to the EU and increase gains to Korea by 2.5 times. However, the aggregate numbers are projected to remain low.

CEPII (2006) also used a CGE model to estimate the potential effects of an ASEAN-EU FTA. It is a standard GTAP-based model, but includes FDI and services. Once again, the bulk of the gains accrue due to the liberalization of services, whose barriers are assumed to fall by 50%. But the welfare effects of the ASEAN-EU FTA are quite low: ASEAN's welfare rises by 2% of GDP relative to the baseline, while the EU gains a mere 0.1%.

Decreux and Mitaritonna (2007) simulated an India-EU agreement. This is a particularly challenging case, for EU's trade with India is small at about 0.4% of GDP. From the start, it is difficult to envision how the agreement could have a significant effect on GDP. Indeed, in the most extensive liberalization case involving a 25% reduction in protection of services, the net effect is 0.04% and 0.028% for India and the EU, respectively.

3.2 Estimates of Effects of Asian Regionalism on the EU: CGE Models

A number of CGE studies have estimated the possible effects of Asian regional integration on the EU. The results of two of these are summarized below.

Plummer and Wignaraja (2007) simulated three possible scenarios, namely, (1) a "fragmentation scenario," which projects the current wave of bilateralism in East Asia; (2) an ASEAN+3 scenario; and (3) an Asia-Pacific Economic Cooperation (APEC) scenario. A four-scenario, global free trade, was used as a benchmark.

Table 5 presents the welfare effects, expressed in terms of percentage of GDP (on an equivalent variation basis).

Table 5: Impact of Four Commercial Policy Scenarios
(Real Income based on Equivalent Variation and Expressed as Percentage of GDP)

Region	(1) Fragmentation Scenario	(2) ASEAN+3 FTA	(3) FTAAP (APEC)	(4) Global Free Trade
ASEAN	1.72	2.02	1.62	2.20
Northeast Asia	-0.02	0.37	0.96	1.23
Rest of Asia	-0.01	-0.06	-0.22	0.61
US	-0.01	-0.02	0.12	0.24
Europe	-0.01	-0.01	-0.04	0.30
ROW	-0.01	-0.01	0.01	0.34
World	0.01	0.09	0.25	0.51

Notes: APEC = Asia-Pacific Economic Cooperation, ASEAN = Association of Southeast Asian Nations, ASEAN+3 = ASEAN plus Japan, Korea, and PRC, FTA = free trade area, FTAAP = Free Trade Area of the Asia-Pacific, GDP = gross domestic product, ROW = Rest of the world, US = United States.

Source: Plummer and Wignaraja (2007). Simulations ran by ADB Staff using GEMAT.

Once again, the net effects were found to be small, particularly so given that this model excluded FDI, productivity spillovers, and trade facilitation estimates. However, it is interesting that the worst-case scenario for the EU would be the FTAA, which would include North America. Trade diversion comes to only 0.4% of GDP, but this is four times the effect in other scenarios.

These results were echoed in Lee and van der Mensbrugghe (2008), who also included four scenarios differentiated by their commercial policy assumptions, as follows:

Scenario 1: FTA in all goods except rice over 2008-2015 (no change in productivity).

Scenario 2: Scenario 1 plus a 2.5% reduction in administrative and technical barriers.

Scenario 3: Scenario 2 with endogenous productivity related to openness.

Scenario 4: Scenario 3 plus a 20% reduction in trade and transport margin.

They also included two possible FTAs: ASEAN+3 and ASEAN+6 (adding India, Australia and New Zealand). The results are summarized in Table 6.

Table 6: Welfare Effects of ASEAN+6 and ASEAN+3 FTAs
(% Changes)

<i>Scenarios</i>	<i>Scenario 1</i>	<i>Scenario 2</i>	<i>Scenario 3</i>	<i>Scenario 4</i>
<i>A. ASEAN+3</i>				
PRC	0.9	0.76	2.58	4.68
Japan	0.13	0.32	0.35	0.77
Korea	0.74	1.40	1.64	3.05
ASEAN	0.32	1.69	1.71	4.81
India	-0.7	-0.10	-0.09	-0.14
US	-0.02	-0.03	-0.02	-0.02
<i>EU-15</i>	<i>-0.02</i>	<i>-0.03</i>	<i>-0.01</i>	<i>-0.01</i>
<i>New EU members</i>	<i>-0.01</i>	<i>-0.01</i>	<i>-0.00</i>	<i>0.03</i>
East Asia	0.17	0.65	1.21	2.46
World	0.03	0.13	0.26	0.55
<i>B. ASEAN+6</i>				
PRC	0.43	0.70	2.42	4.51
Japan	0.21	0.30	0.31	0.79
Korea	1.06	1.32	1.55	3.00
ASEAN	1.45	1.95	2.01	5.32
India	-0.34	-0.03	0.73	1.56
US	-0.03	-0.03	-0.03	-0.02
<i>EU-15</i>	<i>-0.03</i>	<i>-0.04</i>	<i>-0.02</i>	<i>-0.02</i>
<i>New EU member</i>	<i>-0.01</i>	<i>-0.02</i>	<i>-0.01</i>	<i>0.04</i>
East Asia	0.45	0.64	1.17	2.47
World	0.09	0.15	0.28	0.62

Notes: ASEAN = Association of Southeast Asian Nations, ASEAN+3 = ASEAN plus Japan, Korea, and PRC, ASEAN+6 = ASEAN plus Australia, India, Japan, Korea, New Zealand, and PRC, EU = European Union, FTA = free trade area, Korea = Republic of Korea, PRC = People's Republic of China, US = United States.

Source: Lee and van der Mensbrugghe (2008).

The net trade diversion effect on the EU was small, and inclusion of endogenous productivity and trade facilitation actually reduced the costs to the EU (even leading to positive gains to the new EU members in Scenario 4). The differences between the ASEAN+3 and ASEAN+6 accords were actually quite trivial, with the ASEAN+3 being preferred to ASEAN+6 in all scenarios and configurations of partners except ASEAN+6 for new EU members.

3.3 The Costs of Disengagement: A Disaggregated Approach

Most CGE studies noted the limitations of their models, stressing their inability to effectively capture many of the dynamic effects associated with regional integration. This becomes increasingly problematic with high-quality FTAs, which focus much more on behind-the-border measures rather than traditional ones (e.g., tariffs alone). The models do a better job of identifying such things as structural change and relative changes in factor returns for the integrating countries as opposed to realistic estimates of welfare change.

Caveats notwithstanding, the CGE results do not present a pressing case to the EU27 in terms of the potential costs associated with staying outside the Asian integration process. In fact, expressing these changes in terms of GDP might be misleading: GDP signifies the value of goods and services produced in the entire economy over one year, and net changes are focused on trade alone. Coupled with the fact that Asian trade constitutes only about 10% of total EU trade, it would be difficult to envision a priori that these numbers could be high. Nevertheless, in absolute value the worst-case scenario losses in terms of trade diversion in the above studies are not frightening: Scenario 2 of the ASEAN+6 estimates by Lee and van der Mensbrugghe (2008) yielded the most trade diversion, and this estimate amounted to only US\$2.62 billion (2001 prices), hardly something to provoke a spirited response by policymakers governing an economy of US\$11 trillion.

Still, sectoral effects may be important. In other words, if the bulk of the expected trade diversion effects were to fall on a few select sectors, the political-economy implications could be significant. A problem with CGE modeling is that much of the sectoral details are still relatively aggregated (e.g., 22 sectors in the Lee and van der Mensbrugghe calculations), whereas trade policy emanates from considerations at a much disaggregated level. Hence, it would behoove us also to consider EU exports at the product level and match these against existing protection. In this section, we focus on data at the HS 6-digit (HS6) level. Specifically, we considered EU27 exports to major countries in Asia and for which we have appropriate 2007 data. Fortunately, this included almost the entire sample: we only exclude Brunei and the ASEAN CLMV countries (Cambodia, Laos, Myanmar and Viet Nam). The only significant country (in terms of size) among this group is Viet Nam, for which protection information at this level is not available. In 2007, EU27 exports to Viet Nam amounted to US\$4.4 billion, which is only 1.5% of total Asian exports included in the sample for that year (US\$291 billion).

Arranging the data in an understandable way is difficult. Even using a cut-off of US\$1 million, we found out that in 2007, EU27 engaged in exports classified under 4,787 commodity lines at the HS6 level. Applying this to all Asian integrating countries would yield 14,329 entries, which is cumbersome, to say the least. Hence, in Appendix Table A.1, we limited ourselves to showing the top 50 HS6 exports to each Asian market. The total value of these exports amounted to US\$89 billion, or about one-third of total Asian exports in the sample. Further, in order to focus on salient EU27 HS6 exports, we included in Table 6 all commodities exceeding US\$1 billion, coming to US\$51 billion (or 57% of the commodities included in Table A.1). Our data for EU27 exports and tariff mainly came from UN COMTRADE and the WTO, respectively.⁸

⁸ The WTO tariff database for HS6 products excludes a number of products, particularly for the ASEAN countries. We did our best to find some of these data in various sources, including Naya and Plummer (2005), which

Our hypothesis is that if the EU27 were excluded from the process, Asian integration will cause trade diversion in sectors where protection of individual Asian markets is significant, assuming that there is competition in any given Asian market from integrating competitors. Given the size and diversity of the Asian integration process—and the fact that the US is actively linking into it—competition is pretty much guaranteed, though the elasticity of substitution is obviously critical in determining the extent of potential competition. Larger export value means higher level of protection, while larger elasticity of substitution between EU27 and integrating Asia9 (or partners) exports entails greater potential for trade diversion.

We also maintain that, given the nature of modern FTAs, deep integration could lead to the diversion of exports away from the EU in favor of integrating countries even in areas where protection is not high. Results from Lee and van der Mensbrugghe (2008), which are consistent with the rest of the literature, suggested that reductions in behind-the-border barriers generate results (Scenario 2 and 4) that go well beyond mere tariff effects. Such changes lead to important efficiency effects that will naturally spill over into higher productivity. But they will also likely have the effect of reinforcing production chains and demand systems in Asia itself, or with integrating partners. For example, Japan and Singapore essentially have zero tariffs on electronic products, a result of both the information and telecommunications technologies agreement and the very open nature of their manufacturing sectors. However, the 2002 Japan-Singapore Economic Partnership Agreement is a modern, “new age” agreement that brings down many other costs to bilateral trade and economic interaction besides tariffs. This could place the EU at a disadvantage despite zero tariffs. The same is true of the Singapore-US FTA: if the story were just about tariffs, why were electronics multinationals so keen on the agreement? Tariffs were insignificant. Hence, while tariffs constitute an important part of commercial policy, there are many more that the EU needs to take into consideration.

Moreover, the political economy of protection in the EU27 is somewhat more complicated than in the case of other major economies. Although the EU has a common commercial policy and negotiates as a group, the fact that 27 nations are represented suggests that the configuration of interest groups is more complex. In particular, national interests can be brought into economic arguments more easily than, say, would happen in the case of the US. For example, while the auto industry in Detroit may use political (e.g., national interest) and pseudo-economic (e.g., jobs) arguments in petitioning for protection, it will not be able to bring in the Michigan flag into the argument, or at least not convincingly. In Europe, however, the existence of nation-states within the economic space would permit this nationalistic dimension. And arguably this nationalistic dimension is picking up steam in Europe.

Turning to the results, we note that, somewhat surprisingly, this disaggregated approach to potential trade diversion identified PRC as the pivotal market. Table 7 reveals that the greatest number of EU HS6 exports valued at over US\$1 billion go to PRC, where seven product lines are identified. Moreover, trade protection in PRC tends to be much higher than in the case of other major key markets, reinforcing the significance of PRC in potential trade diversion. Japan is the second most important market with five entries, but its level of protection is so low as to preclude any Vinerian trade diversion in these areas. Still, as noted above, these areas should still be of concern to EU policymakers.

Airplanes constitute the most important EU27 export to PRC and the second most important to India. No Asian market, of course, competes significantly with the EU in the same line as, for example, Airbus. However, Singapore (US\$493 million), Thailand (US\$27 million), Malaysia (US\$13 million), and PRC (US\$111 million) do have 880,240 exports. Moreover,

includes 3-digit-level protection. We are not worried about HS 999999 as an average tariff in this area would be relatively meaningless, given the diversity of products covered.

⁹ We used here the term adopted in the ADB Emerging Asian Regionalism study (ADB 2008). We also chose a common set of countries, which are the most likely candidates in the regional integration scenarios, i.e., Japan, PRC, Korea, the ten ASEAN countries, and India.

the US is a fierce competitor with the EU in this area, potentially leading to trade diversion in the case of the FTAAP. Electronics and vehicle exports are also significant EU27 exports. While electronic products tend to face low levels of protection, vehicles face rather high levels in the Chinese and other markets. For example, Table A.1 shows that the Malaysian tariff on vehicles of 1,500-3,300cc is 103%, no doubt a reason why that sector did not make the US\$1 billion cut-off. Japan, PRC, Korea, Malaysia, Thailand, and Singapore all report more than US\$11 billion in world exports in each of these vehicle product lines. Japanese exports, for example, in 870323 and 870324 combined, amount to US\$80 billion. EU electronic exports also generally face competition across the board.

Diamond exports to India reach US\$7.4 billion, by far the largest EU27 HS6 exports to integrating Asia. They are also important in the case of Thailand, as shown in Table A.1. However, these are basically exports coming from Africa and re-exported through Europe. There are also no existing Asian competitors in this area. While Medicines (HS 300940) only break the US\$1 billion cut-off in the Japanese market, they show up in the top 50 exports of all integrating Asian countries except India, with tariffs varying from 0 to 10% (Table A.1). Japan, Korea, Malaysia, PRC, Singapore, and Thailand are all significant exporters in this area with at least US\$100 million.

Regarding EU27 competitors, almost all EU member-states report vehicle exports, and given the unified market in the EU and fragmented trade, it is difficult to grasp where they add value. Still, the most important exporters in the reported trade data (world exports) are Germany (US\$29 billion), Belgium (US\$12 billion), and the UK (US\$10 billion) for 870323; and Germany (US\$32 billion), France (US\$21 billion), and the UK (US\$7 billion) for 870324. Many EU member-states are also part of the airplane production chain, but the main reporting exporters in this area are France (US\$21 billion) and Germany (US\$18 billion). All countries are essentially involved in the export of electronics and medicines.

Thus, the potential trade diversion in the Asian markets due to regional integration is, perhaps, significant in a limited number of commodity groups, but these are important export categories. Moreover, they affect the most influential countries in determining the EU's commercial policy.

It would be interesting to give an example of potential trade diversion using this approach. Assuming there is an ASEAN+6 FTA, what would be the partial equilibrium effect on, say, vehicle exports (i.e., 870323 and 870324), which face relatively high tariffs in some Asian countries? EU exports to ASEAN+6 came to about US\$11 billion in 2007. Assuming an elasticity of substitution across sources of vehicle exports of unity—in our view, a relatively conservative assumption—and given existing tariff schedules, we calculated a trade diversion effect of US\$1.53 billion. Now, these two HS6 exports were the third and fourth most important EU27 exports to the world in 2007 (beyond 999999-miscellaneous commodities and 300490-medicaments), with a value of US\$77 billion. Hence, this estimate of trade diversion would come to only about 2% of the total. Still, trade diversion in these two products alone would almost be as much as in the entire Scenario 1 (i.e., tariff liberalization alone) of Lee and van der Mensbrugghe (2008), estimated at US\$1.92 billion. In the highly-competitive global automobile market, even a 2% drop would be significant.

Table 7: Top EU-27 Commodity Exports to Asian Markets*(Exports exceeding US\$ 1 billion, HS 6-digit level)*

Item	Code	Commodity Description	EU-27 Exports (US\$mil., 2007)	Average Tariff (%)
<i>EU commodity exports to PRC (2006 tariff data)</i>				
1	880240	Airplanes & other aircraft	5,083	3
2	999999	Commodities not specified according to kind	3,692	NA*
3	870324	Vehicles of a cylinder capacity >3,000cc	2,834	28
4	740400	Copper waste & scrap	2,266	1.5
5	870323	Vehicles for the transport of persons, 1,500-3,300cc	1,720	28
6	854231	Electronic integrated circuits	1,478	6.9*
7	847989	Other machines & mechanical appliances	1,050	0
<i>EU commodity exports to India (2006 tariff data)</i>				
1	710231	Diamonds, non-industrial, unworked	7,428	12.5
2	880240	Airplanes & other aircraft	2,578	3
3	999999	Commodities not specified according to kind	1,383	NA*
<i>EU commodity exports to Japan (2005 tariff data)</i>				
1	870323	Vehicles for the transport of persons, 1,500-3,300cc	3,381	0
2	300490	Medicaments	2,456	0
3	870324	Vehicles of a cylinder capacity >3,000cc	2,099	0
4	999999	Commodities not specified according to kind	1,809	NA*
<i>EU commodity exports to Malaysia (2001 tariff data)</i>				
1	854231	Electronic integrated circuits, processors & controllers	2,989	0.0*
<i>EU commodity exports to the Philippines (2007 tariff data)</i>				
1	854231	Electronic integrated circuits, processors & controllers	1,026	1.5*
<i>EU commodity exports to Korea (2007 tariff data)</i>				
1	999999	Commodities not specified according to kind	1,549	NA*
2	848620	Machines for the manufacture of semiconductor devices	1,367	1.5
<i>EU exports to Singapore (2007 tariff data)</i>				
1	854239	Other Electronic integrated circuits	1,243	0.0*
2	854232	Electronic integrated circuits, memories	1,202	0.0*
3	841191	Parts of the turbo-jets/turbo-propellers	1,147	0
4	271019	Petroleum oils & oils obtained from bituminous minerals	1,061	0

Notes: EU = European Union, Korea = Republic of Korea, PRC = People's Republic of China.

Tariff for HS9999999 not meaningful, given diversity of components.

WTO does not publish Viet Nam tariff, so this country has been excluded

*denotes H6 6-digit data unavailable. Estimations adopted from Naya and Plummer (2005).

Sources: From Appendix Table 1: EU Commodity Exports Data from UN COMTRADE; WTO Tariff Data.

Investment diversion might also be an issue. Investment diversion takes place when multinational companies invest in an FTA in order to take advantage of barrier-free access within a given market. As protection in Asia is relatively low and multinationals invest in Asia mainly as part of a production-chain process¹⁰ rather than to “tariff hop,” this traditional interpretation of investment diversion is probably unimportant. However, if the rules of origin in a given Asian FTA are restrictive, this could give EU multinationals an added incentive to invest in Asia, rather than, for example, other EU countries (or other regions).

In short, the disaggregated approach allowed us to identify a number of sectors that are of relevance in determining the “cost of disengagement” that the EU faces. While the outward-oriented nature of Asian development has brought down tariffs to relatively low levels, several sectors will be affected by trade diversion, perhaps significantly so. More importantly, we argued that the behind-the-border areas that will be addressed in any Asian FTA could exacerbate the trade diversion effect where it exists, and cause a potential market shift away from the EU27 even in areas where border protection is negligible.

4. CONCLUSION

In this paper, we have considered the potential economic implications of closer EU-Asian economic cooperation, the potential costs to the EU if it remains “disengaged” from the Asian integration process (and its accords with non-regional partners, such as the US), and the potential effects of multi-layered EU-Asian trade agreements.

In terms of economic integration, Asia and the EU are key trading partners. Contrary to the US experience, export shares of the EU in Asian trade have been increasing in spite of the large increase in Asian intra-regional trade. The EU is the most important source of FDI for much of Asia. Asia, on the other hand, constitutes a relatively small share of total EU trade, given the massive intra-regional bias of the single market. But the share has also been rising and, given Asia’s outward-oriented growth, this trend will likely continue.

Our empirical review of CGE models showed small or trivial effects of several potential EU-Asian accords, such as EU-India, EU-ASEAN and EU-Korea. In part, this is a result of relatively small trade shares, open markets, and restrictions in the models, particularly the exclusion of potential behind-the-border effects. We also presented two CGE models that estimated the potential negative effects of Asian/Asia-Pacific regional accords on the EU, and found small effects. Nevertheless, we argued that high-quality FTAs in Asia could potentially be quite detrimental to the EU, particularly in key sectors. We used a highly-disaggregated (partial-equilibrium) approach to underscore this problem. The push toward a potential FTAAP, perhaps more likely in the aftermath of the November 2008 APEC Summit, could be particularly worrisome to the EU. Hence, it would make sense for the EU to be more aggressive in pursuing possible trade agreements with Asia.

The efficiency effects of EU-Asian arrangements will obviously depend on the direction of commercial policy in the composite economies. There is no substitute for a strong, vibrant WTO. The EU and Asia need to do their best to ensure a successful conclusion to a deep Doha Development Agenda. A key advantage of the AEC, for example, will be its ability to play a more constructive role at the WTO. Recent failures to reach an accord have taken place essentially with very little input from ASEAN. Given that ASEAN and the EU are both

¹⁰ See, for example, ADB (2008).

generally in favor of a strong, comprehensive and effective WTO, joint cooperation at the WTO will be increasingly possible as ASEAN economic deepening advances. Success in this area will require significant political commitment, as certain interest groups opposed to trade liberalization will need to be confronted.

Second, we have used the generic term “FTA” without bringing in the importance of the characteristics of these agreements. The drawbacks of the “spaghetti-bowl” effect are well known, particularly in terms of the complicated rules of origin that are included in these accords. We argued above that EU-Asia accords will likely take place—at least initially—on a bilateral basis, which would increase the size of the “spaghetti bowl.” But we do not feel that this is a reason for the EU to shun agreements with Asian countries, particularly given the current FTA trend. Rather, we suggest focusing on best practices in the agreement, an approach that we have called elsewhere as “turning spaghetti into lasagna” (Plummer 2007).

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APPENDIX

Table A.1: Top EU-27 Commodity Exports to Asian Markets

Top 50 Commodities	Commodity Code (HS 6 digit)	Commodity Description	EU-27 Exports (US\$mil, 2007)	Average Tariff (%)
<i>A. Top 15 EU commodity exports to PRC (2006 tariff data)</i>				
1	880240	Airplanes & other aircraft	5,083.00	3
2	999999	Commodities not specified according to kind	3,692.00	NA*
3	870324	Vehicles of a cylinder capacity >3,000cc	2,834.00	28
4	740400	Copper waste & scrap	2,266.00	1.5
5	870323	Vehicles for the transport of persons, 1,500-3,300cc	1,720.00	28
6	854231	Electronic integrated circuits	1,478.00	6.9
7	847989	Other machines & mechanical appliances	1,050.00	0
8	853890	Machine Parts	957.40	7
9	300490	Medicaments	932.10	3.7
10	851770	Parts of telephone sets	844.70	6.9*
11	850440	Static converters	776.10	5.3
12	870899	Other parts & accessories for the motor vehicles	773.10	14.1
13	853710	Boards, panels, & other bases for control of electricity	744.60	6.1
14	870840	Gear boxes & parts thereof, of the motor vehicles	731.90	10.1
15	870829	Parts & accessories of bodies of the motor vehicles	699.30	10.3
<i>B. Top 15 EU commodity exports to India (2006 tariff data)</i>				
1	710231	Diamonds, non-industrial, unworked	7,428.00	12.5
2	880240	Airplanes & other aircraft	2,578.00	3
3	999999	Commodities not specified according to kind	1,383.00	NA*
4	851770	Parts of telephone sets	547.50	15.1
5	720851	Flat-rolled products of iron/non-alloy steel	446.40	5
6	710239	Diamonds, non-industrial other than unworked	418.40	12.5
7	720421	Waste & scrap of stainless steel	407.70	5
8	852990	Other parts suitable for apparatus of headings 85.25 to 85.28	303.20	4.2
9	848340	Gears&gearing; ball/roller screws; other speed changers	296.80	12.5
10	847989	Other machines & mechanical appliances	282.00	6.6
11	870899	Other parts & accessories for motor vehicles	274.00	12.5
12	848180	Taps, cocks, valves & similar appliances	268.80	12.5
13	880230	Airplanes&other aircraft of weight >2,000kg but not >15,000kg	265.30	3
14	841191	Parts of the turbo-jets/turbo-propellers of 8411.11-8411.22	257.10	6.3
15	841199	Parts of the other gas turbines of 8411.81 & 8411.82	238.60	12.5

Top 50 Commodities	Commodity Code (HS 6 digit)	Commodity Description	EU-27 Exports (US\$mil, 2007)	Average Tariff (%)
<i>C. Top 10 EU commodity exports to Indonesia (2006 tariff data)</i>				
1	890610	Warships	381.80	0
2	999999	Commodities not specified according to kind	331.80	NA*
3	851770	Parts of telephone sets	320.60	3.3*
4	880240	Airplanes & other aircraft	240.00	0
5	851761	Base stations for transmission/reception of voice	186.10	3.3*
6	854239	Other Electronic integrated circuits	146.10	NA*
7	851762	Machines for the reception, conversion & transmission of voice	90.47	3.3*
8	300490	Medicaments	83.29	4.8
9	470710	Recovered (waste & scrap) unbleached kraft paper	81.61	7.5
10	40210	Milk in powder/granules/other solid form	77.85	5
<i>D. Top 15 EU commodity exports to Japan (2005 tariff data)</i>				
1	870323	Vehicles for the transport of persons, 1,500-3,300cc	3,381.00	0
2	300490	Medicaments	2,456.00	0
3	870324	Vehicles of a cylinder capacity >3,000cc	2,099.00	0
4	999999	Commodities not specified according to kind	1,809.00	NA*
5	20329	Meat of swine, frozen	905.50	2.2
6	440710	Wood sawn/chipped length wise	816.70	1.2
7	293399	Heterocyclic comps. with nitrogen hetero-atom(s)	768.80	3.2
8	840820	Compression-ignition internal combustion piston engines	660.50	0
9	870899	Other parts & accessories for the motor vehicles	634.10	0
10	220421	Wine other than sparkling wine of fresh grapes	593.90	NA*
11	900130	Contact lenses	514.40	0
12	848620	Machines for the manufacture of semiconductor devices	511.00	0.0
13	420231	Articles carried in the pocket/the handbag, leather/composition	459.50	13
14	293339	Heterocyclic comps. containing an unfused pyridine ring	449.10	1
15	902190	Appliances worn/carried, to compensate for a defect/disability	433.50	0
<i>E. Top 15 EU commodity exports to Malaysia (2001 tariff data)</i>				
1	854231	Electronic integrated circuits, processors & controllers	2,989.00	0.0
2	880240	Airplanes & other aircraft	759.60	0
3	854239	Other Electronic integrated circuits	729.30	0.0
4	854232	Electronic integrated circuits, memories	582.90	0.0
5	847330	Parts & accessories of the machines of heading 84.71	579.00	0
6	999999	Commodities not specified according to kind	412.90	NA*
7	854129	Transistors (excl. photosensitive transistors)	205.40	0
8	760200	Aluminium waste & scrap	189.70	0

Top 50 Commodities	Commodity Code (HS 6 digit)	Commodity Description	EU-27 Exports (US\$mil, 2007)	Average Tariff (%)
9	300490	Medicaments	177.80	0
10	854140	Photosensitive semiconductor devices	164.60	0
11	851770	Parts of telephone sets	156.20	20.0*
12	847989	Other machines & mechanical appliances	123.80	0.6
13	870323	Vehicles for the transport of persons, 1,500-3,300cc	114.90	103
14	851761	Base stations for transmission/reception of voice	105.90	20.0*
15	848180	Taps, cocks, valves & similar appliances	71.84	8.1

F. Top 15 EU commodity exports to the Philippines (2007 tariff data)

1	854231	Electronic integrated circuits, processors & controllers	1,026.00	1.5*
2	880240	Airplanes & other aircraft	483.50	3
3	854239	Other Electronic integrated circuits	385.40	3.0*
4	300490	Medicaments	166.60	4.7
5	999999	Commodities not specified according to kind	107.50	NA*
6	854290	Parts of electronic integrated circuits	102.00	0
7	190110	Preparations for infant use, put up for RS	83.98	7
8	854129	Transistors	60.92	0
9	730810	Bridges & bridge-sections of iron/steel	59.30	6.5
10	854232	Electronic integrated circuits, memories	54.30	3.0*
11	847330	Parts & accessories of the machines of heading 84.71	53.11	0
12	851762	Machines for the reception, conversion & transmission of voice	47.24	0.0*
13	851770	Parts of telephone sets	46.94	5.5*
14	847990	Parts of Machines & mechanical appliances	41.39	0.8
15	847989	Other machines & mechanical appliances	37.76	0.8

G. Top 15 EU commodity exports to Korea (2007 tariff data)

1	999999	Commodities not specified according to kind	1,549.00	NA*
2	848620	Machines for the manufacture of semiconductor devices	1,367.00	1.5
3	300490	Medicaments	788.90	8
4	870324	Vehicles of a cylinder capacity >3,000cc	601.50	8
5	870323	Vehicles for the transport of persons, 1,500-3,300cc	485.00	8
6	720421	Waste & scrap of stainless steel	478.90	0
7	284420	Uranium enriched; plutonium & its compounds	454.00	0
8	840999	Parts for use solely/principally with the engines of 84.07/84.08	420.20	7.6
9	20329	Meat of swine, frozen	356.10	25
10	847989	Other machines & mechanical appliances	325.70	8
11	854231	Electronic integrated circuits, processors & controllers	284.50	0
12	220830	Whiskies	279.70	20
13	870899	Other parts & accessories for the motor vehicles	277.00	8

Top 50 Commodities	Commodity Code (HS 6 digit)	Commodity Description	EU-27 Exports (US\$mil, 2007)	Average Tariff (%)
14	880240	Airplanes & other aircraft	275.50	0
15	848180	Taps, cocks, valves & similar appliances	253.60	8

H. Top 15 EU exports to Singapore (2007 tariff data)

1	854239	Other Electronic integrated circuits	1,243.00	0.0*
2	854232	Electronic integrated circuits, memories	1,202.00	0.0*
3	841191	Parts of the turbo-jets/turbo-propellers	1,147.00	0
4	271019	Petroleum oils & oils obtained from bituminous minerals	1,061.00	0
5	999999	Commodities not specified according to kind	831.10	NA*
6	854231	Electronic integrated circuits	593.90	0.0*
7	300490	Medicaments	420.30	0
8	854150	Semiconductor devices	408.40	0
9	880240	Airplanes & other aircraft	359.60	0
10	220830	Whiskies	315.20	0
11	848620	Machines for the manufacture of semiconductor devices	307.70	0.0*
12	870323	Vehicles for the transport of persons, 1,500-3,300cc	300.20	0
13	220820	Spirits obtained by distilling grape wine/grape marc	299.50	0
14	847330	Parts & accessories of the machines of heading 84.71	270.20	0
15	840999	Parts for use solely/principally with the engines of 84.07/84.08	253.20	0

I. Top 15 EU commodity exports to Thailand (2006 Tariff data)

1	999999	Commodities not specified according to kind	627.00	NA*
2	880240	Airplanes & other aircraft	276.20	1
3	854231	Electronic integrated circuits, processors & controllers	240.20	NA*
4	300490	Medicaments	236.60	10
5	854239	Other Electronic integrated circuits	233.40	NA*
6	710231	Diamonds, non-industrial, unworked	230.80	0
7	847330	Parts & accessories of machines	137.00	0
8	710239	Diamonds, non-industrial other than unworked	124.80	0
9	880260	Spacecraft (incl. satellites)	115.30	5
10	870899	Other parts & accessories for motor vehicles	95.71	30
11	870323	Vehicles for the transport of persons, 1,500-3,300cc	95.53	56.7
12	382490	Chemical products & preparations	83.07	5
13	848180	Taps, cocks, valves & similar appliances	76.45	10
14	220830	Whiskies	76.06	NA*
15	847989	Other machines & mechanical appliances	74.54	1

Notes: tariff for HS999999 not meaningful, given diversity of components.

WTO does not publish Viet Nam tariff, so this country has been excluded.

*denotes H6 6-digit data unavailable. Estimations adopted from Naya and Plummer (2005).

Sources: EU Commodity Exports Data from UN COMTRADE; WTO Tariff Data.