Trends in EU-East Asian Trade and Their Implications for Europe's ASEM Programme

Nigel Grimwade
South Bank University

David G Mayes*
South Bank University and Bank of Finland

Abstract

This paper uses a combination of empirical models to investigate how much of a problem the removal of barriers on trade between the ASEM countries is likely to pose for adjustment in the EU economies. While existing revealed comparative advantage and the relative height of barriers suggest that much of the increase in imports will fall in industries where the EU has limited exposure much of the remainder is likely to be highly concentrated and hence costly to absorb. However, a continuation of intra- rather inter-industry specialization seems likely which will reduce the expected costs. Effects on the EU are unlikely to be disproportionate as trade is neither disproportionately restricted in total nor by category. Increases in export demand from the Asian countries will help offset the costs for the EU as a whole but not necessarily for the particular firms and

* Correspondence Address: Bank of Finland, P.O Box 160, FIN-00101 Helsinki, Finland. (Tel)+358-9-183-2569, (Fax)+358-9-183-2560, (E-mail)david.mayes@bof.fi; Nigel Grimwade, South Bank University, 103 Borugh Road, London SE10AA, UK. (Tel)+44-207-815-7772, (Fax)+44-207-815-7075, (E-mail)Grimwans@sbu.ac.uk.

employees affected by the growth in imports. The recent Asian crises may have slowed growth but the prospects from liberalization for both partners are still likely to be above average compared to expansion of trade in the world as a whole.

- **JEL Classifications:** F10, F13, F15
- **Key words:** ASEM, Comparative Advantage, Intra-industry Trade

I. Introduction

The aim of this paper is to consider what might be the likely effects of the establishment of freer trade between the EU and her ASEM partners. In particular we seek to assess whether the impact will be highly concentrated and hence more difficult to absorb both economically and politically. The paper adopts a combination of approaches. First, the structure of EU-East Asian trade is analyzed to identify the most important sectors, in which the ASEM countries compete directly with EU manufacturers. An index of specialization is used to measure those sectors in which the East Asian economies have a "revealed comparative advantage" (RCA) and in which they could, therefore, expect to compete strongly following liberalization. The paper also provides an overview of the intensity of formal barriers to ASEM imports in those sectors in which ASEM countries enjoy a strong competitive advantage. This indicates the extent to which EU producers currently enjoy high levels of protection in these sectors and, therefore, the extent to which freer trade can be expected to lead to declines in domestic production.

Second, a simple trade imbalance-adjusted Grubel-Lloyd index is used to calculate levels of intra-industry trade at the three digit level of the SITC to determine the relative importance of intra- as opposed to inter-industry specialization in different branches of manufacturing. A time series approach is used to identify any trend in the ratio of intra-industry to total trade at a time when formal barriers to trade were, in general, falling and the volume of trade was expanding. Although this does not enable us to predict the outcome if trade was liberalized through ASEM, there is a reasonable expectation that, in those sectors where intra-industry specialization has been taking place in recent decades, the outcome of further liberalization is likely to be more intra- rather than inter-industry specialization.

The third approach adopted in this paper is to examine the intensity of

trade between the EU and the East Asian region. Such an approach has been used in some studies of the likely effects of an Eastern enlargement of the EU on EU trade (for example, see Hamilton and Winters (1992), Wang and Winters (1994) and Brenton and Di Mauro (1998)). A simple index of trade intensity between the EU and each of the East Asian economies has been compiled for various years. In a rather crude fashion, this shows whether EU trade with these economies is greater or less than what might be expected given the importance of the region in total trade. A more sophisticated approach is to use a gravity model of trade to estimate the extent to which EU-East Asian trade can be explained in terms of "natural factors" such as population, GDP and distance. The removal of barriers to trade between the two regions can be expected to cause the volume of trade between the two regions to gravitate towards that which is explained by the model. In this way, it is possible to make a prediction as to the likely effect of liberalization on trade between the two regions.

However, we begin in the next section by assessing what is involved in the ASEM process

II. The Background to ASEM

In March, 1996, the European Union and the seven members of the Association of South East Asian Nations (ASEAN) plus Japan, South Korea and China held a summit at Bangkok to bring about closer economic and political co-operation between the two regions. Previous attempts to establish closer co-operation between the two regions date back to the first EC-ASEAN ministerial meeting held in November, 1978. However, in July, 1994, an EU Commission discussion paper entitled Towards a new Asia Strategy, which was subsequently endorsed by the European Council and European Parliament, proposed an upgrading of the EU's relationship with the Asian region. This, in turn, reflected a growing awareness within the EU of the increased importance of the Asian region both in economic and political terms, as a result of the rapid economic growth that had taken place in the region in the preceding decades. The establishment of the Asia-Pacific Economic Co-operation (APEC) in 1989 with its provisions for increased economic co-operation between the Asian region and North America may have

been an additional factor prompting the ASEM initiative.

The 1996 Summit forged a new comprehensive Asia-Europe Partnership for Greater Growth, which aimed at strengthening links between Asia and Europe as a contribution towards the goals of peace, global stability and prosperity. The summit emphasized a long-run approach based on informality, spontaneity and the non-existence of any institutions. Numerous suggestions were made for the follow-up. On the economic front, the Summit called for an informal meeting of senior officials to promote economic co-operation between the two regions, in particular to bring about increased liberalization of trade and investment. In July, 1996, the first of the Senior Officials' Meetings on Trade and Investment (SOMTI) took place in Brussels, which discussed preparations for the WTO's forthcoming Ministerial meeting in Singapore and bilateral measures for facilitating trade and investment. Other initiatives of the economic follow-up included the establishment of a Working Group on Investment Promotion, the creation of an Asia-Europe Business Forum, a business conference, a study on economic synergy between the two regions, a study on integrating a trans-Asian railway network with the trans-European railway network and the development of closer co-operation between customs authorities in Asia and Europe in the area of customs procedure.

The Bangkok Summit was followed by a 2nd ASEM Summit (ASEM II) which took place in London in 1998 and a 3rd ASEM Summit (ASEM III) is scheduled for October 2000 in Seoul. In addition, there have been four meetings of SOMTI under the ASEM, the last of which took place in February, 1999. ASEM II resulted in the adoption of two action programmes to enhance economic co-operation between the two regions. The first of these was the Trade Facilitation Action Plan (TFAP) to bring about increased trade between the two regions. The second was the Investment Promotion Action Plan (IPAP). With regards to the TFAP, the major focus was on bringing about a reduction in non-tariff barriers and transaction costs. Any actions stemming from the TFAP were to be non-discriminatory with respect to both ASEM and non-ASEM partners, to avoid any conflict with WTO rules. Priority areas were identified as being customs procedures, technical regulations and standards and the procedures for testing, certifying and accrediting products, public procurement, quarantine and SPS (Sanitary and Phyto-sanitary) procedures, intellectual property rights, mobility

of business people and various other trade activities. A number of these areas were already subject to multilateral WTO agreements concluded as part of the Uruguay Round. However, the aim was, where possible, to accelerate the implementation of commitments entered into by these countries as part of the WTO round. Of course, a number of the Asian countries, most notably China and Vietnam, were not subject to these agreements, not being members of the newly-established WTO. Four "shephards" (the Philippines, Korea, the EU Presidency and the European Commission) were designated by SOMTI to work on elaborating mechanisms for implementing the goals established by SOMTI. In respect of each of the priority areas designated, a list of trade facilitation goals were agreed that could be achieved by the convening of ASEM III in 2000. A meeting of ASEM Economic Ministers in Berlin in October 1999 sought to evaluate the results achieved.

III. Problems in Liberalizing ASEM Trade[1]

Although the gains from freer trade are well acknowledged, the lowering of barriers is likely to be difficult because of the adjustment costs anticipated by both parties. There is thus a typical political problem of balancing short-term pain against expected long-term gain. Whether these costs or benefits will be realized can only be forecast by the negotiators. This paper is an attempt to try to reduce some of the uncertainty involved.

While a reciprocal lowering of barriers to trade will enable EU exporters to expand their exports of goods and services in the East Asian market, it is also the case that EU producers will face increased import competition from lower-cost producers in the East Asian region. Although any expansion of trade between the EU and the East Asian region will increase the economic

---

1. Unfortunately the data mean that we have to concentrate on trade in goods as accurate figures for trade in services are not available. We do not argue whether the likely liberalisation of trade in services will have an effect that is disproportionately in favour of the EU countries although some argued that in the build-up to the failed talks in Seattle at the end of (1999). We also do not consider the impact of foreign direct investment. These are considered in more detail in Mayes (1993) for example.

welfare of both parties, it is quite possible that it will generate some adjustment pressures in particular branches of EU manufacturing. This effect is potentially non-trivial, given that EU imports from the members of ASEM accounted for roughly a quarter of EU extra-area imports in 1998. Moreover, the balance of trade consistently favours the ASEM region. However, given that the competitive strength of the East Asian economies is concentrated in a relatively narrow range of industries, the adjustment pressures are likely to be felt only in certain branches of EU manufacturing. Moreover, much will depend on whether the expansion of trade leads to intra-industry or inter-industry specialization, as adjustment pressures are generally thought to be less acute where intra-industry specialization is the result (see Fukasaku [1992] for a good summary). This point needs qualification as much depends on the *type* of intra-industry specialization which takes place. Where countries specialize in products of different quality (vertical intra-industry specialization), it is entirely possible that similar adjustment difficulties will result to those from conventional inter-industry specialization, as factor intensities will differ between different products within the sector. Of course, much will depend on the types of barriers which are lowered in the course of negotiations and the sectors in which liberalization is concentrated.

The key question in judging the likely impact of these changes is to decide what would happen in the absence of these negotiations.[2] Clearly world trade is likely to continue to grow faster than GDP as technological change and competition widens the variety of products available. World trade growth is also likely to be stimulated by the multilateral reduction in trade barriers. Within the EU non-tariff barriers are also likely to continue fall. Protected industries in both areas would thus come under increasing pressure to be efficient. The issue then will be the extent to which these pressures would be increased by ASEM agreement.

Liberalization is desirable both for the EU, because of the opportunities it creates for expanding exports and the benefit to consumers from being able to buy lower-cost imports, and for the East Asian economies, who need more open markets for the products of their growing manufacturing sectors

2. See Mayes (1978) for example for a discussion of how one might construct this sort of 'antimonde' or counter-factual.

and, thereby, to restore economic growth to the region. However, liberalization can be expected, on past experience alone, to generate greater adjustment pressures in the EU. Unless these are correctly anticipated and the necessary policies developed to cope with them, the necessary political consensus for liberalization may prove difficult to secure and the goals of ASEM may prove too ambitious to realize.

In the sections that follow we seek to establish first which sectors are likely to be affected and second the extent of the likely effect.

IV. The Structure of EU-East Asian Trade[3]

The problem for the EU with trade with East Asia is not so much its size but its rate of growth (Table 1). In 1994, EU imports from the ten largest economies in the East Asian region accounted for roughly 11% of total EU imports. This is a relatively small share, but one that rose by more than two-thirds over the ten-year period from 1983 to 1994. The most dramatic change was the increase in China's share of total EU imports from 0.4% in 1983 to nearly 2% in 1994. Of the ten, Japan accounted for by far the largest share of EU imports. China was the second largest source of imports in the region, followed by Taiwan and South Korea. However, all of the Ten, except the Philippines saw the share of EU imports increase over the ten-year period.

---

3. We face a generalised problem in this analysis as the detailed trade data are only available with a considerable lag. Much of the information considered here therefore precedes both the expansion of the EU to 15 members and the Asian financial crises. As the size of the expansion was relatively small and the states involved were already members of the European Economic Area, which includes the EU and qualitatively similar to their partners, we expect that the changes this implies for our results would only be to the detail not to the substance. Of more concern is the prospect of enlargement of the EU to include central and eastern European countries, as these may offer a production platform with high skills and lower labour costs close to the EU. This could upset our projections. The Asian financial crises may postpone the dates at which various shares of total trade are achieved and may imply lower expected longer-term growth rates but they are not likely to alter the generalised prospect. The analysis is up to date in terms of negotiations on trade barriers.

Table 1
EU Imports from the East Asian Region

(Units: Millions of US Dollars)

Country	1983	1988	1992	1994
Thailand	1,576.48 (0.25)	3,458.23 (0.32)	6,739,79 (0.44)	7,616.81 (0.52)
Malaysia	1,990.41 (0.32)	3,548.37 (0.33)	6,897.52 (0.45)	9,087.77 (0.63)
Singapore	1,596.56 (0.25)	3,876.03 (0.36)	7,831.99 (0.52)	9,768.84 (0.67)
Indonesia	1,249.36 (0.20)	2,479.39 (0.23)	5,419.26 (0.36)	7,070.3 (0.49)
Philippines	1,007.03 (0.16)	1,481.77 (0.14)	2,021.45 (0.13)	2,319.13 (0.16)
China	2,485.06 (0.40)	7,699.71 (0.72)	19,463.84 (1.28)	27,848.13 (1.92)
South Korea	2,647.65 (0.42)	8,771.86 (0.82)	9,705.78 (0.64)	10,499.04 (0.72)
Taiwan	2,844.77 (0.46)	9,598.59 (0.90)	14,085.59 (0.93)	12,789.99 (0.88)
Hong Kong	4,027.12 (0.65)	8,667.69 (0.81)	10,864.47 (0.71)	7,654.97 (0.53)
Japan	19,993.92 (3.21)	50,081.81 (4.68)	58,636.89 (3.86)	62,378.45 (4.30)
East Asia Ten	39,328.36 (6.32)	99,663.45 (9.31)	141,648.58 (9.32)	157,033.43 (10.82)
Total EU Imports	621,935.44 (100.0)	1,070,000.01 (100.0)	1,520,013.31 (100.0)	1,450,699.45 (100.0)

Note: Percentage share of total EU imports in parenthesis.
Source: OECD, Foreign Trade Statistical Bulletin, various issues

Growth rates of this magnitude, if falling on a narrow range of firms in the EU, are likely to result in downsizing or closure rather than reorientation to other products or markets. There will thus be a natural lobby to reduce or at least spread out the impact.

The position is exacerbated in many people's minds by the imbalance between imports and exports to East Asia. EU exports to the East Asian region account for a smaller share of total EU exports, although the increase in the share going to the East Asian region over the period covered was slightly greater than for imports (Table 2). This share almost doubled during the period covered. By way of contrast with imports, the share of EU exports going to China increased at a modest rate. The biggest increase was in the share of EU exports going to Japan. Except for Indonesia and the Philippines, the share of EU exports going to the Ten rose over the period in question.

Table 2
EU Exports to the East Asian Region

(Units: Millions of US Dollars)

Country	1983	1988	1992	1994
Thailand	1,153.42 (0.19)	2,384.93 (0.23)	4,860.76 (0.33)	6,989.52 (0.47)
Malaysia	1,488.27 (0.25)	1,607.29 (0.15)	3,801.42 (0.26)	6,592.51 (0.44)
Singapore	2,472.35 (0.42)	4,554.68 (0.43)	7,765.38 (0.53)	10,244.11 (0.68)
Indonesia	2,168.76 (0.37)	2,152.67 (0.20)	4,974.45 (0.34)	4,944.37 (0.33)
Philippines	961.51 (0.16)	978.86 (0.09)	1,823.19 (0.13)	2,275.12 (0.15)
China	2,537.72 (0.43)	6,721.15 (0.64)	8,411.47 (0.58)	14,457.46 (0.96)
South Korea	1,457.11 (0.25)	5,082.09 (0.48)	7,647.55 (0.53)	11,582.36 (0.77)
Taiwan	1,401.73 (0.24)	5,050.89 (0.48)	7,613.81 (0.52)	9,988.44 (0.67)
Hong Kong	2,818.57 (0.47)	6,673.34 (0.63)	11,211.6 (0.77)	15,210.71 (1.01)
Japan	6,788.43 (1.14)	19,733.77 (1.87)	26,144.22 (1.8)	30,962.44 (2.06)
East Asia Ten	23,247.87 (3.91)	54,939.67 (5.18)	84,253.85 (5.8)	113,247.04 (7.55)
Total EU Imports	594,172.23 (100.0)	1,060,009 (100.0)	1,453,251.48 (100.0)	1,500,931.54 (100.0)

Note: Percentage share of total EU exports in parenthesis.
Source: OECD, Foreign Trade Statistical Bulletin, various issues

The consequential imbalances are substantial (Table 3), amounting to 2.7 percent of EU imports in 1994. Although there is no reason why bilateral balances should be a concern rather than the overall balance of trade, substantial imbalances are readily taken as being indicative of asymmetric restrictions on trade or benefits to suppliers.

Throughout the period covered, the EU ran a deficit on its trade with the East Asian countries. However, roughly three-quarters were accounted for by Japan. Smaller deficits were recorded for trade with most of the remaining nine countries, although this fluctuated a great deal year-by-year. (A surplus was recorded in 1994 for trade with Hong Kong and South Korea). The most striking change was the rise in the EU's deficit with China, which, by 1994, was equal to the EU's entire deficit with the East Asian region, excluding Japan. Apart from China, the EU also runs a large deficit on her trade with Taiwan, Malaysia, Indonesia and Thailand.

Table 3
The EU's Trade Balance with the East Asian Region

(Units: Millions of US Dollars)

Country	1983	1988	1992	1994
Thailand	-423.06	-1,073.3	-1,879.027	- 627.287
Malaysia	-502.14	-1,941.09	-3,096.09	- 2,495.26
Singapore	+875.79	+701.48	-66.615	+ 475.28
Indonesia	+919.4	-326.72	-444.81	- 2,125.93
Philippines	-45.53	-502.91	-198.27	- 44.01
China	+52.67	-978.57	-11,052.37	- 13,390.67
South Korea	-1,190.54	-3,689.77	-2,058.23	+1,083.32
Taiwan	-1,443.04	-4,547.7	-6,471.78	- 2,801.55
Hong Kong	-1,208.55	-1,994.35	+347.14	+7,555.74
Japan	-13,205.49	-30,348.03	-32,492.67	- 31,416.01
EU-East Asian (10) Balance	-16,080.49	-44,723.78	-57,394.73	- 43,786.39
EU -East Asian Balance excluding Japan	-287.5	-14,375.75	-24,902.01	- 12,370.38

Source: OECD, Foreign Trade Statistical Bulletin, various issues

V. The Commodity Composition of EU-East Asian Trade

At a more detailed level (Tables 4 and 5) it is possible to see that the impact of East Asian trade on the EU is more concentrated and hence more acute than the aggregate figures might imply. In this case, however, both exports and imports are relatively concentrated and in the same broad categories of manufacturing, suggesting that the two country groups may be competitive rather than complementary in their trade.

In 1983, roughly 15% of EU imports from the East Asian region comprised primary commodities (SITC 0-4) and roughly 85% were manufactured goods (SITC5-9). By 1994, the share consisting of primary commodities fell to 6.4%, while manufactured goods rose to 93.8%. The increased share of manufactures was entirely accounted for by the two categories, Machines and Transport Equipment (SITC 7) and Miscellaneous Manufactured goods (SITC 8). Over three-quarters of EU imports from the East Asian region are to be found within these categories.

Table 4
The Commodity Composition of EU Imports from the East Asian Region

(Units: %)

SITC Category	1983	1988	1992	1994
0. Food and live animals	5.86	3.93	3.36	2.78
1. Beverage and tobacco	0.52	0.19	0.19	0.17
2. Crude materials excluding fuels	5.94	3.28	2.15	2.23
3. Mineral fuels,etc	0.62	0.19	0.33	0.36
4. Animal and vegetable oil and fat	1.81	0.85	0.69	0.86
5. Chemicals	3.24	3.43	3.93	4.05
6. Basic manufactures	11.30	9.16	9.61	9.07
7. Machines, transport equipment	45.49	53.17	56.44	54.51
8. Miscellaneous manufactures	24.65	25.37	29.92	25.74
9. Goods not classified by kind	0.57	0.44	0.45	0.46

Source: calculated from OECD, Foreign Trade Statistical Bulletin, various issues

EU exports to the East Asian region have a similar pattern. In 1994, roughly 9% of EU exports were primary products and 91% manufactures. This compared with 11% primary commodities and 89% manufactures in 1983. However, in 1994, 28% of exports were chemicals or basic manufactures, compared with 13% for EU imports. Machines and transport equipment and miscellaneous manufactures also accounted for just over 48% of EU exports, compared with 80% for EU imports. Thus, the pattern of EU exports to the East Asian region was biased slightly more towards process goods such as chemicals, plastics materials, and steel, while that of the East Asian region to the EU was biased more towards final goods, whether capital or consumer goods. However, the overall picture shows trade between the two regions to be heavily concentrated in manufactures.

Table 5
The Commodity Composition of EU Exports to the East Asian Region,

(Units: %)

SITC category	1983	1988	1992	1994
0. Food and live animals	5.43	5.04	4.23	3.64
1. Beverage and tobacco	2.26	2.19	3.27	2.34
2. Crude materials excluding fuels	2.48	2.98	2.08	2.16
3. Mineral fuels, etc	0.54	0.35	0.38	0.57
4. Animal and vegetable oil and fat	0.2	0.84	0.18	0.41
5. Chemicals	21.37	19.69	16.2	14.08
6. Basic manu- factures	17.49	16.12	14.9	14.28
7. Machines, transport equipment	37.79	37.12	44.45	48.68
8. Miscellaneous manufactures	10.78	11.66	12.49	12.1
9. Goods not classified by kind	1.66	1.12	1.56	1.28

Source: calculated from OECD, Foreign Trade Statistical Bulletin, various issues

The full extent of the problem is clearly realized when looking at the two-digit level of aggregation shown in Table 6. (Hine [2000] considers an even finer breakdown.) In the table we have identified the 10 industries of greatest concentration in each East Asian country's exports to the EU. Although there are 100 observations these cover only 29 different 2-digit categories and just 6 categories cover more than half of the total trade: clothing, telecom and sound equipment, electric machines, ADP machines, road vehicles and miscellaneous manufactures. Hong Kong and Singapore are the most concentrated with about 60% or their exports to the EU concentrated in just two categories each.

Table 6
The Commodity Composition of Exports of Individual East Asian Economies to the EU (1993)
at the two-digit level of the SITC

A. Thailand

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Vegetables and fruit (05)	15.7
2	Article of apparel and clothing accessories (84)	12.45
3	Miscellaneous manufactured articles, n.e.s (89)	10.45
4	Fish, crustaceans and molluscs and preparations thereof (03)	7.05
5	Telecom and sound-recording and reproducing apparatus and equipment (76)	7.05
6	Footwear (85)	6.39
7	Office machines and automatic data processing machines (75)	5.81
8	Electric machines, apparatus and appliances, n.e.s and electric parts thereof (77)	5.44
9	Textile yarn, fabrics, made-up articles, n.e.s and related products (65)	4.45
10	Non metallic mineral manufactures (66)	3.72
1-10	Top Ten Rankings	78.53

B. Indonesia

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Articles of apparel and clothing accessories (84)	19.56
2	Textile Yarn, fabrics, made-up articles, n.e.s and related products (65)	10.17
3	Cork and wood manufactures (excl.furniture) (63)	9.28
4	Footwear (85)	9.24
5	Fixed vegetable fats and oils, crude, refined or fractionated (42)	7.11
6	Coffee,tea,cocoa,spices and manufactures thereof (071)	4.51
7	Telecom and sound-recording and reproducing apparatus and equipment (76)	4.21
8	Furniture and parts thereof; bedding, mattresses and matress supports (82)	3.91
9	Miscellaneous manufactured articles (89)	3.36
10	Cork and wood (24)	3.2
1-10	Top Ten Rankings	74.33

C. Malaysia

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Electric machines, apparatus and appliances, n.e.s. and electric parts thereof(77)	23.18
2	Telecom and sound-recording and reproducing apparatus and equipment(76)	15.52
3	Articles of apparel and clothing accessories(84)	9.79
4	Cork and wood(24)	7.82
5	Office machines and automatic data processing machines(75)	7.58
6	Crude rubber(23)	3.81
7	Miscellaneous manufactured articles n.e.s(89)	3.78
8	Fixed vegetable fats and oils, crude,' refined or fractionated(42)	3.78
9	Road Vehicles (78)	2.81
10	Cork and wood manufactures (excl. furniture) (63)	2.11
1-10	Top Ten Rankings	80.18

D. Singapore

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Office machines and automatic data processing machines(75)	45.24
2	Telecom and sound recording and reproducing apparatus and equipment(76)	15.23
3	Electric machines, apparatus and appliances, n.e.s and electric parts thereof(77)	14.38
4	Miscellaneous manufactured articles, n.e.s(89)	5.12
5	Articles of apparel and clothing accessories(84)	2.51
6	Other transport equipment(79)	2.21
7	Organic chemicals(51)	1.99
8	Professional scientific and controlling instruments and apparatus(87)	1.75
9	General industrial machinery and equipment(74)	1.33
10	Road Vehicles(78)	1.28
1-10	Top Ten Rankings	91.04

E. Philippines

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Articles of apparel and clothing accessories (84)	17.54
2	Electric machines, apparatus and appliances, n.e.s and electric parts thereof (77)	12.57
3	Office machines and automatic data processing machines (75)	9.69
4	Miscellaneous manufactured articles n.e.s (89)	7.43
5	Gold, non-monetary (97)	7.16
6	Fixed vegetable fats and oils, crude, refined or fractionated (42)	6.66
7	Telecom and sound recording and reproducing apparatus and equipment (76)	4.99
8	Footwear (85)	3.3
9	Vegetables and fruit (05)	3.18
10	Feeding stuff for animals (08)	2.84
1-10	Top Ten Rankings	75.36

F. China

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Articles of apparel and clothing accessories (84)	20.46
2	Miscellaneous manufactured articles n.e.s (89)	20.46
3	Telecom and sound-recording and reproducing apparatus and equipment (76)	7.5
4	Travel goods, handbag and similar containers (83)	5.49
5	Electric machines, apparatus and appliances, n.e.s and electric parts thereof (77)	5.35
6	Textile yarn, fabrics, made up articles, n.e.s and related products (65)	4.76
7	Footwear (85)	3.54
8	Manufactures of metals, n.e.s (69)	3.45
9	Office machines and automatic data processing machines (75)	2.76
10	Photographic apparatus, equipment and supplies of optical goods and watches (88)	2.38
1-10	Top Ten Rankings	77.15

G. *South Korea*

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Electric machines, apparatus and appliances, n.e.s and electric parts thereof(77)	15.83
2	Telecom and sound-recording and reproducing apparatus and equipment(76)	13.22
3	Articles of apparel and clothing accessories(84)	10.3
4	Office machines and automatic data processing machines(75)	8.16
5	Road vehicles(78)	7.96
6	Miscellaneous manufactured articles n.e.s(89)	6.67
7	Other transport equipment(79)	6.14
8	Footwear(85)	5.37
9	Textile yarn,fabrics,made-up articles, n.e.s and related products(65)	4.07
10	Manufactures of metals n.e.s(69)	3.47
1-10	Top Ten Rankings	80.59

H. *Japan*

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Road vehicles(78)	25.02
2	Office machines and automatic data processing machines(75)	13.83
3	Electric machines, apparatus and appliances, n.e.s and electric parts thereof(77)	11.51
4	Telecom and sound-recording and reproducing apparatus and equipment(76)	10.48
5	Miscellaneous manufactured articles, n.e.s(89)	5.27
6	General industrial machinery and equipment, n.e.s machinery parts(74)	4.84
7	Photographic apparatus, equipment and supplies of optical goods and watches(88)	4.05
8	Power generating machinery and equipment(71)	3.44
9	Machinery specialise for particular industries(72)	3.37
10	Professional scientific and controlling ins-truments and apparatus(87)	2.71
1-10	Top Ten Rankings	84.52

I. Taiwan

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Office machines and automatic data processing machines (75)	28.85
2	Miscellaneous manufactured articles n.e.s (89)	11.52
3	Electric machines, apparatus and appliances, n.e.s and electric parts thereof (77)	11.1
4	Manufactures of metals, n.e.s (69)	6.73
5	Road vehicles (78)	6.23
6	Telecom and sound-recording and reproducing apparatus and equipment (76)	5.75
7	Articles of apparel and clothing accessories (84)	3.86
8	Textile yarn, fabrics, made-up articles, n.e.s and related products (65)	2.86
9	Photographic apparatus, equipment and supplies of optical goods and watches (88)	2.41
10	General industrial machinery and equipment, n.e.s machinery parts (74)	2.12
1-10	Top Ten Rankings	81.43

J. Hong Kong

Ranking	Product Group	Percentage share of country's total exports to the EU
1	Articles of apparel and clothing accessories (84)	44.63
2	Miscellaneous manufactured articles n.e.s (89)	14.4
3	Photographic apparatus, equipment and supplies of optical goods and watches (88)	8.42
4	Electric machines, apparatus and appliances, n.e.s and electric part thereof (77)	7.3
5	Office machines and automatic data processing machines (75)	6.49
6	Telecom and sound-recording and reproducing apparatus and equipment (76)	5.25
7	Travel goods, handbags and similar containers (83)	1.65
8	Non metallic mineral manufactures, n.e.s (66)	1.45
9	Manufactures of metal n.e.s (69)	1.42
10	Professional scientific and controlling instruments and apparatus (87)	1.19
1-10	Top Ten Rankings	92.2

Primary products account for a relatively high proportion of Thailand's exports to the EU, with clothing products, consumer electronics, office and telecommunication equipment and miscellaneous manufactures the most important manufactures. Clothing and textiles, cork and wood manufactures and footwear loom large in Indonesia's exports to the EU. Malaysia has a stronger specialization in electrical and electronic goods, although clothing products are the third largest item. Nearly one-half of Singapore's exports to the EU are made up of office machinery and equipment. Telecoms and consumer electronic goods and electrical goods are also important. Clothing products account for the largest share of the exports of the Philippines, with electrical goods and office machinery the next most important product groups. Although one-quarter of China's exports to the EU comprise clothing and textiles and another one-tenth, footwear and travel goods, more sophisticated manufactures have become increasingly important. Miscellaneous manufactures account for one-fifth of all China's exports to the EU. In addition to her traditional strength in clothing, South Korea's exports are made up of more sophisticated manufactures such as electrical machines, telecoms, consumer electronics and office machinery, with road vehicles and transport equipment accounting alone for 13%. A similar pattern is found for Taiwan, with office machinery accounting for nearly one-third of all exports to the EU. 45% of Hong Kong's exports are clothing products, but a range of different manufactures are also important including photographic apparatus, optical equipment and watches, electrical machines, office machinery, telecoms and consumer electronics. Japan's exports are generally more sophisticated with road vehicles alone accounting for 25% of the total and consumer electronics and machinery accounting for much of the rest.

Overall, the East Asian region constitutes a major import competitor for the EU not just in the more traditional labour-intensive branches of manufacturing, such as clothing and textile, travel and footwear products, but also in more sophisticated, knowledge-intensive industries. These include telecoms and consumer electronics, office machinery equipment, electronic machinery and parts and road vehicles and transport equipment. Freer trade with the East Asian region, therefore, can be expected to intensify competition in these sectors and not just the more traditional branches of

manufacturing, in which these countries have excelled in the past.

VI. Sectors of Relative Competitive Strength

Looking at where current trade is concentrated with the EU does not necessarily provide an answer for where any expansion would occur following the lowering of trade barriers between the two regions, as the barriers are likely to have distorted the trade pattern. One way in which we might identify the sectors in which the EU can expect the greatest competitive challenge as barriers are dismantled is to consider the trade pattern with all countries. The most widely used method for identifying sectors in which a country enjoys relative competitive strength is the "revealed comparative advantage" (RCA) index first proposed by Balassa [1963].

The RCA index is measured by dividing a country's share of world exports of a particular product by the same country's share of world exports of all products:-

$$RCA \; Index = (X_{ij} / \Sigma X_i) \cdot (X / X_j)$$

Where X_{ij} are country j's exports of product i and where ΣX_i symbolizes world exports of product i; omission of a subscript denotes summation so (X/X_j) is the inverse of country i's share of world exports. Any number in excess of one may be taken as an indicator of the existence of a comparative advantage in that product. In the context of bilateral trade between two regions, it would seem more relevant to take the country's share of EU imports rather than its share of world exports as we wish to identify a comparative advantage *vis-a-vis* the EU. However, all such indices reflect the trade after distortions rather than the potential without them. If both parties apply similar trade restraints and encouragements then the ratio could be quite a good approximation of the potential should the distortions be removed. Even then the effects would depend upon the responses in the two markets, which need not be similar even if the two sets of restraints were identical. If trade with countries outside the EU is somewhat freer then RCAs covering them might be a somewhat better indication of what the EU could expect if it were to lower barriers. A similar argument can be applied to Asian imports from the EU, although here the comparator would

be imports from the EU into less protected markets.

A weakness of the RCA index is that it measures comparative advantage purely in terms of a country's share of exports in a particular product, thereby ignoring the import side. Thus, a country could enjoy a relatively high share of exports of a particular product and a relatively high share of imports. At best, the implication would be that the country faces a relative disadvantage in some of the products belonging to the product group in question, such that we cannot conclude that it enjoys an overall comparative advantage in the product group. For this reason, it is often preferable to calculate the ratio of exports to imports to identify sectors where a country enjoys relative strength on both the export and import side.[4]

To identify sectors, in which East Asian countries might expect to pose substantial import competition for the EU, the following criteria were used: -

1. An RCA index in excess of 200

2. An export/import ratio in excess of 20

Both criteria must be met. Clearly, these values are arbitrary. However, the purpose was to identify those sectors, in which the East Asian economies are best placed to do well in EU-East Asian trade following liberalization. Clearly, there will be some sectors which are not included in which the East Asian economies might still excel. However, the ones identified will be those in which they currently enjoy exceptional competitive strength, as revealed by existing trade shares. Table 7 lists the product groups at the two-digit level of the SITC in which both of these criteria were satisfied in 1993.

There are nineteen two-digit product groups where the East Asian Ten enjoy a strong comparative advantage. Nine of these are primary product groups. In most of these categories, EU countries are not major producers such that any increase in East Asian exports is unlikely to cause major adjustment problems. For most of these products, EU import barriers are either very low or non-existent. Of the remaining ten manufacturing product groups, a number concern products of which the EU is still an important producer and where, as a consequence, liberalization can be expected to

---

4 Computing indices at a high level of detail might mitigate this.

generate adjustment pressure. These include both traditional sectors, such as clothing products, travel goods, footwear and furniture, and some more sophisticated manufacturing sectors, such as office machinery and equipment and telecommunications and video/audio recording equipment.

Table 7
Product Groups in Which the East Asian Economies Have high RCA Indices and High Export/Import Ratios(1993)

Product Group	Country
05 Vegetables and fruit	Thailand (RCA = 733.67; X/M = 44.09)
06 Sugars, sugar presentations and honey	Thailand (RCA = 200.45, X/M = 21.49)
07 Coffee, tea, cocoa, spices and manufactures thereof	Indonesia (RCA = 465.33, X/M = 158.42)
23 Crude rubber	Thailand (RCA = 972.76, X/M = 26.05) Malaysia (RCA = 179.33, X/M = 60.62)
24 Cork and wood	Indonesia (RCA = 224.57, X/M = 198.30) Malaysia (RCA = 553.08, X/M = 2138.43)
29 Crude animal and vegetable materials	China (RCA = 209.79, X/M = 24.56)
42 Fixed vegetable fats and oils, crude, refined or vegetable wax	Indonesia (RCA = 261.723, X/M = 440.28) Malaysia (RCA = 1389.55, X/M = 117.10) Philippines (RCA = 2450.5, X/M = 191.28)
63 Cork and wood manufactures (exc furniture)	Indonesia (RCA = 1101.34, X/M = 225.18) Malaysia (RCA = 249.86, X/M = 51.42) Philippines (RCA = 272.19, X/M = 28.42)
43 Animal or vegetable fats and oils, animal or vegetable wax	Malaysia (RCA = 2136.03, X/M = 65.23) Philippines (RCA = 2298.18, X/M = 6326.33)
75 Office machines and automatic data processing machines	Taiwan (RCA = 516.36, X/M = 27.34)
76 Telecom and sound-recording and reproducing apparatus and equipment	Japan (RCA = 301.55, X/M = 44.67)
81 Prefabricated buildings: san,plumb, heat and light fixtures and fittings, n.e.s	China (RCA = 380.14, X/M = 102.11)
82 Furniture and parts thereof; bedding, mattresses and mattress supports	Indonesia (RCA = 459.02, X/M = 63.24)
83 Travel goods, handbags and similar containers	Thailand (RCA = 288.21, X/M = 45.65) China (RCA = 1355.42, X/M = 1965.40)
84 Articles of apparel and clothing accessories	Thailand (RCA = 206.93, X/M = 106.3) Indonesia (RCA = 325.07, X/M = 304.33) China (RCA = 340.08, X/M = 308.93)
85 Footwear	Thailand (RCA = 972.76, X/M = 62.32) Indonesia (RCA = 888.18, X/M = 196.84) Philippines (RCA = 317.07, X/M = 51.1) China (RCA = 436.22, X/M = 317.02) South Korea (RCA = 515.77, X/M = 34.38)
89 Miscellaneous manufactured articles n.e.s	China (RCA = 366.93, X/M = 51.79)
96 Coins (other than gold), not being legal tender	Singapore (RCA = 268.26, X/M = 48.57)
97 Gold, non monetary(excluding ores and concentrates)	Philippines (RCA = 389.75, X/M = 188.11)

In the more traditional sectors, the brunt of the increased competition can be expected to come from China and the ASEAN countries. In clothing, China and Indonesia are likely to be the main source of competition. China

will also be the main source of competition in travel goods, while, in footwear, five countries are equally poised to take advantage of any further opening up of the EU market. In furniture, Indonesia has a strong comparative advantage. In miscellaneous manufactures, China again has a strong comparative advantage. In more sophisticated manufactures, the main source of competitive challenge is likely to be Japan and the higher-wage economies of the region. Thus, Japan has a strong comparative advantage in telecommunications and consumer electronics, while Taiwan is in a similar position in the office machinery and equipment sector.

VII. The Extent to Which the East Asian Economies Face Barriers to Access to the EU Market

Clearly, the extent to which trade liberalization through ASEM will create adjustment pressures for EU producers will depend on the level of import barriers, which the East Asian economies face in those sectors in which they have a competitive strength. It will also depend on the extent to which ASEM leads to a reduction in the level of these barriers. The most obvious barrier to market access is the level of the EU's Common External Tariff (CET) in those sectors in which the East Asian economies are competitive. However, in many of these product groups, more important than tariffs are non-tariff barriers. We have, therefore, set out (in Table 8) the level of tariffs and the nature of formal non-tariff barriers for each of the product groups listed in Table 7 as the ones in which the East Asian economies have a competitive strength.

With a few exceptions, tariffs on imports of the products shown in Table 8 will fall to quite low levels when the Uruguay Round tariff cuts are fully implemented. On these grounds therefore the scope for additional affects from ASEM agreement might appear limited. However, there are two important exceptions, clothing products and footwear, where the EU's Common External Tariff will remain high. Given the strong comparative advantage, which the East Asian economies enjoy in these products, any agreement to eliminate the tariff for imports from the ASEM countries could be expected to result in a significant increase in import competition in these two industries. However, these are industries in which the level of import penetration

has already reached quite high levels. In a number of manufacturing product groups, tariff escalation remains a major problem, such that an elimination of the tariff on finished goods will significantly reduce the degree of effective protection which EU producers enjoy. Obvious cases include clothing products, leather products (including footwear and travel goods), wood products (including cork and wood manufactures and furniture products) and food products.

Many of the East Asian economies qualify for tariff-free entry for their products under the EU's Generalized System of Preferences (GSP), so tariff cuts under ASEM would be of little benefit. The scheme covers all industrial goods. However, primary products are excluded. In 1995, the EU introduced a new revised GSP scheme that replaced the tariff quota system, which existed before. Under the new regime, certain very sensitive products, including clothing products, face a preferential rate of duty equal to 85% of the regular duty. Sensitive products, such as footwear and consumer electronics, face a preferential rate of duty equal to 70% of the regular duty. This means that exporters from East Asian economies do, indeed, face some duty on exports of sensitive goods to the EU, although there is no longer any ceiling on the quantity of imports eligible for the preference. For these products, therefore, any agreement that set the tariff at zero would represent an improvement on the existing arrangements.

However, as the EU would be likely to retain a safeguard mechanism, allowing quotas to be re-imposed to prevent excessive market disruption, it is unlikely that the change would be a major one. On the other hand, under the new revised scheme, a graduation mechanism has been introduced, under which countries will lose preferential access for particular products as they achieve a certain level of development and degree of export specialization in a particular sector. The criteria are complex. However, certain East Asian economies are likely to lose their existing preferences for a particular products as they cross the various thresholds established. According to the WTO [1995], under the formula stated in the new regulations, China has achieved graduation in leather and footwear products, Indonesia in wood and wood products and footwear, Malaysia in wood and wood products, Singapore in all electronic products, Korea in articles of leather and footwear and Thailand in footwear.

Table 8
The Level of Tariffs and the Importance of Non-tariff Barriers in Product Groups in Which East Asian Economies Enjoy a Strong Comparative Advantage, 1995

Product Group	Average Tariff Rate	Non-tariff Barriers (in place 1995)
05 Vegetables and fruit	10-12%(1995)	Replacement of reference price system with tariff equivalent protection after 1995
06 Sugar, sugar preparations and honey	31%(1995)	Tariffication of import quotas after 1995
07 Coffee, tea, cocoa, spices and manufactures thereof	8.5%(1995)	
23 Crude rubber	3.5%(1995) 1.75% (2001)	
24 Cork and wood	1.5% (1995) 0 (2001)	
29 Crude animal and vegetable materials	0-2.5(1995)	
42 Fixed vegetable fats and oils, crude, refined or vegetable wax	15%(1995)	
63 Cork and wood manufactures (excl.furniture)	5.2% (1995) 1.2% (2001)	
43 Animal vegetable fats and oils, animal or vegetable wax	15% (1995)	
75 Office machines and ADP	4.6%(1995) 1.8%(2001)	Technical barriers
76 Telecoms and sound-recording and reproducing apparatus and equipment	7.3%(1995) 4.4%(2001)	Anti-dumping duties on imports of CD players from Japan and S Korea Anti-dumping duties on small-screen colour televisions from Hong Kong, South Korea and China Quotas on car radios from China Export monitoring of imports of video-cassette recorders from Japan VCR on imports of audio tapes and cassettes from Japan Technical barriers
81 Prefabricated buildings: san, plumb, heat and light fixtures and fittings, n.e.s	5.2%(1995) 2.7%(2001)	
82 Furniture and parts thereof; bedding, mattresses and mattress supports	5.0%1995) 1.7%(2001)	
83 Travel goods, handbags and similar containers	4.7%(1995) 3.2%(2001)	
84 Articles of apparel and clothing accessories	12.4%(1995) 10.6%(2001)	MFA quotas on most products from all countries Anti-dumping measures
85 Footwear	8.4%(1995) 7.4% (2001)	Quotas on certain products from China
89 Miscellaneous manufactured articles n.e.s	6.1% (1995) 2.5% (2001)	
96 Coins (other than gold), not being legal tender		
97 Gold, non monetary(excluding ores and concentrates)		

Notes: The tariff rate refers to the EU's average tariff rate for the product category. Two rates are shown: the 1995 rate which applied at the time when the Uruguay Round was concluded and the final bound rate which will apply when the tariff cuts agreed at the Uruguay Round are fully implemented.

With regard to non-tariff barriers, quantitative restraints on imports constitute an important source of restriction in clothing products, where all the East Asian economies (except Japan) are subject to bilateral quotas for sensitive goods under the Multi-Fibre Arrangement. As a result of the Uruguay Round, the MFA is to be phased out over a period of ten years, although a safeguard mechanism allows for the imposition of import quotas in the event of a sudden surge of imports causing serious injury to domestic producers. However, the precise arrangements set out in the Agreement on Textile and Clothing Products mean that much of the liberalization will be delayed until the final stage, which must be completed by 1st January, 2005. Quotas may, anyhow, be replaced with other GATT-consistent measures such as tariffs, so the degree of liberalization implied may be less than is envisaged. Import quotas are also an important source of restriction on trade in some goods, although most of these have now been abolished or "communitised" following the elimination of internal borders in the EU.

An important consideration is the extent to which quotas actually bite. Attempts to evaluate the degree of restriction implied by MFA quotas make use of quota utilization rates, which measure the actual volume of imports divided by the amount permitted under the quota, taking a 0.9 rate or more as indicative that quotas have been binding. In the case of EU imports from the East Asian economies, the evidence is mixed (see Begg, Grimwade and Seecombe-Hett (1997)). For China, the average quota utilization rate exceeded 0.9 for the entire period from 1989 to 1994. For Hong Kong, it was less than 0.9 between 1989 to 1992, but binding in 1993 and 1994. For Indonesia, the rate was below 0.9 between 1989-90, but quotas were binding thereafter. For South Korea, however, the average quota utilization rate was well below 0.9 throughout the period. More interesting is the position with regard to highly sensitive product groups. If attention is focused on these products alone (comprising T-shirts, pullovers, trousers, blouses and shirts), the evidence shows that quotas were binding in 5 out of 5 categories in the case of China and Hong Kong, 4 out of 5 in the case of Indonesia and none of the categories in the case of Korea. It follows that the elimination of these quotas would, assuming no supply constraints, lead to a large increase in imports of these products from at these three of the East Asian economies.

More problematic are the various anti-dumping measures that the EU has, in the past, introduced against imports from the East Asian economies. These have particularly affected sensitive products, such as clothing, consumer electronics and office equipment. The EU has made extensive use of anti-dumping as a device for restricting imports of these products. However, as any liberalization between the EU and East Asian region is certain not to result in the EU abandoning its anti-dumping armory, the significance of these barriers is largely irrelevant. Furthermore, the ability of the EU, at any time, to restrict imports of products causing difficulties by imposing anti-dumping measures seriously undermines the value of any concessions made to the East Asian economies in other areas. However, anti-dumping measures are coming under increasing scrutiny in the WTO and their scope is likely to become further limited.

VIII. The Nature of Trade and Specialization between East Asia and the European Union

The fact that the East Asian economies enjoy a strong revealed comparative advantage in a relatively small number of product groups may be the result of intra-industry specialization. Instead of specializing in all the products belonging to a particular industry, they have concentrated on only a small number. This is important because it may affect the type of trade that takes place between the EU and East Asia in the event of liberalization. If the two regions engage in intra-industry specialization, adjustment pressures are likely to be less because there is less of a need for any inter-industry re-allocation of resources. Reallocation may be easier to bring about within than between industrial sectors. Until recent decades, it was assumed that trade between advanced industrialized countries and 'developing' countries would tend to be of the inter-industry type based on differences in factor endowments. However, if a growing proportion of East Asia's trade with the EU has in fact been of the intra-industry type, there is every reason to expect that liberalization will lead to intra- and not inter-industry specialization.

One way of examining the evidence is to look at the trend of RCA indices over time. If a country engages in inter-industry specialization as trade bar-

riers are lowered, we can expect its RCA index to rise in those sectors in which the country already has a high RCA value and to fall in those sectors in which the opposite is true. One way of measuring this effect is to calculate the standard deviation of the RCA values for a country at different points in time. If this increases, we can conclude that liberalization has led to increased inter-industry specialization. On the other hand, if, instead, liberalization leads to intra-industry specialization, the RCA index in those sectors in which the RCA is high may be static or even decline. The country may increase its share of some products within that sector, but decrease its share of others. At the same time, in other sectors where the RCA value was initially low, the RCA index may rise, if the country can succeed in expanding its share of some products within that sector.

As is clear from Table 9, the standard deviation of the RCA index has fallen for the exports of all East Asian economies to the EU, except for Thailand, over the period 1983 to 1994. However, some variations were apparent between the first and second halves of the period covered. Thus, between 1983 and 1988, the standard deviation increased in the case of Malaysia, Indonesia and the Philippines. Likewise, in the period from 1988 to 1994, the standard deviation increased in the cases of China and Thailand. Nevertheless, the figures strongly suggest that, over the period, as a whole trade between the East Asian region and the EU has taken the form of intra- rather than inter-industry specialization. This is different from what is often supposed.

Table 9
The Standard Deviation of the RCA Index for SITC Two-Digit Product Groups for the Ten East Asian Economies Exports to the European Union

Country	1983	1988	1994	Percentage change between 1983 and 1994
Thailand	0.213127	0.070365	1.022363	+379.7
Malaysia	0.295209	0.338483	0.044816	- 84.8
Singapore	0.917420	0.458893	0.123975	- 86.5
Indonesia	0.186812	0.447882	0.073556	- 60.6
Philippines	0.136148	0.819576	0.020761	- 84.8
China	0.291178	0.062695	0.175890	- 39.6
South Korea	0.200945	0.111640	0.071580	- 64.4
Taiwan	0.163832	0.102070	0.044759	- 72.7
Hong Kong	1.301851	0.502448	0.153440	- 88.2
Japan	0.197418	0.163133	0.077315	- 60.8

A more direct approach is to measure intra-industry trade as a proportion of the total trade of these regions with the EU. The most widely used measure of intra-industry trade (IIT) is the Grubel-Lloyd index, which defines IIT as the proportion of a country's total trade (exports plus imports) of a particular product which is matched or balanced. This is given by the formula:-

$$B_j = \left\{ \left[\Sigma(X_{ij} + M_{ij}) - \Sigma \mid M_{ij} - M_{ij} \mid \right] / \Sigma(X_{ij} + M_{ij}) \right\} \cdot 100$$

where i stands for the i th product group and j for country j. To allow for the fact that a country's overall trade with its partner country may be unbalanced, which imparts a downward bias to the measurement of IIT using the conventional IIT index, an index adjusted for the trade imbalance may be used. This is given by the formula:-

$$C_{ij} = \left\{ \left[\Sigma(X_{ij} + M_{ij}) - \Sigma \mid X_{ij} - M_{ij} \mid \right] / \left[\Sigma(X_{ij} + M_{ij}) - \mid \Sigma X_{ij} - \Sigma M_{ij} \mid \right] \right\} \cdot 100$$

As there is some debate over whether this adjustment does in fact improve the estimates (see Balance et al. [1987] for example) both measures are shown. As is the convention, intra-industry trade is measured at the three-digit level of aggregation. (One exception was Hine [2000] who measured EU-ASEAN intra-industry trade at the four-digit level of the Combined Nomenclature)

As is clear from Tables 10a and 10b, which show the level of IIT using these indices, the level of IIT is relatively low for trade between the East Asian economies and the EU as a whole. The average level of IIT for western industrialized countries is approximately two-thirds (Greenaway and Hine (1991)). Whereas, using the imbalance adjusted measure, this was true for Japan's trade with the EU, the index was significantly lower for all the other countries. There is evidence (Globerman and Dean (1990)) that the growth in IIT has begun to taper off in recent years. However, taking the imbalance-adjusted measure, the estimates are very close to those obtained by Fukasaku [1992] for the early part of the period. Fukasaku estimated that IIT as a proportion of the total trade (not trade with the EU countries only as in our study) of eleven Asia-Pacific economies at 0.42 in 1988. How ever, the figure falls to 0.224 if measured for trade with OECD countries alone. (Fusakaku used a broader sample of countries with Australia and

New Zealand included in addition to our nine countries). Using a standard, unadjusted Grubel-Lloyd index, but measuring IIT at the four-digit level of the Combined Nomenclature, Hine [2000] estimated IIT for 1995 at 0.284. His slightly lower figure was almost certainly due to having used data at a lower level of aggregation. For trade between China and the OECD countries, Hellvin [1996] estimated IIT at the three-digit level as a proportion of China's trade in manufactures at 0.207 in 1992. This is also roughly in line with our estimate for China's trade in manufactures with the EU countries alone.

Table 10a
The Level of Intra-Industry Trade as a Proportion of the Total Trade in Manufactured Products between the Ten East Asian Economies and the EU

Country	1980	1985	1990	1995
Thailand	0.07	0.14	0.22	0.30
Indonesia	0.04	0.05	0.07	0.11
Malaysia	0.19	0.26	0.35	0.37
Singapore	0.32	0.36	0.38	0.41
Philippines	0.19	0.32	0.29	0.40
China	0.11	0.09	0.14	0.19
South Korea	0.13	0.20	0.23	0.35
Japan	0.32	0.30	0.39	0.46
Taiwan	0.21	0.23	0.26	0.35
Hong Kong	0.25	0.33	0.34	0.36
Mean	0.18	0.23	0.27	0.33

Notes: Unadjusted Grubel-Lloyd Index

Although the overall level of IIT is quite low for trade between these countries and the EU, it is clearly increasing. Comparing 1995 with 1980, the index of both the unadjusted and imbalance-adjusted IIT rose in the case of eight out of ten countries over the five-year period covered. (For Indonesia and Japan, the adjusted measure was unchanged, but the unadjusted measure rose.) The increase was not a continuous one in all cases. Using the unadjusted measure, IIT fell for the Philippines between 1985 and 1990, for China and for Japan between 1980 and 1985. Using the imbalance-adjusted measure, IIT fell for Indonesia, Singapore, the Philippines and Hong Kong

between 1985 and 1990, for Japan between 1980 and 1990, and for Taiwan between 1980 and 1985. However, some year-by-year fluctuations are to be expected, not least because of cyclical factors. The overall trend remains an upward one.

Table 10b
The Level of Intra-Industry Trade as a Proportion of the Total Trade in Manufactured Products between the Ten East Asian Economies and the EU

Country	1980	1985	1990	1995
Thailand	0.07	0.19	0.24	0.37
Indonesia	0.12	0.12	0.09	0.12
Malaysia	0.25	0.29	0.37	0.40
Singapore	0.43	0.51	0.40	0.44
Philippines	0.24	0.37	0.32	0.42
China	0.14	0.17	0.21	0.28
South Korea	0.21	0.24	0.26	0.35
Japan	0.68	0.66	0.65	0.68
Taiwan	0.39	0.34	0.42	0.40
Hong Kong	0.34	0.36	0.35	0.55
Mean	0.29	0.33	0.33	0.40

Notes: Imbalance- adjusted Grubel-Lloyd Index

Moreover, for some countries the change has been quite dramatic. In some countries, nearly all their trade with the EU in 1980 was of the inter-industry type (Thailand, Indonesia, the Philippines, China and South Korea). Intra-industry trade was significant in only a few of the higher-wage economies (Japan, Singapore, Taiwan and Hong Kong). However, with the single exception of Indonesia where trade remained essentially inter-industry trade, intra-industry trade had become important. Taking the adjusted balance, the biggest increases were apparent for Thailand (up 30 % points), Malaysia (up 15 % points), the Philippines (up 16 % points), China (up 14 % points), South Korea (up 14 % points) and Hong Kong (up 21% points).

Again, our results are consistent with other studies. Fukasaku [1992] found that IIT for eleven Asia-Pacific countries rose from 0.318 in 1979 to 0.417 in 1998, with all countries experiencing an increase in their IIT index.

Hine [2000] found that the IIT index measured at the four-digit level rose from 0.251 in 1988 to 0.27 in 1990 and 0.284 in 1995. A small decline in the index occurred between 1990 and 1992 before rising again between 1993 to 1995. For China's trade with the OECD countries, Hellvin [1996], the index rose from 0.125 in 1980 to 0.141 in 1982, then fell to 0.099 in 1985 before rising to 0.213 in 1990 and 0.207 in 1992. These estimates are approximately the same as ours for China's trade with the EU.

It is evidently mistaken to regard trade between these countries and the EU as leading only to conventional inter-industry specialization. Although this was true in the past, the picture has changed radically in the last fifteen years. To the extent that intra-industry trade leads to less of an adjustment problem than inter-industry trade, it follows that freer trade between the two regions ought not to lead to the adjustment difficulties that are sometimes supposed. Of course, much will depend on the type of intra-industry trade that takes place. Where individual countries specialize in particular products that differ from others in quality (vertical intra-industry specialization), it is possible that freer trade will create problems for the EU. This is because factor intensities tend to differ more between similar products that are different ends of the quality spectrum than products which differ essentially in style or appearance (horizontal intra-industry specialization).

The results of attempts made to distinguish between the two types of IIT do, indeed, show that most IIT between the EU and the Asia-Pacific countries has been of the vertical type. Based on a comparison of the unit values of exports and imports within product groups, Hine [2000] found the share of vertical IIT in total IIT rose from 50.2% in 1988 to 59.9% in 1995. Although other countries also appear to have proportions of vertical IIT in their total IIT, the percentage for EU-ASEAN trade is above normal. When EU trade with the ASEAN countries is compared with intra-EU trade, EU exports to the ASEAN countries consist almost entirely of high- or medium quality manufactures, while ASEAN exports to the EU consist mainly of low-quality manufactures. Using a similar approach, Hellvin [1996] also found that as much as 92% of China's IIT with the OECD countries was of the vertical rather than horizontal type.

Regardless of the type of IIT that results, it is by no means certain that IIT will result in less adjustment difficulties. The potential costs will depend

upon the structure both of the individual industries and forms within them. Even if total output is unaffected by a process of horizontal intra-industry specialization, the losing firms may be concentrated in one part of the EU and the gainers in another. Since labour is very immobile within the EU the adjustment costs could be high and the capital costs little different from inter-industry specialization unless the equipment can be moved readily. On the other hand if re-organization needs to take place purely within firms, this may be little observable costs in industries where style and product ranges change rapidly all the time.

No doubt some East Asian economies will continue to compete on traditional cost/price lines, specializing in products that take advantage of these countries' traditional abundance of low-cost labour. However, increasingly, wage-rates in the poorest countries of the region are catching up with those in the high-wage economies. This will render traditional forms of competition and specialization more problematic than in the past. Increasingly, therefore, countries will be driven to seek out new methods of competing and these are more likely to result in intra-industry specialization. If, too, the quality of East Asian exports increases, the importance of vertical IIT may also decline and approximate more closely to the level prevailing in other countries.

IX. Trade Intensities between the EU and East Asian Region

One way of estimating the impact of liberalization on trade between any two regions of the world is to estimate a trade intensity index for trade between each of the East Asian economies and the EU. A trade intensity index measures the share of region i's exports going to region j by region j's share of world imports excluding region i: -

$$I_{ij} = (X_{ij} / X_i) / \left[X_j / (M_w - M_i) \right]$$

A value of I_{ij} in excess of one indicates that trade with region j accounts for a larger share of trade region i's trade than is to be expected given region j's share of imports from the rest of the world. A value of I_{ij} that is less than one indicates the opposite.

In 1995, as shown in Table 11, seven out of the ten countries had trade

intensities in excess of one. For these countries, exports to the EU as a share of their total exports exceeded the EU's share of imports from the rest of the world. This would suggest that neither natural nor artificial barriers to imports coming from these countries had served to depress EU imports from the East Asian region below what might be expected. In particular, the share of China's exports going to the EU was exceptionally high and rose fast over the ten-year period covered. Only, in the case of Hong Kong, Singapore and South Korea are trade intensities well below one. This seems to suggest that liberalization of trade is unlikely to lead to a big increase in EU imports from the East Asian region, except in a small number of exceptional cases. In the case of Hong Kong, the most likely competitive threat for the EU will come from imports of clothing, travel goods and photographic goods, optical good and watches. However, trade intensity indices are a crude measure of potential trade between regions.

Table 11
Trade Intensity Indices for Bilateral Trade Flows between the EU and the East Asian Economies

Country	1980	1985	1990
Thailand	1.57	1.46	1.10
Indonesia	0.51	0.91	1.25
Malaysia	0.97	1.04	1.15
Singapore	0.51	0.75	0.70
Philippines	1.34	1.30	1.23
China	0.71	1.46	1.61
South Korea	0.57	0.92	0.80
Japan	0.80	1.37	1.13
Taiwan	0.68	1.21	1.00
Hong Kong	0.87	0.64	0.39

One problem with trade intensity indices is they tell us nothing about the amount of trade that is to be expected between two regions, taking into account "natural factors" such as GDP, population or distance. For this purpose, a gravity model is to be preferred (Poyhonen (1963), Pulliainen (1963), Linnemann, (1966)). A gravity model seeks to estimate the amount of bilateral trade taking place between two regions that can be explained by

a range of simple economic variables. In a standard gravity model, these include the population of the two regions, the GDP of the two regions, the distance between the two regions. Additional dummy variables may be included to take account of factors such as adjacency or the existence of preferential access arrangements. By such a means it is possible to estimate what the impact of a change in these special factors might be.

Despite the many criticisms that have been made of such models, they have in practice been found to explain an exceptionally high proportion of the trade that actually takes place between regions. (Brenton and Gros [1995] found that almost 90% of the variation in trade between the countries studied was explained by the gravity model.) At a theoretical level, population can be expected to exert a negative effect on the volume of trade taking place between any two regions. The larger a country, as measured by population, the greater its self-sufficiency and the less its dependence on trade. A large population also means a larger home market and greater opportunities to exploit economies of scale through local production. Conversely, the higher the GDP of a country, the more it will tend to export to other regions and the greater its demand for imports from other regions. The smaller the distance separating any two regions, the lower the costs of transporting goods between the two regions and the greater the volume of trade. However, Polak [1996] shows a tendency for gravity models to over-estimate the importance of distance in holding trade down. Also, people are likely to be better informed about and have closer ties with nearby countries, so resulting in more trade. The inclusion of a dummy variable, which assumes a value of one if two countries share a common border, reinforces this effect. A gravity model of this kind may be used to estimate the flow of trade taking place between any two regions over a period of time. The major weakness of the gravity model is that it takes no account of relative prices, which are treated as an endogenous variable that adjusts to equate supply and demand.

We estimated a standard gravity model for trade flows between 1990 and 1995. The data included bilateral trade flows between 29 countries which, jointly, accounted for 81.5% of world trade. These were the twelve members of the European Union (EU12), nine East economies (EA9) (Taiwan had to be omitted because of lack of suitable data), the United States, Canada, Aus-

tralia, Switzerland, Sweden, Austria, Finland and Brazil. The equation used to estimate bilateral trade flows between every pair of countries was as follows: -

$$X_{ij} = \alpha + \beta_1 POP_i + \beta_2 POP_j + \beta_3 GDP_i + \beta_4 GDP_j + \beta_5 DIST + \beta_6 ADJ + \beta_7 GSP$$

where country i exports goods to country j. In an addition to the population and *GDP* variables, a distance variable was used, measuring the distance to transport goods by sea plus road to the nearest port for each country. Two dummy variables were included, one for adjacency *(ADJ)* and one for the existence of generalized tariff preferences *(GSP)* on trade between developing and developed countries. Where two countries were adjacent to each other, the dummy variable assumed a value of one, but zero otherwise. Where a developed country imported from a developing country, it was assumed that imports enjoyed preferential access and the dummy variable for tariffs assumed a value of one. Ordinary Least Squares was used to estimate the model and a logarithmic function was applied. It is readily possible to add to the list of dummy variables in the model, as Rose [1999] illustrates but the impact of these additions, beyond our relatively short list, on the estimated coefficients of the main driving variables of *GDP*, population and distance is small.

As is clear from Table 12, the model was able to explain 75% of the trade that took place between countries between 1990 and 1995. This is consistent with other attempts to estimate bilateral trade flows using a gravity model. For example, Hamilton and Winters [1992] found that a similar gravity model explained 70% of the variation in trade flows between 76 countries, accounting for about 80% of world trade. All the coefficients had the expected signs. All were highly significant, except, surprisingly, for the adjacency variable.

These estimates, therefore, give us a basis for projecting the likely trade flows in other years. Following Hamilton and Winters [1992], the estimated coefficients were applied to the 1997 data for *GDP* and population for the East Asian and EU economies to determine these countries' trade potential for that year. (Potential is thus defined in the sense of values predicted by the model, ie. assuming all countries were similarly 'attractive' to each other in terms of the variables included.) These amounts were, then, compared

with these countries' actual trade for that year.

Table 12
Estimates of the Gravity Model of Trade Flows

Regressor	Coefficient	Standard error	t-ratio(prob)
CONSTANT	−5.06520	0.535530	−9.4583 [0.000]
POP_i	−0.22547	0.034360	−6.5618[0.000]
POP_j	−0.30864	0.034478	−8.9518[0.000]
GDP_i	0.97285	0.041245	23.5874[0.000]
GDP_j	1.08340	0.041074	26.3778[0.000]
DIST	−1.0003	0.039044	−25.6196[0.000]
ADJ	0.21728	0.176280	1.2326[0.218]
GSP	−1.51660	0.097420	−15.5677[0.000]
$R^2 = 0.75082$			

In 1997, EU exports to East Asia generally exceeded potential exports (Table 13), according to the model, the more so if Japan is excluded. However, it is immediately clear that the model does a rather bad job in predicting trade, far worse than the fit achieved in estimation for the countries as a whole. In part this is because the model itself is not such a good approximation for ASEM trade (overestimating trade between Europe and Japan and in the main underestimating for the other countries). In part it is because the expansion of trade in the extra years up to 1997 is not well estimated.

Table 13
Analysis of EU Exports to East Asia

	(1) Trade explained by the model	(2) Actual amount of trade	(3) Difference between (1) and (2)	(4) Difference as a percentage of current trade
Thailand	4,835	7,312	-2,477	0.34
Indonesia	5,334	8,789	-3.455	0.39
Malaysia	4,019	9,469	-5,450	0.58
Singapore	7,015	14,413	-7,398	0.51
Philippines	2,952	5,534	-2,582	0.47
China	21,118	17,690	+3,428	0.19
South Korea	18,493	16,229	+2,264	0.14
Japan	145,277	40,600	+104,677	2.58
Hong Kong	11,646	23,084	-11,438	0.50
Total excluding Japan	75,412	102,520	-27,108	0.26
Total	220,689	143,120	-77,569	0.54

Table 14
Analysis of East Asian Exports to the EU

	(1) Trade explained by the model	(2) Actual amount of trade	(3) Difference between (1) and (2)	(4) Difference as a percentage of current trade
Thailand	3,628	9,191	-5,563	0.61
Indonesia	3,761	7,938	-4,177	0.53
Malaysia	3,125	11,298	-8,173	0.72
Singapore	6,420	17,447	-11,027	0.63
Philippines	2,038	4,602	-2,565	0.56
China	15,093	23,692	-8,599	0.36
South Korea	15,960	16,928	-968	0.06
Japan	149,695	65,740	+85,955	1.28
Hong Kong	10,678	27,677	-16,999	0.61
Total excluding Japan	60,703	118,773	-58,070	0.49
Total	210,398	184,513	+25,885	0.14

Nevertheless, taken together the fact actual trade already substantially exceeds predicted potential might suggest that cutting the barriers even fur-

ther to achieve free trade would not result in a big increase in EU exports to the East Asian region, although exports to a few countries could increase by a significant amount. In particular, EU exports to Japan remain significantly below 'potential' and EU exports to China and South Korea marginally so. Using the information from this model alone, we cannot of course reject an alternative argument, which is that: - even with the restrictions that currently exist trade has been very successful; with a further fall in barriers there would be the opportunity for even greater gains. It is only when taking into account the evidence of the previous sections on where the revealed advantage lies, where the barriers are, what the detailed patterns are and the degree of IIT, that we can suggest that it is the first argument that is the more likely. Disproportionately large further increases in exports that inflict severe damage on production in the importing countries seem relatively unlikely.

On the imports side (Table 14), EU imports from the East Asian region were marginally below potential trade in 1997 if Japan is included. If, however, Japan is omitted, a similar picture emerges to that shown on the export side. Actual exports exceed potential exports. Moreover, this is true for all the countries included in the table with the single exception of Japan. On the basis of the previous argument for exports, this would imply that EU imports from the East Asian countries would be unlikely to increase greatly if trade barriers were removed altogether. The argument being, that trade could only be this much greater than the potential implied by trade between countries in the world as a whole if much of the possible opportunities were being exploited (despite the constraints). Only if barriers were removed on imports from Japan, might EU industries expect to face a significant increase in the degree of import competition. Again we cannot reject the opposite argument on the basis of these data alone but the balance of evidence from our analysis as a whole argues against it.

Although a gravity model provides a crude estimate of potential trade between different regions, it is, nonetheless, a useful one for determining how much trade could result if trade barriers were lowered between the regions. On the whole, the conclusion is a comforting one for the EU countries. Freer trade with the East Asian countries may very well not lead to a disproportionately large expansion of imports. Perhaps surprisingly, most of

the increase in import competition could be expected to come from Japan and not the newly industrializing countries in the region, which in itself leads us to view the results with some caution. At the same time, the EU might hope to expand its exports to certain countries within the region (Japan, China and South Korea) where exports are currently running below potential. If this prediction were correct, freer trade with the ASEM countries would not lead to serious increases in adjustment pressures within the EU economies.

X. Conclusion

The examination of trends in EU-East Asian trade flows in recent decades and discussion of the implications for the EU of implementing a programme of trade liberalization through ASEM in this paper allows us to draw some simple conclusions. At the aggregate level, there would appear to be relatively little grounds for concern about the implications of freer trade with the East Asian countries for EU industry. EU imports from the East Asian economies are unlikely to increase very disproportionately even if all trade barriers are removed. The main source of potential competition in quantitative terms would tend to come from Japan, where trade is already larger, rather than from the newly industrializing countries in the region. (Nevertheless the sheer size of China means that this conclusion would have to be modified if the country continues to grow at anything like the rates of the last decade.) Moreover, the EU could expect to increase its exports significantly to certain countries (Japan, China and South Korea), although not by so much to the region as a whole.

However, in a small group of products, in which the East Asian economies appear to have a strong comparative advantage, there could occur a significant increase in the intensity of import competition. Nearly one half of the groups in which the East Asian economies have a revealed comparative advantage are primary products, in which the EU is not a major producer and where import barriers are already low. In certain manufactured products, however, the East Asian economies do pose a competitive threat. These are mainly the traditional labour-intensive branches of manufacturing, such as clothing, footwear, travel goods and furniture, and certain selec-

tive skill-intensive industries, such as office machinery, telecommunications, motor vehicles and video/audio consumer electronics. In these sectors, adjustment difficulties may arise. On the other hand, in all of these product groups with the single exception of furniture, high and rising levels of import penetration are already to be found in the EU. EU producers have already experienced acute adjustment pressures from increased import competition and the scope for these to become more intense may, therefore, be minimal.[5]

An important issue concerns the type of specialization that results. If increased trade between the two regions leads to intra-industry specialization, adjustment difficulties are likely to be less than if inter-industry specialization is the result. If the past is anything to go by, inter-industry specialization is the more likely outcome. Only 40% of East Asian trade with the EU in manufactured products is of the intra-industry type. Moreover, the greater part of this takes the form of vertical intra-industry trade, in which countries exchange products with quality differences. Since higher quality products are generally more capital-intensive than lower quality products, this kind of intra-industry trade can give rise to the same adjustment problems as inter-industry trade. Furthermore, given the relative immobility of labour both across borders and within the member states the costs of any specialization that results in a change in the location of production may be substantial.

It seems likely, however, that, as the East Asian countries catch up with the EU, a growing proportion of their trade will take the form of intra-industry trade. Already, this is the case for Japan, the most advanced industrialized country in the region and EU imports from Japan look likely to increase by more than with any other country in the region.[6] Throughout the last fifteen years, intra-industry trade has increased as a proportion of total trade in manufactured goods in all countries. This trend seems likely to continue, especially as rising wage costs force the East Asian countries to concentrate on more skill-intensive goods with higher value-added. This,

---

5 Indeed if the competitive threat does not come from East Asia it would come from other parts of the world that can undercut the EU in costs - including central and eastern Europe.

6 Once recent economic difficulties are overcome.

too, may result in the share of vertical intra-industry trade falling as a proportion of total intra-industry trade, although we cannot be certain about this.

None of these conclusions justify complacency on the part of the EU. There is still a need for the EU countries to introduce measures that will speed up and improve the process of adjustment within the EU so that increased import competition will not result in intolerable adjustment costs. Particular attention needs to be given to those sectors most vulnerable to an export offensive by producers in the East Asian economies. The aim should not be a defensive one of seeking to forestall competition by subsidizing inefficient producers, but rather of a positive one designed to bring about change that maximizes the particular strengths that EU producers possess. If sufficient attention is given to the possible problems that freer trade with the ASEM countries may pose, there would seem to no reason for the EU to be afraid of where this might lead.

References

Balassa B. (1963), "An Empirical Demonstration of Classical Comparative Cost Theory" , *Review of Economics and Statistics* 4, August; 231-8.

Balance, R. Forstner, H. and Murray, T. (1987), "Consistency Tests of Alternative Measures of Comparative Advantage," *Review of Economics and Statistics* 69(1); 157-61.

Begg I. Grimwade N. and Seccombe-Hett T. (1997), "External Access to European Markets - A Quantitative Analysis," in 4: *External Access to European Markets*, Subseries IV: *The Impact on Trade and Investment, The Single Market Review*, European Commission and Kogan Page.

Brenton P. and Gros D. (1997), "Trade reorientation and recovery in Transition Economies," *Oxford Review of Economic Policy* 13; 65-76.

Brenton P. and Di Mauro F. (1998), "Is there any potential in trade in sensitive industrial products between the CEECs and the EU?" *The World Economy* 21; 285-304.

Fukasaku, K. (1992), "Economic Regionalization and Intra-Industry Trade: Pacific-Asian Perspectives," *OECD Development Centre Technical Paper No* 53.

Globerman, S. and Dean, J. (1990), "Recent Trends in Intra-industry Trade and their Implications for Future Trade Liberalization," *Weltwirtschaftliches Archiv*, Band 126, Heft 1; 25-49.

Greenaway D. and Hine R. (1991), "Intra-Industry Specialization, Trade Expansion and Adjustment in the European Economic Space," *Journal of Common Market Studies* 29(6), December; 603-22.

Hamilton C. and Winters A. (1992), "Opening up of International Trade in Eastern Europe," Seminar Paper No 511, Institute for International Economic Studies, Stockholm University, Stockholm.

Hellvin, L. [1996], "Vertical Intra-industry Trade between China and OECD Countries," OECD Development Centre Technical Paper No 114.

Hine, Robert C. (2000), "Bridging Two Continents: EU-ASEAN Trade and Investments," Chapter 1 of Strange R, Slater J R and Molteni, C (eds), *The European Union and ASEAN Trade and Investment Issue*, Basingstoke: Macmillan.

Linnemann, H. (1966), *An Econometric Study of International Trade,* Amsterdam: North Holland.

Mayes, D. G. (1978), "The Effects of Economic Integration on Trade," *Journal of Common Market Studies* 17(1).

Mayes, D. G. (1993), *The External Implications of European Integration,* Hemel Hempstead: Harvester-Wheatsheaf.

Polak, J. (1996), "Is APEC a Natural Regional Trading Bloc? A Critique of the "Gravity Model" of International Trade," *World Economy* 19; 532-43,

Pöyhönen, P. (1963), "Towards a General Theory of International Trade," *Ek Samf Tidskrift*, No.2.

Pulliainen, K. (1963), "A World Trade Study: An Econometric Model of the Pattern of the Commodity Flows in International Trade, 1948-60" , *Ek Samf Tidskrift,* No.2.

Rose, A. (1999), "One Money, One Market: Estimating the Effect of Common Currencies on Trade" , *Economic Policy* meeting, Helsinki, October.

Wang Z. K. and Winters A. (1994), *Eastern Europe's International Trade,* Manchester: Manchester University Press.

World Trade Organisation (WTO) (1995), *Trade Policy Review, European Union 1995*, Geneva, November; 1