

Trade Policy and Intraindustry Trade in Asean

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ABSTRACT

This paper examines the role of markets and government in trade policy and the development of intraindustry trade using the ASEAN experience. Protection measures, the Grubel-Lloyd index, trade balance coefficient and trade structure were the principal tools used to facilitate analysis. The results show fairly low overall protection levels in ASEAN economies, though, in certain industries (especially heavy industries) there exists strong protection. Singapore appears to be least protected while the Philippines shows the highest level of protection. ASEAN economies also demonstrate strong export-orientation and considerable foreign capital participation. Singapore and Malaysia appear to have experienced the highest structural change. Singapore and Thailand show highest trade balance coefficients. There is also little structural sequencing (evolution) in the growth of industries in Singapore, Malaysia and Thailand. The paper also demonstrates strong government involvement in markets. The ASEAN experience shows that the creation of dynamic comparative advantage, through prioritizing, subsidising and sheltering industries, and encouraging foreign capital, can generate long-term market growth and has been important in stimulating economic growth and structural change.

ABSTRAK

Kertas ini meneliti peranan pasaran dan kerajaan dalam dasar perdagangan dan pembangunan perdagangan intra-industri berdasarkan pengalaman negara-negara Asean. Alat-alat analisis utama yang digunakan dalam kajian ini adalah pengukuran perlindungan, indeks Grubel-Lloyd, koefisien imbalan perdagangan dan struktur perdagangan. Hasil kajian ini menunjukkan tingkat perlindungan yang agak rendah di ekonomi-ekonomi Asean sungguhpun keadaan sebaliknya terdapat di beberapa jenis industri, terutamanya industri berat. Antara negara-negara Asean, Singapura mengenakan tarif

terendah manakala Filipina menunjukkan kadar tarif tertinggi. Selain itu, ekonomi-ekonomi Asean menunjukkan orientasi-eksport yang kukuh dan penyertaan modal asing yang agak banyak. Negara-negara Singapura dan Malaysia telah mengalami perubahan struktur yang terbesar. Tambahan lagi, industri-industri di Singapura, Malaysia dan negara Thai tidak menunjukkan begitu banyak rangkaian struktur. Akhirnya, kajian ini juga menunjukkan penciptaan faedah berbanding dinamik melalui pengutamaan, pemberian subsidi, dan perlindungan industri, termasuk penggalakkan modal asing. Cara-cara yang disebutkan dapat menimbulkan pertumbuhan pasaran jangka panjang serta pertumbuhan ekonomi dan perubahan struktur.

INTRODUCTION

Rapid economic growth is often strongly correlated with international trade. Economists are generally unified on the benefits generated by trade. Such a consensus is, however, not reflected in the theoretical postulates on trade policy. Static neoclassical arguments confining to the Heckscher-Ohlin model tend to view liberal trade policies as the ideal recipe for promoting growth (Samuelson 1985; Krueger 1983; Balassa 1982). Relative prices based on current factor endowments form the basis for resource allocation in such models. Hence, governments are recommended only market augmenting roles. Even dynamic trade theorists such as Krugman and Helpman (1989) discourage government intervention, claiming that the risks of intervention far outweigh potential gains that arise from it.

Structural economists tend to see a strong role for governments to establish dynamic comparative advantage. Given the importance of complementarity and increasing returns (Young 1928; Kaldor 1979), structural economists tend to view certain distortions as necessary to establish competitive exports in the long-term. Lewis (1955) and Myrdal (1957) recommended import-substitution (IS) as necessary to promote infant firms. Besides, where increasing returns and structural complementarity are important, rents become important in promoting long-term efficiency (Kornai 1979; Kaldor 1979). Also, as Schumpeter (1987) noted, lumpiness and innovative activities require monopoly rents.

Using the Association of Southeast Asian Nations' (ASEAN) experience, this paper attempts to examine the relationship between trade policy and intraindustry trade. ASEAN, formed in 1967 originally contained Indonesia, Malaysia, the Philippines, Singapore and Thailand. Brunei was added later to the fold in the 1980s. The contrasting and similar structural components of these economies make them a useful platform for examining the impact of trade policy on intraindustry trade. After the framework of analysis, a review of trade policy in ASEAN starts off the discussion. The subsequent section examines intraindustry trade structure while the concluding remarks highlight the main findings of this paper.

FRAMEWORK OF ANALYSIS

We begin the analysis with an overview of trade policies in ASEAN. Attention is drawn briefly towards policy legislation, tariff structure, government incentives and the significance of foreign direct investment. The paper then examines in more detail trade structure and intraindustry trade employing traditional tools associated with trade such as the trade composition, trade balance coefficient (TBC) and the Grubel-Lloyd (GL) index.

The GL index is generally suitable only when similar industries are assessed. Although the extent of intraindustry trade measured by the GL index would not be useful when products manufactured with fairly dissimilar technologies and use are traded within the same industrial categories, it generally does reveal some relevant properties of intraindustry trade. In addition, the GL index often tends to measure TBC rather than intraindustry trade. Such a problem will diminish as the industries become more disaggregated. Hence, we measured the index only at the SITC three digit level. A four digit assessment was not possible due to a lack of data. The GL index and the TBC were computed using the following formulae,

$$\text{GL index} = [(X_i + M_i) - |X_i - M_i|]/(X_i + M_i) \quad (1)$$

where X_i and M_i refers to exports and imports of industry i respectively.

$$\text{TBC} = (X_i - M_i)/(X_i + M_i) \quad (2)$$

Trade structure and the TBC is initially computed to examine the relative specialization of the ASEAN economies at broad structural levels. We then use more disaggregated data to study intraindustry trade effects. For this purpose we used the standard industrial classification (SITC) data at the three digit level but confined measurement to 70 industries to compute the GL index and TBC. The 70 industries were derived through the top three sub-sectors, in 16 out of the 18 industry groups and the top two sub-sectors from the remaining 2 industries, based on value-added. To limit space, we restricted presentation of results to 10 industries. The average GL index, however, is derived from the 70 industries computed.

TRADE POLICY

Apart from Brunei, early industrial policy in ASEAN aimed at import-substitution (IS). IS in Thailand, Malaysia, the Philippines, Singapore and Indonesia began since 1960, 1958, 1950, 1963 and 1965 respectively. Thailand initially enacted the Pioneer Industries Act in 1954 but IS did not take off until a similar act was introduced in 1959. Malaysia's Pioneer Industries Ordinance of 1958 was the first legislative instrument adopted by the Malaysian government to promote industrialization. Singapore joined Malaysia briefly from 1963 to 1965, thereby sharing this act. IS in Thailand, the Philippines and Indonesia was aimed at spawning local capital while its non-discretionary role in Malaysia and Singapore meant that established foreign capital enjoyed similar rents as local capital. Given the lack of local capital, foreign capital dominated industrialization in Singapore and Malaysia from the outset.

IS in ASEAN, however, hardly offered efficiency-building infant industry support and control as reminiscent of South Korea and Taiwan (Amsden 1989; Wade 1991). Malaysia offered protective rents for all pioneering firms irrespective of ownership and technological content. Hence, it was largely foreign firms which benefited from the narrow domestic market. Singapore shared these characteristics during its brief link with Malaysia. The Philippines, Thailand and Indonesia offered IS rents to infant local capital but hardly enforced any controls to promote efficiency improvements. Hence, the IS phase generally failed to generate large local industrial

capital in ASEAN economies. It should be noted that South Korea's rapid outward-orientation from 1961 was also backed by a dual strategy of IS for export-orientation (EO) (Amsden 1989; Krugman 1989). In contrast no ASEAN economy had until the 1980s demonstrated the use of a dual trade strategy of IS for EO. IS in Malaysia and Indonesia was also constrained by policy contradictions, including ethnic policies. Although ethnic obstacles were less significant, political instability (especially in the Philippines) and clientelism also affected IS expansion in the Philippines and Thailand.

IS policy contradictions, promotional efforts by the World Banks and other international organizations such as the United Nations Industrial Development Organization (UNIDO) and Asian Development Bank (ADB), and transnational's search for external sites led to the introduction of EO strategies in ASEAN. Given their virtually non-existent domestic markets, IS is inconceivable for both Singapore and Brunei. Singapore thus abandoned the IS strategy in 1967 following the Economic Expansion Incentive Act in 1967. Other ASEAN members gradually followed suit. Malaysia began EO with the Investment Incentives Act of 1968. Thailand, the Philippines and Indonesia also launched EO as the prime generator of industrial growth in 1972, 1971 and 1976 respectively (Rasiah 1994). With EO, tariffs on export processing firms located in tax havens were eliminated. IS firms, however, continued to operate behind tariff walls in the principle customs area. Singapore generally removed most tariffs for the whole economy. Good infrastructure, political stability and bureaucratic efficiency made Singapore the most attractive site for foreign direct investment (FDI). Malaysia was the closest to Singapore on these points. The Philippines ranked the lowest (Rasiah, forthcoming). Hence, net FDI tended to follow such patterns (Table 1). FDI has been a major stimulus for manufacturing structural transformation in ASEAN economies.

Singapore being the most open economy is the least protected ASEAN member. As shown in Tables 2 and 3, Singapore's tariff structure make her a platform of virtually free trade. From the wider list of goods using the standard industrial code (SIC) at three-digit classification, Singapore's nominal rate of protection (NRP) in the mid-1970s were consistently low or zero, yielding negative effective rates of protection (ERP) for most industries. Thailand,

TABLE 1. Net foreign direct investment, ASEAN, 1961-90 (US\$mn)*

Period	Indonesia	Malaysia	Phillipines	Singapore	Thailand
1961-90	6210	16303	3229	25196	8061
1961-70	111	352	-15	225	318
1971-80	2052	4101	467	3503	868
1981-90	4047	11850	2777	21468	6875
1988-90	2222	5523	2029	11162	5045

Note: *Excludes Brunei.

Source: Chia 1992.

Malaysia, the Philippines and Indonesia show considerably higher levels of protection in the mid-1970s, though they were significantly lower than protected economies such as India and Brazil. Protection in the ASEAN economies show little structural patterns. Fabrics, plywood, rubber products and pottery were strongly protected in Malaysia. Fabrics, paper, chemical fertilizers, rubber products, and household electric and electronics appliances were strongly protected in the Philippines. Fabrics, rubber products, pottery and motor vehicles were highly protected in Thailand. Overall, Thailand's and Philippines's motor vehicle industry appear the most protected. Given the lack of structural sequencing of tariff structures, whereby high protection alternated between heavy-industry based motor vehicles to light intermediate-industry based fabrics and paper, it can be argued that governments in Indonesia, Malaysia, the Philippines and Thailand hardly tied tariffs to market signals (current prices).

From the sketchy information shown in Table 3, it can be seen that Singapore has continued to remain open. While we are unclear about Brunei's structure of tariffs in the mid-1970s, they are generally lower than that of Malaysia, Indonesia, Philippines and Thailand. There appears to be a general reduction in tariffs in the latter economies when compared to the mid-1970s. Since the list of goods shown in the Table 3 is far fewer, it is unclear if the fall is a general phenomena. The evidence from Malaysia amassed by Edwards (personal communication in 1991) tends to reveal a fall across the economy, though, the government-sponsored steel and iron making industry recorded a significant rise in ERP. For example, the ERP for basic industrial chemicals, fertilizers and

TABLE 2. Protection in ASEAN, 1973-76 (%)

1-0 Code	Items	1975		1975		1974		1973		1976	
		Indonesia		Malaysia		Phillipines		Singapore		Thailand	
		NRP	ERP	NRP	ERP	NRP	ERP	NRP	ERP	ERP	NRP
43	Cotton Yarn	15.7	-17.7	13.2	34.6	57.0	156.8	0.0	-0.8	19.5	32.3
49	Cotton Fabric	59.2	178.5	12.4	12.4	57.0	101.2	0.0	-0.7	36.7	101.7
62	Plywood	56.2	173.7	9.4	16.9	-4.0	-18.8	0.0	-1.4	29.3	99.3
67	Paper	28.0	60.4	3.9	6.7	128.0	604.6	0.0	-2.6	20.3	52.0
93	Rubber product	82.4	244.1	15.2	33.4	49.3	132.9	0.0	-3.5	49.5	149.0
94	Pottery	95.4	241.1	13.8	18.7	47.0	98.1	0.0	-1.4	47.8	128.2
97	Cement	22.5	e	5.9	e	-4.0	e	0.0	e	19.1	e
101	Raw Steel	17.9	32.6	5.8	0.3	35.0	84.7	2.1	5.1	2.3	-6.9
105	Non-Ferrous metal ingots	0.0	34.7	7.6	63.5	3.8	78.2	9.0	-5.3	10.0	70.5
112	Agricultural machinery	17.2	6.3	9.3	32.3	22.0	16.7	0.9	-1.7	6.8	-16.6
113	Metal and wood-working machinery	17.2	e	0.0	e	18.0	e	0.9	e	6.9	e
117	Household electrical appliances	29.1	28.1	12.5	22.4	142.0	402.9	0.0	-2.5	38.4	89.5
120	Household electronics appliances	27.1	-3.5	11.8	16.0	129.5	452.3	0.0	-1.6	38.4	85.9
121	Communication equipment	27.1	29.6	11.8	17.6	31.0	33.5	0.0	-1.7	38.4	83.9
124	Ships	14.8	7.0	2.3	-3.8	17.0	-1.9	0.0	-2.2	3.6	-13.0
126	Motor Vehicles	22.0	-72.7	23.8	476.8	61.0	982.5	1.0	-5.2	65.6	1403.3
128	Measuring, medical and optical instruments	21.5	e	3.0	e	22.0	e	0.0	e	34.7	e

Note: NRP - Nominal rate of protection; ERP - effective rate of protection;
e - Excluded due to negative value added at domestic prices

Source: Extracted from Rhee 1993; cited in Ariff and Hill 1985.

TABLE 3. Selected tariff rates, ASEAN, 1990 (%)

	Brunei*	Indonesia	Malaysia	Phillipines	Singapore	Thailand
Wood and wood products	20	0-60	0-60	10	0	1-70
Leather and leather products	0	0-60	0-40	10	0	0-100
Apparel	10	40-60	0-55	na	na	10-60
Precious stones and Jewellery	10	0-50	0-55	10	0	0-60
Fertilizer	0	0-5	0-5	10	0	0-30
Cement	0	30	0-55	na	0	0-50
Electrical parts	na	0-60	20-55	10	0	5-80

Note: *1987 rates; na – unavailable.

Source: Akrasanee and Stifel, 1992.

insecticides, tobacco and structural metal products fell from 160 percent, 300 percent, 125 percent and 35 percent respectively in 1969 to 16 percent, 8 percent, -25 percent and 1 percent respectively in 1987. The ERP for basic iron and steel, however, rose from 28 percent in 1969 to 131 percent in 1987. Similarly, given the sharp rise in protection for Proton, the ERP for motor vehicles can be expected to have risen further in this period. Similar results can be expected in the other ASEAN economies, especially Thailand. Singapore's efforts to restrict motor vehicle use to overcome congestion problems also triggered a tariff rise for the industry there. Apart from promoted heavy industries, we expect overall protection in ASEAN to have fallen since the late 1980s. With the conclusion of the Uruguay Round of General Agreement on Tariff and Trade (GATT) negotiations and implementation of ASEAN Free Trade Area (AFTA), ASEAN economies will be heading towards further lowering of tariffs. That would mean a gradual end to the IS sector in targeted industries by 2008. Protection of excluded products, especially in agricultural products, however, may continue after this year.

While protection has declined, apart from Brunei the remaining ASEAN economies show pro-active industrial policies. EO rents continue to be a major source of attracting foreign capital in these

economies. Singapore and Malaysia since the late 1970s and the late 1980s respectively, also reveal strong promotion of high technology industries through special incentives. In addition, Indonesia, Thailand and Malaysia have also embarked on specially protected heavy industries. Foreign capital, through exclusive ownership and joint-venture, has been most significant in Singapore and Malaysia (Table 1).

INTRAINDUSTRY TRADE

Except for oil-dependent Brunei, the remaining ASEAN economies have undergone considerable change in trade structure. Despite the introduction of IS and EO in the latter economies, however, the extent of structural change has varied substantially. Singapore being a city state, adopting good infrastructure from the British colonial administration, and endowed with rich entrepot facilities, lacked a primary sector at independence. Brunei, also a small economy but endowed with enormous oil reserves, lacks a clear industrial policy. The remaining ASEAN members typify early industrializers, moving gradually from primary resource-dependent economies to semi-industrialized status. A combination of government policy, natural endowments and the external environment have accounted for their respective patterns of structural change. As we noted earlier, however, it is the way with which ASEAN economies responded to their resource endowments and external environment which is central to the nature of economic growth in these economies.

Trade structure of ASEAN economies vary from primary stage to the intermediate stage (Tables 4 and 5). Brunei, which is the least developed structurally, generates almost all of her export revenue from mineral fuels. Machinery, transport equipment and basic manufactures dominated her imports. There has been hardly any change in Brunei's trade structure in the 1980-87 period. On the other hand, other ASEAN economies show considerable structural change. Singapore and Malaysia have industrialized most. Singapore show strong exports and imports of machinery and transport equipment. Malaysia's trade structure in 1990 resembles that of Singapore. Both economies export substantial amounts of imported machinery (especially electronics goods and components). Also foreign capital is predominating in this industry in both economies.

TABLE 4. Export structure, ASEAN, 1980 and 1990 (%)*

SITC	Brunei		Indonesia		Malaysia		Phillipines		Singapore		Thailand	
	1980	1987	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
0	0.0	0.4	5.4	8.9	3.6	4.3	24.4	13.5	4.8	2.9	45.5	28.3
1	0.0	0.2	0.3	0.5	0.1	0.1	0.6	0.7	0.4	1.5	1.1	0.4
2	0.0	0.0	0.3	7.7	32.3	14.4	25.1	6.6	11.3	3.1	14.6	5.8
3	98.6	97.6	14.9	43.8	24.5	18.3	0.7	2.1	28.9	18.2	0.1	0.8
4	0.0	0.0	74.3	1.6	11.1	7.1	10.0	4.7	2.6	0.8	0.2	0.0
5	0.1	0.0	1.2	2.4	0.6	1.6	1.5	3.2	3.4	6.3	0.7	0.4
6	0.3	0.3	0.3	22.4	13.1	7.9	9.3	8.9	8.3	7.0	22.6	1.4
7	0.5	1.0	2.6	1.4	11.5	35.7	2.2	11.0	26.8	50.1	5.8	18.4
8	0.5	0.4	0.5	11.2	2.6	10.0	10.6	16.8	6.2	8.9	6.5	22.3
9	0.0	0.1	0.5	0.5	0.6	0.4	15.7	32.5	7.2	1.3	2.9	21.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: * – data from Brunei only until 1987

Source: Computed from ESCAP, *Economic Commission for Asia and the Pacific Report*, v.i.

TABLE 5. Import structure, ASEAN, 1980 and 1990 (%)*

SITC	Brunei		Indonesia		Malaysia		Phillipines		Singapore		Thailand	
	1980	1987	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
0	11.9	na	11.9	2.9	10.4	6.1	7.2	8.2	5.7	3.9	3.1	4.0
1	2.6	7.3	0.4	0.2	0.9	0.4	0.7	0.7	0.5	1.3	0.8	0.7
2	1.2	1.4	4.5	6.5	4.3	3.4	3.9	4.1	6.7	2.2	5.7	6.4
3	2.0	1.4	16.2	6.7	15.2	5.4	32.8	14.2	29.0	15.8	31.1	9.3
4	0.4	0.5	0.1	0.1	0.1	0.3	0.3	0.2	1.9	0.7	0.8	0.1
5	8.3	8.5	11.6	11.7	8.6	8.9	10.8	10.5	5.2	7.7	11.8	10.2
6	24.2	30.2	19.0	12.2	16.4	16.6	14.4	13.8	14.1	12.9	14.9	23.0
7	40.4	36.8	33.5	32.2	38.9	52.9	27.1	24.8	29.8	44.7	22.8	41.5
8	6.9	13.9	2.6	27.5	4.2	6.0	2.9	23.6	5.7	9.5	5.8	3.0
9	2.0	13.9	0.2	0.0	0.8	5.3	12.6	15.1	1.3	1.3	3.1	1.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: * – data from Brunei only until 1987

Source: Computed from ESCAP, *Economic Commission for Asia and the Pacific Report*, v.i.

Unlike Singapore, however, Malaysia also generates substantial oil exports.

Malaysia's trade pattern shows a shift from agricultural products which formed the bedrock upon which colonial Malaya's economy expanded in the 20th century, to manufactured goods. Despite rapid industrialization, Indonesia, Thailand are still heavily dependent on primary resource and simple manufactured exports. Mineral fuels and food and live animals remained the chief export generator for Indonesia and Singapore respectively. Indonesia's exports of oil as a proportion of total exports tripled in the 1980-90 period. There is a significant shift in exports from food and live animals to miscellaneous manufactured goods in this period. Philippines shows an even spread with a substantial move from food and live animals in 1980 to miscellaneous manufactured goods in 1990.

ASEAN economies exhibit a mixed trade balance coefficient (TBC) effect (Table 6). Brunei's only positive TBC within the SITC classification at the one-digit level has been achieved in mineral fuels which was enough to generate a substantial positive overall balance. Indonesia shows a positive TBC only for raw material and intermediate processing. The contribution of beverages and tobacco, however, fell strongly to pull her overall TBC down. Malaysia's TBC in machinery and transport equipment, and miscellaneous manufactured goods improved – the latter strongly influenced by rising garment exports. Philippines too shows improvement in several industries, though, beverage and tobacco, and miscellaneous manufactured goods declined sharply thereby reducing her overall TBC. Singapore and Thailand show fairly mixed experiences. Machinery and transport equipment improved substantially in both economies. In addition, Thailand also experienced strong improvement in beverages and tobacco. Singapore being a mature economy, shows the least fluctuations in TBC within ASEAN.

Overall, change in the trade structure and TBC confirms Singapore's, Malaysia's and Thailand's shift towards industrial-orientation. Philippines, which was the most industrialized in 1965 (Table 7), shows a remarkable decline in TBC (Rasiah 1994a). Indonesia tends to specialize in primary processing, while Brunei is still strongly entrenched in oil-mining.

TABLE 6. Trade balance coefficient, ASEAN, 1980 and 1990 (%)*

SITC	Brunei		Indonesia		Malaysia		Phillipines		Singapore		Thailand	
	1980	1987	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
0	-0.941	na	0.002	0.458	-0.414	-0.141	0.480	-0.002	-0.184	-0.224	0.823	0.664
1	-0.981	-0.856	0.187	-0.725	-0.768	-0.510	-0.208	-0.220	-0.275	-0.014	-0.043	-0.872
2	-0.691	-0.850	0.758	0.947	0.800	0.636	0.686	-0.007	0.158	0.103	0.279	0.721
3	0.995	0.992	0.820	0.706	0.320	0.568	-0.967	-0.838	-0.109	-0.003	-0.997	-0.834
4	-0.992	-0.960	0.940	0.886	0.981	0.926	0.937	0.877	0.045	0.005	-0.736	-0.996
5	-0.857	-0.964	-0.875	-0.691	-0.843	-0.675	-0.786	-0.691	-0.309	-0.171	-0.920	0.858
6	-0.811	-0.937	-0.539	0.227	-0.021	-0.328	-0.299	-0.436	-0.355	-0.361	0.023	0.116
7	-0.834	-0.817	-0.942	-0.924	-0.475	-0.166	-0.872	-0.576	-0.160	-0.014	-0.700	-0.191
8	-0.290	-0.801	-0.407	-0.471	-0.138	0.278	0.507	-0.396	-0.069	-0.103	-0.128	-0.468
9	-0.969	-0.955	0.098	0.814	-0.116	-0.850	0.022	0.134	0.637	-0.060	-0.219	-0.560
Total	0.778	0.577	0.377	-0.061	0.092	0.029	-0.088	-0.244	-0.107	-0.071	-0.183	-0.176

Note: * – data from Brunei only until 1987

Source: Computed from ESCAP, *Economic Commission for Asia and the Pacific Report*, v.i.

TABLE 7. Sectoral output structure, ASEAN, 1965 and 1989 (%)

Country	Agriculture		Manufacturing		Mining, utilities and construction		Services	
	1965	1989	1965	1989	1965	1989	1965	1989
Brunei								
Indonesia	56	23	8	17	5	20	31	39
Malaysia	28	20	9	25	16	15	47	40
Phillipines	26	24	20	22	8	11	46	43
Singapore	3	0	15	26	9	11	74	63
Thailand	32	15	14	21	9	17	45	47

Note: figures rounded

Source: World Bank, *World Development Report*, v.i.

Given strong industrialization efforts, it will be interesting to examine ASEAN's intraindustry trade. For this exercise we examine the trade of each individual member with the rest of the world, using the GL index and the TBC to examine intraindustry in these economies. Given the large number of industries studied, we presented only the top 10 performers based on the score on the GL index. The average GL index, however, is for the 70 industries.

The average Gl index for ASEAN generally improved in the 1971-87 period (Tables 8, 9, 10, 11, 12 and 13). Only Indonesia shows a marginal fall. Indonesia's average GL index is also extremely low despite having generated strong TBC in her top 10 industries, suggesting strong exports from leading industries but with little exposure to import competition. The overall GL index average is highest for Singapore; her GL index rose sharply in the 1971-87 period. Thailand, the Philippines and Malaysia follow chronologically. In terms of the extent of change, Malaysia's index rose most in the 1971-87 period.

Except for Indonesia where primary products occupy the top three places in the Gl index, manufactured goods appear to generate the highest intraindustry trade in ASEAN economies. Ships and boats occupy the highest GL index for Brunei and Singapore – the latter showing almost equal imports and exports. Furniture had the highest GL index for Malaysia in 1987. Fertilizers and printed matter ranked first for the Philippines and Thailand respectively in 1987.

TABLE 8. Grubel-Llyod Index and Trade Balance Coefficient, Brunei, 1971 and 1985*

Rank	SITC	Grubel-Llyod		Trade Balance Coefficient	
		1971	1985	1971	1985
1	735	0.151	0.685	-0.849	-0.315
2	692	0.001	0.561	-0.999	-0.439
3	251	0.000	0.545	-1.000	0.455
4	042	0.000	0.410	-1.000	-0.590
5	332	0.709	0.385	-0.291	0.615
6	011	0.678	0.332	-0.322	-0.688
7	734	0.000	0.310	-1.000	-0.690
8	111	0.000	0.258	-1.000	-0.742
9	718	0.000	0.253	-1.000	-0.747
10	695	0.000	0.244	-1.000	-0.756
Average#		0.035	0.102		

Note: * – of 10 leading industries; # – Average for 70 industries;

Source: Computed from United Nations, *Foreign Trade Statistics of Asia and the Pacific*, v.i.

TABLE 9. Grubel-Llyod Index and Trade Balance Coefficient, Indonesia, 1971 and 1986*

Rank	SITC	Grubel-Llyod		Trade Balance Coefficient	
		1971	1985	1971	1985
1	331	0.070	0.519	-0.930	-0.481
2	042	0.000	0.441	1.000	0.559
3	011	0.697	0.432	-0.303	0.568
4	284	0.000	0.267	-1.000	0.733
5	111	0.000	0.247	1.000	-0.753
6	332	0.070	0.162	0.930	0.838
7	841	0.000	0.095	0.000	0.095
8	631	0.000	0.080	1.000	0.920
9	025	0.000	0.079	1.000	0.921
10	661	0.000	0.079	1.000	0.921
Average#		0.047	0.040		

Note: * – of 10 leading industries; # – Average for 70 industries;

Source: Computed from United Nations, *Foreign Trade Statistics of Asia and the Pacific*, v.i.

TABLE 10. Grubel-Llyod Index and Trade Balance Coefficient, Malaysia, 1971 and 1987*

Rank	SITC	Grubel-Llyod		Trade Balance Coefficient	
		1971	1985	1971	1985
1	821	0.000	0.961	0.000	0.879
2	891	0.000	0.897	0.000	0.871
3	851	0.318	0.871	0.318	0.146
4	332	0.769	0.854	0.231	0.155
5	672	e	0.854	e	0.324
6	011	0.000	0.676	-1.000	-0.349
7	673	0.000	0.651	-1.000	0.621
8	864	0.000	0.621	0.000	0.600
9	893	0.000	0.600	e	-0.489
10	641	0.000	0.511	-1.000	0.489
Average#		0.047	0.202		

Note: * – of 10 leading industries; # – Average for 70 industries; e-no imports and exports;

Source: Computed from United Nations, *Foreign Trade Statistics of Asia and the Pacific*, v.i.

TABLE 11. Grubel-Llyod Index and Trade Balance Coefficient, Philippines, 1971 and 1986*

Rank	SITC	Grubel-Llyod		Trade Balance Coefficient	
		1971	1985	1971	1985
1	561	0.000	0.997	1.000	-0.003
2	332	0.861	0.972	0.139	-0.028
3	652	0.128	0.951	0.872	0.049
4	672	0.000	0.868	1.000	-0.132
5	042	0.000	0.827	1.000	0.173
6	851	0.147	0.805	0.147	0.805
7	821	0.000	0.767	0.000	0.767
8	284	0.000	0.725	-1.000	-0.275
9	122	0.328	0.672	0.672	0.328
10	653	0.006	0.616	-0.994	0.384
Average#		0.104	0.256		

Note: * – of 10 leading industries; # – Average for 70 industries;

Source: Computed from United Nations, *Foreign Trade Statistics of Asia and the Pacific*, v.i.

TABLE 12. Grubel-Llyod Index and Trade Balance Coefficient, Singapore, 1971 and 1987*

Rank	SITC	Grubel-Llyod		Trade Balance Coefficient	
		1971	1987	1971	1987
1	735	0.182	0.985	0.182	0.985
2	266	0.004	0.984	1.000	0.890
3	283	0.464	0.974	-0.536	-0.026
4	729	0.202	0.954	0.202	0.954
5	725	0.080	0.930	0.080	0.930
6	673	0.026	0.908	-0.974	0.092
7	031	0.510	0.906	0.490	0.094
8	692	0.216	0.878	-0.784	-0.122
9	895	0.310	0.856	0.310	0.856
10	651	0.523	0.238	-0.762	-0.145
Average#		0.245	0.427		

Note: * – of 10 leading industries; # – Average for 70 industries;

Source: Computed from United Nations, *Foreign Trade Statistics of Asia and the Pacific*, v.i.

TABLE 13. Grubel-Llyod Index and Trade Balance Coefficient, Thailand, 1971 and 1987*

Rank	SITC	Grubel-Llyod		Trade Balance Coefficient	
		1971	1987	1971	1987
1	892	0.408	0.977	0.408	0.977
2	714	0.064	0.954	0.936	0.046
3	684	0.140	0.952	0.860	-0.048
4	711	0.093	0.940	0.907	-0.060
5	653	0.416	0.909	0.584	0.091
6	011	0.015	0.805	0.985	0.195
7	652	0.100	0.781	-0.900	-0.219
8	718	0.180	0.761	0.820	-0.239
9	732	0.134	0.760	0.134	0.760
10	651	0.150	0.756	0.850	-0.244
Average#		0.218	0.370		

Note: * – of 10 leading industries; # – Average for 70 industries;

Source: Computed from United Nations, *Foreign Trade Statistics of Asia and the Pacific*, v.i.

The level of intraindustry trade is measured by the GL index for the top 10 industries in ASEAN do not reveal clear structural patterns. This appears consistent with the nature of protection in these economies. The top 10 industries based on the GL index in Singapore included heavy industry based ships and boats, advanced technology-oriented electrical machinery, intermediate industry-related textile fiber and yarn, and simple processing of fresh and preserved food. Thailand's leading trade generating industries included printed matter, office machinery, non-electric machinery, road motor vehicles and fresh meat. Malaysia's leading trade generating industries included furniture, footwear, plastic articles, paper and paper board, sound recorders and equipment, and iron and steel shapes. Even natural-resource dependent Brunei shows different intraindustry trade effects with ships and boats demonstrating the highest GL index. Only Indonesia and Philippines show some semblance of intraindustry trade related to their structural position. Primary commodities generated Indonesia's highest GL indices, while intermediate processing led for the Philippines.

The TBC amongst the leading industries classified under the GL index too generally reveal little correlation between trade balance and the respective ASEAN economies' structural position. Brunei reveals strongest TBC link with resource-based industries, but with little positive relationship with the GL index. The TBC in general improved for most of the top industries. Indonesia shows high TBC for her resource-based industries. However, not much can be discerned from Indonesia's results as her GL indices were generally weak. Most of Malaysia's and Singapore's top 10 industries show strong TBC. Rising GL indices in these two economies appear positively correlated with TBC. This strong relationship is largely a consequence of leading foreign firms expanding operations in Singapore and Malaysia. The Philippines and Thailand, however, show little relationship between the GL index and TBC. While EO helped expand their TBC, imports of inputs such as electronics components helped raise the GL index. As exports to markets directly rose sharply in the 1980s in both economies, we can expect a relative fall in intra-firm trade, which if strong, will undermine the effectiveness of the GL index as a measure of intra-industry trade. For example, intra-firm trade which was very strong in semiconductors in Malaysia and Singapore in 1970s, declined since the 1980s (Rasiah 1993).

CONCLUDING REMARKS

This paper dealt with trade policy and intraindustry trade in ASEAN. It can be observed that ASEAN has been fairly open, and is expected to become a single market by 2008. Within ASEAN, Singapore enjoys virtually no protection, followed by Brunei and to a lesser extent Malaysia. Whatever the level of protection, however, trade policy in ASEAN has generally been interventionist. The wide use of IS and EO rents, and other controls (e.g. equity in Malaysia and Indonesia) meant that governments assumed a leading role in governing markets.

Apart from oil-dependent Brunei, trade structure in ASEAN economies reveal considerable structural shift from primary commodities to manufacturing. Singapore, lacking a primary sector but endowed with rich infrastructure and entrepot facilities, exhibits the strongest structural change with machinery and transport equipment dominating trade. Malaysia has shifted considerably from primary resource-based in the early 1970s to intermediate and machinery and transport equipment industries since the 1980s. Philippines, which was the most industrialized in the 1960s, shows relative stagnation structurally – her TBC has fallen substantially.

The exercise on trade structure and intraindustry trade does not show strong relationship with structural positioning. Indeed, Singapore's, Malaysia's and Thailand's leading trade generating industries are quite mixed; heavy advanced-light, intermediate and primary processing occupying places in the top 10. Only Indonesia and the Philippines show some structural relationship, the former dominating in primary products and the latter in intermediate industries. Indonesia's overall intraindustry trade, however, is weak. Intraindustry trade is strongest in Singapore and Thailand.

Brunei and Indonesia show high TBC for resource-based industries. Given the low levels of intraindustry trade attained by Indonesian industries and the dominance of oil in Brunei, the results do not reveal a strong positive relationship between intraindustry trade and improvements in trade balance in these economies. Only Singapore and Malaysia appear to show a positive relationship between improvements in the GL index and TBC. These two economies show high level of intraindustry trade in heavy and

intermediate industries, which is generally supported by the operations of foreign transnationals.

Overall, it can be observed that Singapore, Malaysia and Thailand have outperformed the other ASEAN economies in terms of structural change and intraindustry trade. Contrary to static neoclassical trade theorists, it is also clear that pro-active governance with governments planning the operations of the markets have been important in boosting structural change in these economies. From this general discussion, it is suffice to say that the creation of dynamic comparative advantage through subsidizing and sheltering industries including tapping foreign capital that generate strong long-term market growth has appeared as a significant feature in stimulating economic growth and structural change.

REFERENCES

- Akrasanee, N. & Stifel, D. 1992. The Political Economy of the ASEAN Free Trade Area. Presented at the FAEA Conference, Surabaya.
- Amsden, A. 1989. *Asia's Next Giant: South Korea and Late Industrialization*. New York: Oxford University Press.
- Ariff M. & Hill, H. 1985. *Export-oriented Industrialization: The ASEAN Experience*. Sydney: Allen and Unwin.
- Balassa, B. 1982. *Development Strategies in Semi-Industrial Economies*. Baltimore: John Hopkins Press.
- Chia S.Y. 1992. Capital Flows, FDI and the Role of Multinationals in AFTA. Presented at the FAEA Conference, Surabaya.
- Kaldor, N. 1979. Equilibrium Theory and Growth Theory. In *Economics of Human Welfare: Essays in Honour of Tibor Scitovsky*. Boskin, M.J. ed. 1979. New York: Academic Press.
- Kornai, J. 1979. Appraisal of Project Appraisal. In *Economics of Human Welfare: Essays in Honour of Tibor Scitovsky*. Boskin, M.J. ed. 1979. New York: Academic Press.
- Krueger, A. 1983. *Trade and Employment in Developing Countries: Synthesis and Conclusions*. NBER: University of Chicago Press.
- Krugman, P. 1980. Scale Economies, Product Differentiation and the Pattern of Trade. *American Economic Review* 70:750-9
- Krugman, P. 1989. Import-Protection as Export-Promotion: International Competition in the Presence of Oligopoly and Economies of Scale. In *Monopolistic Competition and International Trade*. H. Kierzkowski, ed. Oxford: Clarendon Press.
- Krugman, P. & Helpman, E. 1989. *Trade Policy and Market Structure*. Cambridge: MIT Press.

- Lewis, A. 1955. *The Theory of Economic Growth*. London: Allen and Unwin.
- Myrdal, G. 1957. *Economic Theory and Underdeveloped Regions*. New York: Methuen.
- Rasiah, R. 1993. Transnational Corporations and Backward Sourcing in the Electronics Industry: A Study of Subcontracting Links with Local Suppliers in Malaysia. Bangkok: United Nations Economic and Social Commission for Asia and Pacific.
- Rasiah, R. 1994. *AFTA and Its Implications for Industrial Restructuring: Televisions and Air conditioners in Malaysia*. Report submitted to the Thailand Development Research Institute (TDRI), Bangkok.
- Rasiah, R. 1994a. "Capitalist Industrialization in ASEAN", *Journal of Contemporary Asia*, 24 (2): 197-216.
- Rasiah, R. (forthcoming) "Relocation of Textile, Garment and Electronics Industries in Malaysia", *Southeast Asian Journal of Social Sciences*.
- Samuelson, P. 1985. Analytics of Free-Trade or Protectionist Response by America to Japan's Growth Spurt. In *Economic Policy and Development: New Perspectives*. Shishido T. and Sato, R. eds. 1985. London: Auburn House.
- Schumpeter, J. 1987. *The Theory of Economic Development*. Cambridge: MIT Press.
- United Nations. *Foreign Trade Statistics of Asia and the Pacific*. New York: United Nations. Various years.
- Wade, R. 1991. *Governing the Market: Economy Theory and Role of Governments in East Asian Industrialization*. Princeton: Princeton University Press.
- Young, A. 1928. Increasing Returns and Economic Progress. *Economic Journal*, 38(152): 527-42.

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