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ASEAN ECONOMIC STRUCTURE AND CHANGES IN AGRICULTURAL PROTECTION

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This paper analyzes changes in the economic structure as well as agricultural protection for four ASEAN countries — Indonesia, Malaysia, Philippines, and Thailand — from 1960 to 1982. The causes of change in agricultural protection are examined to infer the varying trends of the comparative advantage in agriculture. It compares the intersectoral pattern of protection and exchange rate policies to evaluate how much each country's economic policies have hindered or promoted agriculture's comparative advantage. Although the relative importance of the agricultural sector is seen to be declining in the ASEAN countries studied, the trends in nominal protection rates do not clearly indicate when the switch from taxing to subsidizing agriculture observed in the process of economic development will occur.

Two structural transformations are consistently observed throughout the economic history of developed countries and in cross-section comparison between rich and poor countries. First, the share of agriculture in gross domestic product and in total employment declines as per capita income increases (Chenery and Sirquin, 1977). This trend is often attributed to the lower income elasticity of food at higher income (Engel's Law), to the development of syn-

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thetic substitutes for agricultural raw materials; and to increases in agricultural productivity in response to growing scarcity of land and labor.

Second, at low levels of per capita income, countries tend to tax agriculture; and as per capita income grows, countries switch from effectively taxing to heavily subsidizing agriculture (Bale and Lutz, 1979; Anderson, 1983; Honma and Hayami, 1984). Hayami and Anderson explain this phenomenon in terms of changes in demand for and supply of protection. As capital accumulates relative to the endowment of land, agriculture's comparative advantage declines in favor of manufacturing. Farm producers demand agricultural protection to reduce rural-urban income disparity and minimize the social cost shouldered by the rural population in the process of intersectoral resource adjustment. At the same time, as higher per capita income and smaller size of the agricultural sector in the process of industrial development lower the burden of agricultural protection per capita on the nonagricultural population, the political resistance against agricultural protection is reduced. Reinforcing this is the fact that food self-sufficiency as a means to food security is a politically desired goal.

The decline in the relative size of agriculture and the increase of agricultural protection over time will occur at a later stage of development in countries where per capita endowment of land and other natural resources is greater, the progress of the industrial sector is slower, and technical change in agriculture is faster relative to the rest of the world. The intersectoral structure of economic policies in the country (as well as in the rest of the world) also directly and indirectly influences the rate of structural transformation.

The purpose of this paper is to analyze the structure and changes in agricultural protection and structural change in the ASEAN economies from 1960 to 1982. The causes of change in agricultural protection over time will be examined to infer the trends in each country's comparative advantage in agriculture. The extent to which domestic economic policies have hindered or promoted the realization of agriculture's comparative advantage and thus hastened or retarded a decline in the relative importance of agriculture across countries shall be evaluated by comparing the intersectoral pattern of protection and exchange rate policies. This paper covers the four largest ASEAN countries — Indonesia, Malaysia, Philippines, and Thailand. Singapore and Brunei do not have any significant agricul-

ture and owing to their very small populations, high per capita income, and strong financial capacity to import food and raw materials, food prices and food security are not considered major issues of concern in these two countries.

Economic Growth and Structural Change

Among the four largest ASEAN countries, Malaysia has the highest per capita income ($1840 in 1982), thrice that of Indonesia and more than double those of the Philippines and Thailand. With the exception of the Philippines, the overall economic performance of these countries has been relatively high by world standards (Table 1). Malaysia, which historically has been the most open economy of the four as measured by the ratio of exports to gross domestic product (GDP), consistently had the highest growth rate since 1965.

The poor record of the Philippines stems largely from having the lowest growth of the manufacturing sector in the region. In all four countries, the agricultural sector performed remarkably well with an average growth rate that is highest among the developing countries in terms of total and per capita agricultural output. The Philippine manufacturing sector, in contrast grew only at about half the annual rate in the other three countries. The generally unfavorable world market conditions in the early 1980s affected the whole ASEAN region as growth rates of GDP slowed in all countries during this period. Domestic economic and political factors, however, accounted for the overall lowest performance of the Philippines between 1980-82. Its agriculture grew at much the same rate as the remaining ASEAN partners, whereas its manufacturing growth was much slower.

Although its share of national income is declining, agriculture still dominates the ASEAN countries' total economies (Table 2). It continues to account for 36 to 74 percent of total employment and from 21 to 26 percent of gross domestic product. When all ancillary activities in agricultural processing, production of non-farm inputs, and marketing are included, the agricultural sector broadly defined employs about two-thirds of the labor force and contributes about half of the national income. The greatest shift in structural employment was in Malaysia and Indonesia. Indonesia also had the steepest rate of decline in the share of agriculture due largely to the rapid growth of the oil-based sectors. In terms of the contribution to both gross domestic product and employment, the Philippines had the lowest rate of sectoral shift.

Table 1 — Trends in Growth Rate of Gross Value Added By Sectors in 4 ASEAN Countries

	Gross value added (at constant prices)		
	GDP	Agriculture[a]	Manufacturing
Indonesia			
1960-65	2.0	1.4	2.1
1965-70	6.5	3.9	6.9
1970-75	8.1	4.3	12.6
1975-80	7.4	3.7	13.9
1980-82	5.0	3.5	5.6
Malaysia			
1960-65	6.2	4.2	12.1
1965-70	11.5	9.9	14.4
1970-75	7.8	5.8	13.0
1975-80	7.6	4.4	9.4
1980-82	6.4	5.7	4.4
Philippines			
1960-65	5.0	3.7	5.2
1965-70	5.1	4.1	6.8
1970-75	6.1	4.5	7.5
1975-80	5.9	4.9	6.3
1980-82	3.3	3.5	2.8
Thailand			
1960-65	7.9	5.8	10.0
1965-70	7.8	4.6	10.9
1970-75	7.3	4.8	11.5
1975-80	7.3	4.0	9.4
1980-82	5.2	3.9	5.4

[a]Includes agriculture, forestry, and fishing.

[b]Except for the 1980-82 subperiods, end years are 5-year averages centered at the year shown.

Sources: Asian Development Bank, *Key Indicators of Developing Member Countries*, bi-annual, Manila.

Table 2 — Trends in the Selected Indicators of Agriculture's Economic Importance in 4 ASEAN Countries

	Share of agriculture[a] in		
	GDP[b]	Labor force[b]	Exports[c]
Indonesia			
1960	54	75	60
1965	52	70	46
1970	48	66	47
1975	37	63	22
1980	30	60	22
1982	26	53	12
Malaysia			
1960	38	58	61
1965	34	55	57
1970	32	53	62
1975	28	49	60
1980	24	41	41
1982	24	36	43
Philippines			
1960	26	61	87
1965	26	55	84
1970	25	49	73
1975	25	49	73
1980	23	51	42
1982	22	50	41
Thailand			
1960	40	84	89
1965	36	82	83
1970	32	79	75
1975	31	73	70
1980	25	71	59
1982	21	74	56

[a]Includes agriculture, fishery, and forestry.

[b]Source: ADB *Key Indicators of Developing Member Countries,* bi-annual, Manila.

[c]Source: FAO, *Trade Yearbook*, Rome.

Table 3 — Import-Export Ratios of Agricultural Products and Food Products in 4 ASEAN Countries

	Indonesia		Malaysia		Philippines		Thailand	
	Agric	Food	Agric	Food	Agric	Food	Agric	Food
1960-64	na	na	0.52	5.22	0.26	0.53	0.13	0.16
1965-69	0.48	1.66	0.41	3.91	0.29	0.69	0.20	0.20
1970-74	0.44	1.87	0.34	1.90	0.26	0.44	0.21	0.13
1975-79	0.45	1.24	0.29	1.89	0.27	0.40	0.19	0.08
1980-82	0.54	1.23	0.32	2.55	0.33	0.46	0.20	0.10

Source of basic data: FAO *Trade Yearbook*, Rome.

Agriculture provides a net surplus of foreign exchange in each of these countries as 40 to 60 percent of export receipts are earned from agricultural exports. The sharp increase in the value of crude petroleum and natural gas exports during the 1970s in Indonesia explains the substantial decline in the share of agricultural products in its foreign trade, even as the absolute growth rate of its agricultural exports was actually among the highest in the region during this period. Unfavorable terms of trade accounted for the marked reduction in the share of agricultural exports in the early 1980s in all four countries. Novertheless, the relative importance of agricultural exports in real terms had been showing a long-term decline despite the world commodity boom in the 1970s.

Agricultural imports constitute from 20 to 40 percent of agricultural exports, with Indonesia having the highest and Thailand the lowest ratio among the four countries (Table 3). Malaysia, however, has the highest agricultural trade surplus as a proportion of GNP and also has had an improvement in the ratio of agricultural imports to exports over time. The deterioration in the import ratio in the 1980s which affected all countries was due to the worsening terms of trade.

Malaysia and, to a lesser extent, Indonesia are net importers of food commodities. Malaysia's agriculture is heavily dominated by rubber and palm oil, its leading export earners, as their share cur-

rently exceeds 70 percent of gross value added of agricultural crops and livestock. Food crops have become even less important over time in Malaysia as rising wages shifted agriculture's comparative advantage away from the relatively labor intensive food crops such as rice and smallholder production of pineapple, rubber, and tea to estate crops particularly palm oil. By the early 1980s, the contribution of palm oil has surpassed rubber. The government did try to promote the production of rice, livestock and other food commodities through various incentives after the end of the colonial period in 1957 and succeeded in reducing food import dependence over the next two decades. By the late 1970s, however, greater imports of rice and other food commodities were allowed as the economic cost of achieving self-sufficiency targets rose.

In Indonesia, production of food commodities constitutes almost 80 percent of agricultural gross value added but net food imports are required because of the relatively high population density relative to the cultivated area. The decline in food import dependence observed in recent years is due mainly to the increase in self-sufficiency in rice which accounts for 50 percent of agricultural gross value added and as high as 50 to 60 percent of agricultural imports. In the Philippines, the attainment of self-sufficiency in rice and the expansion of production of nontraditional import-competing and exportable food crops (corn, coffee, pineapples, and bananas) lowered the food import dependence ratio since 1970.

Thailand has the lowest ratio of agricultural and food imports to exports as virtually all its major agricultural products are competitive in the world market. The eradication of malaria and rapid expansion of market infrastructure in the Northeastern region, together with the heavy taxation of rice exports over the postwar period induced a major crop diversification from rice, the leading crop and export earner, to a larger variety of crops for export — cassava, sugar, corn, and other upland crops. Thailand's rate of trade surplus for food commodities which increased over time is greater than that of the other agricultural commodities.

The continuing importance and trade surplus position of agriculture in the ASEAN region indicates a measure of comparative advantage in agricultural production (Tyers and Anderson, 1984). In contrast to East Asia which is a net importer of food and raw materials with agriculture contributing only 4 to 16 percent of GDP and 12 to 20 percent of labor force by 1980, ASEAN is a group of

Table 4 — Land Endowment per Capita in Selected Asian Countries, 1979-81

	Land per capita			
	Total[a]	Cultivated land	Short-cycle crops	Tree crops
Indonesia	1.22	0.14	0.10	0.04
Malaysia	2.34	0.31	0.07	0.24
Philippines	0.61	0.20	0.14	0.06
Thailand	1.09	0.39	0.35	0.04
Japan	0.32	0.05	0.04	0.01
South Korea	0.25	0.06	0.05	0.004

[a]Including arable land and permanent crops, permanent pasture, forest and woodland and other lands.
Source: FAO, *Production Yearbook*, Rome.
Updtd July 87, AE85-13

resource-rich countries (Table 4). Indonesia has the lowest cultivated land per capita in the region but this still is almost three times greater than in East Asia. There is still considerable potential for expanding agriculture outside Java where the population is presently concentrated as Indonesia's endowment of total land per capita is even more favorable than Thailand and the Philippines.

The fact that tree crops constitute a major part of agriculture in Malaysia, and to a lesser extent, in the Philippines and Indonesia means that exports are a major component of demand. Thailand does specialize in food crops but being largely export-oriented, global demand for their product tends to be more elastic. Rapid diversification in agriculture during the past three decades also was towards production of those food crops with greater elasticity of demand.

In the next section, the analysis of the structure and changes in agricultural protection will allow further assessment of ASEAN's comparative advantage in agriculture. Moreover, we evaluate the extent to which intersectoral patterns of protection as determined by commodity specific and exchange rate policies have affected agricultural incentives.

Structure and Changes in Agricultural Protection

Government interventions in agriculture have been intended to achieve many different and often conflicting objectives: cheap food and raw materials to promote industrialization, greater government revenue, food self-sufficiency, stable prices, and higher farm income. Export taxes, import tariffs, trade quotas, price controls, and marketing operations of national marketing agencies are typical commodity-specific policies driving a wedge between domestic and border prices. The effect of these agricultural policies is measured by nominal protection rates (NPR), the percentage difference between domestic and border prices at the same point in the marketing chain. While government policy determines the size of the price difference, the sign or direction of this difference depends upon whether or not the country has a comparative advantage in the production of a commodity. There is a tendency for NPR to be positive for an import competing product but zero or negative for an exportable or nontraded commodity. Policy changes resulting in changes in NPRs over time may be considered responses to shifts in comparative advantage as a result of improvements in productivity, factor price changes, or changes in world market conditions.

Structure of Agricultural Protection

Table 5 summarizes the nominal protection rates of the major agricultural commodities from 1960 to 1982. The series for Indonesia started only in 1970 because of the difficulty of choosing the appropriate exchange rate during the 1960s, a period of great instability in its history.

Average NPR for the region is generally low because of the large share of exportable and nontraded agricultural commodities particularly in Malaysia and Thailand. For 1980-82, average NPR for Indonesia and the Philippines is marginally positive (3 to 5%) but is near zero if livestock products are excluded. Average NPR for Thailand and Malaysia is slightly negative (–5 to –7%). These average figures, however, conceal wide variations in nominal protection rates by country and by commodities with exportables receiving less protection than import competing commodities.

Penalties on traditional major exports have been as high as 20 to 40 percent for rubber, rice, coffee, and copra. About 20 to 30 percent of the implicit tax on rubber, however, is a tax collected to fund research and replanting. NPRs are much less for the nontraditional

and minor export crops. For example, the domestic price of palm oil is only about 5 percent below border price in Malaysia, and in the Philippines, the export tax on nontraditional exports is 4 percent. Taxes on exports are typically levied to raise revenues, promote agricultural processing and stabilize prices. The high export taxes on rubber in Malaysia, rice in Thailand, and copra in the Philippines, however, have been aimed partly to extract perceived monopoly rents from the world market. Exports of these countries account for a significant share of international trade in these commodities but many scholars have shown that domestic farmers do in fact shoulder most of this tax (Booth, 1980).

Table 5 — Trends in Nominal Protection Rate[a] of Selected Agricultural Commodities in ASEAN Countries

	Rice	Corn	Sugar	Rubber	Palm oil	Beef	Pork	Chicken
Indonesia								
1970-74	−1	−18	42	−28	−33[b]	−46	na	na
1975-79	−6	23	22	−29	−18[b]	26	na	16
1980-82	−4	33	71	−19	−31[b]	37	na	87
Malaysia								
1960-64	8	18	17	−31	(32)	42	na	na
1965-69	2	14	27	−29	−9	19	24	100
1970-74	20	19	17	−28	(−12)	7	na	66
1975-79	19	17	20	−33	(−6)	42	7	36
1980-82	16	14	39	−40	(−5)	42	6	41
Philippines		[c]						
1960-64	21	46[c]	32	0	0[d]	45	54	97
1965-69	15	38[c]	174	0	0[d]	−4	50	122
1970-74	7	20[c]	36	−4	−12[d]	−32	18	55
1975-79	1	20[c]	−16	−4	−22[d]	17	−3	58
1980-82	−1	20[c]	4	−4	−30[d]	57	6	85

Table 5 (Continued)

	Rice	Corn	Sugar	Rubber	Palm oil	Beef	Pork	Chicken
Thailand								
1960-64	−29	0	na	−20	0[e]	−35	35	−3
1965-69	−31	0	37	−16	0[e]	−35	61	41
1970-74	−28	0	−11	−17	0[e]	−31	33	20
1975-79	−24	0	6	−13	0[e]	−17	−2	−1
1980-82	−17	0	0	−31	0[e]	−31	na	na

[a]Defined as the percentage by which domestic price exceeds border price. Domestic price is represented by domestic wholesale prices. Border price is usually CIF import unit values for importables and FOB export unit values for exportable. For livestock products, the same border price was used in the four countries, i.e., CIF import unit value of Hongkong (pork and chicken) and of the US (beef). Border price of rice for Indonesia is based on Thai world price quotations for 25% brokens plus 15% for insurance and freight. NPR for corn and cassava in Thailand is assumed zero as there are no export tax on these products.

[b]Coffee.

[c]Copra.

[d]Selected nontraditional exports.

[e]Cassava.

Source: FAO *Trade Yearbook*, Rome.
Office country sources.

Policies in developed countries have conferred protection to a few ASEAN exports. Prior to 1974, Philippine access to the US sugar market raised domestic producers prices above world prices by about 80 percent between 1960 and 1974. The European Community's (EC) protection of its feedgrain industries raised the value of cassava pellet exports of Thailand and Indonesia. This premium is not reflected in Table 5 but one indication of the impact of the EC feed policy on Thai domestic cassava price is the 20 percent NPR derived for cassava starch, the alternative use of cassava in ASEAN countries.

Except for livestock products, nominal protection rates for import-competing food commodities are generally modest because the objective of maintaining low food prices continues to be an important policy goal. Since livestock products are typically consumed by the relatively higher income segment of the population, protection

rates are generally higher than for food crops. NPRs for import competing food crops are generally in the order of 20 percent. An exception is the domestic price of rice in Indonesia which has been kept slightly below or at import parity. The high NPRs for sugar in 1980-82 in Indonesia and Malaysia were due to the sharp drop in world prices.

Changes in Agricultural Protection

Trends in the nominal protection rates over time in the ASEAN region do not indicate the same consistent pattern of change from effectively taxing to heavily assisting agriculture observed in East Asia during the postwar period. With the exception of rice, protection rates for agriculture in Indonesia appear to be rising. In Malaysia, protection of rice and sugar increased but not the rates for other commodities. In Thailand, penalty to rice was reduced as protection in sugar, pork, and chicken declined sharply. Protection rates generally declined in the Philippines.

There are at least three reasons why the decline in agriculture's comparative advantage in the ASEAN countries could be expected to occur later. As mentioned earlier, land endowment per capita is much more favorable than in East Asia. Related to this is the significant share in ASEAN agriculture of tree or commercial crops which have a more elastic long-term demand than food crops. Finally, the level and growth rate of per capita income of ASEAN countries in 1980 is still relatively lower than those in East Asia back in 1960. In particular, the 17-20 percent annual growth rate of the industrial sector in East Asia in the 1960s was more rapid than the 10 to 14 percent achieved in ASEAN during the past two decades.

The implication that Indonesia may be losing comparative advantage in agriculture earlier than the other three ASEAN countries is consistent with its having the lowest cultivated area per capita. Because Indonesia also has the group's lowest per capita income, the price of rice was kept at or below border price. The substantial oil revenues generated in the 1970s financed the accelerated public expenditures for irrigation, extension, credit and fertilizer subsidies in rice up to the early 1980s. The country's rice self-sufficiency ratio increased in spite of an increase in per capita consumption of rice from about 100 kgs in 1960 to 134 kgs by 1980. By raising the profitability of both fertilizer and irrigation, the introduction of modern varieties in the late 1960s lowered the cost of achieving self

sufficiency goals in rice. This strategy of intensification in the rice sector instead of opening new land outside Java, however, may have hastened the decline in comparative advantage in other crops in Indonesia.

In Malaysia which has the highest income per capita and the best economic performance among the four, the rapid growth in wages has led to a decline in comparative advantage in the labor-intensive production of food crops and in the small-holder rubber sector. Having abundant land resources, growth in agricultural production was sustained by the successful shift to palm oil and introduction of labor saving innovations in the rubber sector. Having also been historically a relatively open economy with a small population, increasing food import reliance was politically acceptable. A modest amount of price protection and input subsidies continue to be provided the rice sector primarily for ethnic equity rather than food security considerations as rice farmers, almost all Malays, typically belong to the poorest segment of the population.

The Philippines registered the poorest national product growth record especially in the manufacturing sector where growth in productivity was much less than in agriculture (David, *et al.* 1984). Real wages have fallen. This simultaneously raised agriculture's comparative advantage but also the political demand for lower food and raw material prices for the urban sector.

Two other major reasons why agricultural protection rates generally declined in the Philippines and in selected commodities in the other countries relate to changes in world market conditions and to increases in productivity. Unprecedented increases in world prices of ASEAN's major agricultural products occurred in the 1970s (Fig. 1). The attempt to insulate domestic consumers and agro-processing industries from higher food and raw material prices and to siphon-off windfall profits for the State led to the decline in protection or increase in taxation of several commodities. Except in the Philippines, this policy response aimed only at price stablization and hence the increase in taxation pertained only to the specific sub-period, e.g. sugar (1970-74) and rubber in Thailand (1980-82) and in Malaysia (1980-82). In the Philippines, however, the increase in government regulation (and hence taxation of exports), especially in sugar and copra, occasioned by the world commodity boom was much more severe and prolonged, extending beyond the end of the boom period.

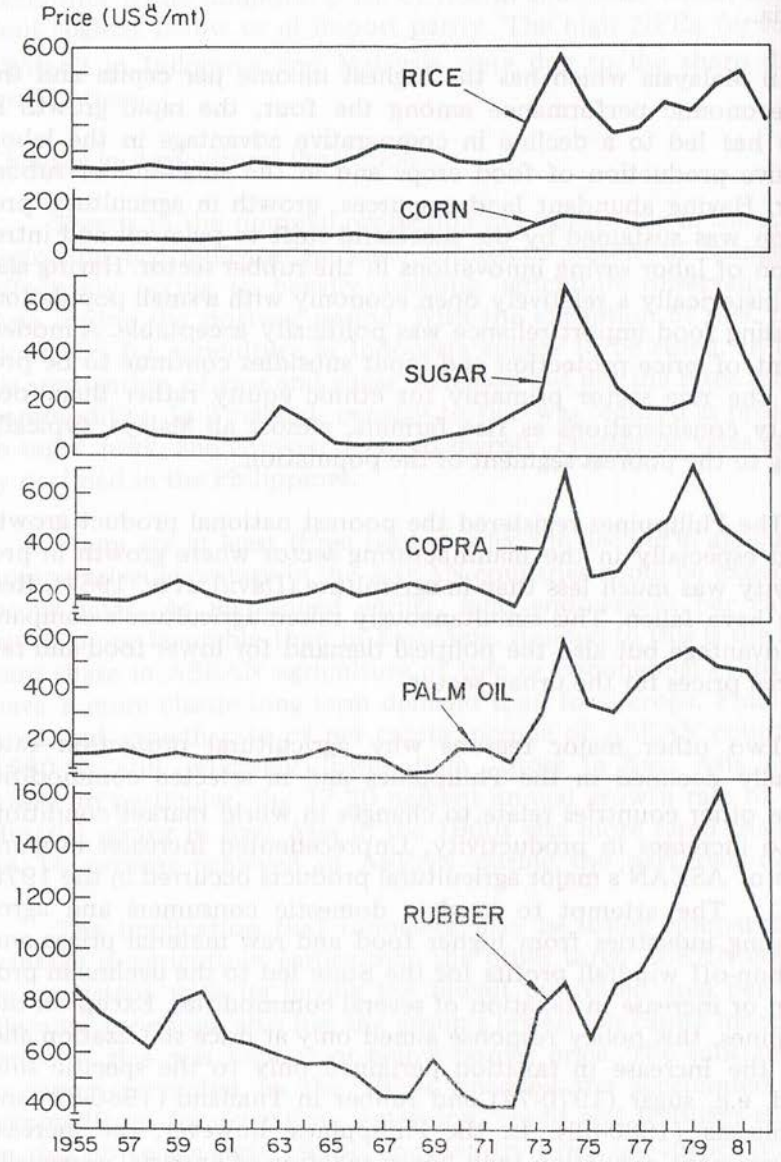

Figure 1 - Trends in World Prices of Rice, Corn, Sugar, Copra, Palm Oil and Rubber, 1955-'82.

Source: IMF *International Financial Statistics.*
World Bank Economic Analysis and Projections Dept., Commodity Studies and Projections Division.

Increases in productivity will tend to lower nominal protection rates of import-competing commodities. Rightward shifts in supply curve reduce the wedge between domestic and border prices turning the government and natural protection (the latter being due to international marketing cost) partly or fully redundant. Efficiency gains resulting from the shift to commercial type of production, vertical integration of feed milling and livestock production and international technology transfer facilitated by this new organization of production lowered the protection rates of pork and chicken in Malaysia, Philippines, and Thailand. Thailand, being an exporter of corn, has the competitive advantage in the export of poultry products among ASEAN countries.

Figure 2 illustrates the trends in productivity, as represented by yields, of selected major crops in the four ASEAN countries. Yields of sugar in Thailand grew by two thirds in the 1970s but they stagnated in the Philippines and even declined in Indonesia, which has become more import-dependent in this commodity. As Thailand shifted from being a net importer to being one of the top sugar exporting countries, NPR of sugar was gradually eliminated.

Corn yields have risen in both the Philippines and Indonesia. However, the nominal protection rate of corn in Indonesia increased because of the greater competition with rice for land in Java as yields in rice grew even faster. In the Philippines, both productivity growth and more liberal import policy to defend ceiling prices on livestock products lowered protection of corn producers. Technical changes in rubber and in rice have had differential impact on comparative advantage in the production of these commodities in the different countries. Rapid gains in yields of rubber occurred only in Malaysia where 80 percent of the area was already planted to high-yielding varieties. This compares with 15 percent or less in Indonesia and Thailand. The growth in comparative advantage of Malaysia in rubber relative to the other two countries is consistent with the trends in their respective nominal protection rates. Indonesia and Thailand have had to reduce export taxes for rubber in order to maintain their world market shares.

The most dramatic regional yield improvements occurred in rice with the introduction of modern varieties (MVs) in the mid-1960s. Modern varieties have been generally more suited to irrigated conditions. Due to physical conditions, the cost of irrigation per hectare is lower among traditional importers. The regional impact of

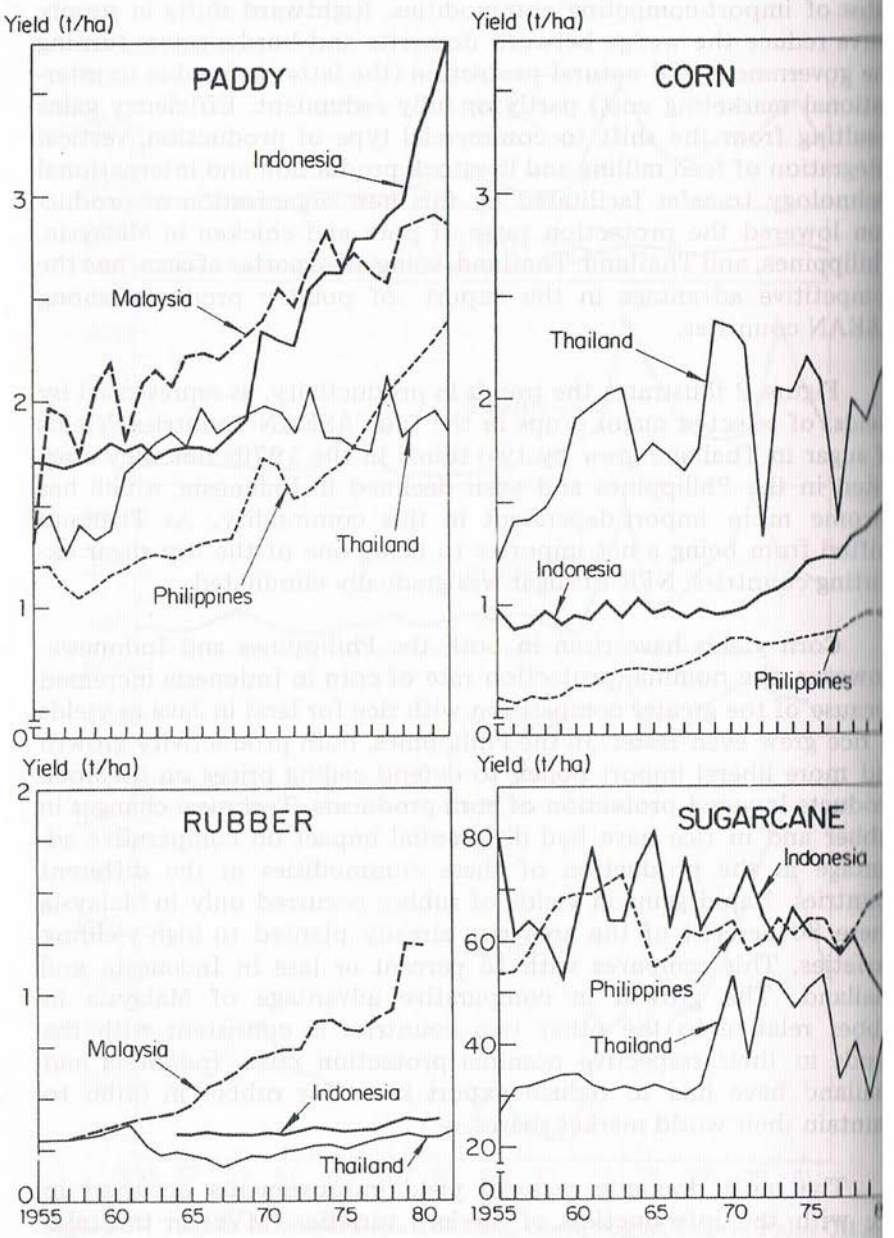

Figure 2 - Trends in Yield of Paddy, Corn, Rubber and Sugarcane in ASE Countries

Source: FAO *Production Yearbook* (various issues).

chnical change in rice therefore has been to lower the cost of producing rice in traditional importing countries, i.e., the Philippines and Indonesia, more than in traditional exporting countries, e.g., Thailand (Siamwalla and Haykin, 1983). An exception is Malaysia where by the late 1970s, as real wages rose, it became clear that importing rice had become more economical.

The spread of MVs was earliest and most rapid in the Philippines and as the country shifted from being a net importer to exporting small surpluses, nominal protection and real price of rice declined. Rapid adoption of MVs came later in Indonesia, but increases in yields were even greater. Self-sufficiency in rice was achieved by 1984, and real rice price declined as per capita rice availability increased. However, the growing comparative advantage of Indonesian rice production is not reflected in the trends of NPR as government trade and marketing policy has kept domestic price close to import parity since the early 1970s.

Because the proportion of irrigated areas in Thailand is low, adoption rates of modern varieties and fertilizer use were lower. Yields remained about the same between 1965 and 1982. As world prices of rice fell in real terms, Thailand reduced penalties to exporting rice to maintain farmers' income and incentives. As a result, rice production and exports continued to expand at historical growth rates.

Intersectoral Pattern of Protection

Crop-specific policies have generally imposed a tax on prices received by farmers, particularly of exportable crops. In Malaysia and Indonesia, some import competing crops have been conferred modest levels of protection. Consideration of input price policies will not essentially change the pattern indicated by the nominal protection rates as such policies have been significant only in rice in Indonesia and Malaysia.

The Philippine policies which reduced agricultural protection since 1970 have limited the country's ability to benefit from the extraordinary growth of world trade brought about by the commodity boom in the ASEAN's major exports in the 1970s. As a result, annual growth of agricultural exports in the Philippines was only 9 percent compared to 20 percent per year in the other ASEAN countries during the 1970s. By contrast, policy responses to changes

in world market conditions and productivity in the other countri were purely based on stabilization objectives and tended to put mor stress on farm incentives.

Agricultural incentives and the direction and rate of resour flows between agriculture and nonagriculture are influenced not onl by the levels of agricultural protection but also by the nature of i centives in the industrial sector and by distortions in the macro pri of foreign exchange. The penalty on Philippine agriculture impos by the industrial protection system and the undervaluation of forei exchange is even more severe than commodity-specific policie Among ASEAN countries, the Philippines has the highest avera tariff rate (44%), followed by Indonesia (33%), Thailand (29%), an Malaysia (15%) (Ariff and Hill, 1985). Malaysia's average tariff ra would have been lower if the high tariffs on beverage and tobac were excluded. The same ranking is indicated by estimates of nom nal (NPR) and effective (EPR) protection rates for manufacturing. the Philippines, the system of industrial protection was estimated cause a 20 to 30 percent overvaluation of the peso (Medalla, 197 Compared to the other ASEAN countries, foreign debt as a ratio total exports has grown most rapidly and is now highest in the Phil pines. Declining agricultural protection and increasing distortion the exchange rate not only continued but increased the bias agai agriculture in the Philippines over the 1970s.

Unlike Philippine manufacturing protection which encourag capital-intensive industries, Indonesia's industrial protection which next highest appears to favor unskilled labor intensive activities (Ar and Hill, 1984). The increase in real farm wages in Indonesia compar to the declining trend in the Philippines reduces competitiveness Indonesian agriculture in the world market but imporoves incomes a income distribution in the rural sector. The "Dutch Disease" syndro expected in the wake of the oil boom in the mid-1970s did not hav significant adverse effect on agriculture with the timely devaluation 1978 and the acceleration of government spending for irrigation, fa input subsidies, research, and extension (Warr, 1984; Glassburn 1985).

Except for rubber, Malaysia has the least discrimination agai agriculture. In fact, net effective protection for food commodit tended to be higher than that for manufacturing. Macroeconom policies pursued continued the generally open trading system char teristic of the prewar period and have had a stimulating effect on

whole economy. Thailand's economic policies affecting agriculture are, in relative terms, not as discriminatory. The heavy taxation of rice is the exception, but perhaps the early crop diversification induced by this policy ultimately lessened the severity of the adjustment process required as the pattern of regional comparative advantage in rice changed in the 1970s.

Conclusions

Since they have relatively abundant cultivated land area per capita, the four largest ASEAN countries continue to have a comparative advantage in agriculture. This is indicated by their agricultural trade surpluses and their low average nominal protection rate on agriculture. While average nominal protection of agriculture is near zero or negative and does not substantially differ among ASEAN countries, there are significant variations in the structure across commodities and in the changes in the NPRs over time. These patterns of agricultural protection across countries, commodities, and time reflect not only the pattern of comparative advantage but also the nature of policies pursued by each country which either hinder or promote the realization of each country's respective comparative advantage in agriculture. While the relative importance of the agricultural sector has been declining in these ASEAN countries, it is not clear when the switch from taxing to subsidizing agriculture observed in the process of economic development will occur.

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