

RICE PRICE STABILIZATION AND SUPPORT IN MALAYSIA

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I. INTRODUCTION

RICE IS THE STAPLE food of over half the world's population; those who eat rice are amongst the world's poorest people. Roughly half the rice produced is consumed on the farms where the padi is grown and less than 5 per cent of the total enters world trade. Nonetheless, rice is the most important primary commodity traded among developing countries. Because most of this trade occurs between countries in Southeast Asia, the region offers considerable scope for cooperation in development and trade policies with rice an important factor in any accord. Malaysia, however, is pursuing policies which will make it increasingly difficult for her to eventually sacrifice economic nationalism for cooperation within ASEAN in the area of rice trade.¹ Moreover, there is some doubt whether these policies are in the more immediate interest of Malaysia.

Malaysia's rice policy has evolved naturally out of the role rice plays in the national economy as a staple food, source of employment, and user of foreign exchange, as well as the relative poverty of the padi cultivator. The average Malaysian spends 21.5 per cent of his income on rice.² Rice production employs 20 per cent of the total economically active population in West Malaysia and 32 per cent of those in the agricultural sector [1, p. 34] [27, pp. 38-40] [31, p. 10]. Fourteen per cent of all acreage under crops is devoted to rice, second only to rubber in this respect, and rice accounts for 84 per cent of all land upon which annual crops are grown. The relative poverty of the one-fifth of the population

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¹ A regional multilateral contract (Asian Rice Agreement) would offer an alternative to the inclusion of rice in a comprehensive Asian development plan. The prospects for such a contract are enhanced by existing government monopolies over rice imports in Indonesia and the Philippines and the willingness of the Thai and Burmese governments to negotiate intergovernmental sales in the past

² Percentages by race of expenditure on rice in rural areas in 1957/58 were Malays 32.6 per cent, Chinese 22.2 per cent, and Indians 21.3 per cent. In urban areas these figures were 19.0 per cent, 15.9 per cent, and 18.2 per cent, respectively [16]. In 1960 rice represented 40 per cent of total food consumption by weight. In Asia rice eaters consume 300-500 pounds a year on average or 40-70 per cent of their calorie intake. Rice production represents about 4-5 per cent of Malaysia's net domestic product and one-tenth of the primary net domestic product [27, p. 2].

in rice production is demonstrated by the fact that they contribute only 5 per cent of the gross domestic product. Despite Malaysia's consistently healthy balance-of-payments surpluses and the fact that rice imports consume only 3.9 per cent (1961-70) of foreign exchange earnings from commodity exports [27, p. 92] [15], the rice program is seen as an important source of foreign exchange savings, as well as a means of channeling wealth to a poor sector of society and of providing against a rice shortage in the event of a regional or national political crisis.

In addition to the price stabilization and support measures discussed below, an effort has been made in all padi growing areas to improve the techniques of production, principally through the adoption of improved variable inputs. Seeds of quick-maturing varieties are provided free to first-time off-season cultivators, and fertilizers, pesticides, insecticides, tractor services, irrigation facilities, and extension education are supplied free or at subsidized rates. Although the program is comprehensive in the range of inputs covered, it is not always extensive for the government's policy is to concentrate efforts in those "rice bowl" areas which are most suited for padi cultivation. By way of compensation a fertilizer subsidy, which amounts to 30 per cent of market price, applies only to other areas.³

One important aspect of the self-sufficiency program is expanded double-cropping. An increase from 46,000 acres under double cropping in 1962 to 300,000 acres in 1970 has been achieved largely through irrigation schemes in Perak, Penang, and Selangor, the Muda irrigation scheme in Kedah and Perlis (260,000 acres or one-third of all padi land in Malaysia), the Kemubu scheme in Kelantan (47,000 acres), and the Besut project in Trengganu (12,600 acres) [27, p. 3]. Despite the difficulty of adapting rice to an equatorial climate, these efforts together with other improved inputs have given Malaysia one of the highest average padi yields of any country in the region, an achievement which is diminished somewhat by the accompanying high costs. In addition, the government has sought to increase market supply of milled rice through programs aimed at greater marketing efficiency and at improving the recovery rate of rice from padi. In 1968 there were no mills capable of producing rice comparable to the better imported rice; the widely used Planters' type of milling units bring a high proportion of broken grains [27, p. xii]. Several new government mills now produce high quality rice comparable to the best imported rice. Policies to increase marketing efficiency in the provision of credit, processing, marketing improved inputs and outputs and consumer goods, have led to government and cooperative competition with private trade, both subsidized and unsubsidized (i.e., padi drying is subsidized in government mills).

³ Allocations cover only part of total fertilizer used in these less preferred areas. The limited number of distribution points of appointed agents in these areas means that they are frequently too far from the farmer for the subsidy to constitute a saving after account is taken of transport costs and time. Many of these farmers still prefer to buy from traditional sources from whom they obtain credit.

II. RICE PRICE CONTROL DEVICES

Authority for the control of rice price in Malaysia lies with the National Padi and Rice Board (LPN) which administers a mechanism composed of a number of control devices, the most important of which are the rice buffer stock, import quota, variable "tariff" and compulsory sales by millers. In practice the authority utilizes these separate devices as complementary components of a single mechanism designed to control the price in the face of a changing domestic and international market. Thus, the buffer stock need not always buy rice to support the floor if restricting imports would accomplish the same end with less effort and risk. Alternatively, the variable tariff might be brought into play. Generally the floor is protected by the simultaneous use of all three devices, the relative support from each varying from time to time.

A. *The Buffer Stock*

The buffer stock is chronologically the first device put into use. Its origins date to the early postwar years when the communist victory in the People's Republic of China, the Korean War, and the general deterioration in international relations within the region made the strategic importance of a stock apparent. The stock was accumulated to enable the Federated Malay States to become independent of international political crises. As the threat of a crisis diminished, the stock was retained to meet the recurring world price fluctuations emanating largely from the geographical concentration of production for export in the United States, Thailand, and Burma. Local supply fluctuations in one or the other of these countries periodically disrupted world markets. Political unrest in Burma in 1962 and unfavorable weather there and in Thailand in 1966-67, for instance, brought a marked increase in world price in those years. In the shorter run, the seasonality of rice production in Asia and rice's rapid deterioration after harvest are contributing factors to price fluctuations.⁴

The Malaysian national buffer stock supports a floor price by purchases when the world price is low and defends the ceiling by sales when it is high. Although the price stabilization aspect of the stock has diminished with the more recent efforts to permanently support the domestic price above the world price, the control authority continues to hold the equivalent of four months domestic absorption of rice (according to LPN), as assurance against a domestic political crisis precipitating a local shortage. As will be explained below, the stock also serves a function in the operation of the variable "tariff."

The stock was initially intended to stabilize inter-seasonal prices and, thus,

⁴ Padi with a moisture content of 14 per cent will deteriorate in several weeks and with above 20 per cent becomes yellow in several days. Dry milled rice will absorb 15 per cent of its weight in moisture from the air. Once wet, mould sets in within a few days and respiration causes loss of nutrients and weight. The maximum storage period for dry milled rice is about six months although this period may be extended to twelve months with methyl bromide gas. Malaysian buffer stock rice is turned over every six to eight months.

from 1949-56 had a price range which varied with the general level of world prices. There was no attempt in this period to control the trend of prices. From 1956 to the present the range has been virtually unchanged. For the six years 1956-62, the floor was held at M\$15 a picul (1 picul = 133 pounds.) for good dry padi of not more than a 13 per cent moisture content delivered at mill door. During the last ten years, 1964-73, despite annual reviews by the cabinet, the floor has remained at M\$16 a picul. In the absence of a formula based on economic criteria for setting the price from year to year and in light of the predominance of political considerations entering into its determination, it is likely to remain at this level in the foreseeable future. Rice consumers, frequently no better off than growers, argue that the floor price should be brought in line with low world prices, but erosion of government support from padi producing areas has prevented any downward revision. A compromise between the growers preferred M\$20 price (an increase based on inflation of the cost of inputs and household necessities) and consumers M\$12 gives an unweighted average of M\$16. (Malaysia's experience in this regard reinforces that of Japan and Sri Lanka; once a high minimum price has been established it is politically expedient to avoid a decrease.) Small alterations have been made in the ceiling price over the last ten years, but for the last six it has been fixed at M\$32 a picul for milled rice.

The floor price of M\$16 a picul to the farmer is administered indirectly since direct purchases of padi by the government from farmers constitute only 4 to 5 per cent of government purchases.⁵ The remainder of buffer stock rice is purchased from private millers who may be required to present certificates attesting to the price paid the farmer. (No attempt however is made by the authority to verify the validity of these certificates. In some cases the certificates are signed by the farmers from whom the padi is purchased.)⁶ To an extent the variety of marketing systems between states causes farmers to experience floor price support differently according to the area in which they live. In all states buyers, sellers, importers, and millers are required to be licensed, although considerable trade nevertheless finds its way to unlicensed intermediaries.⁷ In Penang, Krian, Perlis,

⁵ According to LPN, and [1, pp. 34-47] [20, p. 62].

⁶ The certificate when signed by the farmer, however, gives no assurance that he knew what he was signing, especially since 40 per cent of padi farmers are illiterate [31, p. 28]. If subsequently questioned by the government, the farmer who did not sign may be afraid to say so. The restrictions on the movement of padi and rice, and the price control device have on occasion worked against one another. In 1972, for instance, the authority unwittingly raised prices above the floor outside scheme areas through a combination of import restrictions and "tariffs." To avoid loss of purchases through its agents in the State of Malacca, the authority had then to erect check points manned by its enforcement officers to prevent transport of padi to the high price market in the neighboring State of Johore.

⁷ See [27, p. 92]. Also Wharton [35] argues that limiting licenses to those who can pay the initial and annual statutory fees increases monopsony in remote rural areas by reducing competition. Moreover, he maintains that the policy whereby licensing boards tie the number of licenses to total volume of marketable surplus in order to insure a minimum volume of trade to each intermediary increases his monopsony power over the cultivator thus reducing production which, in turn, brings a reduction in the number of licenses. In a study of four villages in the Muda scheme area, Purcal [29, p. 124] observed, "From the analysis of price spread it is seen that the market intermediaries, particularly the

and Tanjong Karang the government operates rice marketing schemes that provide various forms of market supervision. In the latter area, which produces 11 per cent of the national output, a statutory marketing monopoly operates [1, p. 44]. There, licensed dealers can buy only in the place specified by their licenses and they must sell to the cooperatives or the government. In the Tanjong Karang trading scheme area, and to a large extent in that in Kelantan, the monopoly of padi buying is in the hands of the cooperative societies; milling agents and independent operators are excluded from buying padi. No padi can be removed from or into a scheme area without the authority's consent and throughout the country the movement of more than ten piculs without a dealer's license is prohibited. In order to control the smuggling of padi and rice from Thailand, where normally the price is about half the Malaysian price, specific permission is required to move padi and rice from the State of Kelantan. A similar restriction applies to the movement of rice from the State of Malacca. These restrictions and systems occasionally induce differentials in prices between areas even when the authority is defending a price limit.

In order to encourage double cropping, the M\$16 a picul is payable during the off-season only for the quick maturing varieties Malinja, Mahsuri, Bahagia, and Ria. All other varieties bought for the buffer stock, regardless of quality, receive M\$14 [17, pp. 4-5] even though some rice growing areas are not suited to the favored varieties. (The authority does buy high quality Apollo and Bahagia at above M\$16 for immediate disposal on the market when the market price is higher than M\$16.) The padi cultivator customarily receives less than the floor price since deductions are made for moisture over 13 per cent, gunny bags, dirt, straw, and diseased, empty, or green grains.⁸ Eighty per cent of padi purchased by the authority during the off-season has a greater than 18 per cent moisture content because harvest occurs during the monsoons. In the main and off-season it is generally not economical for the grower to reduce moisture below this level because of the high opportunity cost of using labor for drying during peak labor use periods (the first crop must be harvested and the second planted within six to eight weeks), lack of on-farm storage space and the likelihood of theft with prolonged storage, need for cash to pay creditors and landlords, loss of actual crop through traditional drying methods, and the difficulty of guarding

dealers, did not make use of their favourable position in the assembly market, despite the numerous power factors consolidating their position." High unemployment and numerous undercapitalized traders would argue for fairly competitive conditions in most areas. Unlicensed buyers abound, among other reasons, because anyone may purchase five piculs a year without acting illegally. Since this is in excess of the surplus of many farmers, unlicensed buyers who handle the surplus of no more than one or two cultivators at a time cannot be caught breaking the law. According to an unpublished government survey in 1966, 58 per cent of padi marketed in the Malacca scheme area was sold to unlicensed buyers. In the Selangor scheme, in which the government has monopsony buying powers, 11.7 per cent went to unlicensed buyers. These figures may be understated since respondents may have been led to believe they sold to licensed agents or may have said so for fear of reprisals.

⁸ For 13-15 per cent moisture, 2 katties are deducted per picul (100 katties = 1 picul); 15-17 per cent moisture, 4 katties are deducted; and 17-18 per cent, 7 katties [31, p. 71].

drying padi from theft when the plots cultivated by a single grower are scattered. As a result, when the floor price is being supported, the average price received after deductions is M\$13-14 [27, p. 95] [31, p. 72].

Farmers frequently avoid selling to the government mills or cooperatives because the floor price applies to all varieties regardless of quality or type during the main season, and gives a premium to medium quality padi during the off-season. Moreover, the floor is agnostic to the amount of mixed or broken grains included although mixed padi is more expensive to mill and leads to a lower recovery rate than unmixed. The local private intermediary who has time on his hands may at least give the appearance of greater care in his calculation of deductions before fixing a price compared to the government and cooperatives which take 20-30 seconds to grade a bag and do so by sight (by account of Federal Agricultural Marketing Authority). If the intermediary is also a source

TABLE I
COST ASSOCIATED WITH PURCHASE AND STORAGE OF BUFFER STOCK
RICE WHEN PADI CULTIVATORS RECEIVE M\$ 16.00 PER PICUL
(M\$ per metric ton)

Cost of one ton of rice at M\$ 16.00 per picul for padi when the recovery rate is 65 per cent (25.85 piculs of padi=1 metric ton of rice)	413.92 ^a
Handling and milling charges	17.80
Overhead charges	13.44
Deduction for value of by-products	-32.94
Fixed profit margin for commercial mills	12.00
Buffer stock floor price (A)	424.22
(Buffer stock floor price per picul)	(26.01)
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Transportation	32.50
Godown rent for six months	3.00
Salaries of administrative personnel for six months	1.44
Handling upon purchase and sale	2.00
Fumigation for six months	2.25
Total buffer stock direct expenses with six months' storage (a)	41.19
Total buffer stock direct expenses per picul	(2.48)
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Loss in deterioration at six months (b)	50.00
Imputed interest at 8 per cent for six months on the cost of milled rice (c)	17.46
Total costs of buffer stock activities to society with six months storage (B)=(a)+(b)+(c)	108.65
Total costs to society per picul	(6.54)
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Total costs of rice and storage (A)+(B)	532.87
(Total costs per picul)	(32.55) ^b

Source: National Padi and Rice Board.

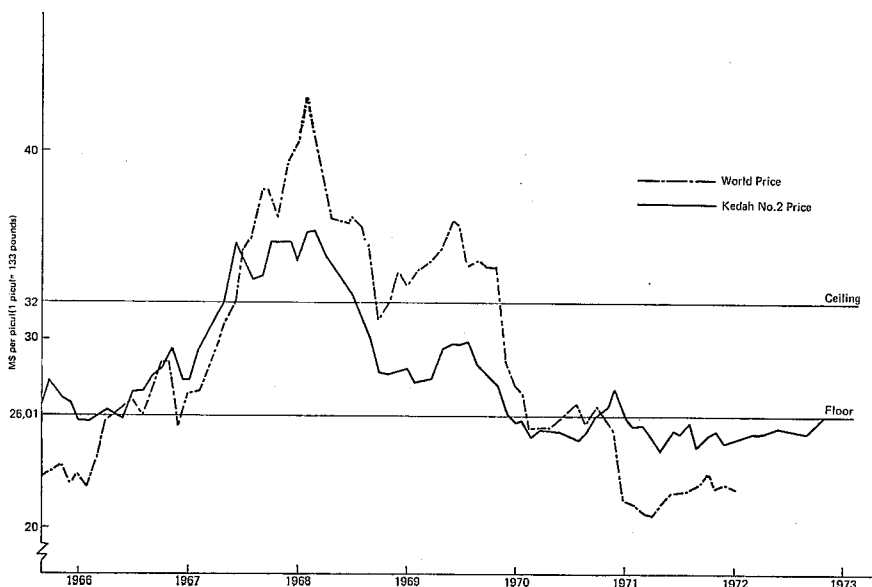
^a Although the padi cultivator may receive less than M\$ 16.00 per picul after standard deductions, the deductions are designed to offset the additional costs of drying, cleaning, and sorting.

^b The National Padi and Rice Board does not, in fact, suffer a loss when selling at M\$ 32.55 per picul since costs to society in interest foregone and deterioration in quality are not borne by it.

of credit, the cultivator might patronize him in order to maintain goodwill.⁹ Finally, while the government pays the floor price at the mill door, private intermediaries customarily do not make a specific deduction for the cost of transportation to the mill from the price offered.

The National Padi and Rice Board buys milled rice at prices determined by the price paid the padi cultivator, plus milling costs and a normal margin of profit. Reference to Table I shows that when the floor price is M\$16.00, the price to millers is M\$26.01. The latter figure constitutes a floor price for milled rice. Since the authority's floor price is below the M\$27.50 which wholesalers offer for good quality rice, millers generally sell lower quality rice to the buffer stock, which is indifferent to quality [19, p. 11]. If the rice held by the buffer stock is turned over every six months to avoid appreciable loss through deterioration, the direct costs to the buffer stock, as enumerated in Table I based on LPN estimates, would be M\$2.48 per picul [19, p. 9]. Thus, if the buffer stock rice is held for fifteen months, turned over once and sold at the M\$32.00 ceiling, the authority would incur a loss. Society as a whole experiences a loss on a six month storage if the cost to it in foregone earnings on funds used to finance the rice stock (imputed at 8 per cent on the value of rice purchased) and deterioration in quality are taken into account. Because the authority enters the market as an additional middleman, these costs (with the exception of that attributed to transportation) represent no market function and are a loss to

Fig. 1. World and Domestic Rice Prices



Sources: [9][15].

⁹ In Purcal's survey [29, p. 117] it was found that cultivators had no method of finding out the prevailing padi price except by asking the private dealer, or a neighbor who had sold his crop.

society so long as the rice purchased serves no price stabilization function but rather, as explained below, is useful only in taxing imports. Figure 1 indicates that several years may elapse before buffer stock transactions are reversed.

Figure 1 also illustrates that the buffer stock and its complementary devices have had more success in defending the floor price over the period shown than in protecting the ceiling (primarily because the buffer stock is too small, and import quotas and tariffs can be used only to support a floor price). While the duration of periods of floor and ceiling support is roughly balanced for the period shown, the success of miracle rice, the increasing emphasis on rice self-sufficiency in traditionally importing countries (i.g., Indonesia and the Philippines, as well as Malaysia), high production subsidies in the exporting countries of Japan and the United States, and high tariffs in the EC [34, *passim*] suggest that recent low prices on world markets are the beginning of a secular decline, a movement of the long run equilibrium price below the mean of the buffer stock price range.

B. *Import Quotas and Self-sufficiency*

Import controls in the form of quotas and "tariffs" are used to complement the buffer stock in periods of floor price support.¹⁰ Import quotas were introduced recently to strengthen the support program in periods of prolonged world price decline and to correct for miscalculations in the control of imports by variable tariffs. At the onset of the calendar year the authority estimates the level of imports needed to maintain the floor price: the difference between probable domestic consumption and production at that price. If at any time after the middle of the year imports appear likely to exceed the quota, despite the restrictive effect of the variable tariff, import quotas are imposed. For example, when the authority realized in October 1970 that the quota had been exceeded, it placed a ban on all imports of rice during November and December [33, October 21, 1970]. Each importer's proportion of the total quota is determined by his average share of the total volume of imports over the previous ten years. (Thus, during a period of quota restriction an importer who acquires a license for the first time receives no quota.) As one goal of the high minimum price support is self-sufficiency, the magnitude of the quota will diminish over time until it becomes prohibitive. In terms of the long run it is already prohibitive for it supports a price which is believed to be the long run domestic equilibrium price.

¹⁰ Although there is no known study of work effort response to this high stable price, Purcal [29, *passim*] found that underemployment among men on double cropping padi farms tended to increase as the size of the units of cultivation increased beyond two relongs (27 per cent underemployment for 2-4 relongs and 42 per cent for 6-8 relongs). Although on-farm employment increased as the size of the farm increased, this was more than offset by a decline in off-farm employment. From this we may infer that if output increased with price support it is due more to increased productivity than work effort. (When the time worked by women is set against the time available after housework, other tasks, and normal holidays, there is an underemployment rate of 57 per cent for the whole year on double crop farms and 63 per cent on single crop farms. Men were idle 33 per cent of the normal work hours on double crop and 36 per cent on single crop farms.)

C. *The Variable Tariff and Other Measures*

When an importer receives a license to import, he enters into a contract with the control authority to buy rice from the buffer stock in proportion to the quantity for which he is granted an import license. This contract is supported with a bank guarantee equal to 10 per cent of the value of the rice to be imported and is awarded only to those enterprises having at least M\$20,000 paid-up capital. Since the importer is required to buy from the stock at the ceiling price and sells at the lower domestic price when the ceiling is not being defended, these compulsory purchases indirectly tax imports, so they are in effect a tariff. The ratio of purchases from the stock to imports is usually high during periods of domestic abundance and low during those of domestic scarcity. For instance, during the latter part of 1967 and early 1968, a period of domestic and world scarcity, the ratio of purchases to imports was 1 : 7, and in 1971 when the domestic harvest was abundant and the world price was low, the ratio rose to 1:0.66. The effect of the ratio on the level of imports is also determined by the differential between the import and domestic prices, the quality of rice sold to importers from the stock, and importer marginal cost functions.

Since the price of imported rice during a period of floor price support is lower than the floor price, importers recover their losses on purchases from the stock by passing these on to the rice which they import. Importers will buy from the stock at the ceiling price even when the domestic price for what they buy is lower if their losses on purchases from the stock are more than offset by their gains on sales of imported rice. They are concerned about the ratio only insofar as it affects their net profits. Thus, if the domestic price is M\$28 a picul, the ceiling M\$32, world price M\$20, and the ratio of purchases to imports 2 : 1, they will not import since the gain of M\$8 on importing a picul is offset by an equal loss on buffer stock purchases, leaving no margin to cover the costs of marketing functions they perform. When the ratio is 2:1.25, however, they will import if the M\$2 net gain on the transaction is sufficient to cover their costs. Imports will be limited to that volume at which importers' net gain is equated to their marginal costs. Thus, assuming rising marginal costs, the volume of imports will increase with the net gain on the transaction. The higher the quality of rice sold from the buffer stock at its ceiling price the less, *ceterus paribus*, will be the importers' loss on these purchases.

It is difficult if not impossible for the authority to predict accurately how a set of buffer stock, import quota, and tariff activities will influence the domestic price. Although the import quota device was introduced primarily to correct for errors in estimating price response, its inception made the tariff redundant. It improves over the variable "tariff" in its *relative* administrative simplicity and the greater assurance it gives that imports will not exceed the desired level. On the other hand, a sliding-scale tariff of the conventional type would avoid the difficulties the government may have capturing quota profits and, if implemented through existing customs machinery, would be less expensive to operate than

either of the existing import control devices.¹¹ The existing variable tariff device has provided a means of disposing of rice purchased from millers and farmers by the stock. This stock could, however, be sold through normal commercial channels reducing inconvenience to importers who seek to specialize in the marketing of imported rice or who produce a commodity requiring specific types of rice obtainable only on the international market.¹²

The severe domestic shortage of rice in 1966/67 prompted the introduction of additional measures to increase market supply. One such measure, aimed at speculative hoarding by millers, required private millers to dispose of 50 per cent of milled rice to the buffer stock. Rice acquired by the stock was sold to wholesalers and importers and periodic inspections were made of their premises to insure that they, in turn, did not hoard. Since the livelihood of wholesalers and importers is dependent upon their licenses, the threat to withdraw their license as retribution was apparently sufficient to prevent hoarding.¹³

To further its pursuit of price control and augment the plethora of devices at its disposal, the authority has been armed with remarkable powers in the Padi and Rice Marketing Act [14]. The authority may, for instance, require any individual to maintain a stock of padi or rice (PARAGRAPH II, SECTION 2c), regulate the production of padi (SEC. 2g), prohibit and control the movement of padi and rice (SEC. 2h), arrest anyone without warrant if an officer has "reason to believe" the person has committed an offense under the Act or authority rules based on the Act and is "likely" to abscond (SEC. 20(1) a and b, and SEC. 22), and confiscate an individual's padi or rice if there is "reason to believe" the owner has violated a rule. Where padi or rice is confiscated, it can be sold by the authority and in some cases 25 per cent of its value deducted from any remittance to the accused to cover the cost of handling, storage, and sale even if the accused is found to be innocent (SEC. 22). Such rules were designed to strengthen the authority's hand in dealing with influential smugglers of rice who have the power to prevent local magistrates issuing warrants. However, they are inevitably open to interpretation by officers of the authority, who individually have the power to confiscate and arrest, and thus the system may invite bribery, particularly since any error on the side of the law may be paid for by the

¹¹ Remarking on this system, an LPN report notes that "requests for concessions, cases of defaults, difficulties in getting bank drafts for necessary deposits particularly among bumiputra businessmen, have created endless administrative headaches to LPN officials and dissatisfaction among importers and wholesalers" [19, p. 6]. A former officer in the program told the author that this system did limit chances for bribes and pressure on officials compared to import quotas. Despite popular belief in Malaysia, the tariff does not only disadvantage the middle class consumer of high quality imported rice, but equally affects the price to all rice consumers since, in restricting imports, it raises the prices of all qualities proportionately.

¹² Importers dependent upon particular varieties of rice for the manufacture of products requiring only these varieties are compelled under the variable "tariff" programs to become dealers in low to medium quality local rice which they do not want. This is the case, for instance, of manufacturers of *bee-hoon* who use only rice unobtainable locally and breweries which use imported glutinous rice.

¹³ In 1968 when the buffer stock was depleted, the government increased rice imports by direct purchase of 22,000 long tons from the government of Thailand.

innocent suspect in inconvenience and a possible loss of one-quarter of the value of his rice.

III. SELF-SUFFICIENCY

The year in which Malaysia will first experience self-sufficiency in rice has been variously estimated from 1972-82.¹⁴ With a 100 per cent self-sufficiency capability in normal years, good years will bring a surplus and poor years a deficit. A self-sufficiency program that assures consistent surpluses could result in the possibly embarrassing spectacle of a developing country subsidizing staple food exports.¹⁵ Although the government has recently reduced its objective to 90 per cent self-sufficiency in anticipation of this possibility [31, p. 5], the National Padi and Rice Board maintains that the momentum of the existing program will nevertheless give a 6 per cent surplus by 1975 [19, p. 3].

A policy of rice production regardless of quality may produce another sort of anomaly. Since the land available for main-season padi cultivation is limited, expansion of production is dependent upon more intensive use of existing land. About 95 per cent of total padi land is under wet padi which can be planted with an off as well as a main-season crop.¹⁶ To grow an off-season crop in Malaysia, however, requires the use of the quick-maturing varieties mentioned above (which mature in 130-35 days). These being of low to average quality have less taste, possess a shorter grain than preferred domestically, or have a sticky quality when cooked. Even if self-sufficiency is not fully achieved, surpluses of low quality rice may be exported at a loss while highly polished long grain Thai, Burmese, and Chinese rice continue to be imported to meet the growing middle class market.¹⁷

¹⁴ Rahman [30, p. 2] predicts self-sufficiency in 1972 and a 6.5 per cent surplus over domestic needs by 1975. Ani [2, pp. 38-39] and Arromdee [3, p. 86] project a somewhat reduced deficit by 1975. Narkswasdi [27, p. 35] estimates self-sufficiency by 1982. FAO projections which include Singapore show a 900,000-ton deficit in 1975 [12]. The Second Malaysia Plan, 1971-75, aims for complete self-sufficiency within the period of the plan. For the country, 100 per cent self-sufficiency means that the surplus of West Malaysia is just sufficient to offset the deficit of East Malaysia.

¹⁵ High price support has turned Japan from a net importer to a net exporter. The World Bank estimates the world price in 1975 will be M\$375.00 compared to the floor price of M\$424.22 a ton. Since prices for comparable grades are less in Sarawak, East Malaysia, than in West Malaysia, West Malaysia's exports to Sarawak will have to be subsidized by M\$75.00-150.00 per ton [19, p. 8].

¹⁶ See [27, p. 10, p. 35]. Also, there are some politicians in padi producing areas who campaign against double cropping, particularly in areas where farmers take a conservative approach to innovation. The present rental system, which permits rents to be a proportion of harvested crop, may have to be reformed if all wet padi land is to be double cropped. Cash rent as a percentage of gross income in 1965/66, for instance, averaged 64.4 per cent in Kelantan [27, p. 83]. For those few farmers who register their rental agreement, the maximum rent for double cropping is 30 per cent of the maximum main-season rent. Forty per cent of padi lands in West Malaysia are operated by tenant farmers [31, p. 46].

¹⁷ By guaranteeing an outlet for low quality rice in the buffer stock, production of such rice has increased and milling efficiency decreased to the point where most high quality rice is imported.

Malaysia's policy of national self-sufficiency tends to "beggar-thy-neighbour" insofar as her opportunity cost of increasing rice production is higher than in the neighboring exporting countries [11, p. 92] [31, p. ii]. The Federal Agricultural Marketing Authority estimates the actual cost of production ex-wholesale for local rice to be M\$27.41 a picul, about twice the world price in 1972 [18, pp. 39-41]. A Ministry of Agriculture and Lands survey shows the cost of padi production ranging from M\$7.39 to M\$19.74 per picul on average between Province Wellesley and Kelantan, respectively [31, p. 87]. An estimate by Narkswasdi that production costs are 50 per cent above Thailand's [27, p. 20, p. 52] is supported by the fact that Thai and Burmese cultivators receive M\$7.00-8.00 a picul.¹⁸ High costs are partly attributable to rice's unsuitability to an equatorial climate. With given resources highest yields are obtained in subtropical and warm temperate countries due to the longer day during the growing period and the favorable effect of cold winters on the soil and cold nights on respiration [10, p. 16] [21, pp. 425-28]. Grist maintains that average yields could be raised to 1,800 pounds per acre in latitudes between 20° and 40° but 1,000 pounds per acre is the maximum average yield obtainable between 0° and 20° [21, p. 430]; a low figure compared to traditional exporting countries [28, p. 235] and about one-third that of South Korea, Taiwan, and Japan [31, p. 17]. In trials with Bahagia in the Muda scheme area on class I soils, on the other hand, yields of 4,177 pounds per acre have been obtained.

Substantial off-farm employment and mixed cropping are indicative of opportunity costs for labor in padi production comparable to actual costs. Studies by Purcal [29], Narkswasdi [27], and Selvadurai [31, pp. 33-34] illustrate that, on average, padi provides less than half the total net incomes in single cropping areas and 70 per cent in double cropping areas. While a full-time padi cultivator earns M\$75 a month on average net of costs [31, p. 33] (average net household income from farm and off-farm employment is M\$110), a full-time rubber tapper receives M\$102 a month [16] [23, p. 60]. In a number of areas padi cultivators depend on crops other than padi for cash incomes; frequently this is rubber but coconuts, groundnuts, maize, vegetables, sorghum, fruits, and tobacco are also grown. Only 47 per cent of padi farmers devote more than 75 per cent of their land to padi. The prevalence of mixed cropping is indicated by the fact that in padi settlement schemes, such as those in Tanjong Karang and Sungei Manik, farmers are given both a padi and dry crop plot [31, p. 43]. In Kelantan, padi farmers who plant tobacco receive about M\$250 net annual income from the crop even though only one-tenth of their land on average is planted with it. (Tobacco offers an alternative which gives a higher return than padi in the Kemubu scheme area, but irrigation of the land to allow padi cultivation has prevented tobacco being grown.)

Although there is no profitable alternative crop that can be grown on some of the existing wet padi land, Little and Tippling [25] would likely argue that

¹⁸ See [1, p. 37] [13] [27, p. 115]. According to an unpublished estimate by the Muda Agricultural Development Authority, padi could cost M\$9.16 per picul at farm gate if government approved production techniques were used on good land.

the 9 million acres of unused arable land in West Malaysia offer profitable alternative uses for resources currently employed on wet padi land. Any reduction in padi production could, however, occur on the large proportion of wet padi land that will support alternative crops. Since existing investment in the land, particularly in the form of irrigation, for padi production has no alternative cost as it is irreversible, the costs to society of continued padi production are those associated with variable inputs, and variable input costs may be competitive with the fixed and variable costs of expanded padi production in neighboring exporting countries.

IV. TWO MODELS

Although the historical objective of stabilization of domestic price around the trend of world prices has been replaced by one of price support, the price limits have nonetheless been fairly evenly distributed within the extremities of world market prices during the last decade (see Figure 1). On the other hand, the advent of the "green revolution" in Asia and increasing emphasis on food self-sufficiency in rice importing countries foreshadows a future in which the Malaysian floor price if left unchanged will be continually above world prices. The present section illustrates diagrammatically the possible effects of price control over a past in which the mean of the price range approached the long run mean of world market prices, and the possible outcomes for a future in which the price range mean is held above that of world prices.¹⁹

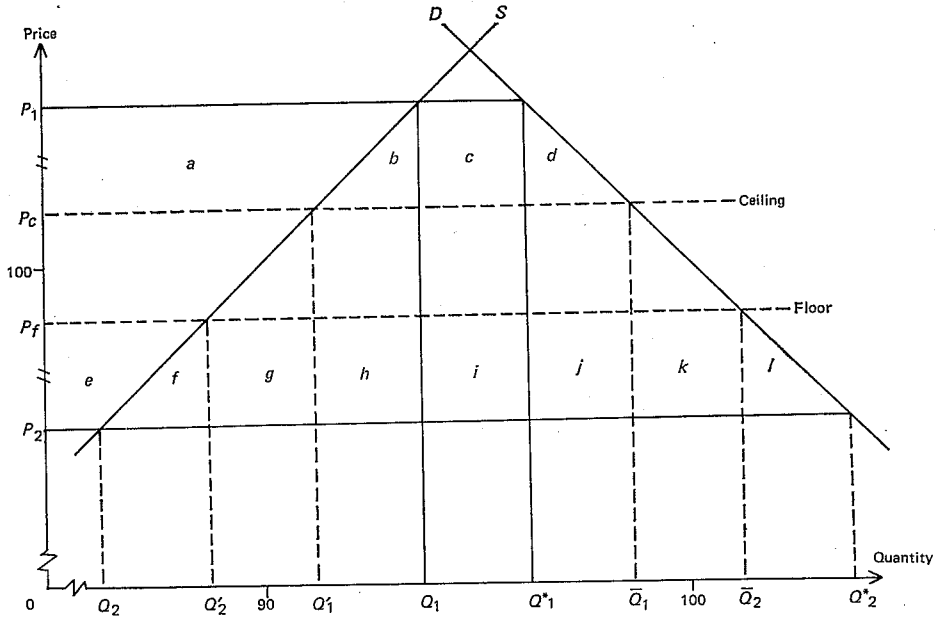
A. *The Past*

Up to the present, Malaysia has been a net importer of rice even in periods of domestic abundance and world scarcity. In Figure 2 we have accordingly assumed a world price which fluctuates over two periods from OP_1 to OP_2 below the domestic equilibrium of supply and demand. (Alternatively, we might assume an equal probability that either price, and only these prices, will rule in any given period.) The authority correctly forecasts these prices and, in order to avoid trend control, places the ceiling, P_c , and floor, P_f , price limits symmetrically within the uncontrolled market prices such that $P_2P_f = P_cP_1$.

At uncontrolled market price OP_1 , $Q_1Q^*_1$ is imported and at OP_2 , $Q_2Q^*_2$ is imported. Since $P_2P_f = P_cP_1$ and functions are linear, $Q_2Q'_2 = Q'_1Q_1$. Similarly, $Q^*_1\bar{Q}_1 = \bar{Q}_2Q^*_2$. A buffer stock could protect both price limits if in the period of floor support imports were limited to their free market level, $Q_2Q^*_2$, and the stock withdrew the equivalent of $Q_2Q'_2 + \bar{Q}_2Q^*_2$ from the market. This amount could be bought from importers, or as in Malaysia, from domestic millers and farmers. In a period of ceiling price support the sale of $Q'_1Q_1 + Q^*_1\bar{Q}_1$, which equals that accumulated at the floor, and the importation of $Q_1Q^*_1$ as would occur without control, would reduce the domestic price to the ceiling. Thus, the

¹⁹ Elaborations on the approach taken here and its antecedents are given in [6] and [8]. Lipton presents a useful descriptive interpretation of the effects of food price control [24]. Further analysis of control devices used in Malaysia may be found in [5] and [7].

Fig. 2. Possible Effects of Price Stabilization around the Trend of World Prices



buffer stock would control domestic price within the price range without altering imports from their uncontrolled market position. This entails a subsidy of $P_c P_1 \cdot Q_1 Q^*_1$ on imports during the period of ceiling support (if the ceiling is not raised above P_c), an amount which is more than covered by profits of $P_2 P_f \cdot Q_2 Q^*_2$ on imports during the period of floor support. These profits can be captured by the authority if import licences are auctioned since importers will be willing to surrender that amount which is in excess of what they would have received on the free market, i.e., $P_2 P_f \cdot Q_2 Q^*_2$, in order to procure a license. Such an import subsidy was used in conjunction with the buffer stock in 1973, a period of ceiling price support.

A system of import quotas and subsidies could be used to accomplish the same end. An expansion of imports to $Q'_1 \bar{Q}_1$ in the first period by a subsidy on imports and a reduction to $Q'_2 \bar{Q}_2$ in the second period through quota restriction would stabilize price at OP_c and OP_f , respectively. The subsidy on imports in the first period, $P_c P_1 \cdot Q'_1 \bar{Q}_1$, is more than offset by quota profits, $P_2 P_f \cdot Q'_2 \bar{Q}_2$, in the second. Alternatively, an *ad valorem* tariff could be used in the period of low prices, as is the case in Malaysia, either singly or concurrently with a quota. If used alone, it would be $P_2 P_f$. If import subsidies are not used in periods of high price, the quota profits of the second period would constitute a net gain in government revenue.

Price control is seen to stabilize producers' income since income is increased in the second period of low income and decreased in the first period of high income. The average level of producer income, however, declines as the reduction in price in the first period is at a higher volume of output and the reduction

in volume at a higher price than in the second period of low price (i.e., the loss is $P_e P_1 \cdot Q'_2 Q'_1 + P_f P_1 \cdot Q'_1 Q_1$). While the buffer stock operating alone has no effect on the level and stability of foreign exchange earnings, the import quota (with subsidy) has a stabilizing effect in that expenditures are reduced in the second period of large expenditure and increased in the first period of relatively small expenditure. Producers lose to the amount of a , surplus in the first period and gain e in the second. Since $a > e$ for any supply function which is positively sloped, producers suffer a net loss in surplus. Similarly, consumers gain $a + b + c + d$ and lose $e + f + g + h + i + j + k + l$, also experiencing a net loss as long as the demand function is negatively sloped. Since $b = f$, $d = l$, and $c = i$, producers and consumers considered jointly suffer a loss of $g + h + j + k$. Under the quota (with subsidy), however, the government gains $g + h + i + j + k$ in quota profits. With ceiling support the equivalent of $h + i + j$ is paid in subsidies leaving a net gain to the government of $g + k$. When set against the net loss to producers and consumers, the country as a whole shows a net loss of $h + j$.

Variation in supply and demand elasticities (providing they remain normal)

TABLE II
PARTIAL EQUILIBRIUM EFFECTS OF RICE PRICE CONTROL BY
BUFFER STOCKS AND IMPORT QUOTAS

Elasticity	Period (A)	World Price (B)	Controlled Price (C)	Producer Income without Control (D)	Value of Imports without Control (E)	Producer Income with Buffer Stock and/or Import Quota (F)	Foreign Exchange Expenditure with Import Quota Only (G)	Producer Income with Import Quota and No Ceiling (H)	Foreign Expenditure with Import Quota and No Ceiling (I)
$S_e = 0.0$ $D_e = -0.5$	1st	110	103.4	9,900.0	0.0	9,306.0	917.4	9,900.0	0.0
	2nd	90	96.6	8,100.0	1,386.8	8,694.0	1,134.5	8,694.0	1,134.0
	Difference	20	6.8	1,800.0	1,386.8	612.0	217.1	1,206.0	1,134.0
	% Fluctuation	20	6.8	20	200	6.8	21.2	13	200
	Total	—	—	18,000.0	1,386.8	18,000.0	2,051.9	18,594.0	1,134.0
$S_e = 0.0$ $D_e = -2.0$	1st	110	103.4	9,900.0	0.0	9,306.0	388.3	9,900.0	0.0
	2nd	90	96.6	8,100.0	3,011.1	8,694.0	1,658.0	8,694.0	1,658.0
	Difference	20	6.8	1,800.0	3,011.1	612.0	1,269.7	1,206.0	1,658.0
	% Fluctuation	20	6.8	20	200	6.8	124.1	13	200
	Total	—	—	18,000.0	3,011.0	18,000.0	2,046.3	18,594.0	1,658.0
$S_e = 1.0$ $D_e = -0.5$	1st	110	103.4	10,890.0	0.0	9,622.4	580.5	10,890.0	0.0
	2nd	90	96.6	7,290.0	2,196.8	8,398.4	1,430.1	8,398.4	1,430.1
	Difference	20	6.8	3,600.0	2,196.8	1,224.0	849.6	2,491.6	1,430.1
	% Fluctuation	20	6.8	39.6	200	13.6	84.5	25.8	200
	Total	—	—	18,180.0	2,196.8	18,020.8	2,010.6	19,288.4	1,430.1
$S_e = 1.0$ $D_e = -2.0$	1st	110	103.4	10,890.0	0.0	9,622.4	51.4	10,890.0	0.0
	2nd	90	96.6	7,290.0	3,821.1	8,398.4	1,953.6	8,398.4	1,953.6
	Difference	20	6.8	3,600.0	3,821.1	1,224.0	1,902.1	2,491.6	1,953.6
	% Fluctuation	20	6.8	39.6	200	13.6	189.7	25.8	200
	Total	—	—	18,180.0	3,821.1	18,020.8	2,005.0	19,288.4	1,953.6

and the degree of world price fluctuations will effect the magnitude of the results cited above but will not reverse them. Arromdee [3, pp. 81–82] estimates a price elasticity for Malaysia's domestic supply of rice with respect to the previous year's price to be 0.25 and with respect to current annual price 0.23–0.25. Behrman's estimates for Thailand fall between 0.18 and 0.31 for the short to long run [4, p. 292] whereas supply elasticity in the Philippines has been estimated variously from 0.10 to 0.30 on an annual basis [26, *passim*]. These tests and the lines of inferential reasoning given earlier suggest a supply elasticity lying between the extremes 0.0 to 1.0. Since rice in Malaysia is the staple food and has no readily available cheaper substitute, we can expect demand to be price inelastic. Arromdee's tests show an elasticity in the range -0.30 to -0.40 for Malaysia [3, p. 82].

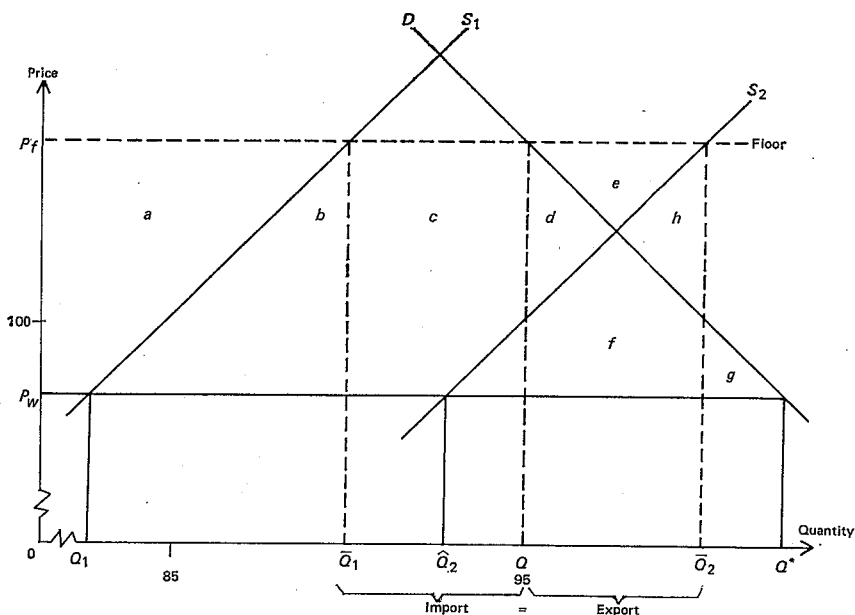
Table II outlines the results with the model illustrated in Figure 2 when demand assumes alternative elasticities -0.5 to -2.0 and supply takes those of 0.0 to 1.0 with demand and supply functions both logarithmic-linear (i.e., in the form $Q = KP^n$, where n is the elasticity and K a constant), in contrast to the figure which for simplicity of exposition has been given linear functions. Index values of 110 and 90 have been ascribed to prices OP_1 and OP_2 , respectively, giving a not uncommon world price fluctuation of 20 per cent. In the first period of high world price, it is assumed that domestic equilibrium is attained. Price limits are fixed to equate P_2P_1 , P_1P_2 , and P_2P_1 ; control reduces absolute price fluctuations by two-thirds. The figures of the Table II generally bear out observations made in the diagrammatic analysis above. The figures of column G indicate that control destabilizes foreign exchange earnings to a greater extent with increases in demand elasticity.

B. *The Future*

The second model is predicated upon a world price consistently below the domestic support price and domestic self-sufficiency in normal periods. With reference to Figure 3, it is assumed that the supply function shifts parallel to itself, from S_1 to S_2 , and that the deficit in the poor harvest period is equal to the surplus in the good harvest period when the support price is OP_1 . The "normal" supply function would lie midway between and parallel to S_1 and S_2 . Average national padi yield variations may exceed 15 per cent from one year to another [31, p. 6] with the variation possibly greater for specific types of padi and in given localities. The average yield variation for area planted (in contrast to area harvested) from 1951/52 to 1966/67 was 8.3 per cent for main-season padi, 8.83 per cent for the off-season crop, 11.5 per cent for dry padi and 7.86 per cent for all types.²⁰ Any insufficiency or delay in the rain, an early onset of

²⁰ See [27, p. 19]. Somewhat divergent annual figures given by Selvadurai for 1962–71 [31, p. 19] yield 5.17 per cent for main season wet padi, 4.73 per cent for off-season, 7.64 per cent for dry padi and 5.67 per cent on average. For the period 1950–70 annual variation for main-season wet padi was 11 per cent and off-season 18 per cent. Average variation in yield from 1947–65 in Thailand was 5.9 per cent in the northern region, 6.25 per cent in the northeast region; 6.27 per cent in the south and 7.93 per cent in the central plain [32, pp. 58–59].

Fig. 3. Possible Effects of National Self-sufficiency Price Support



the dry season, salt water flooding in coastal regions, disease, and pests can damage padi. In Malaysia one half of padi acreage is concentrated in two states, Kedah and Kelantan, and another 15 per cent in Perak. In 1966/67, for instance, extensive flooding in this northern "rice bowl" region created a severe national shortage; 69 per cent of the total planted area in Kelantan, 26 per cent in Trengganu and 10 per cent in other states were destroyed by floods [26, p. 55]. In Figure 3 supply is accordingly shown to fluctuate from 85 to 95 at price 100. (The percentage fluctuation will decrease as price increases.) When normal output is 100, the percentage fluctuation in supply is 10 per cent. World price $P_w = 90$ is fixed below the support price on the assumption that international prices are in secular decline for the reasons previously given. Should the world price remain below the floor, the buffer stock becomes inoperable. A buffer stock can be viable only if there are opportunities to sell at the ceiling what is accumulated supporting the floor. Although the authority continues to buy rice from farmers and millers in periods of prolonged world price decline, it sells simultaneously in order to keep the level of stocks fairly constant.

The proffered device clearly enhances the padi cultivator's income in both periods although, as Table III shows, it has no effect on producer income stability so long as a stable world price is assumed. Foreign exchange expenditures are reduced in the first period from $OP_w \cdot Q_1Q^*$ to $OP_w \cdot \bar{Q}_1\hat{Q}$ and turned into foreign exchange earnings of $OP_w \cdot \hat{Q}\bar{Q}_2$ in the second. Profits on imports, $P_wP_f \cdot \bar{Q}_1\hat{Q}$, are offset by the export subsidy, $P_wP_f \cdot \hat{Q}\bar{Q}_2$. Producers' surplus is increased by a in the first period and by $a + b + c + d + e$ in the second. Consumers, on the other hand, lose surplus $a + b + c + d + f + g$ in each period. Producers

TABLE III
PARTIAL EQUILIBRIUM EFFECTS OF RICE PRICE CONTROL BY IMPORTS
QUOTAS IN A DOMESTIC SUPPLY SHIFT MARKET

Elasticity	Period (A)	Domestic Equilibrium Price without Trade (B)	Producer Income without Control (C)	Value of Imports without Control (D)	Producer Income with Control (E)	Value of Imports (1st) and Exports (2nd) (F)
$S_e = 0.0$ $D_e = -0.5$	1st	138.4	7,650.0	1,836.8	10,591.4	-412.6
	2nd	110.8	8,550.0	936.8	11,837.5	487.4
	Difference	(124.6= P_f)	900.0	900.0	1,246.1	900.0
	% Fluctuation	—	11.1	64.9	11.1	—
	Total	—	16,200.0	2,773.6	22,429.0	—
$S_e = 0.0$ $D_e = -2.0$	1st	108.5	7,650.0	3,461.1	8,970.2	-431.3
	2nd	102.6	8,550.0	2,561.1	10,025.4	468.7
	Difference	(105.5= P_f)	900.0	900.0	1,055.2	900.0
	% Fluctuation	—	11.1	29.9	11.1	—
	Total	—	16,200.0	6,022.2	18,995.6	—
$S_e = 1.0$ $D_e = -0.5$	1st	111.4	6,885.0	2,601.8	9,815.5	-461.3
	2nd	103.5	7,695.0	1,791.8	10,970.2	505.8
	Difference	(107.4= P_f)	810.0	810.0	1,154.7	967.1
	% Fluctuation	—	11.1	36.9	11.1	—
	Total	—	14,580.0	4,393.6	20,785.7	—
$S_e = 1.0$ $D_e = -2.0$	1st	105.6	6,885.0	4,226.1	9,131.0	-449.1
	2nd	101.7	7,695.0	3,416.1	10,205.2	483.7
	Difference	(103.6= P_f)	810.0	810.0	1,074.2	932.8
	% Fluctuation	—	11.1	21.2	11.1	—
	Total	—	14,580.0	7,642.2	19,336.3	—

and consumers jointly experience a net loss or gain of $e - b - c - d - 2f - 2g$ (i.e., producers gain $2a + b + c + d + e$; consumers lose $-2a - 2b - 2c - 2d - 2f - 2g$). As presented in Figure 3, price control causes a considerable loss to society which (including area h), under the assumption of a floor price fixed at P_f and always above world price, could be reversed only with a higher world price. Table III, which is derived from the same model as shown in Figure 3 with the exception that logarithmic-linear functions are used, additionally shows that the more inelastic demand is the greater the fluctuation in the value of imports and the savings of foreign exchange will be (column D).

V. CONCLUSION

The foregoing discussion has implied that while rice price stabilization and support provide benefits such as producer income stability, savings in foreign exchange, and stable prices to consumers, these are neutralized in part or completely by losses to society when gains and losses are measured according to producer and consumer surpluses and government revenue. This may also result in a reduction in producer money income when, as in the past, price stabilization is not accompanied by long term price support. Moreover, the control machinery

in Malaysia, being a series of historical accretions, rather than a pre-planned least-cost effort to stabilize and support price, is in need of simplification. A variable tariff fitted into the existing customs machinery would be one way to simplify the cumbersome tariff device currently used while an import quota might be an improvement over either alternative if price support is the main objective. The system would seem to redistribute wealth inequitably on the international level and inefficiently on the national level. Rice price support in Malaysia will close a traditional market to lower cost rice exporters in Southeast Asia and may, as well, unwittingly compel Malaysia to compete against them with subsidized exports; this is likely to cause countries whose per capita income is lower than Malaysia's to suffer a setback. Domestically the system requires all consumers, some of whom represent the poorest elements of society, to bear the cost of a wealth transfer to the padi producer through higher rice prices. While price stabilization is useful as long as it also stabilizes producers' incomes, a direct transfer to cultivators in money or subsidies out of general revenue is likely to be a more equitable and efficient means of redistributing wealth than a program that supports a high staple food price.

REFERENCES

1. AHMAD, K. "A Comment on Government Policies on Padi and Rice Marketing," *Review of Agricultural Economics Malaysia*, Vol. 1, No. 2 (December 1967).
2. ANI, B. A. "Rice Production, Consumption and Sources of Output Growth in West Malaysia," *Review of Agricultural Economics Malaysia*, Vol. 2, No. 2 (December 1968).
3. ARROMDEE, V. "Can West Malaysia become Self-Sufficient in Rice by 1975?" *Malayan Economic Review*, Vol. 14, No. 2 (October 1969).
4. BEHRMAN, J. R. *Supply Response in Underdeveloped Agriculture: A Case Study of Four Major Annual Crops in Thailand, 1937-1962* (Amsterdam: North-Holland Publishing Co., 1968).
5. BROWN, C. P. "International Commodity Control through National Buffer Stocks: A Case Study of Natural Rubber," *Journal of Development Studies*, Vol. 10, No. 1 (November 1973).
6. ———. *Primary Commodity Control* (Kuala Lumpur: Oxford University Press, 1974).
7. ———. "Some Implications of Tin Price Stabilization," *Malayan Economic Review*, Vol. 17, No. 1 (April 1972).
8. ———. "Short Run Static Price and Income Effects of Cocoa Control," *Journal of Development Studies*, Vol. 6, No. 3 (April 1970).
9. Commonwealth Secretariat. *Rice Bulletin* (London).
10. COOKE, E. M. *Rice Cultivation in Malaysia* (Singapore: Eastern Universities Press, 1961).
11. ECAFE. *Economic Survey for Asia and the Far East* (1967).
12. FAO. *Agricultural Commodity Projections for 1975- and 1985* (Rome, 1967), Vol. 2.
13. ———. *The State of Food and Agriculture* (Rome, 1966).
14. Federation of Malaysia. "Lembaga Padi dan Beras Negara Act, 1971," *Laws of Malaysia Act 47* (Kuala Lumpur, 1971).
15. Federation of Malaysia, Department of Statistics. *Monthly Statistical Bulletin for West Malaysia* (Kuala Lumpur).
16. ———. *Household Budget Survey of the Federation of Malaya, 1957-58* (Kuala Lumpur, 1959).
17. Federation of Malaysia, Federal Agricultural Marketing Authority (FAMA). "Chara2 Petani dapat mengambil faedah sa-penoh-nya dari Ranchangan Pemasaran Padi," *Information Pamphlet No. 2*, June 1971.

18. ————. "Production Costs of Various Agricultural Commodities," *FAMA Agricultural Bulletin*, Vol. 1, No. 2 (1971).
19. Federation of Malaysia, National Padi and Rice Board. "National Problems Arising from Self-Sufficiency," Kertas Kerja Lembaga No. 19/71, mimeographed (1971).
20. Federation of Malaysia, Ministry of Agriculture and Lands. *A Preliminary Report on the Rice Industry of West Malaysia* (Kuala Lumpur, 1971).
21. GRIST, D. H. *Rice*, 4th ed. (London: Longmans, 1968).
22. LAI, K. C. "A Proposed Model for Planning of Pricing and Import Policies for Rice Based on Income and Welfare Considerations," *Agricultural Economics Bulletin, Malaysia*, Vol. 1, No. 6 (October 1971).
23. LIM, L. L. *Some Aspects of Income Differences in West Malaysia*, FEA Monograph on Malaysian Economic Development (Kuala Lumpur, 1971).
24. LIPTON, M. "Farm Price Stabilization in Underdeveloped Agricultures: Some Effects on Income Stability and Income Distribution," in *Unfashionable Economics: Essays in Honour of Lord Balogh*, ed. P. Streeten (London: Weidenfeld and Nicolson, 1970).
25. LITTLE, I. M., and TIPPLING, D. G. *A Social Cost Benefit Analysis of the Kulai Ooi Palm Estate, West Malaysia* (Paris: OECD Development Centre, 1972).
26. MAHAR MANGHAS; RECTO, A. E.; and RUTAN, V. W. "Price and Marketing Relationships for Rice and Corn in the Philippines," *Journal of Farm Economics*, Vol. 48, No. 3 (August 1966).
27. NARKSWASDI, U. *A Report to the Government of Malaysia of the Rice Economy of West Malaysia* (Rome: FAO, 1968).
28. OOI JIN-BEE. *Land, People and Economy in Malaya* (London: Longmans, 1964).
29. PURCAL, J. T. *Rice Economy: A Case Study of Four Villages in West Malaysia* (Kuala Lumpur: University of Malaya Press, 1971).
30. RAHMAN, A. Y., and ANI, A. "Rice Policy for West Malaysia," a paper presented at the IRRI Conference, August 1971.
31. SELVADURAI, S. "Padi Farming in West Malaysia," mimeographed (Kuala Lumpur: Ministry of Agriculture and Fisheries, 1972).
32. SILCOCK, T. H. *The Economic Development of Thai Agriculture* (Canberra: Australian National University Press, 1970).
33. *Straits Times* (Kuala Lumpur).
34. UNCTAD. *A Study on Certain Temperate Zone Products, Rice*, TD/B/C.1/93/Add 1, mimeographed (1970).
35. WHARTON, C. R. "Marketing, Merchandising and Moneylending: A Note on Middle-man Monopsony in Malaya," *Malayan Economic Review*, October 1962.