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AGRICULTURAL SUBSIDIES AND MODERNIZATION OF SMALLHOLDER AGRICULTURE: IMPACT AND IMPLICATIONS ON PADI FARMING IN PENINSULAR MALAYSIA

by

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Sinopsis

Pemodenan dianggap sebagai satu langkah yang berkesan untuk meninggikan produktiviti dan membasmikan kemiskinan di kalangan masyarakat pertanian dan luar bandar. Dengan berasaskan kepada perkembangan teknologi baru sebagai penggerak utama dalam menggalak dan menyelenggarakan pertumbuhan dan pemodenan, kerajaan telah memajukan kebun kecil melalui subsidi pertanian, khususnya subsidi input. Sebagai satu strategi bagi memodenkan pertanian kebun kecil, subsidi pertanian, khususnya subsidi keatas input dan output, telah dapat menghasilkan pertumbuhan dalam pengeluaran dan daya pengeluaran; dan dengan itu meninggikan pendapatan. Disamping itu pemberian subsidi didapati mengurangkan bebanan kewangan dan masalah-masalah yang berkaitan berbangkit dari kos pengeluaran yang meningkat dalam penggunaan input moden dan teknologi baru.

Kesan dan implikasi keatas tanaman padi melalui analisa kos faedah berdasarkan nilai pasaran dan perakaunan untuk mendapatkan profail kos dan pulangan purata menunjukkan keadaan kos dan hasil pengeluaran yang berbeza antara kawasan. Ini mengakibatkan perbezaan pendapatan antara kawasan pengeluaran padi dan juga antara petani padi. Mengenai kesan-kesan subsidi input baja dari segi kesan galakan dan perlindungan melalui penggunaan Koefisien Perlindungan Nominal (NPC), Koefisien Perlindungan Berkesan (EPC) dan Persamaan Subsidi Pengeluar (PSE), ianya menunjukkan bahawa kesan perlindungan didapati tidak begitu efektif dan petani padi menerima subsidi yang rendah bagi satu unit pengeluaran. Walau bagaimanapun, secara umumnya, subsidi input telah meningkatkan kecekapan pengeluaran, daya pengeluaran dan pendapatan di kalangan petani dalam sektor padi.

Synopsis

Modernization has been considered as an effective course open towards improvement in productivity and to break the chain of poverty among the rural and agricultural population. Using the premise that the development of new technologies and innovations are the prime mover in fostering and maintaining growth and

modernization, the government has injected technological inputs to encourage modernization of smallholder agriculture through predetermined agricultural and input subsidies. As a strategy in modernizing smallholder agriculture, agricultural subsidies particularly on inputs and output have facilitated growth in production and productivity as well as improvement in incomes. It has also greatly helped to relieve financial burden and constraints on the farmers resulting from rising production costs of modern farm inputs and application of new technology.

Impact and implication on padi farming with the application of a cost-benefit analysis technique using market and accounting values to estimate the average cost and revenue profits indicated that cost of production of padi and the yields vary from regions to region. This resulted in variations in income among padi producing regions and padi farmers. On the effects of fertilizer input subsidies in terms of incentive and protection effects using Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Producers Subsidy Equivalent (PSE), it is indicated that the protection effects have not been that effective and that the padi producers received a low subsidy per unit of output. In general, however, the input subsidies have increased producion efficiency, productivity and incomes in the rice sector.

Introduction

One of the most significant developments affecting the farming communities in rural and agricultural areas of many developing countries over the past decade or so has been the modernization in smallholder agriculture through the introduction and spread of high yielding varieties together with accompanying technologies in the form of chemical inputs such as fertilizers and pesticides, and drainage and irrigation facilities. Modernization has been considered as an effective course open to improve the productivity and to break the chain of poverty among the rural and agricultural population.

In the efforts to enhance and increase productivity and income among the smallholders, and using the premise that the development of new technologies and innovations are the prime mover in fostering and maintaining growth in the agricultural sector, the Malaysian government has injected technological inputs and encouraged the modernization of especially smallholder agriculture through predetermined government subsidies.

Changes have without doubt been brought about within the rural and agricultural communities as a result of agricultural subsidies, which in part have stimulated modernization through the adoption of new technologies. The most significant has been that of increased farm productivity and total output as well as incomes among the farming population. However, there has been a tendency towards greater

inequality between and within the farming population and a growing dependency by the farmers on government subsidies and supports. This has been said to give rise to controversies in the role and impact of subsidies to stimulate modernization and the adoption of new technologies. It has been argued to the extent that the allocation of such public support is neither an efficient nor an equitable strategy for modernization.

Bearing in mind the above, this paper will attempt to examine the impact and implications of agricultural subsidies as a strategy in modernizing smallholder agriculture in Peninsular Malaysia. More specifically, it will be assessing the effects of subsidies as production incentives and a protection for padi production. The analysis is based on the findings from a research on the effects of input subsidies on padi farming. It is hoped that this paper will provide some understanding of the impact of agricultural subsidies in stimulating modernization and the adoption of new technologies and some of their implications.

The discussion of the paper evolves around the development strategy and policy for modernization in smallholder agriculture impact of input subsidies on output and income in padi farming, and their implications in terms of production incentives and protection on the assumption that subsidies provide an incentive (or disincentive) towards increasing output, productivity and income among padi farmers.

Modernization of Smallholder – Agriculture Sector

The importance of smallholder agriculture in the social, economic and political development of Malaysia is fully recognized. The smallholdings account for about 60 percent of the agricultural land in Peninsular Malaysia. Though padi (rice) has been exclusively grown, the smallholdings are also cultivated "estate crops" such as rubber, oil palm, coconut, cocoa, etc., where their hectarage of rubber and coconut surpass that of estates. The smallholder sector also contributes significantly to employment and Gross Domestic Products (GDP). A very large majority of the rural households is comprised of padi farmers, coconut and rubber smallholders and inshore fishermen.

However, it has been rather unfortunate that this sector is beset with many inherent, complex socio-economic and cultural problems which directly or indirectly contribute to make the sector depressed or deprived when compared to other sectors of the economy. It accounts for the highest incidence of poverty, accounting for 46.1 percent for all households in 1980 due primarily to low productivity and

low incomes as compared to other sectors of the economy whose incidence ranged from 14 to 34 percent (see Table I). Their significantly low productivity and incomes have been attributed mainly to the uneconomic farm units, traditional and outmoded methods of farm practices, the lack of knowledge and skills, the lack of access and appreciation of the use of modern inputs such as fertilizers, chemicals, improved seeds or planting materials, credits and other facilities, and attitudes towards modern agriculture.

Development policies during past one and a half decade have given heavy emphasis to smallholder agriculture and to improve the socio-economic status of the rural population. They embody activities that will promote greater investment in the smallholder sector to generate modernization and commercialization of agriculture as well as restructuring of production base. The strategies employed have included productive allocation of resources through intensification, extensification and diversification as well as distribution of investment resources between programs for assisting traditional smallholders and those for developing new agricultural land.

Many forms of incentives were used in support of these strategies. The provision of input subsidies has been very significant. It covers technical advice, contract services, replanting and rehabilitation grants, and the supply as well as spread of high-yielding varieties together with accompanying technologies in the form of irrigation and drainage facilities and chemical inputs such as fertilizers and pesticides. These inputs are either directly subsidies or were supplied on a more favourable terms than would have been possible without public sector intervention. Related to subsidies on inputs is the provision of efficient credit facilities at low interest rates. These facilities have greatly helped to relieve financial burden and constraints on the farmers resulting from rising production costs of modern farm inputs and application of new technology in efforts to modernize smallholder agriculture.

Another incentive facility is subsidies on output. They are provided through price support where farmers receive a guaranteed price for their output regardless of the prevailing market price. This is applied primarily to rice – for which it had long been used to encourage Malaysian production of its staple food – and to some extent to rubber through government intervention in the market as a buyer when prices were particularly low.

The above subsidies were complemented by considerable development of physical infrastructure in rural and agricultural areas and improvement of other social and economic amenities including a wide

Table I

Peninsular Malaysia: Incidence of Poverty By Sector, 1970, 1975 and 1980

	1970				1975				1980			
	Total households	Total poor households	Incidence of poverty	Percentage among poor	Total households	Total poor households	Incidence of poverty	Percentage among poor	Total households	Total poor households	Incidence of poverty	Percentage among poor
	(000)	(000)	(%)	(%)	(000)	(000)	(%)	(%)	(000)	(000)	(%)	(%)
AGRICULTURE:												
Rubber Smallholders	350.0	226.4	64.7	28.6	396.3	233.8	59.0	28.0	425.9	175.9	41.3	26.4
Cil Palm Smallholders	6.6	2.0	30.3	0.3	9.9	0.9	9.1	0.1	24.6	1.9	7.8	0.3
Coconut Smallholders	32.0	16.9	52.8	2.1	34.4	17.5	50.9	2.1	34.2	13.3	38.9	2.0
Padi Farmers	140.0	123.4	88.1	15.6	148.5	114.3	77.0	13.7	151.0	83.2	55.1	12.5
Other Agriculture	137.5	126.2	91.8	16.0	157.4	124.1	78.8	14.9	172.2	110.5	64.1	16.6
Fishermen	38.4	28.1	73.2	3.5	41.6	26.2	63.0	3.1	42.8	19.4	45.3	2.9
Estate Workers	148.4	59.4	40.0	7.5	127.0	59.7	47.0	7.1	112.5	39.5	35.2	5.9
TOTAL:	852.9	582.4	68.3	73.6	915.1	576.5	63.0	69.0	963.2	443.7	46.1	66.6

Note: 1. The calculations took into consideration the effects of programmes implemented during 1971-80 as well as changes in other factors, such as prices and costs.

2. Data from studies conducted by Economic Planning Unit and Socio-Economic Research Unit in the Prime Minister's Department, Ministry of Agriculture, Department of Statistics and other agencies were used in the computation.

Source: Malaysia (1981), *Fourth Malaysia Plan, 1981-85,* Kuala Lumpur.

range of development inputs, research and extention services, processing and marketing. These "inputs" are provided by numerous existing public institutions of which the main implementing agencies are the Ministry of Agriculture (the Federal Department of Agriculture) and the State Department of Agriculture.

The rationale underlying the modernization and development of smallholder agriculture involves economic, social and political considerations. Economically, smallholder agriculture still contributes significantly to GDP and provides livelihood to a substantial proportion of the country's working population. The socio-political considerations arise from the fact that smallholder agriculture is primarily an indigenous sector. Moreover, the traditional smallholder sector, particularly fishing, padi, coconut and rubber smallholders, has always been economically backward relative to non-agricultural and estate sectors. These facts are particularly important as the indigenous population, and the Malays being the majority, are politically dominant in the electorate, but constitute the majority of the poor in the country. It is thus a political and social necessity that the stimulation of modernization in smallholder agriculture through subsidies should help the indigenous groups, at least uplifting their income levels and improve their welfare.

During the last three decades, there has been gradual modernization of considerable parts of the traditional and smallholder sector. Particularly in irrigated padi, rubber, coconut and also in oil palm, government intervention through subsidies has enabled the extension of new technology and improved materials to much of the smallholder sub-sector. One noteworthy change is in the construction of large-scale irrigation projects like the Muda Scheme, which has brought about one of the most rapid and remarkable economic transformation and modernization in small-scale peasant agriculture. It made possible the irrigation of about 96,000 hectares of traditionally rain-fed rice land. This resulted in the double-cropping of padi for about 60,000 farm families following the "seed - water - fertilizer" technology.

Padi production in the Muda Scheme, which averaged 314,000 tonnes annually in five years prior to 1970, rose to between around 1.1 million tonnes in 1980, accounting for about 45 percent of total Malaysian rice production. This is primarily the result of increased cropping intensity, and of widespread use of modern short-term varieties with increased fertilizer use. Average farm incomes in 1975 were 2.4 times those of the 1966 level in real terms; this being due not only to increased farm production but also in improved padi price

through guaranteed minimum price (GMP) which is, in effect, a subsidy.

Another area of remarkable transformation and modernization has been in smallholder production of estate crops such as rubber, oil palm and coconut. Government intervention in land development for rubber and oil palm, especially in the now extensive Federal Land Development Authority (FELDA) areas, has extended beyond technology to group organisation. In the case of traditional rubber and coconut smallholders, technology and access to capital have been improved through replanting/rehabilitation and new planting subsidies with accompanying chemical inputs like fertilisers and pesticides and through extension services, whilst organisational and management aspects have been largely unaffected.

In situ development in general further contributes to modernization is traditional smallholder sector. It has helped to intensify land use and to diversify smallholder agriculture through increased investment, the spread of new technology through high-yielding varieties, and the use of improved cultivation practices and other modern inputs. This has been complemented by the provision of special incentives, including input subsidies and other forms of financial assistance.

The modernization of the traditional smallholder sector, however, has yet to be experienced by many smallholders. There still remain extensive smallholder areas which little has yet been achieved, and where the traditional low productivity mode of production has not yet been modernized to any useful degree.

Input Subsidies and Padi Farming

Padi has a special socio-economic significance in the Malaysian economy. The total cultivated area under padi, in 1980, was estimated at 735,215 hectares and 33.6 percent or 243,157 hectares were under double-cropping. By hectarage, padi farming ranks second to rubber, and occupies about 14 percent of the total cultivated area in Peninsular Malaysia. In 1980, Peninsular Malaysia produced about 86 percent, i.e. 1,170,365 tonnes, of the total Malaysian production. The sector supports the livelihood of about 300,000 farm families, and being predominantly Malays, it carries political significance as the Malays are politically dominant. However, it is also the sub-sector with the highest poverty incidence at 55.1 percent in 1980 when compared to 45.3 percent among fishermen, 41.3 percent among rubber smallholders and 38.9 percent among coconut smallholders.[1]

[1] Malaysia (1981), *Fourth Malaysia Plan 1981-85,* Kuala Lumpur, 37-40.

The commitment to development given to padi sector by the government, among other things, has been primarily towards improved production and income to alleviate poverty among the padi farmers. Efforts has been undertaken through double-cropping, introduction and supply of high-yielding planting materials, drainage and irrigation facilities and subsidies on chemical inputs, such as fertilizers and pesticides, and price support for the output regardless of prevailing market prices.

The provision and distribution of input subsidies has involved substantial public development expenditure. Under the Second Malaysia Plan period (1961-65) $2.69 million has been spent on input subsidies. The introduction and application of chemical inputs then benefitted only about 4.046 hectares of padi farms. The increase in allocation to $10 million for the 1966-70 period further increase the benefits catering for about 89,029 hectares of padi farms. Between 1974 and 1976, the allocation was further increased to $50 million and $70 million respectively to provide a subsidy of $148 per hectare to padi farmers having less than 2.4 hectares of padi farms. The subsidy allocation was again increased in 1979/80 to benefit a larger padi farming population. It was meant to cater for all padi farmers throughout the country. Although $300 million was allocated, only $83 million was utilised by mid-1980.

This support to the padi sector accompanied with technological improvements and modernization has not only increased output and income among the padi farmers, but more significantly, it has led to a tremendously high cost of production. This is indicated in Table II — IV based on estimates of representative costs and revenues profiles[2] in market and accounting prices for padi cultivation in the major producing areas in 1980.

Output of rice from all major producing areas, though it varies from region to region, is generally high. Muda area has the highest followed by Tanjung Karang, Kemubu, Krian and Besut (Trengganu). In terms of regional output, i.e. between the West and East coasts producing areas, the former is observed to possess a higher output. Taking Muda and Kemubu as an example of the main producing areas in the West and East coast respectively, the yield per hectare in Muda area is about 1.3 times higher than that in Kemubu. This is primari-

[2]The data are obtained mainly from the Malaysian Agricultural Research and Development Institute (MARDI), Ministry of Agriculture, Muda Agricultural Development Authority (MADA), and other sources related and connected to the development of padi sector.

ly influenced by soil, climatic and locational problems, rate of technological improvements and application of new technologies.

Table II

Cost and Revenue Profile: Muda Areas
($/hectare)

	Main Season	Off Season	Annual	Market	Accounting*
Costs					
Labour Inputs[1]	656.00	656.00	1,312.00	1,312.00	1,312.00
Other Inputs[2]	192.00	192.00	384.00	384.00	355.00
Total Input Cost	848.00	848.00	1,695.00	1,695.00	1,667.00
Yield (gantang)	1,742	1,840	3,582	3,582	3,582
Revenue ($/hectare)	2,090.00	2,209.00	4,299.00	4,299.00	4,299.00
Net Revenue ($/hectare)	1,242.00	1,361.00	2,604.00	2,604.00	2,632.00
Net Revenue Per Unit of Output	0.71	0.73	0.72	0.72	0.73

*Conversion into accounting prices is calculated using a conversion factor of 0.84 for agricultural inputs. The opportunity cost of labour is assumed zero.

Source: MADA: Survey of Cost of Production

Note:
1. It is based on total man-days and average cost of $22.00 per man-day per hectare. The activities undertaken ranged from nursery to harvesting.
2. It is exclusive of input subsidy of approximately $148.00 per hectare for fertilizer inputs.

High yield and output from padi farms subsequently led to higher income returns to padi farmers. Again, the gain varies from region to region and the East coast region receives a generally lower income returns than in the West coast region. Similar trend has been indicated in some other studies.[3] The higher income among padi farmers, however, has also been attributable to the GMP which is, in effect, a subsidy, the costs of which are borne by the consumers of rice.

[3]For example, Jegatheesan, S. (1977), "The Green Revolution and the Muda Irrigation Scheme: Some Implications for Productivity, Income Distribution and Reform Policy", Muda Agricultural Development Authority, Monograph No. 30 (March), and Mokhtar Tamin and N. Hashim M. (1975) "Kelantan, West Malaysia", in *Changes in Rice Farming in Selected Areas of Asia,* IRRI, Los Banos, Philippines.

The increases in yield and output as well as incomes are to be expected because of the extension of irrigational facilities, wide application of new technologies such as high-yielding planting materials, fertilizers and pesticides, and the existence of price support through the GMP. The price support provides the padi farmers with a guaranteed price regardless of the prevailing market prices, whereas the new technologies and irrigation facilities improves the production efficiency and productivity.

Table III

Cost and Revenue Profile: Tanjung Karang Area
($/hectare)

	Main Season	Off Season	Annual	Market	Accounting*
Costs					
Labour Inputs[1]	645.00	645.00	1,290.00	1,290.00	1,290.00
Other Inputs[2]	163.00	161.00	324.00	324.00	312.00
Total Input Cost	808.00	806.00	1,614.00	1,614.00	1,602.00
Yield (gantang)	1,522	1,188	2,710	2,710	2,710
Revenue ($/hectare)	1,826.00	1,426.00	3,252.00	3,252.00	3,252.00
Net Revenue ($/hectare)	1.018.00	620.00	1,638.00	1,638.00	1,650.00
Net Revenue Per Unit of Output	0.66	0.52	0.60	0.60	0.60

*Conversion into accounting prices is calculated using a conversion factor of 0.84 for agricultural inputs. The opportunity cost of labour is assumed zero.

Source: MARDI: Survey of Cost and Return of Padi Production.

Notes:
1. It is based on total man-days and average cost of $18.50 per man-day Per hectare. The activities undertaken ranged from nursery to harvesting.
2. It is exclusive of input subsidy of approximately $148.00 per hectare for fertilizer inputs.

Another noteworthy observation; which is of great signficance to production incentives, is the increasingly high cost of production. As in the case of output and income, the cost of production also varies from region to region and highest in the Muda area.

The high cost of production is largely due to increases in the application of intermediary inputs such as planting materials, fertilizers,

pesticides, etc., and the use of labour. The introduction and spread of new technologies in the efforts to modernize the padi sector has created a growing demand for intermediary inputs. This obviously provides an opportunity for the suppliers to take advantage of the increasing demand to increase the costs of the required inputs, thus increasing the cost of production. The increase in the use of labour is also related to the input requirements of the new technology. This technology requires greater farming intensity through more careful cultivation, more fertilizers, better water control and management. It implies the requirement for more labour inputs per hectare for cultivation and maintenance. In the light of emerging problems of labour shortage, the cost for labour inputs required will obviously increase, thus contributing to the higher cost of production. Compared to 1977 and 1978 seasons, the cost of production in padi cultivation has increased by about 18—20 percent.

Table IV

Cost and Revenue Profile: Krian Area
($/hectare)

	Main Season	Off Season	Annual[1]	Market	Accounting*
Costs					
Labour Inputs[1]959.00	595.50	1,191.00	1,191.00	1,191.00	1,191.00
Other Inputs[2]	77.50	77.50	155.00	155.00	191.00
Total Input Cost	673.00	673.00	1,346.00	1,346.00	1,382.00
Yeild (gantang)	1,245	1,245	2,490	2,940	2,940
Revenue ($/hectare)	1,494.50	1,494.50	2,989.00	2,989.00	2,989.00
Net Revenue ($/hectare)	821.50	821.50	1,643.00	1,643.00	1,607.00
Net Revenue Per Unit of Output	0.65	0.65	0.66	0.66	0.65

*Conversion into accounting prices is calculated using a conversion factor of 0.84 for agricultural inputs. The opportunity cost of labour is assumed zero.

Source: MARDI, Ministry of Agriculture: Survey of Cost and Return of Padi Production.

Note:
1. It is based on total man-days and average cost of $12.00 per man-day per hectare. The activities undertaken ranged from nursery to harvesting.
2. It is exclusive of input subsidy of approximately $148.00 per hectare for fertilizer inputs.

Table V

Cost and Revenue Profiles: Kemubu Area
($/hectare)

	Main Season	Off Season	Annual	Market	Accounting*
Costs					
Labour Inputs[1]	569.00	560.00	1,129.00	1,129.00	1,129.00
Other Inputs[2]	157.00	157.00	314.00	314.00	385.00
Total Input Costs	726.00	717.00	1,443.00	1,443.00	1,514.00
Yield (gantang)	1,371	1,359	2,481	2,481	2,481
Revenue ($/hectare)	1,646.00	1,631.00	3,277.00	3,277.00	3,277.00
Net Revenue ($/hectare)	920.00	914.00	1,834.00	1,834.00	1,763.00
Net Revenue per Unit of Output	0.67	0.67	0.65	0.73	0.71

*Conversion into accounting prices is calculated using a conversion factor of 0.84 for agricultural inputs. The opportunity cost of labour is assumed zero.

Source: MARDI: Survey of Cost and Return of Padi Production

Note:
1. It is based on total man-days and average cost of $14.80 per man-day per hectare. The activities undertaken ranged from nursery to harvesting.
2. It is exclusive of input subsidy of approximately $148.00 per hectare for fertilizer inputs.

The provision of subsidies for chemical inputs, at approximately $148.00 per hectare, and other forms of assistance have, to a large extent, helped to reduce the burden of input costs on the padi farmers. As observed in Table II — VI the cost of production would have been very much higher, at the least doubled, if there has not been any input subsidy.

Such a high cost of production, if not controlled, can be detrimental to the efforts and incentives in the production of padi. It not only has a tendency to affect and reduce the income returns, but also, and more important, it tends to increase the farmers' dependency on government assistance and support. The former would contradict the objective of increasing padi farmers' incomes to reduce poverty, whereas the latter would, in the end, be unhealthy and affect the growth in the padi sector when resources become limited.

Table VI

Cost and Revenue Profiles: Besut Area (Terengganu)
($/hectare)

	Main Season	Off Season	Annual	Market	Accounting*
Costs					
Labour Inputs[1]	325.50	354.50	678.00	678.00	678.00
Other Inputs[2]	136.00	131.00	267.00	267.00	250.00
Total Input Cost	461.50	485.50	945.00	945.00	928.00
Yield (gantang)	815	840	1,655	1,737	1,408
Revenue ($/hectare)	978.00	1,008.00	1,986.00	1,986.00	1,986.00
Net Revenue ($/hectare)	516.00	522.50	1,041.00	1,041.00	1,058.00
Net Revenue Per Unit of Output	0.63	0.62	0.62	0.59	0.75

*Conversion into accounting prices is calculated using a conversion factor of 0.84 for agricultural inputs. The opportunity cost of labour is assumed zero.

Source: MARDI: Survey of Cost and Return of Padi Production.

Note
1. It is based on total man-days and average cost of $12.00 per man-day per hectare. The activities undertaken ranged from nursery to harvesting.
2. It is exclusive of input subsidy of approximately $148.00 per hectare for fertilizer inputs.

Impact and Implication

As a government policy to stimulate adoption of new technologies, the provision and distribution of input subsidies to padi farmers represents not only a public sector support and intervention towards increased production and a form of protection to the smallholder production of padi. The impact and implications of such government policy can be measured by nominal protection coefficient (NPC), effective protection coefficient (EPC), and producer subsidy equivalent (PSE). The NPC and EPC measures the incentive (or disincentive) impact of government policies on producers, whereas the PSE is a means to express the impact of several policies which affected producers using a simple quantitative measure of the changes it caused in producers' income. It indicates the net subsidy the padi farmers' received after all repurcussions of policies have been taken into account.

Table VII, VIII and IX indicate the estimates of NPC, EPC and PSE respectively for padi farmers. The EPC for padi farmers ranged from 0.99 to 1.02 for the major producing areas, whereas the NPC is 0.99. The EPC estimates implied that paid is highly subsidised in many ways[4] and that the padi farmers, in general, enjoyed some amount of effective protection. This may have stemmed largely from the cost-reducing input subsidies and other forms of assistance provided to padi farmers, including price support to ensure stability in prices for padi. It seems, therefore, that the existing strategy and policy, is, to provide subsidies to stimulate the adoption of new technologies towards modernization, would be broadly appropriate.

Table VII

Domestic and Werld Price Adjusted to Producer Point for Padi, 1979 and Nominal Protection Coefficient

	1979/80
World price adjusted to producer point ($/pikul)[1]	30.10
Domestic Price ($/pikul)[2]	30.00
Nominal Protection Coefficient (NPC)	0.99

Notes:

1. This is calculated taking into account the average price of imports into Peninsular Malaysia, handling distribution and transport charges, farm gate prices etc.
2. It is based upon the average annual price of Mahsuri variety, as given by LPN, averaged across all major producing areas. Precise comparison of prices in 1979/80 are made difficult by an absence of data on the quantities of rice traded at rapidly changing quoted prices.

$$NPC = \frac{P^{b}_{i}}{P^{d}_{i}}$$ where, P^{d}_{i} = domestic price of good i, P^{b}_{i} = border price of good i

It would also be advantageous as the income returns to padi farmers are higher as discussed above. It is also apparent that the more efficient producers are more able to take advantage of these to increase their value added. However, the incentive and protection impact in terms of the increase in domestic price, as shown by NPC, is small and minimal because of the high world prices of rice in 1979/80, which is almost equal to the domestic price support.

[4]Padi Sector has been heavily subsidised by the government. The subsidies provided to the padi sector includes price support, irrigation and drainage subsidies in terms of capital and operating costs, urea (fertilizer) subsidies, and other input subsidies.

Table VIII

Effective Protection Coefficient (EPC)* For Padi Selected Areas in Peninsular Malaysia

	Muda		Tanjung Karang		Krian		Kemubu		Besut (Trengganu)	
	Market Prices	Accounting Prices	Market Prices	Accounting Prices	Market Prices	Accounting Prices	Market Prices	Accounting Prices	Market Prices	Accounting Prices
Growth Revenue ($/hectare)	4,299.00	4,299.00	3,252.00	3,252.00	2,989.00	2,989.00	3,277.00	3,277.00	1,986.00	1,986.00
Total Cost of Input[1]	378.00	355.00	320.00	313.00	150.00	192.00	264.00	250.00	306.00	385.00
Value Added Per hectare ($)	3,910.00	3,945.00	2,933.00	2,904.00	2,839.00	2,797.00	1,723.00	2,736.00	2,970.00	2,892.00
Effective Protection Coefficient (EPC)	0.99		1.0		1.01		0.99		1.02	

*EPC $= \frac{VAd}{VAb}$ = where VAd = value added in domestice market prices

VAb = value added in border prices

1. It includes inputs such as seed, land preparation, pesticides and irrigation rates.

Table IX

Producer Subsidy Equivalent (PSE): PADI

	1979/80
Volume of Production (' 000 tonnes)	1,799
Producer Price ($/tonnes)	500.00
Total Producer Value ($M)	899.50
Policy Transfer to Producers:	
Price Support* ($M)	0.60
Irrigation and drainage subsidies ($M)	
- capital	76.7
- operating	25.6
Urea Subsidies ($M)	83.00
Other input subsidies ($M)	0.10
Total Producer Subsidy ($M)	186.00
Proportional Subsidy** (PSE) (%)	20.00
Subsidy Per Unit of Output*** ($/tonne)	103.00

* Data from Ministry of Agriculture

** $\frac{\text{Total Producer Subsidy}}{\text{Total Producer Value}}$

*** $\frac{\text{Total Producer Subsidy}}{\text{Volume of Production}}$

The net direct effect of government policies on padi farmers is seen through PSE. It indicates that in 1979/80, the government policies, to a certain extent, helped to subsidise the farmers' income. The estimated proportional (net) subsidy to padi farmers of 20 percent of the value of output is not that substantial reflecting that padi farmers received a small amount of subsidy per unit of output. This seems to concur with the findings of NPC and PSE whose incentive effect is also comparatively small. However, during the 1979/80 season, there has been an increase in domestic price support and this could have contributed to the improved position of padi farmers. The high domestic price support tends to affect the rice consumers and its impact on them is often the exact opposite of its efforts on producers. This is especially so because the support price, ie. the GMP, is, in effect, a subsidy the cost of which are borne by the rice consumers.

In general, the above interpretations implied that padi farmers, to a certain extent, have received incentive benefits and some amount of effective protection through subsidies, particularly in the forms of inputs and price support. In fact, padi farmers are heavily subsidised and this support and assistance have provided them with production incentives. This has contributed to the improved production

efficiency in padi cultivation and further stimulate the adoption of new technologies and modernization in the padi sector.

Conclusion

Among the various development efforts to improve the socio-economic status of padi farmers, subsidies on chemical inputs such as fertilizers and pesticides, and price support through GMP, have been very significant in bringing about technological improvements and modernization toward increasing output and income among padi farmers. Subsidies on inputs further helped to reduce the burden of increasingly high cost of production in padi cultivation and provided the farmers with production incentives as well as some amount of effective protection to encourage production.

The above achievement was not without adverse consequences. In the efforts to increase output and income, the uneven distribution and allocation of subsidies and other assistance to padi farmers has created intravariation/disparity in income distribution and growth among the padi producing areas. At the same time, the stimulation of adoption of new technologies has led to substantial increase in the cost of production which would end up benefitting the suppliers of the required technologies.

Within the framework of the overall national policy, the provision and distribution of subsidies to padi farmers can be said to have accelerated the distribution of income to farming communities where the incidence of poverty has been very high. However, it is still insufficient to eradicate, or even greatly to alleviate, the incidence of poverty among the padi farmers.

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