

# DISCRIMINATORY ALLOCATION OF PUBLIC EXPENDITURE BENEFITS FOR REDUCING INTERRACIAL INEQUALITY IN MALAYSIA—AN EVALUATION

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FROM the time of independence in 1957, the government of Malaysia has been concerned with the observed differentials in income, wealth, and employment as between the Malays and the other races, i.e., the Chinese and Indians in the country, and has pursued various public policies and programs aimed at reducing such differentials. This paper is devoted to an analysis of the effects of some of the public expenditure programs which have been pursued during the period 1957 to 1975.

Towards this end, a cost benefit analysis (CBA) of some selected public expenditure programs is attempted here. This should enable us to examine the viability or otherwise of these programs. In this regard, the discriminatory allocation of public expenditure benefits in favor of Malays (whether it be through the provision of public subsidies for Malay enterprises/pursuits, or otherwise through Malay employment in public enterprises), has featured as the *key* policy instrument of the government for reducing interracial economic differences in the country. A close scrutiny of some of these public expenditure programs reveals that a differential rate of support and subsidy has been given to different economic activities and groups of beneficiaries. Therefore, we will also enquire into the allocative and distributional effects of such differentials in this paper. At the same time, as the number of persons who benefit from the public expenditure programs are limited, we also look into the possible implications of rationing the limited benefits among the many competing bidders.

The public expenditure programs, undertaken to-date, towards reducing interracial economic differences, have been directed into the agricultural and industrial sectors as well as education. In agriculture, the public expenditures have been concentrated in rubber replanting schemes, construction of irrigation facilities for the double cropping of padi, and the development of land resettlement schemes for the cultivation of rubber and oil palm. Accordingly, we have selected one irrigation scheme (the Besut irrigation scheme) and two land development schemes

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This paper has been extracted from my Ph.D. thesis [16]. It has been slightly rewritten for purposes of publication. I wish to record here my sincere thanks to my supervisor, Professor A. A. Walters, for his invaluable guidance and advice during the course of the preparation of this thesis. Given the voluminous nature of the estimation procedures and the detailed workings of the cost benefit studies, these are not reproduced in this paper. Interested readers are referred to my thesis.

(one for rubber and the other for oil palm, both managed by the Federal Land Development Authority or FELDA) for our exercise on CBA. We have decided against evaluating a rubber replanting scheme, since the exercise will be broadly similar to our evaluation of the FELDA rubber scheme. In regard to the industrial sector, our choice of projects has been dictated primarily by data availability. Fortunately, the projects which have been selected do provide some interesting insights into the adequacies or otherwise of the Malaysian public sector in its newly-acquired role as an entrepreneur. The industrial projects chosen are as follows: an integrated sugar project, a fishmeal processing plant, and an integrated textile mill. On the basis of a study on the rates of return to investment in education by Professor O. D. Hoerr, we will also make some useful comparisons of public expenditure decisions in the area of education with those in agriculture and industry [4].

For purposes of evaluating the allocative and distributional effects of the public expenditure programs, we have determined the private and social rates of return of the various projects outlined above. The calculations of private rates of returns are based on market prices. On the other hand, social rates of return are based on shadow or accounting prices. The divergence between private and social rates of return can arise as a result of distortions in product and factor markets as well as the incidence of externalities. Elsewhere, we have shown how the shadow price of labor and land differ from their respective market prices in Malaysia on account of market imperfections and government legislation [16]. We shall not belabor over these issues here once again. In the case of commodities, their domestic prices can differ from the accounting values as a result of nonoptimal intervention by the government in international trade (say, through the imposition of tariffs or quotas on imports and duties on exports). Where the market price of inputs and outputs differ from their social value appropriate corrections have been made to the price estimates in our cost-benefit studies. We have ignored the incidence of externalities in our studies. As is common with many other cost-benefit studies on industrial and agricultural projects, it is felt that no significant externalities are likely to be associated with such projects. Even if significant, their identification and quantification can prove to be difficult and therefore we have adopted the far easier course of ignoring them altogether in our exercise.

In the social cost benefit analysis (SCBA), we have used the approach suggested by Little and Mirrlees,<sup>1</sup> modified where necessary by the rules given in the UNIDO guidelines for project evaluation.<sup>2</sup> There are many practical problems associated with any undertaking on SCBA. For instance, many of the expenditure categories are not sufficiently disaggregated into their respective components, such as unskilled labor, land, and traded and non-traded goods. Apart from the controversies surrounding the valuation of such components, an evaluator will also have to

<sup>1</sup> See I. M. D. Little and J. A. Mirrlees, *Manual of Industrial Project Analysis for Developing Countries, Vol. II, Social Cost-Benefit Analysis* (Paris: OECD, 1968) and idem, *Project Appraisal and Planning for Developing Countries* (London: Heinemann, 1974).

<sup>2</sup> See P. Dasgupta, S. A. Marglin, and A. K. Sen, *Guidelines for Project Evaluation* (New York: United Nations, 1972).

grapple with the real problem of generating the necessary cost breakdowns. We have tried to deal with this problem as best as possible, and in the process have relied heavily on other SCB studies which have been done to-date on Malaysia, including those by Professor I. M. D. Little and Mr. S. Anand of Oxford University and Dr. J. T. Thoburn of the University of East Anglia.<sup>3</sup> As some of the calculations are based on judgment and guesstimates rather than on hard economic analysis or facts, the limitations of the SCB results of the various studies reported here must be borne in mind from the outset. This is why, a great deal of attention has also been given in this chapter to the calculations of private profitability. Since the distortions in the product and factor markets in Malaysia are not as acute as in many other developing countries, private profitability calculations can also give some useful pointers on efficient resource allocation in the country.<sup>4</sup> In any case, as will be shown later, private rates of return do appear

<sup>3</sup> See: I. M. D. Little and D. G. Tipping, *A Social Cost-Benefit Analysis of the Kulai Oil Palm Estate* (Paris: OECD, 1972); S. Anand, "A Comparison of the IBRD and Little-Mirrlees Appraisal of a Highway Project in Malaysia," *Journal of Transport Economics and Policies* (forthcoming); J. T. Thoburn, *Appropriate Technology—Some Lessons from the Malaysian Tin Mining Industry*, Discussion Paper No. 27, (Norwich: University of East Anglia, 1975); E. A. Wegelin, *Cost-Benefit Analysis of Rehousing Squatters in Klang Valley Area, Peninsular Malaysia* (Kuala Lumpur: Urban Development Authority, 1975); [6]; [15]; and Harcharan Singh Kera, "Some Economic Aspects of the Oil Palm Industry of West Malaysia," Ph.D. Thesis, University of Hull, 1973.

<sup>4</sup> In this regard some of the major adjustments which are made for distortions in the capital market and the foreign exchange market in a typical SCB study are not relevant for Malaysia. Many developing countries are alleged to suffer from suboptimal savings and to overcome this a premium is attached to savings relative to consumption in project analysis. This problem may characterize many developing countries but not Malaysia. Even if it does, the allocation of national income between savings and consumption can be handled adequately by the fairly broad-based and efficient fiscal machinery that has been built up in the country and there is no need to resort to project selection to deal with this problem as such. Also arguments have been advanced, on account of the divergence between private and social rates of time preference, for determining a special rate of discount to deal with the problem of intertemporal choice. Many of the arguments are esoteric in nature and rather complex to be meaningfully incorporated in any exercise on the actual choice of an appropriate rate of discount. In Malaysia, the problem is eased somewhat on account of its excellent international credit-standing (based on its foreign exchange earning capacity and liberal foreign exchange regulations) and therefore the interest rate it has to pay on its borrowings in the world money markets may serve as a good approximation of the discount rate that should be used in SCBA in the country. On the question of the foreign exchange market, the Malaysian one is not seriously distorted and therefore the choice of the appropriate exchange rate to use in SCBA does not significantly differ from the market rate. The only factor markets where there are likely to serious distortions are the labor and land markets, and these markets have been discussed in some detail elsewhere in the study. Coming to the product markets, the extent of nonoptimal government intervention in international trade is small compared to many other developing countries and therefore the adjustments on product prices required on account of such distortions are not likely to be substantial either. See B. Balassa and Associates, *The Structure of Protection in Developing Countries* (London: Johns Hopkins Press, 1971). It is on account of the above factors that the private rate of return based on market prices (before duty) can provide some useful indicators for efficient resource allocation in the country.

to provide a useful framework for discussing some relevant distributional issues and policies of immediate interest to our overall study.

Before we discuss the findings of this cost-benefit analysis (CBA), it is useful to note that the various projects have been evaluated, as far as possible, on a consistent set of assumptions about the prices of factor and commodity inputs. To this extent, the results thus generated on relative profitability of the various projects studied here are comparable. This cannot of course be said about the level of their absolute profitability or their profitability with respect to other projects in the economy, since this depends critically on our estimates of input and output prices.

In order to ensure consistency in our evaluation exercise, we have also had to make adjustments for inflation which has been underway in the Malaysian economy in the post-1970 period. The data for the different years for all our agricultural projects are based on pre-inflation prices and therefore no adjustments have been made to these data. However, in the case of the industrial projects which have all been undertaken since 1970, price adjustments are necessary to make the data for the different years comparable. Such adjustments have been made by using the consumer price index (CPI). Although the CPI may not be well suited for the task in hand, given that it is the only comprehensive price index available in the country, we had no choice but have recourse to it.

#### I. RATES OF RETURN: THEIR "REPRESENTATIVENESS" AND POSSIBLE QUALIFICATIONS

The results of the various cost-benefit studies along with relevant explanatory notes are given in Table I and II. When we examine the "unsubsidized" private rate of return before the imposition of duty, it is clear that the export-based agricultural activities of oil palm and rubber are the most viable. All the other activities, with the possible exception of the integrated textile project, are not viable. However, commercial decisions whether to produce or not to produce a given commodity will depend on the duty-adjusted rate or return. It is clear from columns (I) and (II) of Table I that fiscal policies in Malaysia, as elsewhere, serves to reduce the rate of return (rather substantially) on import-competing industrial projects. In fact, on the basis of the duty-adjusted rate of return, the export production of rubber ceases to be viable. This may explain why during the sixties only less than half of the land alienated to the private sector for agricultural development was developed [8, p. 126].

On the whole, the estimates of the rates of return reported above are based on conservative assumptions about product prices. This is especially so with regard to the prices of palm oil and rubber. It is interesting to bear in mind in this context that the proportion of the f.o.b. prices of the export commodities which are retained by the state in the form of export duties and cess payments for replanting and research purposes constitute as much as 15 per cent or more of their total export values. On the other hand, as shown in Table I, note d, the

TABLE I  
PRIVATE AND SOCIAL RATES OF RETURN FOR SELECTED PROJECT (%)

	Private Rate Return <sup>a</sup>				Social Rate of Return <sup>b</sup>
	Without Subsidy		With Subsidy <sup>c</sup>		
	Before Duty	After Duty <sup>d</sup>	Excluding Labor Income <sup>e</sup>	Including Labor Income <sup>e</sup>	
I. Oil palm scheme	21.21	16.23	24.67	35.74	28.10
II. Rubber scheme	8.04	4.44	7.84	19.94	13.45
III. Irrigation scheme	3.03	7.34	56.36	∞	6.80
IV. Integrated sugar project	-2.90	7.85			3.92
V. Fishmeal project	-0.59	4.77			5.96
VI. Integrated textile mill	5.51	14.79			9.96

<sup>a</sup> The private rate of return is the internal rate of return of the project at market prices. We shall use the abbreviation IRR to denote the internal rate of return from henceforth.

<sup>b</sup> The social rate of return is the IRR of the project at shadow prices.

<sup>c</sup> The private rate of return with subsidy is the IRR of the project where only that part of the cost borne by the beneficiaries is taken into account, and that part of the cost borne by the state is excluded. In the FELDA oil palm and rubber schemes, around 25 per cent of the total cost of establishment is borne by the state, whereas in the case of the irrigation scheme the entire cost of establishment is borne by the state. As regards the irrigation scheme, we have been able to generate a definable IRR only because the expected cost of production of the incremental output of padi (including the cost of family labor) exceeds the expected benefits arising from that output during the initial years of the scheme. In the case where padi production cost excludes the cost of family labor, the time stream of net benefits are all positive and therefore the IRR is undefined, i.e., it is infinite. All the industrial projects considered here are operated by state enterprises either on their own or in joint-venture with the private sector. In the case of these industrial projects, part of the funds come from state sources bearing an interest charge below the market rate. But we have not attempted to estimate the element of subsidy involved. In the case of projects V and VI, state lands have also been alienated to them at prices below market prices. Note that the private rates of return to the FELDA settlers have been calculated here by recording their share of the capital cost according to the actual time pattern of its occurrence and not according to the stipulated schedule of repayment contained in their loan agreement. Where private benefits are compared against private costs as implicit in the repayment schedule, the time stream of settlers net receipts are invariably positive, and therefore we are again confronted with an undefined IRR. It is to avoid this latter problem, and to generate a definable IRR, which can then be compared with the other IRRs, that we have made the above simplifying assumption regarding the time stream of settler-borne capital costs. We must of course bear in mind the bias implicit in this assumption. See Table II, note a on how this bias can be avoided.

<sup>d</sup> The private rate of return after duty gives the IRR of the various projects after netting out export duties and cess payments from f.o.b. prices and adding on import duties to c.i.f. prices. Both palm oil and rubber are export commodities and bear export duties as well as replanting and research cess. On the projected f.o.b. price of palm oil of M\$425 per ton, the export duty is 10 per cent and

the replanting and research cess is currently levied at a flat rate of M\$6 per ton of fresh fruit bunches (F.F.B.). The export duty on rubber on the projected price of forty-five cents per lb. is 4 per cent and the replanting and research cess works out at five and a half cents per lb. For the industrial projects, the private rate of return has been calculated on the basis of the following tariff rates: sugar 30 per cent, fishmeal 10 per cent, and cloth 25 per cent. Rice is assumed to bear an import duty of 30 per cent (see footnote 5).

<sup>e</sup> The private rate of return with subsidy has been calculated for two alternative cases: one which excludes and the other which includes the labor income of the beneficiaries, i.e., the settlers and farmers. In the case of the agricultural projects, this is certainly warranted since the beneficiaries as owner-operators will receive a return both on their capital investment (for which they may or may not have paid) as well as their labor.

TABLE II  
DISCOUNTED PRESENT VALUE OF NET PRIVATE BENEFITS AT A RATE OF  
DISCOUNT OF 10 PER CENT (MARKET PRICES) (M\$)

	Net Private Benefits with Labor Income <sup>a</sup>			Net Private Benefits without Labor Income <sup>b</sup>		
	Total	Per Family	Per Acre	Total	Per Family	Per Acre
I. Oil palm scheme	12,855,900	24,030	2,701	8,526,100	15,937	1,791
II. Rubber scheme	5,588,400	11,267	1,265	3,000,000	605	68
III. Irrigation scheme	15,140,000	3,726	1,202	8,300,400	2,043	659

Note: The project lifespan for all three projects is thirty years. The discounted present value of the net private benefits given above represents the benefits which arise during the entire life-span of the projects net of operating cost and loan repayments. By discounting the stream of net private benefits at a specific rate of discount, we avoid the bias which has been referred to Table I, note c.

<sup>a</sup> The labor income referred to here is the income of the project beneficiaries who are the settlers in the FELDA schemes and padi farmers in the irrigation scheme.

<sup>b</sup> Also see the notes attached to Table I.

import-competing projects receive substantial protection.<sup>5</sup>

The social rate of return of the various projects appears to be more encouraging. This is especially so for the two export-oriented projects. However, in the case of the irrigation scheme and the industrial projects, the rates of return do not exceed 10 per cent. In fact, the returns are well below 10 per cent for the

<sup>5</sup> Insofar as the domestic padi and rice industry goes, a cumbersome buffer stock machinery has been built up since the early postwar years to operate a quantity-linking price support scheme for the industry. The effects of this quantity-linking price support scheme on the structure of prices in the domestic padi and rice market are analogous to those which will arise from the imposition of duties. On account of such a scheme of price support the domestic price of padi is, on average, about 30 per cent above its equivalent c.i.f. price. The private rates of return to the irrigation scheme in Tables I and II have been estimated on the assumption that the equivalent import duty of existing import restrictions on the import of rice into the country is 30 per cent. The existence of such import restrictions will cause a distortion in the market for padi and rice. There is an extremely useful analysis of the Malaysian quantity-linking padi price support scheme in C. P. Brown, "Rice Price Stabilization and Support in Malaysia," *Developing Economies*, vol. 11, No. 2 (June 1973).

irrigation scheme, the integrated sugar project as well as the fishmeal project. Given our earlier qualifications on the estimation of the social rates of return, it will be always desirable to set a high social rate of return, possibly above 10 per cent as the cutoff rate for decisions on project selection, where such decisions are based on SCB criteria. As such even the single industrial project (i.e., project VI), which seems to have close to a 10 per cent rate of return in accounting prices, can at best be considered as marginal.

On the basis of the preceding discussion, some tentative remarks on the allocative effects of the public expenditure program can be made. Where the efficiency test on resource allocation is based on market prices before the imposition of duties, it is quite apparent that nearly all the projects considered here, with the single exception of the project engaged in palm oil production, will not pass the market test. It is possible to reject a market-based efficiency criteria on the grounds that it does not properly take into account factor and product market distortions. Although there are such distortions in the Malaysian economy, they are not as serious as those to be found in other countries (see footnote 4). In any case where corrections are made for such distortion, the public expenditure program, especially those directed at the export production of agricultural commodities, seems to fare better. However, even on the basis of this distortion-corrected efficiency test, many public sector decisions are not viable. For instance, the massive infusion of funds into the construction of irrigation facilities for the double cropping of padi earns only a low rate of return.

The results of the CBA reported here are for individual projects. The three agricultural projects investigated are medium-sized enterprises, located in the east coast of Peninsular Malaysia, and constitute one of the many projects devoted to the production of palm oil, rubber, and padi which are being currently undertaken by the public sector for the purpose of promoting production-oriented and employment-generating activities among the Malays. In the same way, the industrial projects selected for enquiry here are only three among the many with public sector participation. In the area of integrated sugar projects, the complex studied here is one of four such projects which have been initiated into the country by the public sector: two have already failed, one before and the other after the commencement of production. The third project appears to be successfully launched while the fourth one, the project investigated here, is having severe teething problems. Although there are many textile and fishmeal projects in Malaysia which are being run by the private sector, the ones investigated here are among the first to be launched by the public sector in the country.

In the light of the above, it is pertinent to ask if the rates of return reported here can be considered as sufficiently representative of returns which can be earned elsewhere in the economy in similar activities. In the case of agricultural projects, variations in soil conditions can certainly affect the pattern of yields and hence the comparability of projects within the same area of economic activity such as rubber or palm oil production. However, the data we use, as far as possible, have been adjusted for these variable influences, and especially with regard to yields, the pattern projected here can be considered as the average obtainable under

Malaysian conditions. To that extent, it is possible to consider our rates of return as fairly representative for the economy as a whole. In the case of our irrigation scheme, the Besut scheme, the prolonged period entailed in its construction, may not make its rate of return representative for other irrigation schemes which have avoided such delays. This we will consider in due course, but since the estimated rate of return is rather low, we can safely assume that even schemes which have been completed on schedule are likely to have only low rates of return. Insofar as industrial projects go, differences in the scale and technique of production, design, and such other factors may reduce the representative character of our results. But this will not be so for the integrated sugar project since the design of all the four integrated sugar projects were basically similar.

As stated earlier, the estimated rate of return in palm oil and rubber production has been based on conservative price assumptions. This also applies to yield projections. Investment in oil palm is extremely profitable even under these assumptions. However, rubber production may appear to be a marginal proposition. Therefore, it will be useful to investigate if any striking technological developments in the industry in the recent past or in the foreseeable future will dramatically reverse this situation. This is important because the Malaysian natural rubber industry is one area where significant breakthroughs in clonal development, yield stimulants, and marketing technique have rescued it from the onslaught of the ever-expanding synthetic rubber industry. In this context, there are three continuing developments which will be of enormous significance to the industry in the coming year. There are good prospects for further clonal developments which will not only increase yields but also maximize it in the early years of the plant's lengthy life-span, rather than during the middle years, as is the case now. Apart from this, improved techniques of planting have been discovered, which can reduce the period of immaturity in the field from about seven years to four years.<sup>6</sup> Some of these innovations, such as the improved techniques of planting, are only now being commercially exploited. The Malaysian Rubber Research Institute (RRI), which has been instrumental for all the major technological breakthroughs in the natural rubber industry, is confident of the commercial viability of its recent innovations. If this is borne out, and given the RRI's exemplary record, there is no reason why it should not, the substantial reduction in the gestation period of the rubber tree, as well as the improved clonal varieties, which maximize yields in its initial years, will lead to a fairly significant increase in the rate of return to rubber production as well as reduce the recoupment period for its capital investment. In this context, it is interesting to note that the rapid switch-over of estate enterprises from rubber to oil palm in recent years can be accounted for not only by the more favorable market prospects for palm oil but also because the oil palm has a shorter immaturity period (only four years) and a rather more favorable lifetime pattern of yields as compared to the rubber tree.

<sup>6</sup> See [6]. Also refer to Rubber Research Institute Malaysia, *Reduction of Immature Period of Rubber* (Kuala Lumpur, 1974).



As regards the development of irrigation facilities for the double cropping of padi,<sup>7</sup> we had noted earlier the delays in the construction of the Besut scheme, which delays have extended the scheme's gestation period from about two and a half to four years. This has not been found to be the case for some of the larger schemes, especially, the Muda and the Kemubu schemes which will be irrigating 250,000 and 50,000 acres respectively of padi farm lands. The Besut scheme is designed to irrigate only 12,600 acres. However, unlike the Besut scheme, for both the Muda and Kemubu schemes, the irrigation requirements (or what is more commonly referred to as the water duty) have been wrongly estimated. These schemes were designed on the assumption of a long presaturation period. Now it is found that, if the period is not reduced, it will lead to an overlapping of planting schedule. In the case of the Muda scheme, the irrigation engineers have found that "approximately 40% of the scheme experiences late planting, averaging 20 days per season. This delay tends to cumulate over a number of seasons such that once every three years, an off-season crop will have to be missed in 40% of the Muda scheme" [9, p. 38]. Also the seasonal overlapping of planting schedules and the readily observed practice of continuous irrigation in Malaysian padi fields means that rainfall is not being utilized fully. As this is contrary to the initial design assumption of the schemes, the attendant mismanagement of the available water resources can lead to shortfalls in the total area irrigated. To overcome these deficiencies, an additional investment of about M\$100 million is required for the Muda scheme. The initial investment was M\$260 million.

Apart from the design deficiencies, there are other considerations which will adversely affect the rates of return to irrigation. These considerations have not been taken into account in the computation of the rate of return for the Besut scheme. Such considerations essentially impinge on the estimation of the irrigation benefit stream. If a forecast of the likely response of farmers to double cropping in the new schemes is made on the basis of the actual experience in some of the older schemes, we are forced to be rather pessimistic in our projection of the likely benefits which will arise from the double cropping of padi. In this regard, the key variables are the rate of adoption of double cropping, its frequency, and the cultivation intensity in terms of the available area tilled in padi farms. It has been found that in many of the old schemes, it takes anything between two to five years to double crop the entire scheme. Even when double cropping has been fully adopted, the farmers abandon the cultivation of one crop about once every three years, because of their inability or unwillingness to adhere to the tight and demanding time schedule imposed by double cropping in their cultivation practices, shortage of or slowness in the supply of water, and shortage of other complementary inputs such as labor and working capital. As regards the cultivation intensity, it is invariably around 90 per cent or below the available farm area. The harvested acreage often differs from the planted acreage as floods, droughts, pests, and diseases can destroy the padi plants in the fields. Apart from this,

<sup>7</sup> The comments which have been made in the following paragraphs on irrigation schemes are drawn from my study [17].

farmers may be forced not to work part of their land either because it is too elevated, or it has an excess of water or because they lack the necessary complementary inputs. The above considerations will certainly operate to make the rate of return to irrigation schemes even lower than the one estimated here.

Subject to the limitations of the irrigation benefit stream which has been projected in this study, the rate of return estimated for the Besut scheme appears to be a fairly representative one for many of the irrigation schemes in Malaysia. This is because there is no marked difference in the expected incremental yields or the estimated incremental costs per acre of the Besut scheme as compared to those of the Muda and Kemubu schemes.

Coming now to the integrated sugar mill, both the social rate of return as well as the private rate of return before the imposition of duty, is close to zero, if not negative. Even these estimates appear to be based on rather favorable assumptions which are probably unwarranted. We will mention them here, as it will give a better perspective of the actual situation. The integrated sugar projects which have been promoted in Malaysia under the sponsorship and participation of the public sector rank, in terms of their capital investment, among the really large projects that have ever been undertaken in the country. The capital investment amounts to around M\$100 million per complex. The project under consideration was conceived in 1969 and a feasibility report was submitted in 1970. Since its implementation in 1972, there have been enormous cost overruns. For some items, these overruns were twice the initial cost estimates. Only part of these cost overruns can legitimately be attributed to inflationary pressures, the rest being caused by defective planning and foresight. The initial construction schedule was two years, but in fact it has taken three years just to get the project off the ground. A cane plantation of approximately 25,000 acres was to have been established, partly under the direct management of the refinery and partly as a smallholders scheme under the management of the State Economic Development Corporation (SEDC). By the end of 1974, when the refinery was ready for operation, less than 6,000 acres had been developed and the smallholders scheme had failed to materialize, for the interesting reason that workers were not responding in adequate numbers to work in the cane plantation, let alone participate as smallholders in the smallholders scheme.<sup>8</sup> Even at the end of 1975, only about

<sup>8</sup> According to one researcher, both the Perlis as well as the Negri Sembilan plantations have encountered labor problems. "In Perlis, competition from the River Muda scheme has meant a reduction in the supply of manual labour during the peak harvesting period. A preliminary conclusion from a recent survey revealed that a significant number of the labourers had experienced a 'culture shock' working in the new environment of the sugar plantations. This is particularly true of those who have had working experience in rubber and oil palm estates whose shadiness afforded in retrospect a favourable working environment in contrast to the openness of the sugar cane fields." See Mustapha Camal Idris [12, p. 44]. This labor problem has necessitated expensive mechanization of agricultural operations. For instance, the initial project report on the Negri Sembilan integrated sugar mill had provided that the planting and harvesting of canes will be done manually, but on account of the aforementioned labor problems, about 80 per cent of these operations are to be mechanized now. This has in turn led to steep increases in the cost of land

10,000 acres of the company's projected 14,400 acres of net cultivable area had been brought under cultivation and no work whatsoever had been initiated by the SEDC on its proposed smallholders scheme.<sup>9</sup> Apart from the above considerations, the refinery had been projected to operate at its full capacity within three years from the date of commencement of production. However, given the present circumstances, this cannot be realized, partly because the yield projection on cane output is optimistic and partly because the required area will not be developed on time. We have made some allowance for the slow rate of land development in our project analysis. Some adjustments have also been made for a revision of cane yields, since it has been found that the soils in the project area are poorer than initially anticipated. The consequent need for more fertilizers has led to a steep rise in planting cost.<sup>10</sup>

At the outset, we had mentioned two sugar projects which have failed, one prematurely and the other after the commencement of production. The project which failed prematurely is in Johore. Although the factory complex was not set up, about 8,000 acres of land was developed and planted with canes which have now been abandoned. Bribery and corruption is alleged to have been behind the failure of this project. On the other hand, the failure of the venture in Perak is attributed partly to the poor physical environment of the project area (excess water logging, infertile soils, etc.) and partly to the low recovery rate of sugar from the canes. The realized recovery rate of 5 per cent was only half the anticipated rate of 10 per cent (which was also the rate anticipated for the project under consideration here). The only integrated sugar refining complex which seems to have succeeded is the one in Perlis, where the physical and climatic environment is ideally suited for cane growing. Equally important, the commencement of its operations in late 1972 coincided with the upswing in world sugar prices, which reached incredible heights in 1974. This has helped it enormously in getting on to a sound commercial footing.

On the basis of the above remarks, the question which arises is not simply over the reliability of the estimated rate of return but rather over the viability of the enterprise itself. The viability of the entire undertaking now depends critically on whether or not the smallholders scheme can be developed. In our calculations, we have assumed that the SEDC will in fact develop this scheme over the course of the next four years. Given the severe squeeze on their cash flow, both the SEDC as well as the refinery company may encounter serious

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development. This is because, not only has the land to be cleared of its jungle but also it has to be cleared completely of all stumps and roots to facilitate mechanized farm operation.

<sup>9</sup> The slow rate of land development has been caused partly by cash problems arising from the steep cost overruns mentioned above. Thus, on account of defaults in payments, the private firm engaged in developing the project area has suspended its operations and pulled out of its contract, leaving the subsidiary of the SEDC, Syarikat Manis, to shoulder the entire development operation.

<sup>10</sup> Conversations with project officials have indicated that the cost of fertilizer application in the Negri Sembilan plantation is about thrice that in the Perlis plantation. Despite this, yields in the former area appear to be still lower than in Perlis.

difficulties in implementing this proposed scheme. Apart from this, the production capacity of the refinery may have also been overestimated. On the basis of experience gained in the Perlis sugar refinery, the mill capacity of the Negri Sembilan sugar refinery is likely to be only 80 per cent of its rated capacity of 2,500 tons per day. As regards effective crushing days, where allowance is made for down-time arising from poor weather and mill breakdowns, this may only number 180 days and not 250 days as presently targeted. In our project analysis, we have made no provision for such eventualities which will prolong the recoupment period and hence affect the very viability of the enterprise.

The fishmeal processing plant which has been evaluated here, also provides an interesting case study into the inadequacies of the Malaysian public sector in its role as an entrepreneur. Fortunately, the quantum of funds which has been committed on this project is only about M\$ one million. This fishmeal plant, located in Mersing along the east coast of Peninsular Malaysia, was established ostensibly to provide an outlet for the fishermen in Mersing and Endau towns to sell their daily haul of trash fish, which otherwise would have to be thrown back into the sea. The purported reason is questionable since there were then five small-scale, labor intensive mills already in operation in the region (i.e., the east coast of Johore), which were utilizing the available catch of trash fish [10, p. 6]. It will be pertinent to enquire if there was a need to establish an ultramodern, large and highly automated plant to manufacture fishmeal in the region, given the existence of the five aforementioned plants. In fact, the project under consideration will employ only ten workers, and the fixed investment per worker employed is about M\$82,000 as compared to the national average of M\$19,000 in the manufacturing sector as a whole, and this is an industry which is certainly labor-intensive in Malaysia.

The scale of operation of this ultramodern plant is also exceptionally large by Malaysian standards. Its daily capacity is twenty-four tons. On the other hand, of the forty fishmeal plants in operation in Malaysia in 1971, nine plants had a capacity of less than two and a half tons per day, and thirteen plants a capacity of between two and a half tons to five tons per day. Of the remainder, the largest had a capacity of fourteen tons and the rest had a capacity of between five to eight tons only. In fact, 40 per cent of the fishmeal output in 1971 was produced by plants employing traditional processes, such as sun- and kiln-drying processes. Although the balance of the output was produced in machine-dried plants, both the scale of their operation as well as their associated investments were low, invariably not exceeding M\$200,000 per plant. In the case of the kiln- and sun-dried plants, the average capital investment was much lower, M\$20,000 and M\$15,000 per plant, respectively. The capital investments on our fishmeal project is close to M\$ one million.

The preceding discussion on the scale of operation and the size of capital investment is important because of the observed pattern of capacity utilization in the fishmeal industry in Malaysia. In 1970 for instance, only a third of the plants utilized more than 50 per cent of their production capacity; this rate of capacity utilization was found mainly among the kiln- and sun-drying plants

[7, p. 11]. The main cause for the under-utilization of available capacity has been attributed to the irregular and inadequate supply of trash fish, which is the raw material into fishmeal production [7, p. 14]. This problem is likely to be more acute in the east coast of Johore where the project is located, on account of its exposure to the volatile monsoon season during three months of the year, when all fishing activity in the area effectively ceases. On account of this consideration, we have only postulated an average rate of capacity utilization of 50 per cent for our project. This is no doubt the cause for its exceptionally low return. But in the light of the above discussion, this result is amply justified, since there appears to be an over-investment in the project and the technology utilized is too sophisticated for Malaysian conditions.

## II. ALLOCATIVE AND DISTRIBUTIONAL EFFECTS OF PUBLIC EXPENDITURE DECISIONS

We have dwelled at length on some of the individual projects and programs which are being undertaken by the government to reduce the economic gap between the Malays and non-Malays in the country. We have highlighted the specific results of our CBA and the qualifications that may have to be made to these results when the particular circumstances surrounding each of the projects analyzed are taken into account. We have until now referred to the effects of government commodity taxation (and specifically the incidence of export and import duties) on the rates of return generated in this study. We have seen how the imposition of export duties and cess serve to reduce the private profitability on export production of agricultural commodities on the one hand and how the imposition of import tariffs serve to raise the private profitability on production of manufactures for the domestic market, on the other. These taxes are being levied on all the producers of the above commodities irrespective of their racial origin and as such do not confer any special advantages to the Malay community. The special advantages that the Malay community enjoys is to be found in the selective allocation of the benefits arising from public development expenditures. Thus, in land schemes, the settlers selected are almost wholly Malays,<sup>11</sup> and the individual lots in the schemes are sold to the settlers on extremely favorable terms, which entail a 25 per cent capital subsidy, an interest charge below the market rate and easy terms of repayment. Apart from this, there is a free provision of administrative and management inputs into the scheme when it is in production. As regards irrigation schemes, padi farming is almost exclusively a Malay activity,<sup>12</sup> and as the irrigation facilities are completely grant-financed by the state, the Malays stand to reap whatever benefits that can be obtained from the double cropping of padi. The only cost borne by the farmers are those pertaining to the operations and maintenance expenditure of such schemes, which is again partly subsidized. In the case of state-owned industrial projects, the benefits to the Malay

<sup>11</sup> Over the period 1957-70, almost 95 per cent of the settlers in FELDA schemes were Malays. See R. Wikkramatileke [18, p. 67].

<sup>12</sup> Ninety-seven per cent of all padi farmers are Malays. See S. Selvadurai [14, p. 23].

community arises from their discriminatory employment practice which favors Malays relative to non-Malays. Also these projects receive loan-finance from the treasury at subsidized interest rates and often state land is alienated for their use at prices below market prices.

We have so far not discussed the allocation of public expenditures into education. As Table III shows, at all levels of education the students receive extensive subsidies. This is especially so for higher education where state subsidies amount to 50 per cent of total educational costs, including forgone earnings. All students irrespective of their racial origin receive these subsidies. However, the number of Malay students benefiting from such subsidies has certainly been rising over the years, especially, as a result of government policies on the reservation of places for Malays in institutions of higher learning and also on account of the setting up of educational institutions which almost exclusively cater to Malay students, such as the National University and the Mara Institute of Technology. Apart from this, almost all the Malay students as well as some non-Malay students receive scholarship grants which go a long way towards offsetting their burden from student-borne costs and forgone earnings.

On the basis of Professor Hoerr's study on returns to different levels of education, which has also been reproduced in Table III it may be possible to make some comparison on the private rate of return (at market prices) to public expenditures in education as compared to those on agricultural and industrial projects. But as will be noted in a short while, our purpose in reproducing Professor Hoerr's results are to draw the distributional implications of public expenditure decisions in education relative to those in agriculture and industry, rather than to draw the allocative implications of such decisions.

From our discussion on the allocation of public expenditure benefits, what would have been readily apparent is the differential rate of subsidy that is being given to different economic activities and groups of beneficiaries. In the first place, we can determine the allocative implications of this differential rate of subsidy. If commodity taxation in the form of export and import duties are taken as given,<sup>13</sup> then the allocation of resources in different activities will be determined by the "unsubsidized" private rate of return after duty  $R'_p$  as given in column II of Table I. In relation to both the social rate of return  $R_s$  as well as the "unsubsidized" private rate of return before duty  $R_p$ , there will be an under-investment of resources in the export production of palm oil and rubber and an over-investment in import-competing manufactures. To incorporate the impact of public subsidies on resource allocation, it is necessary to determine the effects of such subsidies on the divergence between the private rate of return after duty on the one hand and the social and private rates of return before duty on the other, i.e., between  $(R'_p - R_s)$  and  $(R'_p - R_p)$ . The relevant results are displayed in Table I.

(1) In the case of palm oil and rubber production, this divergence is narrowed

<sup>13</sup> This assumption is legitimate if such taxation is levied for revenue purposes, as is often the case in many developing countries.

TABLE III  
ESTIMATED INCOMES, COSTS, AND RATES OF RETURN BY EDUCATIONAL QUALIFICATION

Education Qualification	Average Gross Cash Income (M\$)	Average Annual (M\$)			Private Rate of Return <sup>a</sup> (%)		
		In-school Costs <sup>b</sup>	Student-borne Costs <sup>c</sup>	Income Forgone <sup>d</sup>	Without Subsidy <sup>e</sup>		Gross <sup>h</sup>
					Net <sup>g</sup>	Net <sup>g</sup>	
I. Unschool ed	516						
II. Primary	1,969	172	169		8.2	12.9	29.5
III. Forms I-III	3,663	232	292		11.9	17.0	45.5
IV. Forms III-V	5,828	248	333	194	13.6	17.6	52.0
V. Sixth form	8,434	415	427	426	13.2	17.1	52.8
VI. University	15,211	2,780	1,640	1,070	9.5	16.0	49.7
VII. Teacher training	7,354	2,650	2,002	446	9.6	23.6	n.a. <sup>i</sup>

Source: [4].

<sup>a</sup> The private rate of return is the internal rate of return (IRR) to different levels of education at market prices. The rate of return as defined here refers to the cumulative rather than the marginal IRR for any given level of education, in the sense that the calculation of the IRR is based on its (net) average income and not on its (net) incremental income compared to the next lowest level of education. For the measuring of net income in this context refer to note g of this table.

<sup>b</sup> In-school costs refer to the budgetary expenditure on the formal schooling system.

<sup>c</sup> The student-borne costs are the out-of-pocket costs incurred by the students on transport, incidental fees, books, uniforms, etc.

<sup>d</sup> This refers to the income forgone by virtue of school attendance rather than employment. This is estimated as the average income stream of an individual in the same age cohort who worked rather than continued at school, that is of a cohort member with the next lowest level of educational attainment. The income stream is factored for labor force participation and employment rates, as well as noneducational income determinants. See note g.

<sup>e</sup> The private rate of return without subsidy, refers to the IRR which has been computed by taking into account all forms of costs enumerated above. This has normally been referred to as the social rate of return in the literature on the economics of education. However, in keeping with our classifications, since this rate of return is based on market prices and not accounting prices we will refer to it as the private rate of return.

<sup>f</sup> The private rate of return with subsidy refers to the IRR which has been computed by ignoring in-school costs (borne by the state) but which takes into account student-borne costs and income forgone.

<sup>g</sup> There are a number of factors which determine an individual's gross income stream. Education is only one of these factors, the others being ability, family status, occupation, etc. In any cost-benefit analysis of educational investments, it is necessary therefore to determine the proportion of an individual's gross income streams that can properly be attributed to education per se. Apart from this, the resulting income stream must also be adjusted for labor force participation and employment rates. Professor Hoerr has estimated that education accounts for approximately 25-30 per cent of gross income in Malaysia. The net private rate of return to education is thus calculated by relating costs to the net, education-associated stream of benefits. Where allocative decisions are made by reference to market prices, this is the appropriate rate of return to determine the "optimum" quantity of public investment in education.

<sup>h</sup> Where private costs are weighed against expected gross income, with no factoring for noneducational determinants of income or for the probability of actually achieving that income, we can refer to the resulting estimate as the *gross* private rate of return. This is, in a sense, analogous to the "subsidized" private rate of return to agricultural projects which includes the returns to the labor supplied by the beneficiaries.

<sup>i</sup> Not available.

as a result of such subsidies and more persons are likely to engage in these activities than otherwise. This may explain the excess demand for land under the FELDA schemes, especially in the oil palm schemes. This movement is on the whole in the right direction.<sup>14</sup> In passing, it is of interest to note that in the sixties, of the total land alienated for development under public sector sponsorship, 80 per cent was in fact opened up whereas the corresponding figure for the private sector was only 50 per cent. (2) In the case of padi production, such subsidies will widen the divergence further and although output of padi will increase, this will essentially entail a misallocation of resources. (3) For the industrial projects, we have noted the subsidies but have not calculated the "subsidized" private rate of return obtainable in these activities. Such subsidies will again cause the divergence between the two sets of returns to widen resulting in further misallocation of resources. (4) As regards education, no duties are involved. The comparison is a straightforward one. The extensive subsidies given to education will cause the "unsubsidized" rate of return to diverge from the "subsidized" rate and the granting of scholarships will widen this divergence further. In the light of this, it is not surprising that there has been an aggressive popular demand for a continued rapid expansion of postprimary educational facilities in the country.<sup>15</sup>

Thus, in the case of the activities considered above, which receive public subsidies, we can safely say that their level of production will expand, partly in the right direction but predominantly in the wrong direction when measured in terms of allocative efficiency. It is not difficult to see the areas from which the additional resources for their expansion will come. It will come from those areas of activities which are not the fortunate recipient of public aid, as is the case with most privately-owned and operated agricultural activities which may be further penalized by export duties. Note that the additional resources are not likely to come from private manufacturing activities, which may withstand the "competition" on account of import protection.

One of the points that emerges from the above discussion is that the granting

<sup>14</sup> However, given the already high private rates of return to investment in oil palm, the granting of subsidies to such investment activities seems unwarranted, even with respect to allocative considerations.

<sup>15</sup> Between 1965 and 1972, while enrolment at the primary grades increased by only 23 per cent, lower secondary enrolment (leading to LCE) doubled, and enrolment at the upper secondary stage (leading to MCE/VE) increased by two and one half times. The projections for 1973-80 show that the rate of increase of secondary education will only be slightly reduced. LCE enrolment will increase by 50 per cent, and MCE/VE enrolment will double. See D. Mazumdar [11, p. 3].



of high and indiscriminate subsidies to any given line of activity, by raising the private profitability of those who have subsidized access into such lines, can set in motion pressures for its increased provision; even though this may entail a great deal of economic waste. This is most amply demonstrated in the area of education. The public provision of education with high subsidies especially at postprimary levels, along with the existence of a rigid wage structure, have raised rather substantially the private rates of return to educational investment in Malaysia and in the process have led to an oversupply of educated youths. This is evidenced by the high rates of unemployment within their ranks; so much so that the problem of unemployment in Malaysia is essentially a problem among educated youths [11].

We will now consider the distributive implications of the above public expenditure decisions which lead to differential subsidy in Table IV. The FELDA settlers in both the oil palm and rubber schemes receive around the same amount of capital subsidy, and yet the expected stream of income of the former is almost twice that of the latter. An equal rate of subsidy for these two disparate groups cannot therefore be rationalized by reference to equity considerations. Neither can it be by reference to the efficiency criteria. In the case of padi farmers, they receive a 100 per cent subsidy on capital investment, which in absolute terms is somewhat above the subsidy received by the FELDA settlers. The difference in the income stream of the FELDA settlers (especially those in the oil palm schemes) and the padi farmers who practice double cropping can be elicited to justify this difference in the subsidies the two groups of beneficiaries enjoy. However, it should be amply clear that one cannot have recourse to the efficiency criteria to justify this disparity, if anything, the efficiency criteria will suggest precisely the opposite. It is well to point out here that the low rate of return to the irrigation scheme, suggest, if anything, that much of the irrigation subsidies have been wasted in producing high-cost padi and have not been translated into increased incomes for the farmers as such. The farmers will probably have been better off if they had received the subsidies in the form of a straightforward cash handout. In this context, the students, particularly those who receive higher education, form an interesting case of beneficiaries. As potential members of the high income group in the country, with an earning capacity well above that of the farm family or that of the settler family, it is difficult to justify on distributional grounds as to why they should receive a 50 per cent subsidy on their education costs. When translated into absolute terms, the actual subsidy that the student receives as an *individual* is double or treble the amount that the farm *family* or settler *family* receives from the state. It is also not justifiable on efficiency grounds, since by causing the "unsubsidized" and "subsidized" rates of return to diverge, it creates an increased demand for education above its optimal level. It can only be rationalized if some noneconomic considerations are incorporated into the analysis, for instance, that the government is desirous of fostering the development of a Malay middle class, which can then serve as a counterpoise to the existing middle class, which is largely non-Malay.

In the foregoing paragraph, we considered the differential rate of subsidy given

TABLE IV  
ESTIMATED INCOME AND SUBSIDIES BY ACTIVITY (UNDISCOUNTED)

	Average Annual Income <sup>a</sup>	Total Subsidies <sup>b</sup>
1. Oil palm scheme	4,094 (3,477)	3,016
2. Rubber scheme	2,895 (2,198)	3,572
3. Irrigation scheme <sup>c</sup>	1,816	3,913
4. Higher education <sup>d</sup>	15,211	8,340

Sources: [16, Chap. VI, App. VI A-VI C] [4].

<sup>a</sup> The average annual income as estimated here represents the family income for the settler and the padi farmer and personal income to the graduate. The settlers income net of all loan repayments are given in brackets. There is scope for supplementing this income through off-farm employment and production for home consumption, both in FELDA schemes as well as in the padi areas. For a group of six FELDA rubber schemes, it has been found that the average supplementary income per family was M\$526 per annum [6, p. 292]. In the case of padi farms in double cropping areas, income from the padi enterprise on the average accounts for only 70 per cent of total farm family income [14, p. 33]. As regards the graduate, his scope for supplementary income will be negligible and therefore this element can be ignored. It is important to emphasize that the estimates of income as given here is an average over the life span of the scheme, and that it varies a great deal over the period on account of variability in yields and loan repayments. The expected annual income in the various schemes over their life span for different subperiods is as follows.

Subperiod (Years)	Oil Palm Scheme	Rubber Scheme	Irrigation Scheme
2- 5	1,226 (1,226)	835 ( 835)	
6- 9	4,440 (3,234)	767 ( 493)	812
10-14	5,416 (3,785)	2,744 (1,248)	1,349
15-19	4,822 (4,017)	3,380 (1,794)	1,729
20-24	4,261 (4,181)	4,455 (3,770)	2,338
25-30	3,925 (3,845)	4,109 (4,060)	2,514

<sup>b</sup> The estimates of total subsidies, just as the figures on average income, are undiscounted. Therefore, the estimates will be biased. The extent of the bias can be gauged easily from the fact that the subsidies are spread over five years in oil palm schemes, seven years in rubber schemes, four years in the irrigation schemes, and only three years in higher education.

<sup>c</sup> The estimate on average annual income here refers to the income from the padi enterprise and not just to the incremental income attributable to the irrigation scheme.

<sup>d</sup> Note that the subsidies of M\$8,340 enjoyed by the student is that which he receives during his period of study at an institution of higher learning. If we take into account the subsidies he has enjoyed in the preceding years, the total sum will increase by another M\$3,070. Also the estimate of M\$8,340 is based on a projected study period of three years (which is the average in the arts stream) but it will be higher when the study period exceeds three years (as is the case in the science stream). Apart from this, graduates who have studied on scholarships will enjoy much higher subsidies, approximately double the figure given above.

TABLE V  
SOME DATA ON THE SPREAD OF PUBLIC EXPENDITURE BENEFITS

	1970	1975 (Projected)
I. Irrigation development for padi production		
1. Area of wet padi farms (1,000 acres)	943	1,006
2. Proportion of padi farm acreage equipped with irrigation facilities for double cropping (%)	30.3	65.8
3. Proportion of padi farm acreage equipped with irrigation facilities for single cropping (%)	35.4	12.2
II. Replanting of rubber smallholdings <sup>a</sup>		
1. Area under rubber smallholdings (million acres)	2.7	
2. Area replanted with high-yielding clones as a proportion of rubber smallholding acreage other than newly planted acreage (%)	57.4	
III. New planting of rubber smallholdings <sup>b</sup>		
1. Total newly planted acreage in rubber smallholdings (acres)	611,350	
<i>Of which</i>		
2. The area developed by FELDA (%)	24.0	
3. The area developed without any public subsidies (%)	37.5	
4. Therefore the area developed by public agencies other than FELDA, entailing a lower subsidy than that accruing to FELDA settlers (%)	38.5	
IV. New planting of oil palm smallholdings <sup>c</sup>		
Acreage planted by FELDA (acres)	164,003	

Sources: [14, p. 61] [13, pp. 30-33, p. 97] [18, p. 67].

Note: A rubber smallholding is defined here as any holding below 100 acres.

<sup>a</sup> Of the total area of 2.7 million acres under rubber smallholdings in 1970, the area of new plantings with high-yielding clones was 0.5 million acres, the area of new planting with low-yielding clones was 0.11 million acres and the area replanted with high-yielding clones was 1.2 million acres [13, pp. 30-33, p. 97]. Therefore, in 1970 there were one million acres of smallholding rubber with low-yielding clones: this acreage is expected to be replanted with high-yielding clones at the rate of 125,000 acres per annum over the next eight years according to the Rama Iyer report.

<sup>b</sup> Apart from the FELDA schemes, the other smallholder schemes undertaken by public agencies in Malaysia are fringe alienation schemes, youth schemes, and state schemes. In the fringe alienation schemes, the land is developed for agriculture, usually within three to four miles of an existing village, primarily to augment incomes of existing smallholders. Initial developments is carried out by the state governments with financial assistance from the federal government. The youth schemes for unemployed youths are developed and funded by state governments. The settlers have to repay part of the cost of development. Each settler is allotted five to eight acres of land with eventual ownership. In the case of state schemes, blocks of land are developed for agriculture by state governments into holdings adequate to support a family unit (six to eight acres). Land clearing is financed by the Rubber Industry Replanting Board. Housing settlements are financed by the state of federal low-cost housing schemes. State schemes include those developed by the Kelantan state land development authority,

where settlers receive planting materials and are allotted six acres for rubber, an acre for garden, and two acres of rice land where available. A home-site of one quarter acre is also provided. See [8, pp. 125–26] for further elaboration. The rate of subsidy given to FELDA settlers is shown in Table IV. Insofar as settlers in the state schemes and fringe alienation schemes go, the subsidies per family are lower. This varied between M\$2,122 and M\$2,783 per family in state schemes and between M\$312 and M\$581 in fringe schemes. The above data are based on figures given for six state schemes and eight fringe schemes in the Australian National University Ph.D. thesis by Lim Sow Ching [6, p. 167, Table 5.9].

- ° It has not been possible to obtain data on the smallholding oil palm acreage developed by other public agencies. But unlike the rubber smallholding schemes, it will not be wrong to suggest here that FELDA was probably the only public agency engaged in the development of oil palm schemes on a smallholder basis, at least until 1970.

to different activities and groups of beneficiaries. But all these beneficiaries have one thing in common, that is, they receive at least some public subsidy or support. However, there will be many individuals and households who will not be in this fortunate position to receive subsidies. This will be readily evident from Table V, which shows that despite the vast expansion in public expenditures over the 1957–70 period, the proportion of those who have benefited from irrigation facilities for the double cropping of padi, rubber replanting grants, and places in subsidized land schemes, is not high. Similarly, those who receive public subsidies in postprimary education is very small.<sup>16</sup> That the number of industrialists receiving capital subsidies in the form of tax concessions will be extremely small as a proportion of the total population will need little substantiation.

We had noted earlier that it is difficult to rationalize many of the public expenditure decisions conferring differential rates of subsidies to different activities and groups of beneficiaries, either by reference to the efficiency criteria or to equity considerations. In comparing the beneficiaries of public expenditure programs in relation to those who have not been fortunate enough to receive such benefits (the number of nonbeneficiaries is indeed very large, despite the fact that many years have elapsed since the launching of the above programs in 1957), it is pertinent to ask whether the granting of subsidies to beneficiaries is justified in the first place. Let us leave aside the most obvious groups of beneficiaries such as university graduates and industrial licenses and focus on FELDA settlers and secondary school graduates. The very fact of their participation in land schemes or their access to postprimary education will most likely raise their income above the national average, which is M\$264 per month [1, p. 13]. The income of such beneficiaries is in fact a few times larger than that of many of the rural and urban poor. For instance, in 1970 around 37 per cent of the Malaysian households had a monthly income of M\$130 or below [1, p. 45].

<sup>16</sup> For instance, in 1967, student enrolment in the different levels of education as a percentage of the total population in the corresponding age group, was as follows: primary (6–11 years) 91 per cent, lower secondary (12–14) 52 per cent, upper secondary (15–16) 16 per cent, postsecondary (17–18) 5 per cent, and university (19–20) 1 per cent. See Eddy Lee [5, p. 54].

Against this, FELDA settlers may be having an income of M\$300 per month. The income of secondary school graduates is given in Table III. One can therefore ask, quite legitimately, if it is equitable to give subsidies to beneficiaries, when there are so many nonbeneficiaries with much lower incomes.<sup>17</sup>

### III. THE PROBLEM OF EXCESS DEMAND AND RATIONING

Another interesting problem arises in this context. How do we choose our beneficiaries? Given the high subsidies that can be secured from access to irrigation facilities and education, participation in replanting programs and land schemes, and industrial licensing, and the limited number of such subsidies that are made available during any specified period, there will be an excess demand for any rights of access to these subsidized opportunities. In the face of such excess demand, the need for rationing the limited supply among the many competing bidders will be obvious. It should not come as a surprise, therefore, if in this rationing exercise, the beneficiaries are sometimes chosen by reference to some political criteria or otherwise on the basis of favoritism and corruption.

We have already made adequate reference earlier, to the discriminatory allocation of public expenditure benefits along the lines of race. This discriminatory allocation along racial lines has no doubt been based largely on political considerations. What we are interested in investigating here is the mode of selection of beneficiaries collectively by states or regions on the one hand, and individually on the other. The intrusion of political criteria into the determination of the interstate location of a scheme or project will be most rampant within a federal structure of government where different parties are in power at the federal and state levels. In this regard, the state of Kelantan which was under the rule of an opposition party until recently, derived little benefits from the federal land development program, despite being one of the poorest states in the country.<sup>18</sup> As regards the selection of individual beneficiaries, some interesting observations have been made on the operation of land schemes. The selection criteria of settlers provides for a point system based on age, experience, family size, education, etc. However, it appears that up to 20 per cent of the places are reserved for former members of the Malaysian security forces [18, p. 78]. Apart from

<sup>17</sup> The above discussion should bring out the problem associated with the incorporation of distributional considerations in evaluating projects or schemes. For instance, taking the land schemes as a case in point, if the project beneficiaries are drawn from the rural poor, what the distributional weights do we attach to their income and in deciding on their weights do we consider the preproject income or the postproject income? If we are interested in the benefits associated with the project, clearly we must consider the post-project income, but the benefits from participation in the project can be so large that it may be difficult for us to determine a set of properly ordered distributional weights independently of the project. And in fact given the new higher income of the project beneficiaries, it may be improper to attach any positive weight to their benefits stream since it may discriminate against those who remain poor.

<sup>18</sup> For a discussion of the conflict between the federal and state governments in the area of land development, see R. Ho [3, pp. 1-15].

this, there is also evidence of political interference in settler selection and discipline. For instance, "local politicians are able to exert their influence directly or indirectly and to manipulate the activities of FELDA to their advantage. As such, there is a consensus among settlers (and those who failed to get in) that places on FELDA schemes are awarded to those who support the ruling Alliance Party and therefore they are expected to continue to give their support. In the past, too, political interference in general administration and running of the schemes was never lacking, particularly, on the question of settler-discipline and eviction from the schemes" [15, p. 26].

The most glaring illustration of political considerations in determining economic decisions, including the selection of beneficiaries, was nowhere more evident than in the state of Trengganu in the second half of the sixties during the tenure of office of the then chief minister, Dato Ibrahim Fikri, in which state there was acute competition for political power between the ruling party and the opposition.<sup>19</sup> There are many cases from which we can draw our examples but we shall only mention three here. Firstly, the 1,000 acres of land that was opened up in the chief minister's own constituency just before the 1969 election, according to the original plan, was for planting coconuts, to be parcelled out into 200 lots of five acres each (considered by the administrators as the minimum size for economic holdings), but the crush of applicants was so great that the chief minister decided to distribute it as 1,000 house lots of one acre per lot.<sup>20</sup> Secondly, the chief minister personally presided over the legislation of squatters in Besut, whereas in other states, such decisions are usually left to the district officers. And thirdly, the haste with which fringe schemes<sup>21</sup> were developed and the siting of about ten of them seem justified only on political grounds, not economic. Had the fringe schemes been economically successful, all but two would have been ready to tap in 1971. In fact, only three out of the forty-three were ready to tap at that date. In passing, it is interesting to note that the extent of subsidies enjoyed by the Trengganu beneficiaries in the cases cited above are quite small, say in comparison with the amount FELDA settlers or irrigation-equipped padi farmers gets, but despite that there was a large number of applicants. This suggests that where the subsidies are larger, the excess demand for the subsidized opportunities can be correspondingly large and hence the temptation for, and danger of substituting political criteria for economic criteria can be a very real one. Even the most sincere and honest officials can find it difficult to be upright in such situations.

There is little documentary evidence on the role of favoritism and corruption in rationing the available subsidized opportunities among the many competing bidders. This does not mean that it does not exist. In fact, there is a great deal of talk about its almost wide-spread existence among knowledgeable people,

<sup>19</sup> Refer to the penetrating study of this problem by Dorothy Guyot [2]. The entire materials on Trengganu are drawn from this paper.

<sup>20</sup> In the event, the chief minister squeezed home in the election, with 2,800 votes to his opponents 2,500. See D. Guyot's paper [2].

<sup>21</sup> On the definition of a fringe scheme, see Table V, note b.

especially, in the area of industrial licensing and land alienation, and in the award of timber and mineral concession. Given the "hearsay" nature of the evidence, we will let the matter rest here, while noting that the problem of corruption can be a real one wherever there are physical controls and rationing.

In this paper, we have evaluated some of the public expenditure programs which have been undertaken by the government to reduce interracial economic differences in the country. As is apparent, the investment directed into the export production of agricultural commodities appears to be more viable than that based on import-replacement activities. Further, a close scrutiny of these public expenditure programs in agriculture, industry, and education revealed that differential rates of support and subsidies have been given to different economic activities and groups of beneficiaries. On the whole, it is rather difficult to justify these differential subsidies either by reference to the criteria of allocative efficiency or equity. The granting of public subsidies appears to be even more questionable when one compares the economic position of the beneficiaries of public expenditure programs against that of the many nonbeneficiaries. At the same time, as the number of persons who benefit from the public expenditure programs are limited, the need for rationing the limited benefits among competing bidders is obvious. In this rationing exercise, there is evidence to suggest that the beneficiaries have often been chosen by reference to some political criteria rather than on economic grounds. The scope for corruption and favoritism is also readily evident in such situations.

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