

## CONSTRAINTS ON SMALLHOLDER TREECROPPING IN MALAYSIA

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### 1. SMALLHOLDING AGRICULTURE IN THE STUDY AREA

Malaysian tree-crop agriculture is one of a number of exceptions to the generalisation that small farms produce more per acre than large ones<sup>1</sup>. Yield per acre is consistently lower on rubber smallholdings than on estates<sup>2</sup>.

The agricultural sector of a long and densely settled part of Malaysia, South West Perak<sup>3</sup>, was studied in 1975. Sector output was found to have changed in recent years as in Table 1.

Table 1: Value of Agricultural Output, South West Perak, 1968-73 at Constant 1968 Prices \$ Mn

	1968	1969	1970	1971	1972	1973
Smallholdings	74.3	83.3	68.5	73.5	67.4	69.4
Estates	43.3	44.1	42.1	46.6	47.3	58.8
Forestry	0.8	0.8	0.7	0.8	0.8	1.1
Fishing	43.9	39.6	29.6	36.8	21.1	34.6
Total	162.3	167.8	140.9	157.7	136.6	163.9
Volume index of smallholding output	100.0	112.1	92.2	98.9	90.7	93.4

For particulars see A. Crotty "Problems of Smallholder Tree-cropping in Perak, Malaysia", B.A. dissertation, Trinity College, Dublin, 1978.

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The decline in smallholding output occurred in the context of rapid population growth but much less employment growth. Workforce data from the 1957 census were not available for South-West Perak to establish inter-censal changes; relevant data for Perak and for Peninsular Malaysia are given in Tables 2 and 3.

Table 2: Population 10 Years of Age and Over, in Workforce<sup>+</sup> and not in Workforce, Peninsular Malaysia and Perak 1957-1970, and South-West Perak 1970

	Total 10 years and over	In Workforce	Not in Work- force
Peninsular Malaysia			
1957	4 207 078	2 164 861	2 037 511
1970	6 053 759	2 870 949	3 086 071
Increase %	44	33	51
Perak			
1957	817 838	414 966	402 872
1970	1 073 210	480 929	592 825
Increase %	31	16	47
S. W. Perak			
1970	267 368	117 162	145 896

+ ) Includes unemployed persons who are actively seeking work.

Source: Department of Statistics, 1957 Population Census of the Federation of Malaya, Rpt. No. 14; 1970: Department of Statistics, 1970 Census of Population Reports.

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Table 3: Agricultural Workforce by Employment Status, Perak 1957 and 1970

	Males			Females		
	1957	1970	Change %	1957	1970	Change %
Self employed	70 104	66 657	- 4.9	18 602	18 978	+ 2.0
Family Workers	10 294	21 506	+108.9	11 235	30 181	+168.6
Employees	67 594	48 628	-28.1	40 955	29 677	- 27.5
Total	147 992	136 791	- 7.6	70 832	78 836	+ 11.3

Source: 1957: Population Census, Report No. 8.

1970: Department of Statistics, Kuala Lumpur.

There was a slight, 5 per cent, decline in Perak's agricultural workforce in the intercensal period. There were more remarkable changes in the employment status of the workforce: family workers increased from 10 to 24 per cent, while the number of employees declined greatly and accounted for 36 per cent of total agricultural workers in 1970 compared to 50 per cent in 1957. There was also a slight decrease in the number of self-employed agriculturists.

Decline in smallholder agricultural output was not due to a reduction in the supply of labour available, as people moved to better paid non-agricultural employment. Although some rural-urban migration occurred, inadequate urban employment opportunities were a discouragement. Neither did small-holdings lose labour to estates, which, as is evident from the massive decline in agricultural employees, have been shedding labour while simultaneously increasing output. It is probable that the smallholder labour force in South West Perak increased between 1968 and 1973 in line with the intercensal growth in the combined number of self-employed and family labour in agriculture in Perak State, which was 1.7 per cent annually. This would have been equivalent to an 8.8 per cent increase in the smallholder labour force between 1968 and 1973, when the volume of smallholder output declined by 6.6 per cent. This implies that output per person in smallholding agriculture in South West Perak declined by 14 per cent, or by 3 per cent annually, between 1968 and 1973.

The declining number of self-employed agriculturists in Perak is a remarkable statistic which is consistent with a declining volume of smallholding agricultural output. It is consistent with the abandonment of land to the jungle as its productivity declines, for want of investment, below a level which makes working it worthwhile for the greatly increased supply of family labour.

The number of agriculturalists normally increases in less developed countries, though less rapidly than total population. The number of farms and self-employed

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farmers also normally increases in less developed countries, though less rapidly than the total number of agriculturists and, a fortiori, less rapidly than total population. (FAO 1966 and 1975).

The situation with respect to Malay smallholders is likely to be more grave than that of smallholders as a whole in at least two respects. First, Malays, while a majority of the total population and holding a politically dominant position, are economically much weaker than the next largest racial group, the immigrant Chinese. Malay holdings rarely exceed two hectares and are generally much smaller than non-Malay smallholdings, and in so far as the problems are smallholder problems, they are likely to be more acute with Malay smallholders than with Chinese kulaks. Second, the political implications of Malay smallholder retrogression are graver. Given the politically dominant position of the Malays, continuing and possibly accelerated deterioration in economic conditions for Malays could have grave political consequences. The unsatisfactory condition of smallholder agriculture in the study area cannot by any means be attributed to official neglect. Public concern for the condition of Malay smallholders is evidenced by the operation in South-West Perak of fourteen federal, state or other public agencies concerned to provide smallholders with an array of marketing credit, extension and development services. The ineffectualness of these agencies suggests the existence of profound structural weaknesses which the agencies are powerless to rectify and which, without rectification, cause Malay smallholder retrogression.

## 2. THE STRUCTURAL WEAKNESSES OF MALAY AGRICULTURE

### a) Population growth

Elementary preventive medicine, introduced by the British colonial power, drastically reduced the Malay death rate and led to a population explosion. A population estimated at "well below 500 000" in 1850, (Kennedy, 1962) commenced to grow rapidly during the colonial period and is now doubling every twenty years.

A reduced death rate implies an increase in the number of children surviving in the average family. This, in turn, implies an increase in the dependency ratio, or in the number of unproductive young people relative to the mature, productive population. Average incomes decline and savings/investments, in particular, decline. Producers concentrate their efforts on activities that yield a quick return and reduce the effort expended on enterprises that yield a slower, though possibly higher, return.

Rapid population growth had hardly commenced in Malaysia at the beginning of this century. Malays were therefore in a position to invest in smallholder rubber planting some of the leisure they had as parents of families that were kept small by heavy mortality rates. However, as population growth accelerated and the

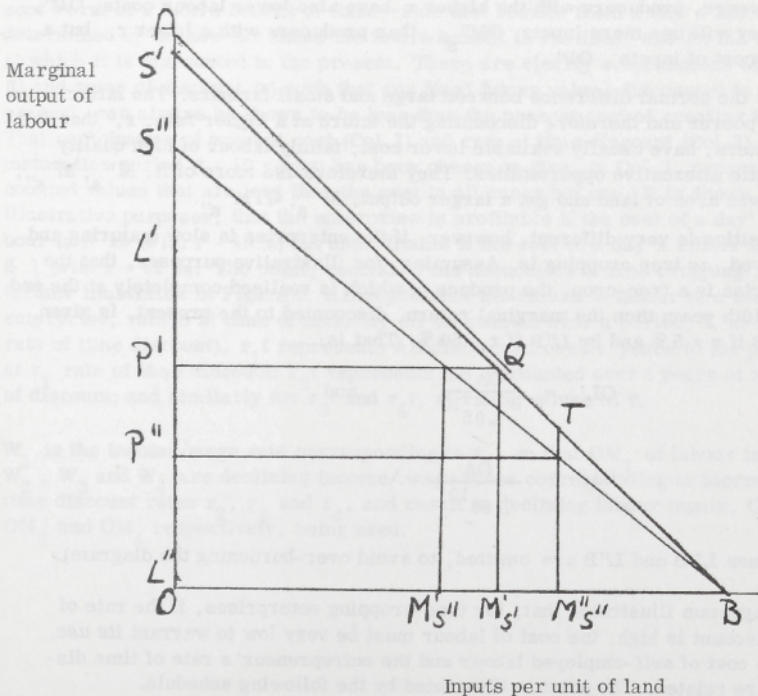
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average number of children surviving per family increased, Malay parents were put under increasing pressures to use their limited labour capacity on activities, like rice-growing and wage-labour, that gave an immediate return. Less effort was available for planting more rubber, or even for tending the planted rubber, other than for the performance of tasks, like rubber tapping, that gave an immediate return. This implied a diversion of resources away from physical capital formation into human capital formation. It meant, in time, a reduction in the capital/labour ratio.

A reduction on the capital/labour ratio implies that people's capacity to delay consumption is reduced; that their immediate needs become more urgent; that their rate of time discount,  $r$ , increases. A high rate of time discount, that may be relatively unimportant in quick maturing, short-lived enterprises, is crucially important for long-lived ones.

The Point is illustrated by Figure 1.

Figure 1



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AB represents the marginal return to inputs used in an (agricultural) enterprise. The returns are values at time of realisation. If the maturation period is six months, or roughly the normal lag between ploughing and harvesting for annual crops, then the return to inputs used at the beginning of the operation must be discounted by half-a-year to the present, to determine the optimum amount of inputs to use.  $S' B$  and  $S'' B$  represent the returns AB discounted to the present over a half-year at 5 and 50 per cent respectively. That is:

$$O S' = \frac{OA}{1.025} \quad \text{and}$$

$$O S'' = \frac{OA}{1.25}$$

If the cost of the input (say, labour) is the same,  $OP'$  for producers with 5 and 50 per cent time discount rates, then producers with a discount rate,  $r$ , of 5 per cent will use  $OM'_{s'}$  inputs, and producers for whom  $r$  is 50 per cent will use fewer,  $OM'_{s''}$  inputs.

If, however, producers with the higher  $r$  have also lower labour costs,  $OP''$ , then they will use more inputs,  $OM''_{s''}$ , than producers with a lower  $r$ , but a higher cost of inputs,  $OP'$ .

This is the normal difference between large and small farmers. The latter, though poorer and therefore discounting the future at a higher rate,  $r$ , than large farmers, have usually available lower cost, family labour of high quality with little alternative opportunities. They therefore use more of it,  $M'_{s'}$   $M''_{s''}$ , on a given area of land and get a larger output,  $M'_{s'}$   $QTM''_{s''}$ .

The position is very different, however, if the enterprise is slow maturing and long lived, as tree cropping is. Assuming, for illustrative purposes, that the enterprise is a tree-crop, the produce of which is realised completely at the end of the 10th year; then the marginal return, discounted to the present, is given by  $L' B$  if  $r = 5\%$  and by  $L'' B$  if  $r = 50\%$ . That is:

$$OL' = \frac{OA}{1.05^{10}} \quad \text{and}$$

$$OL'' = \frac{OA}{1.50^{10}}$$

(The lines  $L' B$  and  $L'' B$  are omitted, to avoid over-burdening the diagram).

The diagram illustrates that, for tree-cropping enterprises, if the rate of time discount is high, the cost of labour must be very low to warrant its use. But the cost of self-employed labour and the entrepreneur's rate of time discount are related. The point is illustrated by the following schedule.

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Incomes, Rates of Discount and Present Discounted Values

(1)	(2)	(3)
Smallholder average daily income	Corresponding rate of time discount	Value of \$ 30 in 10 Years Discounted to present at rate in Column 2
\$	%	\$
10	10	11.57
8	15	7.42
6	18	5.73
4	22	3.79
2	31	1.87
1	41	0.90

As smallholders' incomes and the alternative cost of their labour decline, (Col. 1) the rate at which they discount the future increases (Col. 2). The present worth of a future benefit of fixed value that results from a day's labour is determined by (a) how far ahead the future benefit is realised, and (b) the rate at which it is discounted to the present. There are clearly combinations of time ( $t$ ) and rates of discount ( $r$ ) such that any fixed future value, discounted to the present, can always be shown to be less than the present cost of creating it. That combination of present cost (Col. 1) and rate of time discount (Col. 2) and maturation period ( $t = 10$  years) has been chosen to give, in Col. 3, present discounted values that are less than the cost in all cases but one. It is shown, for illustrative purposes, that the enterprise is profitable if the cost of a day's labour is \$ 10 (with  $r = 10\%$ ) but unprofitable if the cost of a day's labour is \$ 1 (with  $r = 41\%$ ). The point, central to the economics of tree cropping, is further illustrated in Figure 2. AB represents the return to labour in a tree-crop enterprise, valued at time of maturity (or discounted over a period,  $t$ , at zero rate of time discount).  $r_1 t$  represents AB discounted over  $t$  years to the present at  $r_1$  rate of time discount;  $r_2 t$  represents AB discounted over  $t$  years at  $r_2$  rate of discount; and similarly for  $r_3 t$  and  $r_4 t$ , at rising values of  $r$ .

$W_1$  is the income/wage rate corresponding to  $r_1$ , so that  $OM_1$  of labour is used.  $W_2$ ,  $W_3$  and  $W_4$  are declining income/wage rates corresponding to increasing time discount rates  $r_2$ ,  $r_3$  and  $r_4$ , and result in declining labour inputs,  $OM_2$ ,  $OM_3$  and  $OM_4$  respectively, being used.

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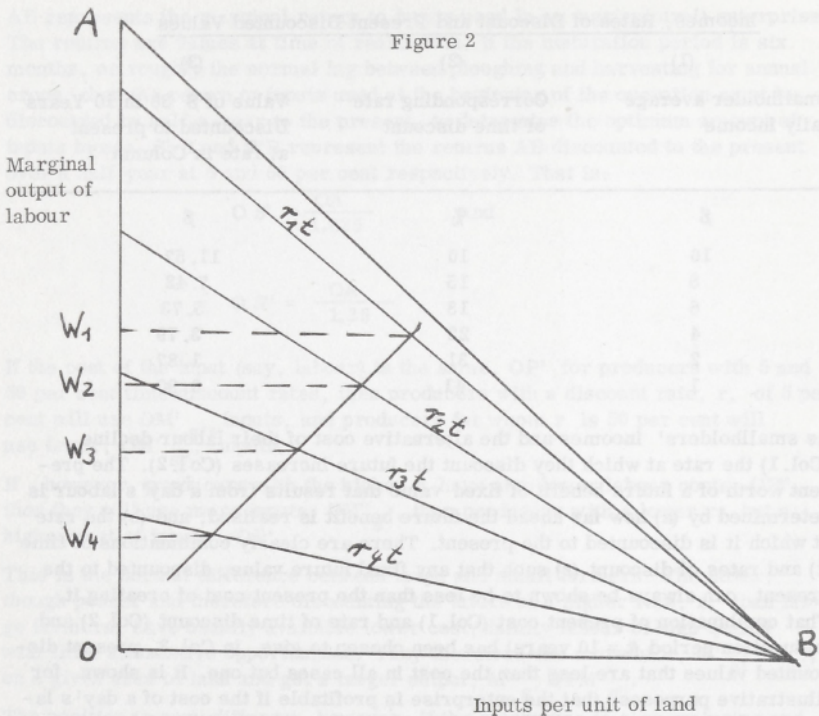


Figure 2 illustrates the possibility of the amount of labour used declining with its cost in slow-maturing, self-employed enterprises. The inefficiency of wage reductions as a counter to unemployment resulting from inadequate demand has long been recognised in macro-economics (Keynes, 1936). The issue here is rather different. Demand for the product, rubber, is not affected by the incomes/wages of rubber smallholders. Instead, what is perceived to be affected is the smallholders' rate of time discount.

The Lewis hypothesis of opportunity-costless labour appears to run counter to the present hypothesis (Lewis, 1966). The Lewis model suggests that if the supply of labour increases while the amount of it employed declines, labour will have an opportunity cost below the average cost, given in Col. 1 in the above-mentioned schedule. The model suggests that, rather than remain idle, people are better off using their labour productively, even if a day's labour brings in less, at present-discounted-values, than an average day's income. Paradoxically, this model seems more plausible at higher than at lower incomes.

Persond with high average incomes are well nourished. If they have time that



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they cannot employ to give a return equal to their average rate of reward, they will still add to total net income (or welfare) by engaging in less profitable enterprises. An academic, for example, may choose to use his time profitably, growing vegetables, between terms, and get healthy exercise in the process. But ill-nourished people, at or below the subsistence level, must get more nourishment if they are to undertake onerous labour like clearing the jungle to plant rubber. The additional effort must return at least enough to cover the cost of the additional nutrition needed to sustain it. And it must give this return now, not in seven years' time when the rubber is mature. There is much evidence of malnutrition among Malay smallholders in the study area. Many stated that they were hungry and had only one meal of rice daily.

Figure 2 illustrates the possibility that, as a result of a reduction in the birth rate through the application of preventive medicine, population increases, income declines, the rate of time discount rises, and less labour is self-employed on smallholdings. The model suggests that increase in the supply causes the demand for labour to decline.

An approach to equilibrium is conceivable, under these circumstances, which involves incomes declining to the level where, notwithstanding the application of preventive medicine, mortality rates rise, as a result of malnutrition, to equal birth rates and to so stabilise population. Population is stabilised at a numerically higher level, but at a lower nutritional level.

### b) Tenure reform

Coincidental with the introduction of preventive medicine, the colonial power introduced a system of registration of land titles. Land previously had been a free, communal asset which any member of the community could use provided it had not been pre-empted by others. The land, when it ceased to yield rice or tree crops for the clearer or his heirs, reverted to the common pool. Others in the community could then once again clear it and enjoy secure possession of its produce. Land titles were registered under the Torrens system introduced to Malaya in 1886. Registration of title ensured for the owners, their heirs and assignees, perpetual ownership of the registered land, subject to a nominal quit-rent (which in many cases is no longer collected) and regardless of the state of the land's cultivation (Meek, 1949).

Registration of land titles facilitated raising foreign capital for estate development. It was unopposed by smallholders with titles to register and who thereby acquired as individuals, assets which had previously been held collectively. Most of the country at the time was unsettled, so there was no evident reason to fear the consequences of preempting that part to which title was given.

Malay-Islamic customary law requires property to be divided on the owner's death among the offspring. "God thus directs you as regards your children's inheritance: to the male a portion equal to that of two females" (Ali, 1975). The

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introduction of the Torrens system of registration of land titles occurred when the population was small and stable, but has been followed by a period of rapid population growth combined with much migration. The consequences have been extreme fragmentation of ownership of smallholdings coupled with a high degree of absentee ownership<sup>4</sup>.

Land has frequently reverted to a jungle-like condition in which, under the indigenous tenure system, it would have reverted to the common pool and would be freely available to others to cultivate. Now, if the abandoned land is brought back into cultivation by a local resident without clear legal title to it, the land and the improvements to it are liable to be claimed by the legal, though absentee, owners. The likelihood of such claims is obviously much greater in the case of long-lived tree crops than it would be in the case of annual crops.

The fragmentation described here is believed to have occurred most generally and to the greatest degree in older settled areas, like the Perak river basin. These areas, as well as being the oldest, most densely settled parts, also contain a high proportion of the country's best alluvial soils.

### 3. Proposals for Smallholder Tree-Crop Rehabilitation

Malaysian tree-crop agriculture faces profound structural, institutional and political difficulties. Similar difficulties are experienced by the formerly estate-dominant agricultures of other former colonial territories, including tea in Sri Lanka, cocoa in Trinidad and sugar in Jamaica. Representative governments are unwilling or unable to enforce labour discipline on estates. The latter, if they are to survive, can do so only by massive substitution of capital for unionised labour, leading to declining job opportunities at a time of rapid population growth. Production by public agencies, like the Malaysian Federal Land Development Authority (FELDA), when attempted as an alternative to estate production, is expensive<sup>5</sup>. Production by self-employed agriculturists, which is the most common and, normally, an efficient form of agricultural production, is hampered by the difficulties that poor people have, in a situation of rapid population growth, of mobilising the large capital required for tree-cropping and, to a less extent, for sugarcane production. These difficulties, wherever they occur, threaten the existing politico-economic order; they appear often to be beyond the scope of freely elected governments, with market-directed economies.

Suggestions for rehabilitating smallholder tree-crop agriculture were circulated in the Pasir Salak area of Perak and discussed with village headmen. The suggestions, which were favourably received, were designed:

- to introduce the substantial capital for tree-cropping which the area required and which local, impoverished smallholders and landless persons do not have;

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to ensure that this capital would be used sparingly and productively;

to bring immediate, substantial and widespread relief to the rural poor (without necessarily ending rural poverty);

to circumvent the complex problems of the fragmented ownership of land and the absenteeism of many owners of local land.

Salient points of the proposals included that the State Agricultural Development Corporation (SADC), or a comparable body, would take the initiative to upgrade existing kampong development committees into kampong development corporations, each corporation serving a population of 3 to 4 thousand people. All adult residents in an area would have a single, equal share and vote in the selection of the corporation's board of directors. The SADC would arrange with Bank Pertanian (the Agricultural Bank) to finance the kampong development corporation. Jointly with Bank Pertanian, the SADC would appoint the manager and would be responsible for his payment. A manager might manage two or more adjacent corporations.

The kampong development corporation would offer to lease derelict or quasi-derelict land in the locality for 30-year periods. Sufficient land would be acquired in an area to ensure full employment for the male and female working population of the area at about twice the present off-peak rate of pay for smallholder agriculturists, (or around \$ 3 per day for adult males). The SADC would aim to establish a number of new kampong development corporations throughout South West Perak, the level of activity of each corporation being geared to the local supply of labour and derelict land.

There appears to be enough tree-crop land requiring rehabilitation, or non-alienated land of agricultural potential, convenient to centres of rural population in South West Perak to provide an outlet for all the labour locally available at twice the present basic rate of pay. Part of the work of the development corporation manager would be to ensure that an adequate supply of land was forthcoming at a reasonable rent. This he could help to do by undertaking the administrative formalities involved in leasing lots with many owners; and by creating a kampong opinion favourable to such leasing, by letting it be known that the unwillingness of people to make derelict land available for a reasonable rent was preventing the attainment of full employment conditions at relatively high wage rates.

Government might in due course consider measures to expedite the leasing to kampong development corporations of derelict or quasi-derelict neighbouring land, especially when owned solely or mainly by non-residents. A possible step would be to give kampong development corporations the right to lease compulsorily, at a rent three to four times the nominal quit rent, land owned by non-residents and certified by the penghulu (village headman) and a competent agriculturist as being derelict or quasi-derelict.

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The land, once in production, would be re-let at competitive rents, preference being given to local persons. The conditions of the lease would require, *inter alia*, strict adherence to such good husbandry conditions as are necessary to maintain the value of the corporation's interests; and payment of rents in cash one month in arrears. Provision might be made for rents to fluctuate with the current price of the produce.

The profits of the corporation would be distributed monthly, in equal shares to all adult residents of the kampong. This allocation of profits would have the following advantages:

The poorer sections of kampong society, the old, widowed, the infirm, would be more likely to get more benefit than from any other method of distribution.

It would create a general and immediate concern to maximise economic efficiency. Kampong opinion could thus be relied on to support and encourage management in action to increase efficiency, including action against unsatisfactory tenants and contractors.

It would encourage young, productive but mobile persons to remain in the kampong, increasing the supply of labour available for further development and expediting the attainment of the economies of scale of larger, more prosperous economic groupings. It would act as a counter to the centripetal pull to urban centres where, in developing countries, newcomers get a share in the total income of petty traders without adding to the social product.

The feasibility of replanting smallholder land with rubber was examined in detail, including a suggested scheduling of debt servicing. The indicated annual return on capital is nearly 15 per cent (Crotty, 1978).

#### Footnotes

- 1) Tree-cropping smallholdings and sugar-cane smallholdings in other countries appear frequently also to have lower yields than large holdings.
- 2) "Estates" in Malaysian usage are holdings over 100 acres. Holdings less than 100 acres are "smallholdings".
- 3) Perak is one of the most densely populated and fertile of the ten States that comprise the Federation of Malaysia.
- 4) The extent and the agricultural consequences of fragmentation were measured through a sample of land lots in Kampong Pasir Salak in Southwest Perak in 1975/76. The findings of this survey are reported in (Crotty, 1978)

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- 5) FELDA requires as much capital per job as US Ford, the most capital-intensive of the US automobile manufacturers, and gets a negative return on that capital. (Crotty, 1978)

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