

## Tax Burden on Rubber, Coconut and Pineapple Smallholders in Johore<sup>1</sup>

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### RINGKASAN

*Kajian ini meneliti samada cukai-cukai yang dikenakan keatas pekebun-pekebun kecil getah, kelapa dan nenas di tahun 1975 menjadi sebab utama kerendahan pendapatan mereka. Hasil kajian menunjukkan yang beban cukai keatas pekebun-pekebun kecil adalah besar, terutama sekali kepada pekebun-pekebun kecil getah. Pekebun-pekebun getah biasanya membayar cukai sebanyak seperempat hingga sepertiga daripada pendapatan mereka. Bagaimana pun kemungkinan menambah pendapatan dengan cara mengubah struktur cukai adalah terbatas. Perubahan-perubahan begitu hendaklah disertakan dengan program-program yang akan meninggikan daya pengeluaran dan luas kebun.*

### SUMMARY

*The study examines whether taxes levied on rubber, coconut, and pineapple smallholders in 1975 are a major cause for smallholder low income. Results of the study show that tax burden on the smallholder is substantial, particularly that on rubber smallholders. The average rubber smallholder pays about one-fourth to one-third of his income in taxes. However, the scope for increasing income through changes in the tax structure is limited. Such changes should be coupled with programmes aimed at increasing farm productivity and size of holding.*

### INTRODUCTION

In Peninsular Malaysia<sup>2</sup> overall equity as measured by the Gini Concentration ratio, increased from .412 in 1957 to .502 in 1970. The low income groups also experienced a decline in their absolute income levels. The mean income of the lowest 40 percent of households decreased from \$86 per month in 1958 to \$75 in 1970 (Snodgrass, 1975). Largely in response to this problem, the government has embarked on programmes aimed at increasing the income level of the poor, particularly those in the agricultural sector. These programmes include land development schemes and *in situ* development projects such as the provision of irrigation and drainage facilities, replanting of agricultural crops with new high yielding varieties, and improvements in the marketing outlets for farm products.

A neglected aspect of the problem is the effect of taxes on the poor in the agricultural sector. Studies on tax incidence in the country

show that the tax system is highly regressive at the lower end of the income scale. The regressivity was attributed mainly to the export duty on rubber through its effect on smallholders (McLure, 1972), and to import duties and excise taxes (Snodgrass, 1975). Certain taxes, notably land-based taxes, however, were not considered in both of the studies. The inclusion of these taxes could have added to the regressivity of the tax incidence for the low income groups.

Conceivably one of the causes for low income in the agricultural sector is the high tax burden on the poor in that sector. The objective of this study is to estimate the tax burden on rubber, coconut and pineapple smallholders of less than 15 acres in Johore in their capacity as producers and purchasers of production inputs.<sup>3</sup>

### CONCEPTUAL FRAMEWORK

Tax incidence is defined as the dollar burden of a tax distributed among different economic

<sup>1</sup> Part of Ph.D. Thesis submitted to Pennsylvania State University, 1977.

<sup>2</sup> Unless otherwise stated subsequent references to Malaysia in this paper refers only to Peninsular Malaysia.

<sup>3</sup> The base year of this study is 1975. All estimates of income were adjusted to 1975 and changes in the relevant taxes after 1975 were not included in the study. Smallholders in this study refer only to the traditional scattered smallholders.

units. The burden of a tax is measured as a ratio of the amount of tax paid and income. Three measures of income were used — gross income, income net of all costs except family labour, and income net of variable costs.

The method used in analysing tax shifting and incidence was one of deductive partial equilibrium approach. The taxes examined in the study were export tax, import duty, excise tax, sales tax, education tax, drainage charges levied by the federal government, and land tax levied by the state government.

### INCIDENCE ASSUMPTIONS

It was assumed that land based taxes<sup>4</sup> were borne by landowners, the statutory tax payers. In practice taxes on agricultural land are rarely shifted to consumers. In most developing countries shifting of land tax to tenants is not likely as the amount of rent paid by tenants and tenants' share of the cost of production are inflexible, determined mainly by non-economic factors such as custom and tradition. Leases are generally long term and the relationship between landlord and tenant is more personal than businesslike (Wald, 1959, p. 91).

The legal incidence of an export tax is on the exporter from whom the government collects the tax. Under competitive conditions shifting of export tax forward or backward depends on the ratio of the elasticity of supply to the elasticity of demand as given by the Dalton (1954, p. 51) formula:

$$\frac{dp}{t} = \frac{E_s}{(E_s + E_d)}$$

where  $dp$  = increase in price  
 $t$  = amount of the tax  
 $E_s$  = elasticity of supply  
 $E_d$  = elasticity of demand

The demand for natural rubber which is determined by a host of techno-economic factors, is believed to be price elastic. Tan (1967, p. 96), for example, suggests that the price elasticity of demand for Malaysian natural rubber is  $-5$ .

In the short run, the supply of natural rubber is generally inelastic because of its fixed productive capacity. Rubber takes six to seven years from the time of planting to the time of first tapping. An additional five to ten years are required before

peak yield is obtained. Although changes in the supply can be effected through changes in tapping frequency, size and number of tapping cuts, their effects are marginal<sup>5</sup> (Allen, 1972, p. 170). Estimates of price elasticity for smallholders' productions have ranged from 0.18 to 0.37 (Behrman, 1971; Wharton, 1963; Chow, 1976). Since most of domestic production is exported, the supply elasticity for export would also probably fall within that range.

The interchangeability of coconut oil with other vegetable oils is extensive particularly in the manufacture of margarine and shortening. Different kinds of fat and oil are to a large extent substitutes since their characteristics can be altered by processing. Competition is also found between the natural products and their synthetic counterparts, especially between soap made from natural fats and synthetic detergents based largely on petroleum derivatives. These conditions would tend to make the demand for coconut oil very elastic.

The supply of coconut by smallholders is also believed to be price inelastic. Like rubber the period between planting and the first harvest is about six years. Besides, coconut producers have less flexibility in terms of changing their rate of output under different price conditions. Unlike rubber which can be tapped daily, coconuts are harvested only once in every two months. Substitution effects in the short run are therefore relatively insignificant.

Malaysia is only one of several producers of canned pineapple for the world market. Competition occurs not only among producing countries and also between pineapple and other tropical crops. One would expect, therefore, that the demand facing Malaysian products to be price elastic.

Pineapple is a semi-permanent crop. The economic life of pineapple in Malaysia is about ten years and the period between planting and the first harvest is 18 months. Pineapple growers, therefore, can easily adjust their output in response to price changes. In addition, a substantial proportion of the crop is planted as a catch crop between rows of immature rubber trees where substitution with other catch crops is easily made. However, in the face of a very elastic world demand the tax burden is believed to be shifted back to producers.

<sup>4</sup> Land and education taxes together with drainage changes are land based taxes as their rates are based on the size of land lots owned.

<sup>5</sup> Although ethrel stimulation has boosted elasticity somewhat, its application by traditional rubber smallholders is still rather limited.

## TAX BURDEN ON JOHORE SMALLHOLDERS

Under competitive conditions, import taxes will be shared between the seller and the buyer according to the respective elasticities of demand and supply<sup>6</sup>: Backward shifting of import tax to foreign producers, however, is highly unlikely since the quantity imported in the country is a small part of the total world import of any one particular commodity. From the point of view of the Malaysian consumer therefore, the supply of an imported commodity can be assumed to be perfectly elastic.

Generally import taxes are regarded by importers as an addition to costs of supplying the imported goods to consumers. Therefore the full amount of the tax is passed on to consumers. Shifting of the tax burden forward to consumers is further enhanced by the practice of percentage mark-ups on the part of importers. Eleven to fourteen percent mark-ups are normally added to the import price plus duty (Edwards, 1970, p. 162).

As in the case of import duties, excise and sales taxes represent an addition to production costs and tend to be reflected in higher prices. The burden of an excise tax is therefore generally assumed to be fully shifted to consumers. The implicit assumption seems to be that of a perfectly elastic supply rather than a perfectly elastic demand. Most studies also assume that the sales tax is fully shifted to consumers. The assumption is that the supply of money capital is perfectly elastic and if market is not perfectly competitive, the firm will regard the tax as an addition to the costs of capital goods. The tax will then be reflected in higher prices of the consumption goods produced. Tax pyramiding which occurs when sales tax is levied at non-retail level further reinforces shifting of the tax to consumers.<sup>7</sup>

### INCOME ESTIMATES

Secondary data sources were used to develop estimates of alternative income measures and total taxes paid by the smallholders.

Income estimates for rubber smallholders were computed from data on average holding size, yield, price and costs of production. Esti-

mates of average size were obtained from the 1960 Census of Agriculture<sup>8</sup>. The proportion of immature rubber acreage was based on all replanted and new planted acreage during a period of seven years (1969 – 1975), while average yield was based on production figures of smallholders participating in group processing centres (GPCs). It was also assumed that the smallholders produced RSS 3 and 4 grade rubber. The price that they received was computed by deducting a 19 per cent marketing margin from RSS 1 F.O.B. price less export duty and cesses (Lim, 1968). Scrap rubber was assumed to constitute 15 percent by weight of the sheet rubber production.

Cost of production estimates adjusted to take into account changes in price level was based on rubber smallholders who were members of GPCs (Bevan, 1962; Barlow and Chan, 1969). It was assumed that labour was provided only by family members and that economies of scale were absent within the range of holding size considered.

The 1960 census of agriculture and three specific surveys (Wilsons, 1958; FAO, UN, 1968; FAMA, 1973) on coconut smallholders in West Johore were the main sources of data used to develop income estimates for coconut smallholders.

As in rubber, estimates of the average size of coconut smallholdings in the state were based on the Census data. Comparable estimates from the four studies tend to corroborate the assertion that average size of holding has remained fairly constant.

The FOA estimates of the palm density was used as it reflects the conventional belief that the palm density on smallholdings tend to be higher than what is recommended because of the tendency for farmers to let the nutfalls grow as a source of additional income.

The proportion of bearing palms and equivalent estimates of palm bearing status were based on the FAMA survey. The FAMA survey also provided the most recent estimates of yield per acre.

<sup>6</sup> Some researchers argue that the burden of import taxes can be ignored if they are levied primarily to discourage imports rather than to increase government revenue (Pechman and Okner, 1974 p. 17). In Malaysia import duties are imposed mostly for revenue purposes (Edward, 1970, p. 174).

<sup>7</sup> Malaysia introduced an *ad valorem* single stage sales tax of 5 per cent on import and locally manufactured goods early in 1972.

<sup>8</sup> Changes in holding size are believed to be insignificant because of the low rate of growth in total acreage and the absorption of additional acreage by new entrants to agricultural labor force (Tan, 1975, pp. 8–9). That the census estimate had been biased downward (Greenwood Word, 1964) is believed to be of little significance since the study is only concerned with holdings less than 15 acres.

As the three surveys were confined only to the west coast districts of the state, estimates of palm density, bearing status and yield for the other districts were based on the census data<sup>9</sup>.

The FAMA survey shows there was little variation in the prices of husked nuts and copra between districts. The average monthly exfarm prices for husked nuts and copra for the twelve months of 1975 as reported by FAMA were used to compute the alternative measures of income.

The majority of coconut products were sold in the form of copra and husked nuts. Costs of producing coconut which depend on the type of coconut product sold were based on Selvadurai's (1968, Table 73) estimates for the district of Batu Pahat and Pontian.

The census of agriculture did not analyse pineapple as a separate crop. Estimates of pineapple production and income were drawn from surveys conducted by the Ministry of Agriculture (Selvadurai and Jegathesan, 1968; Selvadurai *et al.*, 1975).

Only pineapple of the canning variety grown in the district of Pontian, Batu Pahat, Kluang and Muar were considered.

The price used to estimate gross returns was obtained through adjustment made on the fixed price offered to producers. The adjustment factor was the spread between the fixed price and the average price received by farmers in 1974.

Selvadurai's estimates of production costs in 1974 were adjusted to take into account changes in the price level.

### ESTIMATES OF TAXES PAID

The amount of land tax paid by smallholders depends on the size of alienated lots, whether the lots are being replanted, and whether they are in Malay reserve areas (Hussein, 1977, Appendix 2).

To obtain the estimates of alienated acreage for smallholders, the total acreage actually planted in estates and land schemes was subtracted from

the total acreage alienated for each of the three crops. The alienated acreage estimated was then compared with the total acreage actually planted with the crop. In the case of rubber, the planted acreage was found to exceed the alienated acreage. It was assumed that the excess acreage was planted on land not alienated for rubber. Crops other than rubber were then assigned to the excess acreage based on the proportion of total acreage alienated for crops other than rubber. In the case of coconut, the planted acreage in smallholdings was less than the total acreage alienated for it. It was assumed, therefore, that coconut in smallholdings are planted on lots alienated for coconut<sup>10</sup>. The registration record of the Malaysian Pineapple Industry Board (MPIB) provides detailed information on types of lots where pineapple of the canning variety is grown. This information was used to compute the estimates of taxes paid by pineapple smallholders.

The size distribution of replanted rubber lots in the state from 1952 to 1974 was used as a proxy for the size distribution of lots alienated for rubber. The Coconut Smallholders Development Scheme keeps a record on the size of individual lots whose owners have applied for replanting or rehabilitation subsidy. The size distribution of these lots was used to categorise lots alienated for coconut. The size distribution of lots cultivated with pineapple as provided by the MPIB was used for the same purpose.

Land tax rates for lots planted with rubber or coconut are lower for the first six years following approval for replanting or following alienation<sup>11</sup>. The six-year period corresponds approximately to the time taken for rubber and coconut to mature. Pineapple smallholders are eligible for the reduced tax rate during the first two years following replanting.

The land tax for all countryland, ten acres or less, situated in Malay reservation where the owner or owners are Malays, is half the specified rate.

The education tax at one ringgit per acre is levied on owners of all lots greater than three acres<sup>12</sup>.

<sup>9</sup> Coconut acreage in the non-west coast districts is only 13 per cent of the total smallholding acreage in the state. Except for the district of Mersing, replanting and rehabilitation programmes are concentrated exclusively on the west coast districts. The replanting and rehabilitation programmes in Mersing started in 1973.

<sup>10</sup> It is conceivable that coconut is also being cultivated on land alienated for other crops. For example, Wilson (1958, Table 7) shows that about 12 per cent of the coconut area in West Johore was cultivated on land not alienated for the crop. The assumption that all the coconut in the state is cultivated on land specifically alienated for the crop is incorrect to the extent that the above is true.

<sup>11</sup> The proportion of newly alienated lots in the traditional smallholdings is small because the state of Johore closed the land register for private applications in 1960 and concentrated on group alienation in land development schemes (Guyot, 1971, p. 384).

<sup>12</sup> Lots three acres or less alienated for oil palm, however, are not exempted.

## TAX BURDEN ON JOHORE SMALLHOLDERS

Drainage charges at \$6 an acre are levied on coconut areas where drainage schemes are provided by the government. In Johore these schemes are located in the West Coast districts.

All types of rubber exported from Malaysia are subject to export duty, surcharge, replanting cess, and research cess. The export duty and the surcharge vary directly with the prevailing market price of RSS 1 (Hussein, 1977, Appendices 3 and 4). The replanting and research cesses are levied at a flat rate of  $4\frac{1}{2}$  cents per lb. and 1 cent per lb. respectively regardless of the price level. The amount of export duty, surcharge, and cesses paid by rubber smallholders were determined from estimates of total production less local consumption and the prevailing price of RSS 1.

The main coconut products exported are fresh nuts, copra and coconut oil. To encourage domestic processing of coconuts into coconut oil, export duty is levied on fresh coconuts and copra at a rate of 10 per cent *ad valorem*. The total tax revenue collected was computed from the total value of fresh nuts and copra exported. On the basis of planted acreage and yield, the tax revenue was allocated between estate and smallholding sector, among coconut producing states and between smallholders of less than 15 acres and those of 15 acres or more.

An export cess is levied on canned pineapple exported from Malaysia. The rate, which is fixed per unit of export, varies according to importing countries (Hussein, 1977, Appendix 7). The total amount of the cess revenue collected was computed from the total number of standard cases exported to the respective countries. The total amount was then allocated evenly between producers and canners<sup>13</sup>, between the estate and the smallholding sector based on production shares. The amount accrued to the smallholding sector was further divided between smallholders of less than 15 acres and those of 15 acres or more.

Except for formic acid, the other inputs used in rubber production are generally not subject to import, excise and sales taxes. An import tax of 25 per cent *ad valorem* is levied on formic acid. In the case of coconut, the cost items generally subject to these taxes are the equipment, implements and tools. The amount of these taxes paid by smallholdings was determined from the tax rates and from estimates of the average annual depreciation on the items.

Among the material inputs used in pineapple production, only weedicides and insecticides are subject to import duties. The equipment and machinery are generally subject to at least one of the three taxes. As in rubber and coconut, the amount of the three taxes paid was determined from estimates of the total value consumed and from the appropriate tax rates.

## RESULTS AND CONCLUSIONS

Table 1 gives the amount of taxes paid by the smallholders. The most important category of taxes borne by them is shown to be export based. Export duty, surcharge, and export cesses account for 86 per cent of all taxes paid. Land tax which is an important source of revenue to the state government accounts for only eight per cent of the taxes.

The export based taxes are also the most important taxes paid by rubber and pineapple smallholders. Respectively they account for 90 per cent and 48 per cent of all the taxes paid. The most important category of taxes paid by coconut smallholders are land-based, notably the drainage charges which account for 52 per cent of the total taxes paid.

Table 2 gives the estimates of tax burden. For the alternative income measures used, rubber smallholders pay relatively, higher taxes than either coconut or pineapple smallholders. Depending on the income measures used, the average rubber smallholder pays one-fourth to one-third of his income in taxes.

If the *quid pro quo* taxes are not considered, the tax burden on the smallholders will be reduced to about one-half the amount when all taxes are considered. However, the burden on rubber smallholders is still the highest.

The possibility of increasing real income of smallholders by eliminating the taxes paid is limited. Export cesses, education tax and drainage charges are levied for specific purposes. Eliminating or reducing them would adversely affect the functioning of the respective agencies, programmes or projects. Smallholders as purchasers of production inputs are already being exempted from paying import, excise and sales taxes for most of the items they consume. For many inputs where such taxes are levied they are also being consumed by other sectors of the economy.

<sup>13</sup> This assumption is based on the fact that the price fixing is done through a bargaining process where the interests of producers and canners are equally represented.

TABLE 1

Estimated Taxes Paid by Rubber, Coconut and Pineapple Smallholders of Less Than 15 Acres; Johore, 1975.

Type of Smallholding	Land Tax (\$)	Education Tax (\$)	Drainage Charges (\$)	Export Duty and Surcharge (\$)	Export Cesses (\$)	Import Excise and Sales Taxes (\$)	Total	
							Amount (\$)	Percent
Rubber	2,078,139	384,098	—	11,556,378	16,402,601	744,414	31,165,630	95.7
Coconut	432,661	88,409	620,496	31,930	—	25,210	1,198,706	3.7
Pineapple	33,701	9,619	—	—	88,775	53,369	185,464	0.6
Total								
Amount	2,544,501	482,126	620,496	11,588,308	16,491,376	822,993	32,549,800	
Percent	7.8	1.5	1.9	35.6	50.7	2.5		100.0

TABLE 2

Total Area in Smallholdings, Average Size and Number of Holdings, Amount of Taxes, Income and Tax Burden by Type of Smallholding; Johore, 1975.

Type of Smallholder	Total Area of Smallholdings Less than 15 Acres (acres)	Average Size of Holdings (acres)	Total Number of Holdings	Amount of Taxes Paid per Holding (\$)	Income (\$)			Tax Burden Index		
					Gross	Net A,	Net B'	Gross Income	Net Income A'	Net Income B'
Rubber	509,414	4.4	115,776	263	1,034	800	963	.25	.33	.27
Coconut	114,223	4.1	27,859	42	465	260	392	.09	.16	.11
Pineapple	11,317	6.0	1,886	70	2,121	457	828	.03	.15	.08

A' - Net income after subtracting all costs except family labor from gross income.

B' - Net income after subtracting variable costs from gross income.

## TAX BURDEN ON JOHORE SMALLHOLDERS

Possible changes that could be made would include exempting smallholders of certain size groups from land tax and compensating the state government for the revenue loss by imposing progressively higher tax rates on larger holdings. For the export tax and surcharge, a system of rebate could be designed to benefit smallholders of certain size groups.

Results of the study show that real income of smallholders especially that of rubber smallholders, is reduced substantially because of taxes. However, the scope for increasing income through changes in the tax system is rather limited. Programmes that increase farm productivity and size of holding should complement such changes.

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