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The Incidence of Jamaican Taxes,
1971-72

by

Charles E. McLure, Jr.

Winter, 1976

The author is the Cline Professor of Economics and Finance at Rice University. This paper is based upon a report to the Taxation Division of the Ministry of Finance of the Government of Jamaica, which appeared under the same title as a Working Paper of the Institute of Social and Economic Research.

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Abstract

The Incidence of Jamaican Taxes,
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Charles E. McLure, Jr.

Data from the 1971-72 household budget survey provide a distribution of income in Jamaica that is among the world's most unequal for countries of similar levels of development. Indirect taxes are allocated to income groups and found to be proportional to both income and expenditures, except at the top of the income distribution (where they are progressive in comparison to income). The income taxes add to progressivity, especially if the corporation tax is not shifted. Finally, replacement of various indirect taxes with a sales tax that exempted food would substantially increase progressivity.

The Incidence of Jamaican Taxes, 1971-72*

1. Introduction

The present report employs information from the household budget survey made in 1971-72 and other data to gain a rough idea of the distribution of income among Jamaican households and to estimate the incidence of Jamaican taxes among households in various income classes. The resulting incidence figures are compared with the total income estimated to accrue to households in each income class in order to determine effective rates for each tax and for the tax system as a whole. As the title indicates, the focus is on the estimated burden of taxation borne by each income class, rather than upon the estimation of the distribution of income.

This study is intended to represent an advance over previous incidence studies for Jamaica and for other countries in one or more of the following ways:¹ (a) it is based on a recent household budget survey

* Readers are referred to Charles E. McLure, Jr., "The Incidence of Taxation in Jamaica: 1971-72," Working Paper of the Institute of Social and Economic Studies, University of the West Indies (1977), for further details on data and methodology, and for perspectives on the present study, including a discussion of similar earlier studies.

The author gratefully acknowledges the assistance of the Statistics Department of the Government of Jamaica, which provided the special tabulations of income and expenditure patterns that formed the basis for the study reported here, and of various offices of the Finance Ministry, which supplied numerous other necessary pieces of data. Neither is, however, responsible for the conclusions based on those data, which are solely the author's.

¹ See E. Ahiram, "Income Distribution in Jamaica; 1958," Social and Economic Studies, XIII (September, 1964), 333-69; Fuat M. Andic, "Distribution and Redistribution of Family Incomes in Jamaica 1963-64," Report to the Central Planning Unit, December, 1966 (Mimeographed); CPU, "Study of Income Distribution in Jamaica, 1963," n.d. (Mimeographed).

and is, therefore, applicable to households, rather than to individuals; (b) it includes alternative assumptions about the incidence of the company tax; (c) it presents estimates of effective tax rates for the urban and rural areas separately, as well as for the nation as a whole; (d) it considers distributive effects of changes in the tax system as well as the incidence of the existing tax system; and (e) it presents estimates of effective tax rates based upon alternative definitions of income.

Section 2 describes the data from the 1971-72 household budget survey and several adjustments to them. Section 3 describes the assumptions and procedures under which the burdens of various taxes were allocated among income brackets. Section 4 summarizes the most important findings of the study and presents policy conclusions based upon those findings.

2. The Distribution of Income

Information from the 1971-72 household budget survey indicates that income was distributed among Jamaican households in the way shown in Table 1. For the island as a whole, the third of household with incomes below \$500 per year received roughly five percent of all income, and the ten percent of households with the highest incomes received roughly one-half of all income. The estimated degree of inequality is even greater than that reported by Ahiram for 1958.¹ Moreover, it would appear to be

¹ Ahiram, op. cit.

TABLE 1: Percentage and Cumulative Percentage of Number of Households
and of Income, by Areas, 1971-72

Income class (Dollars per year)	Urban Areas				Rural Areas				Total Island			
	Percentage of H-holds Income		Cumulative Percentage of H-holds Income		Percentage of H-holds Income		Cumulative Percentage of H-holds Income		Percentage of H-holds Income		Cumulative Percentage of H-holds Income	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
0-499	24.55	2.69	24.55	2.69	40.64	7.52	40.64	7.53	32.42	4.69	32.42	4.69
500-999	21.65	8.38	46.20	11.07	28.76	15.51	69.40	23.03	25.13	11.33	57.55	16.02
1,000-1,499	15.75	10.55	61.95	21.62	13.07	12.05	82.47	35.08	14.44	11.17	71.99	27.19
1,500-1,999	11.24	10.71	73.19	32.33	7.43	9.63	89.90	44.71	9.38	10.26	81.37	37.45
2,000-2,499	7.69	9.43	80.88	41.76	2.89	4.80	92.79	49.51	5.34	7.51	86.71	44.96
2,500-2,999	4.04	6.12	84.92	47.88	2.14	4.33	94.93	53.84	3.11	5.38	89.82	50.34
3,000-3,499	3.40	6.06	88.32	53.94	1.55	3.71	96.48	57.55	2.50	5.09	92.32	55.43
3,500-3,999	2.46	5.13	90.78	59.07	0.65	1.86	97.13	59.41	1.57	3.78	93.89	59.21
4,000-4,499	2.02	4.73	92.80	63.80	0.55	1.75	97.68	61.16	1.30	3.50	95.19	62.71
4,500-4,999	1.42	3.73	94.22	67.53	0.39	1.38	98.07	62.54	0.91	2.76	96.10	65.47
5,000 and over	5.72	32.41	100.00	100.00	1.88	37.39	100.00	100.00	3.84	34.48	100.00	100.00
Total*	100.00	100.00	---	---	100.00	100.00	---	---	100.00	100.00	---	---

*Columns do not sum to totals because in each case the sum of the figures in the original source was 99.94 or 99.95, rather than 100.00, as reported. This was not explained, but it might reflect a uniform rounding error. Fortunately, it is unlikely to affect the results seriously, even though the unexplained residual is implicitly attributed to the highest income group.

SOURCE: Department of Statistics, Government of Jamaica.

unusual for a country at Jamaica's level of development.^{1,2}

Whereas for the island as a whole the 90 percent of households with the lowest incomes receive slightly more than half of all income, and in urban areas perhaps 57 percent of income, in rural areas the corresponding figure is only about 45 percent. (See Table 1.) The differences are even more extreme if we go to the shares of income of the 5 percent of households with the highest incomes. In the urban sector the figure is about 30 percent, whereas it is 46 percent in the rural sector and 38 percent for the island as a whole. These results, which are qualitatively similar to those of the 1958 and 1963 surveys, reflect the existence of established commerce, manufacturing, and civil service reaching fairly far down the income scale in the urban areas, contrasted with the dualistic economies of rural areas.

George E. Cumper, "Incomes of Upper 2.5 Percent and 8.5 Percent of Income Taxpayers in Relation to National Income, Jamaica 1951-65," Social and Economic Studies, XX (December, 1971), 362-68; Robert M. Lovejoy, "The Burden of Jamaican Taxation, 1958," Social and Economic Studies, XII (December, 1963), 442-58; and Donald McLeod, "The Personal Income Tax in Jamaica," Social and Economic Studies, XVIII (September, 1969), 254-62 for earlier contributions in this area.

¹A similar conclusion is reached in Montek S. Ahluwalia, "Income Inequality: Some Dimensions of the Problem," Redistribution with Growth, edited by Hollis Chenery et al. (London: Oxford University Press, 1974), pp. 8-9, where comparative data for various countries are reported.

²For these reasons, if no other, it seemed worthwhile to delve more deeply into the definition of income used in the survey, deviations between this definition and those used in national accounts and other household budget surveys in Jamaica, differences between total income as reported in the survey and in the national accounts, and differences in the distribution of income reported in various recent studies of Jamaica. These issues are discussed in detail in McLure, op. cit. In summary, the income distribution reported in the 1971-72 survey probably does not grossly distort reality. Neither subsistence consumption on farms nor imputed rental income from owner-occupied residences is a likely source of the underestimate of aggregate income found in the household survey. Transfers from abroad, payments to and from pension funds, and personal

a) Expenditure-income ratios

The estimated distribution of income reported in Table 1 is appropriate for discussions of the type just completed. But for purposes of calculating effective tax rates, they must be adjusted. First, the ratio of expenditures to income exceeds 2.0 in the bottom rural income class and the bottom two urban income classes, and is near 2.0 in the second urban income class from the top. Among the possible explanations for the high ratios of expenditures to income found in the lowest income classes are (a) failure to take account of some income flows in the survey, and (b) the so-called permanent-income hypothesis--the notion that when a household experiences a temporary change (in this case a drop) in income, it does not fully adjust its level of expenditures to the temporary level of income. While extremely rough, the following adjustment has the virtue of preventing the calculation of unrealistically and misleadingly high effective tax rates in the lowest income classes. We have simply adjusted the income figures upward so that the ratio of expenditures to income does not exceed 2.0 in the bottom income class in either sector or 1.5 for any other income class. Because the inconsistencies between reported income and consumption expenditures are greatest at the bottom of the income scale, the adjusted distribution is somewhat less unequal than that reported in Table 1.

income tax payments may all affect the distribution, perhaps in the direction of greater equality. Though we have no way to quantify the effect, we do make an adjustment below that can be explained as at least allowing roughly for income omitted at low income levels. On the other hand, we attempt no adjustment for the omission of capital gains from the definition and measurement of income, except as they result from retained earnings. In short, we have chosen to accept the survey figures on the distribution of income essentially at face value, subject to the qualifications made above and the adjustments to be made below.

b) Imputed corporate-source income

Up to now we have been concerned solely with the distribution of income actually received by households in cash or in kind. This measure of income we call alternative I. But it seems reasonable to include as part of "pre-tax" income of Jamaican households the corporate retained earnings and unshifted company income taxes attributable to them. The rationale for including retained earnings is easily seen; corporate retentions could have been paid out as dividends, rather than kept in the firm, and they may result in (realized or unrealized) capital gains for owners of shares in the company retaining the earnings. The argument for imputing unshifted company income taxes to Jamaican shareholders is similar. In the absence of such taxes the economic well-being of shareholders would be greater by the amount of the unshifted portion of the company income tax.¹

We assume that all retained earnings of firms in the bauxite and aluminum industry are attributable to foreign ownership and that all others are properly allocated to Jamaican shareholders. This assumption, while doubtlessly not entirely accurate, should suffice for the present purpose. Lacking more detailed information on the distribution of retained earnings by industry, we simply assume that the division of retained earnings between the bauxite-aluminum industry and other sectors is the same as the division of company taxes.

¹There are theoretical reasons for believing that the burden of company taxes is diffused to all owners of capital, rather than being borne only by shareholders; see Arnold C. Harberger, "The Incidence of the Corporation Income Tax," Journal of Political Economy, LXX (June, 1962), pp. 215-40. But it probably makes little difference in the Jamaican case whether the attribution is to shareholders or to all owners of capital, since it would probably be largely to the households in the very highest income brackets, in either event.

When we consider the incidence of the company income tax, we again distinguish between bauxite and aluminum companies and other companies, since the economic context in which the two groups operate is rather different. We assume that income taxes on bauxite companies reduce the real incomes of foreigners. We have rejected for the present purpose the hypothesis that the tax is borne in any significant amount by workers in the bauxite-aluminum industry, though a theoretical argument can be made that this is a quite reasonable result, especially in the long run.¹

For the income tax on other companies, we have used two alternative assumptions, (A) that the tax is not shifted, and (B) that it is shifted to consumers. These assumptions seem slightly preferable on theoretical grounds to the third possibility, that it is shifted to workers. We assume that "non-food expenditures" in the household budget survey adequately reflects the incidence of the portion of the tax shifted to domestic consumers of products of the corporate sector. Finally, lacking any data on the distribution of dividends (or capital income) among

¹While the hypothesis adopted here is probably relevant for levels of income tax prevailing in 1971-72, and in the short run even for substantially higher taxes, such as those announced in May, 1974, it cannot be assumed that it will be true regardless of the tax rates applied in Jamaica and other aluminum producing countries, availability of substitutes, etc. The long-run effects of attempts to export Jamaica's taxes in this way is beyond the scope of the present report. For a more detailed examination of the possibility of exporting taxes on natural resources, especially bauxite, see Malcolm Gillis and Charles E. McLure, Jr., "The Incidence of World Taxes on Natural Resources, with Special Reference to Bauxite," American Economic Review (May, 1975), 389-96; and "The Distributional Implications of the Taxation of Natural Resources," Rice University Studies, LXI, No. 4 (Fall, 1975), 143-62.

income classes, we arbitrarily allocate 100 percent of retained earnings and (under assumption IIA) corporate profits taxes paid outside the bauxite aluminum industry to the top income class (i.e., to households with annual incomes of \$5,000 and over).¹

In summary, then, under alternative I, it is assumed that personal income is the proper measure of income for purposes of incidence analysis. Under the second alternative retained earnings of, and unshifted company taxes on, local corporations are included in the definition of income. That is, under alternative II we attribute company taxes on the bauxite-aluminum industry to foreigners and those on other companies alternatively to (A) domestic shareholders and to (B) consumers of corporate products. (See Table 2.) Whereas the choice of incidence assumption does not affect the income concept under alternative I, it does under alternative II. Thus, in total we are working with three different measures of income, I, IIA, and IIB.²

¹Even allowing for the adjustments to Table 1, the top income class (which contains 3.8 percent of households) accounts for 68.6 percent of all income received by households with annual incomes in excess of \$3,000 (roughly the top 10 percent of households ranked by size of income) and 83.3 percent of income of households with incomes of \$4,000 or more (roughly the 6 percent of households with the highest incomes). For the urban sector the corresponding percentages are 60.9 and 92.3. Since dividend (capital) income is probably much more unevenly distributed than labor income, it seems that little violence would be done to reality if all dividends are allocated to the highest income class. Finally, given the importance of commercial agriculture and the exceptionally high average income in the top income class in the rural sector, it seems reasonable to allocate dividends between sectors in proportion to total income in this top income bracket, rather than entirely to the urban sector, as might be reasonable in other countries.

²It should be noted, however, that the distinction between alternatives I on the one hand and alternatives IIA and IIB, on the other hand, is basically different from the distinction between concepts IIA and IIB. The first involves the judgmental question of whether personal income is the proper measure of income for the purpose of incidence

TABLE 2: Schematic Description of Income Concepts and Shifting Assumptions

<u>Income Concept</u>	<u>Alternative</u>			
	I		II	
	<u>A</u>	B	<u>A</u>	<u>B</u>
	Personal income (P.I.)		Personal income, plus retained earnings and unshifted profits taxes of local companies (C.I.T.)	
Allocation of local company tax	None	Consumers	Capitalists	Consumers
Symbolic statement of income concept	P.I.	P.I.	P.I.+R.E. C.I.T.	P.I.+R.E.

3. Tax Incidence

In this section we allocate both direct and indirect taxes to the various income groups and calculate (a) ratios of indirect taxes (and shifted company taxes) to expenditures; and (b) effective tax rates for each income class in each sector, for each of three definitions of income. In addition, the distributive effects of implementing the author's previous proposals regarding indirect tax policy are analyzed.

analysis--that is, whether retained earnings and unshifted company taxes should be included as part of income. Under alternative II, it has been decided that income should encompass these two elements of imputed corporate-source income, and the only question is the technical one of the incidence of the company tax levied on local firms.

a) Direct taxes

(1) Company tax

If not shifted, the corporation income tax takes 9.14 percent of what income in the top income bracket would have been (under definition IIA). Table 3 reports the estimated incidence of the corporation income tax on local companies, by sectors, under the alternative assumption that the tax is borne by consumers. When compared to total expenditures, the tax exhibits some tendency towards progressivity, due to the increasing role of non-food in total expenditures as income rises. But: when the comparison is with income, the shifted tax is regressive, due to the decline in the average consumption rate as income rises. These general statements hold generally for each sector, as well as for the entire island. Finally, due to the greater importance of food in rural budgets and the lower ratios of expenditures to income in the rural sector, the ratios of tax to expenditures and effective tax rates are lower in the rural than the urban sector.

(2) Personal income tax

We assume that personal income taxes are borne by those statutorily responsible for them, i.e., by the individuals upon whom they are levied. The last Report of the Commissioner of Income Tax covers 1965, a year for which Cumper has prepared a detailed analysis.¹ Cumper estimated that the top 2.5 percent of income taxpayers paid 73.40 percent of the individual income tax collected in 1965 and that the top 8.5 percent paid

¹Cumper, "Incomes of Upper 2.5 Percent," pp. 362-88.

TABLE 3: Allocation of Shifted Tax on Local Profits, Tax as Percentage of Expenditure, and Effective Tax Rates, by Sectors

Income Bracket (Dollars per year)	Urban			Rural			Entire Island		
	Tax Burden	Tax as % of expenditure	Tax as % of income	Tax burden	Tax as % of expenditure	Tax as % of income	Tax burden	Tax as % of expenditure	Tax as % of income
0-499	2.36	2.95	5.90	1.28	2.35	4.70	3.64	2.71	5.42
500-999	2.30	2.88	4.31	1.63	2.35	3.36	3.93	2.63	3.86
1,000-1,499	2.34	2.99	4.48	1.42	2.74	3.77	3.76	2.89	4.18
1,500-1,999	2.26	3.17	4.77	1.27	2.94	4.22	3.53	3.08	4.56
2,000-2,499	1.79	3.16	4.29	.48	2.78	3.20	2.28	3.09	4.02
2,500-2,999	1.28	3.22	4.73	.37	2.71	2.73	1.64	3.07	4.04
3,000-3,499	1.09	3.31	4.06	.40	2.89	2.49	1.50	3.20	3.90
3,500-3,999	.95	3.39	4.19	.16	3.00	2.74	1.12	3.35	3.93
4,000-4,499	.88	3.42	4.20	.20	3.27	3.65	1.09	3.42	4.13
4,500-4,999	1.20	3.71	5.57	.05	2.52	1.15	1.24	3.61	4.79
5,000 and over:									
IB	4.03	3.47	2.81	1.01	3.04	.86	5.05	3.38	1.94
IIB	4.03	*	2.56	1.01	*	.79	5.05	*	1.76
All Households:									
IB	20.51	3.20	4.13	8.29	2.67	2.62	28.8	3.03	3.54
IIB	20.51	*	4.01	8.29	*	2.53	28.8	*	3.43

* Not applicable.

93.55 percent. In his study for 1958 Ahiram¹ estimated that the top 5 percent of households paid roughly 88 percent of personal income tax, that the next 5 percent paid about 9 percent, and that the remaining 3 percent were paid by the households in the next lower decile. These studies told roughly the same story, and for the entire island their results can be matched approximately to the income distribution in the present study; see Table 4. Lacking any information on the split of individual income taxes between urban and rural sectors, we assume that the pattern of effective rates calculated in Table 4 is applicable in each of the sectors. Clearly, the personal income tax contributes significantly to the overall progressivity of the Jamaican tax system.²

¹Ahiram, "Income Distribution in Jamaica..," op. cit., page 349.

²In his 1973 budget speech Mr. Coore (see the Hon. David Coore, Budget Speech, April 18, 1973, pp. 38-45) proposed various income tax reliefs and a \$10 million increase in property taxes and in his 1974 speech (see Coore, Budget Speech, May 16, 1974, pp. 24-29 and 51-55) he announced two important further increases in taxes, an additional \$11 million from the property tax and the well publicized \$155 million production levy on the bauxite-aluminum industry. Since the advantages of income tax reliefs are available only to Jamaicans paying income tax, and because the benefit of the reliefs rises with the taxpayer's marginal tax rate, even within the population of taxpaying households, these tax reductions reduce the burdens on upper income households, and therefore weaken the progressivity of the income tax and of the overall Jamaican tax system. However, no attempt has been made to adjust the incidence patterns reported above to take these reliefs into account. We do not attempt to quantify the incidence of property taxes in this study, for several reasons. First, although they are becoming increasingly important, these taxes accounted for a mere \$1.6 million, or less than 0.7 percent of total revenue, in 1971-72. Second, though the property tax may be progressive in the short-run, it may be less so in the long run. See Charles E. McLure, Jr., "The Relevance of the New View of the Incidence of the Property Tax in Developing Countries," Paper

TABLE 4: Allocation of Personal Income Tax
and Effective Tax Rates, 1971

Income bracket (Dollars - per year)	Percent of Individual income tax (a)	Estimated Tax liability (\$ 000,000) (b)	Effective Tax rate (c)
2,000 - 2,499	1.5	.68	1.19
2,500 - 2,999	2.0	.91	2.24
3,000 - 3,499	3.0	1.37	3.57
3,500 - 3,999	3.0	1.37	4.81
4,000 - 4,499	3.5	1.60	6.06
4,500 - 4999	5.0	2.28	8.08
5,000 and over:	82.0	37.47	*
I	*	*	14.40
IIA	*	*	11.89
IIB	*	*	13.09
TOTAL	100.0	45.70	*
I	*	*	5.62
IIA	*	*	5.26
IIB	*	*	5.45

b) Indirect taxes

We assume that indirect taxes are borne by consumers of taxed items or, in the case of intermediate goods, that the taxes are shifted forward through the production-distribution process until they are borne by ultimate consumers. Given this theoretical foundation, the only problem is to match the various indirect taxes with the appropriate expenditure patterns from the household budget survey.

presented at the annual conference of the Committee on Taxation, Resources and Economic Development, Cambridge, Massachusetts, October 22-24, 1976. Finally, the data needed to allocate these data among households are unavailable, in any event. In accord with our earlier assumptions, we treat the increase in the taxes on bauxite-alumina as being borne entirely by foreigners, and consider it no further here.

(1) Excises

Excise tax collections fall fairly neatly into four major categories and a number of less important ones. Excises on tobacco products, motor spirits (and tires and tubes), rum, and beer accounted for almost 87 percent of all excise tax collections in 1971-72, and those on food, clothing, and textiles, aerated water, and furniture for an additional 10 percent, leaving only about \$1.8 million or 3.6 percent of excises in the category of "all other."¹ Taxes on tobacco products, rum, beer, food, clothing and textiles, and furniture were allocated according to the corresponding series in the household survey. The "all other" category was assumed to be borne in proportion to non-food expenditures.

In order to determine the amount of excises on motor spirits and on tires and tubes to allocate directly to households we had to resort to the results of the household budget survey, which reports that in the sample period Jamaican households spent \$11.69 million on petrol. Assuming that 36.3 percent of this expenditure went to pay the excise tax on petrol (18 cents out of a pump price of 49.6 cents per gallon), we calculated that the household portion of the \$10.46 million of excises on motor spirits was about \$4.24 million, or just over 40 percent. We assumed arbitrarily that 15 percent of excises on motor spirits are paid by taxis and buses and that the remainder--roughly 45 percent--are paid initially by operators of trucks. These same percentages were also used to allocate the excises on tires and tubes among purchasers. The three components of the excises thus identified were allocated among

¹For the author's critical appraisal of the concentration of indirect taxes in a few items, see Charles E. McLure, Jr., Indirect Taxation in Jamaica, 1973, a Report submitted to the Taxation Division of the Ministry of Finance of Jamaica, August 24, 1973. (Mimeographed.)

households in proportion to reported expenditures on petrol, bus fares, and total expenditures, respectively.

(2) Customs

Of the \$19 million of duties on motor vehicles, 88.8 percent were attributed to passenger cars, 8.0 percent to trucks, and 3.1 percent to buses. These three portions of the duty were then allocated among households in proportion to expenditures on purchases of private transport, all expenditures, and bus fares. Tariffs on beer, other alcoholic beverages, and tobacco products were allocated on the basis of expenditures on the corresponding items. Customs duties estimated to have been collected on clothing and textiles, various kinds of foodstuffs, recreational equipment, and medicinal compounds were allocated according to patterns from the household budget survey that seemed most relevant.¹ All duties not accounted for by the allocations described above were allocated in proportion to non-food expenditures.

¹Several shortcomings of these allocations deserve explicit attention. First, since calendar 1970 was the latest year for which data on collections were available, it was assumed that each broad category accounted for the same proportion of total customs duties in 1971-72 as in 1970.

Second, the foodstuffs on which duties are collected (weighted by the applicable duty) may bear little resemblance to the food basket on which expenditure patterns in the budget survey are based. In particular, some bias (toward regressivity) may exist in the present estimates, in that meat played a much larger role in the composition of customs revenue from food than of food consumption. This bias is probably offset in part by difference in the relative importance of fruits and vegetables in the two series, and is probably not crucial in any case.

Finally, the large amount of customs duties allocated in proportion to non-food expenditures could easily be misallocated, for several reasons. Most obviously, dutiable intermediate goods undoubtedly find their way into the production and distribution of foodstuffs. Beyond that, some duties may actually be borne by foreigners, rather than Jamaicans. Finally, as with food, the burden of unallocated duties may be such as not to be accurately reflected by the pattern of non-food expenditures reported in the household survey.

(3) Consumption duty

The consumption duty of \$2.78 million was divided into five categories: food, medicine, clothing and textiles, furniture, and other expenditures, allocated in proportion to expenditures on food, health expenses, clothing, furniture, and non-food items, respectively.

(4) Stamp duties

Stamp duties are collected on a large variety of financial transactions and documents, the most important of which are mortgages and conveyances. Collections data for 1972-73 suggest that it might be reasonable to allocate \$1.1 million of the total 1971-72 stamp duties of \$7.7 million among households on the basis of mortgage payments. The remaining \$6.6 million was arbitrarily divided evenly between "commerce" and "wealth," the rationale being that part of stamp duties constitute costs of doing business and is probably shifted to consumers and part is borne by owners of the wealth which draws the liability for stamp tax. The portion attributed to commerce was allocated among households in proportion to total expenditures, whereas that attributed to wealth was allocated entirely to the households in the highest income bracket.

(5) Motor vehicle licenses

We use information from the household budget survey to allocate to private passenger cars just over 50 percent of motor vehicle licenses. We arbitrarily assign 10 percent of licenses to buses and the remainder to trucks. The further allocations among households of the parts levied initially on buses and trucks were as reported above for excises on motor fuel and customs duties on buses and trucks.

(6) Other licenses

The minor category "other licenses" consists of essentially two items--spirits and firearms. The first was allocated in proportion to expenditures on rum. The second was allocated in proportion to expenditures on private transport, the reasoning being that this is probably a reasonable indicator of the luxury nature of legally held firearms.

(7) Entertainment and gambling taxes

The household budget survey indicates that roughly 1/4 of the entertainment tax levied on admissions to cinemas and race tracks and on parimutuel betting pools is derived from admissions to cinemas in urban areas, and 3/4 from gambling in both urban and rural areas. The former portion was allocated in proportion to expenditures on cinema. The remainder was added to the duties, fees and levies on betting, gaming, and lotteries and allocated on the basis of expenditures on gambling.

(8) Travel tax and tax de sejour

It seems likely that these relatively minor taxes on passengers leaving the island and on hotel accommodations are paid in large part by nonresidents of Jamaica. To the extent that they are not, they are probably borne in large part by households with relatively high incomes. In this study they are ignored.

(9) Changes in indirect taxes

In his 1973 budget speech¹ the Minister of Finance recommended several changes in the indirect tax law that have since been enacted.

¹Coore, Budget Speech, 1973, 40-44.

These were an increase in the consumption tax on cigarettes (\$7 million at 1973-74 levels of income), extension of the consumption tax to beer (\$2 million), imposition of a retail sales tax on selected luxury items (\$5.1 million, almost entirely from automobiles), additional levies on gambling (\$1.25 million), and an increase in trade and business licenses (\$300,000). Given that these changes in indirect taxation are, for the most part, likely to be either strongly progressive (retail sales tax) or quite regressive (cigarettes and beer) it seems reasonable to ask how the most important of them affects the pattern of incidence. This was done by allocating to the various income classes 82.64 percent of the amounts of revenue indicated above, on the same basis as the allocations of taxes actually levied in 1971-72.¹

(10) The results

Tables 5-10 summarize the results of the allocations of indirect taxes to income groups just described. The first three (Tables 5-7) express indirect taxes as a percentage of total expenditures in each income class, by sectors, while the second three (Tables 8-10) present effective tax rates (indirect taxes as a percentage of income) for each income class, by sectors (for two alternative definitions of income in the highest income class).²

¹Allocation of only 82.64 percent of the projected revenues allows roughly for a 10 percent nominal rate of growth of the economy from 1971-72 to 1973-74.

²Estimates are presented for only alternatives I and IIA. It turns out (quite by accident) that the estimated effective tax rates under alternative IIB are exactly midway between those for alternatives I and IIA, and, therefore, can be suppressed in the interest of saving space.

TABLE 5: Indirect Taxes as a Percentage of Expenditures
Urban Sector
Annual Household Income in Dollars

	0- 499	500- 999	1000- 1499	1500- 1999	2000- 2499	2500- 2999	3000- 3499	3500- 3999	4000- 4499	4500- 4999	5000- & over	Total
Excises												
a. Tobacco	1.34	2.03	2.22	1.59	1.24	1.38	1.18	.89	.58	.71	.79	1.37
b. Motor Spirits	1.01	.95	1.07	.77	1.08	1.23	1.18	1.21	1.20	1.24	1.93	1.21
c. Rum	.81	.90	1.30	1.26	.88	.63	.61	1.89	.70	.68	.55	.90
d. Beer	.74	.99	1.01	.81	.88	.83	.70	.64	.58	.43	.46	.75
e. Other	.67	.68	.68	.56	.71	.68	.64	.57	.66	.49	.56	.64
Total	3.95	5.54	6.28	4.99	4.79	4.76	4.31	5.21	3.73	3.56	4.29	4.87
Customs Duties												
a. Motor Vehicles	.61	.49	.28	.28	.19	.75	.97	.96	1.13	6.68*	1.65	1.04
b. Clothing	.58	.65	.70	.63	.76	.73	.67	.61	.66	.37	.60	.64
c. Food	.91	.96	.88	.79	.78	.75	.57	.64	.62	.46	.59	.76
d. Other	2.72	2.75	2.87	3.00	3.07	3.09	3.15	3.24	3.42	3.16	3.16	3.02
Total	4.82	4.85	4.74	4.70	4.80	5.33	5.46	5.46	5.82	10.67*	6.01	5.46
Consumption Duty	.30	.28	.29	.29	.35	.30	.33	.29	.35	.19	.27	.29
Stamp Duty	.50	.43	.45	.46	.49	.68	.58	.71	.62	.84	2.38	.87
Motor Vehicle Licenses	.40	.36	.54	.42	.44	1.03	.49	.39	.50	.74	1.44	.67
Gambling and Entertainment	.35	.39	.46	.67	.42	.58	.42	.68	1.01	.19	.29	.45
Grand Total	10.95	11.84	12.75	11.63	11.30	12.68	11.58	12.73	12.03	17.01*	14.63	12.61
Changes in Tax Law: 1971-72 to 1973-74												
a. Consumption duty	.86	1.28	1.38	1.00	.83	.88	.79	.61	.43	.46	.52	.88
b. Retail Sales tax	.24	.18	.08	.08	.04	.30	.39	.43	.50	3.16*	.75	.45
Total	1.10	1.45	1.46	1.08	.87	1.18	1.18	1.04	.93	3.62*	1.27	1.32
Total: law as of 1973-74	12.05	13.29	14.21	12.71	12.17	13.86	12.76	13.76	12.97	20.63*	15.90	13.93

*These figures are unrealistically high. More reasonable values (reading down column) might be something like 1.3, 5.3, 11.6, 0.6, 1.1 and 12.7, respectively.

TABLE 6 : Indirect Taxes as a Percentage of Expenditures
Rural Sector

	Annual Household Income in Dollars											
	0- 499	500- 999	1000- 1499	1500- 1999	2000- 2499	2500- 2999	3000- 3499	3500- 3999	4000- 4499	4500- 4999	5000- & over	Total
1. Excises												
a. Tobacco	2.48	2.15	1.87	1.41	1.56	1.68	.80	1.13	.98	1.01	.63	1.73
b. Motor Spirits	.85	.84	.96	1.41	1.51	1.32	1.45	2.63	1.47	1.01	1.33	1.12
c. Rum	.61	.69	1.68	1.23	1.16	.95	1.37	.19	1.15	.50	1.14	1.03
d. Beer	1.01	1.01	1.21	.69	1.04	.66	1.30	1.50	.98	.50	.72	.98
e. Other	.75	.81	.76	.67	.69	.86	.72	.56	.33	*	.55	.74
Total	5.70	5.50	6.48	5.41	5.96	5.49	5.64	6.01	4.91	3.02	4.37	5.60
2. Customs Duties												
a. Motor Vehicles	.37	.27	.15	.30	.81	.22	.87	.56	2.46	*	6.42	1.04
b. Clothing	.68	.27	.83	.76	.75	1.10	.80	.75	.82	1.01	.33	.76
c. Food	1.27	1.27	1.04	.92	.98	1.10	.94	.75	.65	1.01	.84	1.08
d. Other	2.29	2.99	2.64	2.62	3.13	2.92	2.89	2.82	3.44	2.01	2.86	2.57
Total	4.61	4.80	4.66	4.60	5.67	5.34	5.50	4.88	7.37	4.03	10.45	5.45
3. Consumption Duty	.29	.32	.29	.25	.29	.37	.36	.19	.33	*	.27	.30
4. Stamp Duties	.29	.30	.35	.39	.35	.29	.36	.38	.33	.50	5.03	.84
5. Motor Vehicle Licenses	.37	.36	.54	.20	.41	.44	.80	1.88	.49	*	.57	.49
6. Gambling and Entertainment	.28	.14	.29	.25	.87	.37	.22	.19	*	*	.39	.25
7. Grand Total	11.54	11.43	12.60	11.38	13.55	12.29	12.87	13.52	13.42	7.55	21.09	12.92
8. Changes in tax law: 1971-72 to 1973-74												
a. Consumption Duty	1.53	1.34	1.23	.88	1.04	1.02	.72	1.13	.65	.50	.51	1.12
b. Retail Sales Tax	.11	.06	.02	.07	.35	.07	.36	.38	1.15	*	3.04	.44
Total	1.64	1.40	1.25	.95	1.39	1.09	1.08	1.51	1.80	.50	3.55	1.56
9. Total: law as of 1973-74	13.18	12.83	13.85	12.33	14.94	13.36	13.95	15.03	15.22	8.05	24.64	14.48

TABLE 7: Indirect Taxes as a Percentage of Expenditures
Entire Island

	Annual Household Income in Dollars											Total
	0- 499	500- 999	1000- 1499	1000- 1999	2000- 2499	2500- 2999	3000- 3499	3500- 3999	4000- 4499	4500- 4999	5000 & over	
1. Excises												
a. Tobacco	1.80	2.08	2.08	1.52	1.31	1.46	1.09	.96	.66	.73	.76	1.49
b. Motor Spirits	.94	.90	1.03	1.01	1.18	1.25	1.28	1.41	1.26	1.19	1.75	1.13
c. Rum	.72	.80	1.44	1.25	.95	.71	.83	1.65	.78	.67	.68	.95
d. Beer	.85	1.00	1.09	.77	.92	.81	.88	.78	.66	.44	.52	.82
e. Other	.70	.76	.71	.65	.71	.51	.71	1.25	.65	.50	.54	.67
Total	5.01	5.54	6.35	5.20	5.07	4.74	4.79	6.05	4.05	3.53	4.25	5.11
2. Customs Duties												
a. Motor Vehicles	.51	.38	.23	.29	.34	.62	.94	.96	1.38	6.30*	2.71	1.04
b. Clothing	.62	.76	.75	.67	.76	.82	.68	.60	.69	.41	.54	.68
c. Food	1.06	1.11	.95	.83	.84	.82	.75	.96	.63	.50	.65	.87
d. Other	2.54	2.51	2.78	2.84	3.00	3.02	3.12	2.90	3.45	3.17	3.08	2.85
Total	4.73	4.76	4.71	4.63	4.94	5.28	5.49	5.42	6.15	10.38*	6.98	5.44
3. Consumption Duty	.30	.29	.29	.28	.32	.32	.36	.24	.35	.26	.26	.29
4. Stamp Duties	.42	.36	.41	.44	.50	.58	.51	.66	.60	.82	2.98	.86
5. Motor Vehicle Licenses	.38	.37	.55	.44	.42	.88	.58	.69	.47	.73	1.25	.61
6. Gambling and Entertainment	.32	.27	.40	.52	.39	.52	.36	.60	.82	.17	.32	.39
7. Grand Total	11.16	11.59	12.71	11.51	11.65	12.32	12.09	13.66	12.43	15.88*	16.04	12.70
8. Changes in tax law: 1971-72 to 1973-74												
a. Consumption Duty	1.12	1.30	1.31	.95	.87	.94	.77	.66	.50	.47	.50	.95
b. Retail Sales Tax	.19	.12	.05	.08	.11	.24	.41	.42	.60	2.97*	1.26	.44
Total	1.31	1.42	1.36	1.03	.98	1.18	1.18	1.08	1.10	3.44*	1.76	1.39
9. Total: law as of 1973-74	12.47	13.01	14.07	12.54	12.63	13.50	13.27	14.74	13.53	19.32*	17.80	14.09

*These figures are unrealistically high. More reasonable values (reading down the column) might be something like 1.6, 5.7, 11.2, 0.8, 1.3, and 12.5, respectively.

TABLE 8: Effective Tax Rates - Indirect Taxes
Urban Sector

Tax and Base	Annual Household Income in Dollars												Total**	
	0- 499	500- 999	1000- 1499	1500- 1999	2000- 2499	2500- 2999	3000- 3499	3500- 3999	4000- 4499	4500- 4999	5000 and Over**		I	IIA
											I	IIA	I	IIA
1. Excises														
a. Tobacco	2.68	3.04	3.33	2.39	1.68	2.03	1.45	1.10	.72	1.07	.64	.53	1.77	1.67
b. Motor Spirits	2.03	1.43	1.61	1.16	1.46	1.81	1.45	1.50	1.48	1.86	1.56	1.29	1.56	1.47
c. Rum	1.63	1.35	1.95	1.90	1.20	.92	.75	2.34	.86	1.02	.45	.37	1.17	1.10
d. Beer	1.48	1.48	1.51	1.22	1.20	1.22	.86	.79	.72	.65	.37	.31	.97	.91
e. Other	1.35	1.01	1.01	.84	.96	1.00	.78	.71	.81	.74	.45	.37	.82	.81
Total	7.91	8.31	9.42	7.52	6.50	6.98	5.29	6.44	4.58	5.34	3.48	2.87	6.28	5.92
2. Customs Duties														
a. Motor Vehicles	1.23	.73	.42	.42	.26	1.11	1.19	1.19	1.38	10.03*	1.34	1.11	1.34	1.27
b. Clothing	1.15	.98	1.05	.95	1.03	1.07	.82	.75	.81	.56	.49	.40	.82	.77
c. Food	1.83	1.44	1.32	1.18	1.05	1.11	.82	.79	.76	.70	.48	.40	.98	.91
d. Other	5.43	4.13	4.31	4.52	4.17	4.54	3.88	4.01	4.20	4.74	2.56	2.11	3.89	3.67
Total	9.63	7.28	7.10	7.07	6.52	7.83	6.71	6.75	7.16	16.02*	4.87	4.02	7.04	6.64
3. Consumption Duty	.60	.41	.44	.44	.48	.44	.41	.35	.43	.28	.22	.18	.37	.35
4. Stamp Duties	1.00	.64	.67	.70	.67	1.00	.71	.88	.76	1.25	1.93	1.59	1.12	1.05
5. Motor Vehicle Licenses	.80	.54	.80	.63	.60	1.51	.60	.49	.62	1.11	1.17	.96	.87	.82
6. Gambling & Entertainment	.70	.58	.69	1.01	.58	.85	.52	.84	1.24	.28	.24	.20	.59	.55
7. Grand Total	21.89	17.76	19.13	17.50	15.34	18.61	14.24	15.74	14.80	25.53*	11.86	9.79	16.26	15.33
8. Changes in tax, 1971-72 to 1973-74														
a. Consumption Duty	1.73	1.91	1.74	1.50	1.13	1.29	.97	.75	.53	.70	.42	.35	1.13	1.07
b. Retail Sales Tax	.48	.26	.33	.13	.05	.44	.48	.53	.62	4.74*	.61	.50	.58	.54
Total	2.20	2.18	2.07	1.63	1.17	1.74	1.45	1.28	1.15	5.43*	1.00	.83	1.71	1.61
9. Total, Law of 1973-74	24.09	19.94	21.32	19.13	17.00	20.35	15.70	17.02	15.95	30.97*	12.86	10.62	17.97	16.94

* These figures are unrealistically high. More reasonable values (reading down the column) might be something like 1.4, 7.4, 16.9, 0.6, 1.3, and 18.2, respectively. The more realistic figure is reported in Table 18.

** Figures for alternative IIB are omitted, as they lie exactly midway between those for alternatives I and IIA.

TABLE 9: Effective Tax Rates - Indirect Taxes
Rural Sector

	Annual Household Income in Dollars												Total*	
	0- 499	500- 999	1000- 1499	1500- 1999	2000- 2499	2500- 2999	3000- 3499	3500- 3999	4000- 4499	4500- 4999	5000 and Over*		I	IIA
1. Excises														
a. Tobacco	4.96	3.07	2.57	2.02	1.80	1.70	.95	1.03	1.09	.46	.18	.15	1.70	1.58
b. Motor Spirits	1.69	1.20	1.33	2.02	1.73	1.33	1.72	2.40	1.64	.46	.38	.31	1.10	1.02
c. Rum	1.21	.99	2.31	1.76	1.33	.96	1.64	.17	1.28	.23	.33	.27	1.01	.94
d. Beer	2.02	1.44	1.67	1.00	1.20	.66	1.54	1.37	1.09	.23	.21	.17	.96	.89
e. Other	1.51	1.16	1.04	.97	.80	.88	.86	.51	.37	*	.14	.12	.72	.67
Total	11.39	7.86	8.92	7.77	6.86	5.53	6.71	5.48	5.47	1.39	1.24	1.02	5.49	5.10
2. Customs Duties														
a. Motor Vehicles	.74	.39	.21	.43	.93	.22	1.03	.51	2.74	*	1.82	1.50	1.02	.94
b. Clothing	1.36	1.26	1.14	1.10	.87	1.11	.95	.68	.91	.46	.09	.08	.75	.69
c. Food	2.54	1.81	1.43	1.33	1.13	1.11	1.12	.68	.72	.46	.24	.20	1.06	.99
d. Other	4.58	3.41	3.64	3.74	3.60	2.94	3.44	2.58	3.83	.93	.82	.67	2.51	2.34
Total	9.22	6.87	6.42	6.60	6.53	5.38	6.54	4.45	8.21	1.85	2.97	2.45	5.34	4.96
3. Consumption Duty	.59	.45	.40	.37	.33	.37	.43	.17	.36	*	.08	.06	.29	.27
4. Stamp Duties	.59	.43	.48	.56	.40	.29	.43	.34	.36	.23	1.43	1.18	.83	.77
5. Motor Vehicle Licenses	.74	.52	.74	.66	.47	.44	.95	1.71	.03	*	.16	.13	.48	.44
6. Gambling & Entertainment	.15	.21	.40	.37	1.00	.37	.26	.17	*	*	.11	.09	.25	.23
7. Grand Total	23.08	16.33	17.36	16.33	15.59	12.39	15.32	12.33	14.96	3.46	5.99	4.95	12.68	11.76
8. Changes in Tax: 1971-72 to 1973-74														
a. Consumption Duty	3.05	1.92	1.70	1.26	1.20	1.03	.86	1.03	.73	.23	.15	.12	1.10	1.02
b. Retail Sales Tax	.22	.08	.03	.10	.40	.07	.43	.34	1.28	*	.86	.71	.43	.40
9. Total: Law of 1973-74	26.35	18.33	19.09	17.69	17.19	13.49	16.61	13.70	16.97	3.69	7.00	5.78	14.21	13.18

* Figures for alternative IIB are omitted, as they lie exactly midway between those for alternative I and IIA.

TABLE 10: Effective Tax Rates - Indirect Taxes
Entire Island

	Annual Household Income in Dollars												Total**	
	0- 499	500 999	1000- 1499	1500- 1999	2000- 2499	2500- 2999	3000- 3499	3500- 3999	4000- 4499	4500- 4999	5000 and Over**		I	IIA
1. Excises														
a. Tobacco	3.60	3.05	3.01	2.25	1.71	1.92	1.33	1.12	.79	.97	.44	.36	1.74	1.63
b. Motor Spirits	1.88	1.33	1.49	1.50	1.53	1.65	1.56	1.65	1.51	1.58	1.01	.83	1.38	1.29
c. Rum	1.44	1.18	2.09	1.85	1.23	.94	1.01	1.93	.95	.89	.39	.32	1.11	1.04
d. Beer	1.70	1.46	1.58	1.14	1.20	1.06	1.07	.91	.79	.58	.30	.24	.96	.90
e. Other	1.40	1.10	1.03	.95	.94	.66	.85	1.47	.84	.66	.30	.27	.78	.74
Total	10.02	8.12	9.20	7.69	6.61	6.23	5.82	7.08	4.88	4.68	2.44	2.02	5.97	5.60
2. Customs Duties														
a. Motor Vehicles	1.01	.56	.33	.43	.44	.81	1.14	1.12	1.67	8.35*	1.56	1.29	1.21	1.14
b. Clothing	1.24	1.12	1.09	.99	.99	1.08	.83	.70	.83	.54	.31	.26	.79	.74
c. Food	2.11	1.62	1.38	1.23	1.09	1.08	.91	.77	.76	.66	.37	.31	1.01	.95
d. Other	5.09	3.67	4.03	4.19	3.92	3.97	3.80	3.75	4.16	4.21	1.76	1.45	3.36	3.13
Total	9.45	6.97	6.83	6.84	6.44	6.94	6.68	6.34	7.42	13.76*	4.00	3.31	6.37	5.96
3. Consumption Duty	.60	.43	.42	.41	.42	.42	.44	.28	.42	.35	.15	.12	.34	.32
4. Stamp Duties	.85	.53	.59	.65	.65	.76	.62	.77	.72	1.08	1.71	1.41	1.01	.94
5. Motor Vehicle Licenses	.76	.54	.79	.65	.55	1.16	.70	.81	.57	.97	.71	.59	.72	.67
6. Gambling & Entertainment	.64	.40	.58	.77	.51	.69	.44	.70	.98	.23	.18	.15	.45	.43
7. Grand Total	22.32	17.00	18.41	17.01	15.18	16.19	14.71	15.98	14.99	21.07*	9.21	7.60	14.86	13.92
8. Changes in tax law: 1971-72 to 1973-74														
a. Consumption Duty	2.25	1.91	1.90	1.41	1.13	1.23	.94	.77	.61	.62	.29	.24	1.12	1.05
b. Retail Sales Tax	.37	.18	.08	.12	.14	.32	.49	.49	.72	3.94*	.72	.60	.52	.48
Total	2.62	2.09	1.98	1.53	1.27	1.55	1.43	1.26	1.33	4.56*	1.01	.84	1.64	1.53
9. Total: Law as of 1973-74	24.94	19.09	20.39	18.54	16.45	17.74	16.14	17.24	16.32	25.63*	10.22	8.44	16.50	15.45

*These figures are unrealistically high. The more realistic figure is reported in Table 20. More reasonable values (reading down the column) might be something like 1.6, 7.0, 14.3, 0.7, 1.3, and 15.6, respectively.

**Figures for alternative IIB are omitted, as they lie exactly midway between those for alternative I and IIA.

(a) Indirect tax as a percent of expenditure

Indirect taxes take roughly a constant percentage of household expenditures in all but the highest income class. (See Tables 5-7.) For the entire island the percentage indirect taxes are of total expenditures in 1971-72 (excluding the top income class) varies rather narrowly between 11.2 and 13.7, with no apparent pattern in the deviations between income classes.¹ Allowing for the 1973-74 changes in tax law, the corresponding range is only from 12.5 to 14.7 percent, again with no apparent tendency for the ratio to rise or fall with income. These essentially flat rates are the result of a complicated interplay of rates that tend to rise with income (motor spirits, customs duties and licenses on motor vehicles, the retail sales tax-- in 1973-74 law only--customs on "other" items, and--especially in the top bracket--stamp duties), ratios that decline with income (excises on tobacco, rum, and beer, customs duties on food, and the 1973-74 increases in consumption duty), and ratios that are essentially flat ("other" excises, customs duties on clothing, the basic 1971-72 consumption duty, and gambling and entertainment taxes).²

¹In the income category \$4,500-4,999 the computed percentage is actually 15.9, as reported in Table 7. But this is clearly an overstatement, resulting from an unrealistically high figure for purchases of automobiles by urban households in this income bracket. If the ratios for customs duties on motor vehicles and the retail sales tax (paid primarily on automobiles) are adjusted downwards by what seems like a reasonable amount, the ratios for all indirect taxes in this income class fall in the reported ranges. That such an adjustment is justified is suggested by the lack of any similar "hump" in the pattern of ratios for excises on motor spirits and motor vehicle licenses. Similar comments apply to the discussion below of effective tax rates for the entire island and a fortiori for the discussions of ratios of indirect taxes to expenditures and effective tax rates for the urban sector only.

²In several cases "other" categories summarize more detailed calculations for fairly narrowly defined consumption items, as well as

Only in the top income class are the rather narrow ranges of effective rates noted above breached. For this class the rate for 1971-72 is 16.0 percent, and that for 1973-74 is 17.8 percent, because of the combination of heavy taxation of automobiles with the predominance of automobile ownership in this income class and the assumption that a full 50 percent of stamp duties can be attributed directly to this income class. The importance of heavy automotive taxes in raising the rates slightly--but only slightly--at the top of the income scale suggests both the need for, and limitations of, indirect taxes on luxury items. That is, luxury taxes are needed to provide progressivity, but the extent to which they can enhance progressivity is inherently limited. And it should be remembered that the supposed contribution of the stamp duty in raising the ratio at the top of the income scale is dependent upon the accuracy of the incidence assumption, and, if accurate, is probably bought at the cost of considerable economic inefficiency created by this "nuisance tax." At the other end of the income scale, the taxes on beer, rum, and tobacco (not to mention food) are regressive even when measured against total consumption expenditures. Moreover, taxes on beer and cigarettes were raised significantly in 1973-74, thereby worsening the regressivity of the overall tax system of the island.

The corresponding rates for the urban and rural sectors taken individually follow essentially the same patterns as those for the

including large components that could only be allocated in proportion to non-food consumption. This explains why the rate for "other" customs rises with income, while non-food consumption as a percentage of expenditures falls.

entire island. The ratios for the urban sector appear to be marginally lower and to fall in a somewhat narrower range (excluding the ratios for the highest income class), but such differences as occur should probably not be overemphasized. As before, the taxes on motor vehicles and the stamp duties contribute strongly to a pattern of ratios that rise with income and the sumptuary levies (those on beer, rum, and tobacco) to a pattern of ratios that fall with income.

The estimates reported here for the entire island seem generally quite consistent with the findings of Lovejoy¹ based upon the 1958 household budget survey, but unfortunately reported in less detail.² Lovejoy summarized his findings as follows: "...the total indirect tax bill is roughly proportional throughout its range."

(b) Effective tax rates

Effective tax rates (tax as a percentage of income) for indirect taxes reported in Tables 8-10 follow very closely the same pattern as the tax-expenditure ratios just discussed, except in the top income class. That is, they are essentially flat, though with a slight tendency toward regressivity (resulting from the falling ratio of consumption to income as income rises). These patterns and their causes and implications need not be discussed further.

In the highest income category, however, the story is different. Even though the indirect tax system is progressive in the top income bracket, when measured relative to household expenditures, the average propensity to consume is sufficiently low in this income class that the

¹Lovejoy, "Jamaican Taxation," 453.

²Differences in Lovejoy's results and our own are easily reconciled, as they relate primarily to the treatment of stamp duties.

indirect tax system is markedly regressive at the very top, when measured relative to income, especially in the rural sector. Except in the most extreme cases, even those taxes that contribute to progressivity in the ratios of taxes to expenditure result in non-progressive effective rates.

It is difficult to compare these results with those in the only other recent study of tax incidence in Jamaica, that of Andic.¹ But, in general, it appears that our conclusions depart markedly from Andic's, since he concludes (p. 16) that "indirect taxes are by and large regressive within the range of income levels covered by the Survey." This difference can probably be traced in large part to three factors. First, we allocate nearly one-half of stamp duties to the top income class and much of the rest on the basis of mortgage payments; what Andic did is unclear. Second, we allocate a substantial part of customs duties, excises, licenses, and retail sales taxes on motor vehicles and petrol in proportion to expenditures on motor vehicles or on petrol, as appropriate, whereas Andic allocated one-half of taxes on petrol and import duties on passenger motor vehicles on the basis of expenditures on transportation. (The remaining half of taxes on petrol, like all other taxes considered to be borne initially by business as a cost of inputs, he ignored as being unallocable.) It does not seem unlikely that Andic's allocation would result in a regressive pattern of incidence. Finally, and perhaps most important, Andic's failure to allow for the workings of the permanent income hypothesis almost certainly results in an overstatement of effective tax rates at the bottom of the income scale.

¹Andic, "Distribution and Redistribution," 16.

c) The overall results

Table 11 summarizes the material on effective rates for 1971-72 presented earlier in Tables 3, 4, and 8-10.¹ As noted earlier, indirect taxes tend to be roughly proportionate to income throughout most of the range of incomes, but to be regressive at the very highest income levels. On the other hand, the personal income tax is markedly progressive, especially at the upper end of the income scale and the corporation income tax on local companies contributes heavily to progressivity in the top income category, provided it is not shifted. Thus, the overall incidence pattern is one of more or less proportionate effective rates at the bottom of the income scale with some progressivity at the top, but only if the corporation tax is borne by capitalists.

If the corporation income tax is shifted to consumers it, too, tends to be roughly proportionate in the low income levels and regressive at the highest income levels. Combining this general pattern for the local company income tax and indirect taxes with the moderately progressive incidence of the personal income tax produces an overall pattern of effective tax rates that is regressive at the very top of the income scale, rather than progressive. In general, these statements about results for the entire island are equally applicable to the two sectors considered individually.

¹We have not included a table in which shifted corporation income tax as a percentage of expenditure (reported in Table 3) is added to indirect taxes as a percentage of expenditure. Since the shifted corporation tax was allocated in proportion to non-food expenditure, it tends to be slightly progressive, but not enough to modify the conclusions of the previous part of this section in which ratios of indirect taxes to total expenditures were discussed.

TABLE 11: Effective Tax Rates Summarized,
for Alternative Shifting Assumptions and Income Concepts*

Income Bracket (Dollars per Year)	Urban Sector		Rural Sector		Entire Island	
	A	B	A	B	A	B
0 - 499	21.89	27.79	23.08	27.78	22.32	27.74
500 - 999	17.76	22.07	16.33	19.69	17.00	20.86
1,000 - 1,499	19.13	23.61	17.36	21.13	18.41	22.59
1,500 - 1,999	17.50	22.27	16.33	20.55	17.01	21.57
2,000 - 2,499	16.53	20.82	16.78	19.98	16.37	20.39
2,500 - 2,999	20.85	25.58	14.63	17.36	18.43	22.47
3,000 - 3,499	17.81	21.87	18.89	21.38	18.28	22.18
3,500 - 3,999	20.51	24.74	17.14	19.88	20.79	24.72
4,000 - 4,499	20.85	25.06	21.02	24.67	21.05	25.18
4,500 - 4,999	24.98	30.55	11.54	12.69	22.38	27.17
5,000 and over: I	26.26	29.07	20.39	21.25	23.61	25.55
	IIA	30.82 **	25.98	**	28.63	**
	IIB	** 26.42	**	19.32	**	23.25
Total: I	21.65	25.78	18.66	21.28	20.48	24.02
	IIA	23.42 **	21.11	**	22.50	**
	IIB	** 25.06	**	20.52	**	23.25

* Does not include changes in law after 1971-72. For definitions of alternative income concepts and shifting assumptions I, IIA, and IIB, see Table 2 and related discussion.

** Not applicable.

These conclusions must be conditioned by the tax changes that have occurred since 1971-72. As noted earlier, the retail sales tax contributes to progressivity, but the increased taxation of beer and cigarettes under the consumption duty is regressive. On balance these changes seem to result in somewhat more regressive patterns than shown in Table 11. On the direct tax side, the recent increases in property taxes can be expected to be generally progressive, but the income tax relief proposed by Mr. Coore runs in the opposite direction.

Thus, the incidence patterns reported in Table 11 and summarized above may be qualitatively accurate, even if these changes are taken into account.

d) Differential incidence of a proposed sales tax

In an earlier report¹ the present author recommended that roughly one-third of existing Jamaican internal indirect taxes be replaced with a general sales tax.² This section examines the distributional implications of following this recommendation by presenting the differential incidence (differences in effective tax rates) of the proposed general sales tax and the taxes suggested for repeal. Two alternative definitions of the sales tax base are used in the calculations, in order to show the equity implications of the definition of the tax base. The amount of revenue assumed to be raised by the sales tax is simply the amount lost by elimination of the taxes it would replace. The latter is calculated at 1971-72 levels, but with adjustments for the tax changes (notably in the consumption duty) discussed in section IIIB above.

(1) Indirect taxes replaced

In estimate (1), it was assumed that all consumption duties and all excises other than those on rum, beer, tobacco, motor spirits, tires and tubes, and household appliances and furniture would be removed. Despite their regressivity, the first three of these excises probably

¹McLure, Indirect Taxation in Jamaica, 1973.

²It is difficult to say exactly what portion of the indirect taxes would actually be replaced, since some taxes would simply be absorbed into the general sales tax, perhaps through the use of differentiated rates.

could not be removed, due to revenue requirements. Aside from revenue considerations, the taxes on motor spirits and tires and tubes can be justified in part, though probably not entirely, on benefit grounds, and they contribute to progressivity in any case, as do the excises on household appliances. (It might be best, however, as an administrative matter, to transfer the excises on tires and tubes and appliances to the retail sales tax.) Roughly \$15.5 million would be involved in this tax reduction, at 1971-72 income levels.

In estimate (2) stamp duties and miscellaneous licenses yielding \$8.2 million are also assumed to be repealed.¹ In this estimate a total of \$24.1 million is involved, again at 1971-72 levels. In a third-- and probably less realistic--calculation (3) stamp duties and miscellaneous licenses are left intact, but \$15.5 million of revenue is assumed to be lost through the reduction of excises on beer, rum, and tobacco by 50 percent, bringing the total revenue loss to \$31.4 million. Due to the severe regressivity of these sumptuary levies, such a tax substitution would constitute a significant advance in equity and social justice.²

Finally, it was assumed in estimate 4 that repeal of both the stamp duties and miscellaneous licenses and one-half of the major sumptuary taxes would be combined with the package of estimate (1). In this most costly of all packages, \$39.6 million would be lost by the tax collector.

¹Stamp duties and licenses high enough to defray expenses of processing legal documents could be retained, but those levied solely to raise revenue and the substantial number of minor duties that constitute a major obstacle to finance and commerce should be eliminated. The first category would probably raise an insignificant amount of revenue.

²See McLure, Indirect Taxation; and Charles E. McLure, Jr. and Wayne R. Thirsk, "The Inequity of Taxing Iniquity: A Plea for Reduced Sumptuary Taxes in Developing Countries," Journal of Economic Development and Cultural Change (forthcoming).

(2) The sales tax base

In order to demonstrate the distributional implications of differences in the definition of the sales tax base, we have calculated the differential incidence (change in effective rates) of replacing the four combinations of taxes just listed with a general sales tax, the base of which is alternatively approximately (A) all expenditures, and (B) expenditures other than those on food, health, education, bus fares, mortgage payments, and rents. (See Table 12-14.)

(3) The results

As could be expected, whether or not food, bus fares, health, education, and housing are exempt from the sales tax affects the differential incidence of the proposed sales tax substitution significantly, the exact extent depending upon the amount of revenue involved. For example, under the largest program (number 4, involving \$39.6 million) the effective tax rates in the bottom two income classes are reduced by about 0.80, on the average, for the island as a whole, by these exemptions. In the middle income range the exemption is quite unimportant, as it is in the top income class, where expenditure is a relatively unimportant use of total income. Finally, the exemption of food actually raises effective tax rates by from 0.50 to 1.00 in the three income classes just below the top, under program 4.¹

These effects are somewhat greater in the rural areas than urban areas at the lower end of the income scale, but somewhat less at upper

¹It may be useful to clarify this and similar statements. The exemption benefits primarily the lowest income classes and increases the rate of tax that must be applied to other consumption spending--spending that is relatively important to the income groups just below the top.

income levels. That is, the exemption of food, etc., reduces effective tax rates by 1.2 to 1.7 in the bottom income classes in the rural areas, but by only about 0.5 in urban areas. This result, which depends primarily upon the relatively food-intensive consumption of rural areas, implies, in turn, that the rural sector as a whole benefits relative to the urban sector from the exemption of food, etc. from the sales tax base. And, by the same token,¹ the urban households in the three income classes below the top one are burdened substantially more than average by the exemption of food.

Turning our attention now to the equity implications of the four packages of indirect tax replacement, we see that package 1 would be significantly progressive, especially if the lost revenue were made up from a general sales tax with liberal exemptions.² On the other hand, adding stamp duties and other licenses to the list of taxes slated for repeal (package 2) weakens, or even eliminates progressivity, especially at the top of the income scale.

While package 3 is more progressive than package 1, the difference is due more to the size of the package than its composition, since almost two-thirds of package 1 consists of the consumption duty, a good

¹These calculations may overstate the benefits to rural residents to the extent that food consumed in rural areas is not now taxed. Calculations not reported here indicate that these differences result primarily from the exemption of food and that the other exemptions have rather insignificant equity effects.

²If the basis of these comparisons were total expenditures, rather than income, this result would be strongly accentuated, especially at the top of the income scale, where savings rates are very high. On the other hand, it would be somewhat dampened in the lower income levels, where expenditures far exceed income.

deal of the base of which is similar to the sumptuary taxes that constitute the difference in packages 1 and 3. But having said this, we must emphasize the primary lesson to be gained from the analysis of both packages 1 and 3, namely, that the equity of the tax system could be improved markedly by the replacement of the consumption duties and excises on beer, tobacco, and rum with a general sales tax, especially one exempting food. Effective tax rates near the bottom of the income scale could be reduced by about 1.5 percentage points and those near the top increased by at least that much.

Finally, adding repeal of the stamp duties to package 3 to obtain package 4 is exactly analogous to adding it to package 1 to obtain package 2. As before, the results for package 4 (especially regressivity in the top income class) depends crucially upon who pays the stamp duties.

Regardless of the package of taxes chosen for repeal, the rural sector gains relative to the urban sector, especially if food, etc, is exempt from the sales tax. A good deal of the difference, aside from that resulting from exemption of food, is attributable to the higher per capita consumption of beer, tobacco, and rum in the rural sector, in most income classes. Moreover, the increase in the progressivity is greater in the rural sector than in the urban sector.

4. Summary and Policy Implications

The distribution of income in Jamaica is quite unequal--perhaps as unequal as in any country at a similar state of development--and is somewhat more unequal in rural areas than in urban areas. The tax system is moderately progressive, due primarily to the individual income tax

and (if it is not shifted) the tax on local companies. (The tax on companies in the bauxite-alumina industry is probably not borne by Jamaicans.) But indirect taxes (and the company tax, if it is shifted) are essentially proportional to both income or expenditure, except in the highest income bracket, which contains a little less than 4 percent of households and accounts for roughly 35 percent of income. In this income class indirect taxes are progressive if measured relative to expenditures, but regressive if measured relative to income. The newly enacted retail sales tax increases progressivity, but its influence in that direction is more than offset by the regressivity of the increase in the consumption duties on beer and cigarettes.

Adoption of a general sales tax and repeal of certain other indirect taxes could importantly increase the progressivity of the tax system, especially at the very bottom and near the top of the income scale. (It has little effect at the top due to the relatively high saving rates.) In the interest of social justice or equity, basic food should be exempt from any general sales tax and the especially onerous sumptuary taxes on beer, rum, and tobacco should be reduced.

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