



**INSTITUTE OF
SOCIAL AND
ECONOMIC RESEARCH**

**RURAL FINANCIAL MARKETS
IN JAMAICA**

**A Special Issue of Social and
Economic Studies**

Vol. 32, No. 1, March 1983

UNIVERSITY OF THE WEST INDIES

Social and Economic Studies, Volume 32, Number 1, 1983

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Effects of Subsidized Credit on the Size
Distribution of Farm Household Incomes

ABSTRACT

This paper employs the methodology of Gini coefficients to examine the income distribution effects of subsidized credit in Jamaica. Two channels of influence (the productivity effect and the interest rate subsidized effect) are isolated. It is concluded that, even though income inequality was reduced primarily through the interest rate subsidy, this mechanism is costly and may not be equitable when placed in the context of the overall financial and fiscal system.

INTRODUCTION

Income inequality is of major social, political and economic concern in developing countries. Social and political stability is frequently undermined by pronounced inequality of income and wealth. International evidence compiled by Jain [13] confirms that personal incomes are inequitably distributed in most developing countries. Van Ginnekin [19]

claims that rural inequality is the main component of national inequality. Van Ginnekin's observation is not valid for all countries¹ and through time.² Nonetheless, Jain's compilation does indicate that rural inequality is acute in most cases. Agriculture is the main occupation for rural populations, despite the important contribution of non-agricultural off-farm incomes in many instances. Much of the inequality in rural incomes can therefore be assumed to reflect inequality in farm incomes.

Differences in farm incomes are attributable to differential access to productive resources, especially land and improved inputs [Cline 4]. Attempts have been made to reduce rural income inequality by improving the access of small farmers to productive resources and by asset redistribution. Credit programmes, funded by local and foreign governments, are prominent among the set of policy measures. Credit may influence income distribution through two distinct mechanisms. First, credit resources may increase farm utilisation of productive inputs and also raise farm productivity via technological change. If access to credit is not uniform, then the consequent changes in farm incomes will also not be uniform. Second, rural credit programmes typically confer substantial implicit interest rate subsidies [Adams and Graham 1]. These subsidies implicitly raise the incomes of credit recipients by amounts directly proportional to the credit received.

There is some scepticism about the efficacy of credit programmes as instruments of income distribution policy. Indeed, the view has emerged that rural credit programmes are income-regressive. Because technological dualism within agriculture contributes to rural inequality [Oshima 17], technological change in a context of prevailing inequality reinforces rural inequity [Ruttan 18]. Lele [14] has argued that the credit system by favouring large farmers biases the distribution of technological change towards them thereby

compounding those income inequalities which result from unequal land distribution. Furthermore, it has been inferred from the loan and farm size distribution of rural credit that implicit credit subsidies accrue disproportionately to farmers in the upper income categories [Vogel 20; Desai 7, Gonzalez-Vega 10; Graham and Bourne 12; De Araujo and Meyer 6].

The purpose of this paper is to further elucidate the income distributional implications of agricultural credit by an empirical analysis of a major credit programme in Jamaica. The study improves on the earlier literature in two ways. First, it analyses both the productivity and subsidy linkages between credit and income distribution. Second, unlike the broad inferential approach of previous empirical studies, it applies the methodology of Gini coefficients to farm level survey data on incomes and credit. The substantive findings are that the productivity effect on income inequality is positive, i.e., lowers inequality, but weak, and that the subsidy effect is positive and strong.

The next section of the paper briefly describes the general features of the credit programme studied. The remaining sections deal with productivity and subsidy effects on income distribution.

RURAL CREDIT SYSTEM IN JAMAICA

The formal sources of rural credit in Jamaica are the commercial banks and several official credit agencies, namely, the Jamaica Development Bank (JDB), the Self-Supporting Farmers' Development Programme (SSFDP), the Agricultural Credit Board (ACB) directly and indirectly through the People's Cooperative Banks, and Crop Lien Programme administered by the Ministry of Agriculture. The quantum of credit provided by these institutional sources increased substantially between 1970 and 1978. The value of credit outstanding increased from J\$25 million in 1970 to J\$52 million in 1978 (in constant 1970 dollars). The commercial banks are the main lenders in terms of volume of loans. In 1978, they

accounted for 49 per cent of total formal farm credit. However, they service few, mainly large, farmers. The three public sector programmes are important. The Jamaica Development Bank which services a medium and large farm clientele provided 16 per cent of the credit outstanding in 1978, the Self-Supporting Farmers Development Programme which caters to small and medium-sized farms provided 15 per cent, and the Crop Lien Programme (a small farmer production loan facility) provided 7 per cent.³

This study deals with the Self-Supporting Farmers Development Programme for several reasons. It is the only currently operational public sector programme with a long enough history. Its loan clientele encompasses farmers in the size category into which most of the farm holdings fall. The SSFDP policy-determined farm size limits are zero to 25 acres. The national agricultural census for 1968/69 (Table 1) indicates that approximately 98 per cent of farm holdings are within this category. Though somewhat less than 20 per cent of these holdings have been serviced by the SSFDP, the analysis of this programme can provide important insights into the distributional effects of agricultural credit in Jamaica. The importance of SSFDP is heightened by the fact that few small farmers receive credit, especially investment credit, from any other source. Seventy-three per cent of the sample of SSFDP farmers surveyed⁴ did not receive loans from any source other than the SSFDP. Thus the SSFDP has been the main source of investment credit for the Jamaican farm community in recent times.

A fourth reason is that this particular loan programme contains a large subsidy element. Nominal loan rates of interest are low relative to the operating costs of the programme as well as in relation to actual rates of domestic price inflation. Between 1974 and 1977, a nominal rate of interest of 4 per cent per annum was charged on all investment loans. This rate of interest was raised to 7 per cent during 1977. In contrast, the minimum estimates of per dollar cost of lending

TABLE 1: FARM SIZE DISTRIBUTION IN JAMAICA 1968/69

Farm Size	Per Cent of Farms	Per Cent of Farmland
0 - 4.9 acres	78.5	15.4
5 - 24.9 acres	19.4	22.9
25 - 99.0 acres	1.6	8.5
100 plus acres	0.5	53.2
ALL	100.0	100.0

Source: Agricultural Census 1968/69.

for the SSFDP was 23 per cent to 35 per cent, averaging 26 per cent over the period 1974 to 1980 [Nyanin 16]. For the same period, the annual rate of price inflation measured by the consumer price index ranged between 9 per cent and 50 per cent, a period average of 22 per cent. The subsidies implied by the wide difference between operating costs and the inflation rate on the one hand, and the loan rate of interest on the other hand, are quite substantial. The policy of transferring income through concessionary loan rates of interest has resulted in large operating losses for the SSFDP and a consequent reliance on budgetary allocations from the Jamaican government. It is useful to establish whether the concessionary interest rate policy with its associated operating losses have in fact been successful as an income distribution instrument.

The size distribution of SSFDP loans is depicted in Table 2. Panel A shows the distribution of loans outstanding across farm size categories. It can be seen that the smallest farm size category received 23 per cent of loans outstanding. The second smallest farm size category accounted for 35 per cent, and the third smallest for 19 per cent. The two larger farm size categories together received only 24 per cent of the value of the loans outstanding. Panel B details the loan size

TABLE 2: DISTRIBUTION OF SSFDP LOANS IN 1978

Panel A: Farm Size Distribution of Loans Outstanding

Farm Size	Per Cent Loans	Cumulative Per Cent Loans
0 - 5 acres	22	22
6 - 10 acres	35	57
11 - 15 acres	19	76
16 - 25 acres	13	89
Over 25 acres	11	100
ALL	100	

Panel B: Loan Size Distribution of Number and Value of Loans

Loan Size	Number of Loans		Value of Loans	
	%	Cum. %	%	Cum. %
< \$ 2,000	26	26	8	8
\$ 2,000 < \$ 3,000	23	49	14	22
\$ 3,000 < \$ 5,000	24	73	22	44
\$ 5,000 < \$ 8,000	14	87	22	66
\$ 8,000 < \$11,000	8	95	19	85
\$11,000 < \$13,000	1	96	3	88
\$13,000 plus	3	99	11	99
ALL	100		100	

Source: SSFDP Files.

distribution of the number and values of loans made in 1978. Twenty-six per cent of the number of loans were for less than \$2,000 each, forty-nine per cent were for less than \$3,000,

and seventy-three per cent were for less than \$5,000. Loans in the \$5,000 but less than \$8,000 category comprised 14 per cent of the number of loans, and loans greater than \$8,000 in value comprised the remaining 12 per cent. The medium loan size categories, i.e., \$5,000-\$11,000 accounted for 41 per cent of loan values, the three small loan size categories for 44 per cent, and the two large loan size categories for only 14 per cent of loan values. From Panel B, it can be concluded that a disproportionately large proportion of the credit provided by the SSFDP is accounted for by relatively few medium and large sized loans.

Combining the results of Panel A and Panel B, one might infer that medium and small size farmers were the main beneficiaries of the larger sized loans, while the large size farmers received mainly small loans. This kind of data, however, is no more than suggestive of a progressive income distribution impact. Much more detailed analysis is required before firm conclusions can be drawn.

CREDIT-PRODUCTIVITY EFFECT ON INCOME DISTRIBUTION

The SSFDP seeks to increase the incomes of farmers by providing them with investment capital and technical assistance. A first consideration in examining the income distribution effects of the credit programme is whether or not the programme has a productivity impact. The standard approaches include comparisons of pre-loan and post-loan input use levels and production functions, linear programming analyses with financial constraints, and estimation of input demand functions with credit variables among the regressors. The conceptual and practical difficulties of establishing links between farm credit and production are immense [David and Mayer 5]. Because credit is fungible, it is difficult to establish that credit diversion has not taken place and that there is indeed additionality in resource use stemming from the credit

transaction. Furthermore, increases in output may not be unambiguously attributed to credit flows when other variables are also changing. Despite these difficulties, however, it is possible to arrive at reasonable qualitative conclusions about the productivity effect of credit programmes.

Begashaw [3] reports on a careful, systematic analysis of the contribution of the SSFDP to farm productivity. Cobb-Douglas production functions were separately estimated on pre-loan and post-loan data for a sample of 423 SSFDP farmers, and the marginal value products compared.

TABLE 3: MARGINAL VALUE PRODUCTS PER ACRE

Input	Marginal Value Product	
	Pre-Loan	Post Loan
Capital	0.02	0.12
Hired Labour	0.58	4.08
Family Labour	0.30	1.70
Other Inputs	0.15	2.03

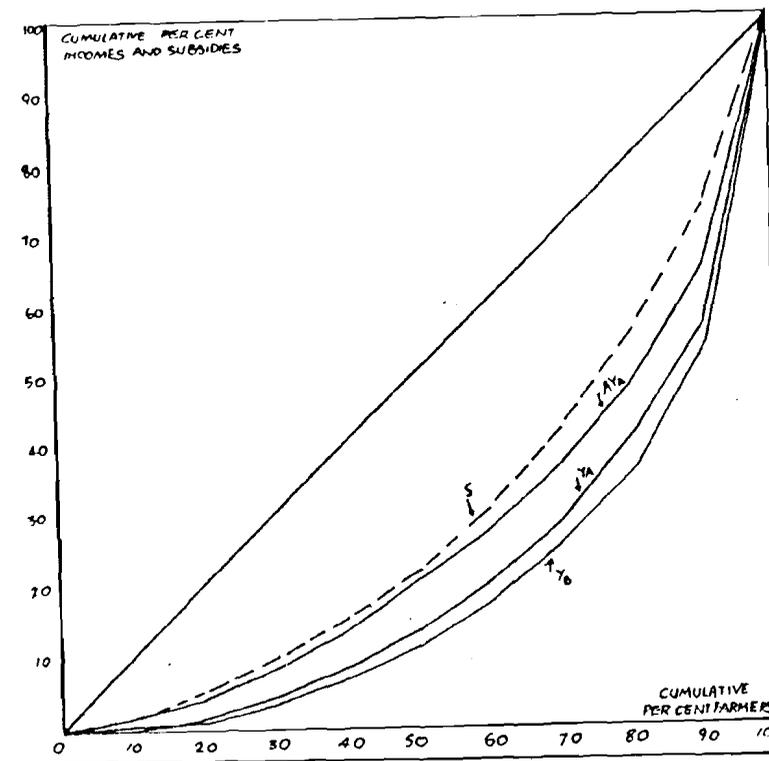
Source: Begashaw [3].

The results presented in Table 3 show that factor productivities are uniformly higher for the post-loan functions than for the pre-loan functions. Furthermore, regressions of the residual in the production functions establish SSFDP credit as a significant explanatory variable for technical change. On the basis of Begashaw's results, it can be concluded that the credit programme contributed to higher farm incomes via the productivity nexus.

If the distribution of the productivity gains is assumed to be directly correlated with the amount of credit, differences between the pre-loan and post-loan distributions of farm incomes would reflect the influence of the distribution of credit, as Lele argued [14]. If the distribution of productivity-induced income changes is superior to (i.e. less

FIGURE 1.

LORENZ CURVES FOR PRELOAN FARM INCOMES (YB), POST-LOAN FARM INCOMES (YA), CREDIT SUBSIDIES (S), AND ADJUSTED POST-LOAN FARM INCOMES (AYA).



unequal than) the distribution of incomes in the absence of credit, then the distribution of post-loan incomes will be superior to (less unequal than) the distribution of pre-loan incomes.

Lorenz distributions and Gini coefficients have been computed for farm incomes⁵ for a set of 216 farmers taken from the sample of 423 farmers. The excluded farmers either

had no production in the pre-loan year or recorded such large negative incomes that significant underreporting of incomes is suspected. Figure 1 charts the Lorenz distributions contained in Table 4. The pre-loan Gini coefficient is larger (0.5882) than the post-loan Gini coefficient (0.5529), but the difference is slight. The effect of the credit programme operating through the productivity mechanism seems to be a 6 per cent reduction in the Gini index of inequality. Thus, the credit programme via productivity changes can be said to have moderately reduced income inequality among farmers in Jamaica.⁶

TABLE 4: LORENZ DISTRIBUTIONS FOR THE PRE LOAN AND POST LOAN FARM INCOME

Deciles	Pre Loan Farm Incomes	Post Loan Farm Incomes
1st	0.44	0.08
2nd	1.84	2.01
3rd	4.11	4.93
4th	7.42	8.94
5th	11.83	14.03
6th	17.82	20.54
7th	25.91	29.20
8th	36.95	40.98
9th	54.28	57.61
10th	99.99	100.00
GINI COEFFICIENT	.5882	.5529

INTEREST RATE SUBSIDY EFFECT ON INCOME DISTRIBUTION

There is a subsidy element implicit in loans whenever loan recipients are charged a real rate of interest less than the competitive equilibrium real rate of interest. The competitive equilibrium real rate of interest is defined as that rate of

interest which equates the supply of and demand for funds in competitive financial markets. The equilibrium rate of interest would cover costs of lending and afford a non-negative real rate of interest to savers. Assuming conservatively that savers have zero rates of time preference and that lending costs are also zero, the lower bound for the equilibrium real rate of interest is zero. The actual real rate of interest is measured by the nominal rate of interest minus the expected rate of price inflation. When the expected rate of price inflation exceeds the nominal rate of interest, the real rate of interest is negative. This negative difference between the expected rate of inflation and the nominal rate of interest is the minimum estimate of the implicit rate of interest subsidy to borrowers.

The SSFDP charged a concessional nominal interest rate of 4 per cent per annum on all farm loans granted to the sample of farmers. The inflation rate, measured by the annual percentage change of the consumer price index in 1978 (the year for which income data were collected) was 38 per cent. The minimum estimate of the implicit subsidy rate is therefore 34 per cent. This estimate multiplied into the value of loans in constant 1978 prices generates estimates of the implicit credit subsidies accruing to individual farmers. The implicit subsidies are quite substantial, amounting to \$1.4 million for the sample and \$5.1 million for the entire loan portfolio. Subsidy incomes are added to the post-loan farm incomes to generate a new variable labelled adjusted farm income. For the sample, implicit subsidy incomes were a large proportion (39 per cent) of adjusted farm incomes.

Two approaches to analysing the income distribution effects of the implicit subsidy income component on adjusted farm incomes are adopted here. The first compares the Lorenz distributions and Gini coefficients of the three income series, namely post-loan farm incomes (Y_A), subsidy incomes (S) and adjusted farm incomes (AY_A). The second

decomposes the Gini inequality measure for adjusted farm incomes into two separate components isolating the individual contributions of post-loan farm incomes and subsidy incomes to total inequality of adjusted farm incomes.

The following is the reasoning behind the simple comparisons. If $AY_A = Y_A + S$, and the distribution of S is either less unequal than the distribution of Y_A or is negatively correlated with the distribution of Y_A , then the composite income variable AY_A is itself less unequally distributed than Y_A . In other words, implicit credit subsidies reduce overall income inequality among farmers so long as the credit subsidies are either more equally distributed than farm incomes or are unequally distributed in favour of those with lower farm incomes. The larger the subsidy share of adjusted total income, the greater would be its contribution to income equality.

The Lorenz distributions and Gini coefficients for both the entire sample and the subset of 216 farmers are presented in Table 5. The Lorenz distributions for the subset are also charted in Figure 1. It is evident that subsidy incomes are considerably more equally distributed than post-loan farm incomes, the respective Gini coefficients for the subset of farmers being 0.407 and 0.674. Adjusted farm incomes are also more equally distributed than post-loan (unadjusted) farm incomes, its Gini being 0.556. Thus the inclusion of implicit credit subsidy incomes in this case reduces the Gini coefficient of post-loan incomes by 19 per cent. Since the pre-loan income Gini is 0.558, the overall change in the inequality measure between pre-loan and post-loan incomes is 24 per cent.

The conclusion about the contribution of implicit credit subsidies to the reduction of income inequality among Jamaican farmers is reinforced by the results of the Gini decomposition analysis which is now described. Generally, for any income variable Y with factor components W^i ($i = 1, \dots, p$),

TABLE 5: LORENZ DISTRIBUTIONS AND GINI COEFFICIENTS FOR ADJUSTED POST LOAN FARM INCOMES AND COMPONENTS

Deciles	Entire Sample			Subset		
	Y_A	S	AY_A	Y_A	S	AY_A
1st	-0.7	1.8	0.9	.08	1.9	2.0
2nd	0.3	5.0	3.1	2.0	5.4	5.1
3rd	2.1	9.0	6.1	4.9	9.8	9.1
4th	4.7	14.1	9.9	8.9	15.5	14.3
5th	8.2	20.3	14.8	14.0	22.3	20.7
6th	12.9	28.4	20.9	20.5	30.8	28.1
7th	19.5	39.8	28.6	29.2	42.0	37.3
8th	28.8	55.0	38.9	41.0	56.6	49.1
9th	44.4	75.0	54.0	57.6	74.6	65.0
10th	100.0	100.0	100.0	100.0	100.0	100.0
GINI COEFF:	.674	.407	.556	.553	.384	.446

factor Gini coefficients G_j and pseudo factor Gini coefficients G_j can be computed. A pseudo factor Gini coefficient is the Gini coefficient computed for that factor when the j observations on that factor component are not arranged in strictly non-decreasing monotonical order and when the fractional shares of the j th observations in the total of that factor component are weighted by the income ranks of the j th observations. The total income Gini coefficient G_y is shown by Fei-Ranis (8) to be the weighted average of pseudo factor Gini:

$$(1) \quad G_y = Z_i G_i \\ = Z_1 G_1 + Z_2 G_2 + \dots + Z_p G_p$$

where the weight Z_i is the ratio of the total factor component to total income for all income units.

Equation (2) can be rewritten as:

$$(2) \quad G_y = Z_i R_i G_i$$

where R_i is the correlation coefficient between factor components and income ranks divided by the correlation coefficient between factor component fractions and factor component ranks. The larger Z_i is, and the smaller G_i , for $R_i > 0$ is, the more the factor component contributes to equality (or the less it contributes to inequality).

The results of applying equation (2) to the Jamaican subset data are assembled in Table 6. It can be seen that the post-loan farm income contributes 0.463, while the subsidy

TABLE 6: EXACT DECOMPOSITION OF ADJUSTED FARM INCOME GINI COEFFICIENTS

Variable	Adjusted Income (AY_A)	Farm Income (Y_A)	Subsidy (S)
FACTOR SHARE	1.0000	.7209	.2791
FACTOR GINI	.4456	.5529	.3840
Pseudo Factor Gini		.5273	.2341
Factor Correlation Characteristic		.9537	.6102
Gini Decomposition	.4456	.3801	.0654

income component contributes only .065 to the Gini inequality measure for adjusted farm incomes. In other words, whatever inequality there is in the distribution of farm incomes inclusive of implicit credit subsidies is attributable mainly to the inequality of farm incomes net of those subsidies. Since the post-loan incomes (Y_A) are more unequally distributed than adjusted incomes (AY_A), it can be concluded that the credit subsidies reduced the inequality of incomes among the SSFDP farmer population.

THE COST OF CREDIT SUBSIDIES

The pursuit of equity objectives through credit subsidies

is not costless. Concessionary interest rate policies may have several deleterious effects on resource allocation and on the financial institution. Subsidized credit leads to resource misallocation to the extent that privileged borrowers utilize productive resources above optimal levels, and rationed borrowers are constrained to sub-optimal input levels [Gonzalez-Vega 11]. In terms of its implications for allocative efficiency, the credit mechanism is likely to be inferior to explicit tax-subsidy methods of income transfer. Furthermore, credit subsidies may result in chronic financial losses which undermine the viability of lenders. If lending institutions as a consequence of operating losses have to rely on budgetary support from the government, their integrity and the quality of their loan programmes may be compromised. Credit institutions may attempt to protect their asset position by a cost-reducing credit rationing behaviour. Because unit costs vary inversely with loan sizes and borrower collateral, the lender will ration out small farmers in favour of large farmers. To the extent that this happens, the income distributional bias in favour of small farmers will be reversed. Thus, not only is the credit-subsidy mechanism an allocatively inefficient instrument for income distribution, it is also likely to be efficacious only in the short-run.

The above predictions about institutional viability and rationing behaviour are partially confirmed by the Jamaican experience. The operating losses (income minus expenditures) of the SSFDP increased from \$572,000 (5 per cent of loan balances) in 1974 to \$1.7 million (7 per cent of loan balances) in 1979. The Government of Jamaica has provided an annual recurrent grant to cover the operating expenses of the loan programme. The grant increased from \$760,000 in 1974 to \$2.7 million in 1978, then declined to \$104 million in 1979. Discussions with several senior officials of the credit programme revealed that there is serious doubt within the institution about the continuation of such high levels of budgetary support. Credit rationing seems to have started.

Nyanin [16] has documented a trend for increasing shares of large loans in the total number and value of loans approved annually. However, his data on the farm size distribution of loans do not indicate any clear tendency for small farmers to be rationed out. The percentage of the number and values of loans extended to the largest farm size category has increased slightly between 1975 and 1980, while the proportions received by the smallest farm size category increased substantially over the same period. On balance, it appears that the distribution bias in Jamaican farm credit has not yet been reversed.

CONCLUSIONS

Rural credit programmes can affect the distribution of incomes among loan recipients, and by logical implication can influence the distribution of income between those who receive and those who do not receive loans. Two major mechanisms by which credit to producers might influence income distribution are via the productivity changes associated with the use of credit and via the subsidy income conferred through policies of concessionary interest rates. In both instances, the direction of the distributional impact depends upon the distribution of the credit resources. An egalitarian or less unequal distribution of credit will result in a more equal distribution of productivity changes and productive opportunities as well as in a more equal distribution of interest rate subsidies. Provided that the distribution of credit resources is less unequal than the distribution of pre-loan incomes, credit via the productivity mechanism will improve income distribution. Provided that the distribution of credit is less unequal than or is negatively correlated with the distribution of post-loan incomes unadjusted for credit subsidies and provided that subsidy incomes are not a negligible proportion of gross incomes, credit programmes will also improve income distribution via the credit subsidy mechanism implicit in concessionary interest rates on loans.

The analysis of Jamaican farm level data presented in this paper leads to specific conclusions in some ways supportive and in other ways not supportive of the conclusions usually made about the distributional effects of farm credit programmes. Income distribution is shown by the Lorenz and Gini analyses to be influenced by credit allocation, as previous writings suggest. However, contrary to the findings of other empirical studies and opinions expressed on the basis of casual observation, the influence was positive. The major rural credit programme in Jamaica unambiguously contributed to an improvement in the distribution of incomes among farmers. The differences between the Jamaican findings and the results of other case studies are attributable to the moderate success of the Jamaican credit programme in improving resource productivity, but much more importantly, are due to the sizeable magnitude of the credit subsidies and the ability of the programme administrators to avoid discrimination against the smaller and poorer farmers. These results lead to the more general conclusion that even though the income distribution influence of rural credit programmes is not necessarily regressive, their contribution to rural income equality depends heavily on the quantum and the distribution of credit subsidies.

The possibility of achieving a more egalitarian distribution of farm incomes through credit subsidies is not a sufficient justification for credit subsidy policies. For one thing, even though the distribution of credit subsidies may be income-progressive, the financing of those subsidies tends to be income-regressive and to affect a greater proportion of both the rural and urban poor. The Jamaican credit subsidies have been partially financed by a mix of regressive fiscal and deposit interest rate policies imposed on the society as a whole. Numerous small savers, urban and rural, contribute a major portion of financial savings. Much of the burden of negative income transfer implicit in negative real deposit rates of interest falls on these low income wealth holders.

Furthermore, the system of indirect taxation which accounts for a large proportion of government fiscal revenues used in part to support the operational budgets of credit programmes is unambiguously regressive [McLure 15]. In effect, therefore, the income gains secured by credit subsidy beneficiaries, who constitute a small proportion of the farm community and an even smaller proportion of the rural community, are achieved at the expense of the many urban and rural poor. In such circumstances, farm credit subsidies contribute neither to rural equity nor to equity in the wider society. Very importantly too, farm income distribution gains, though achievable by credit-subsidy mechanisms, are costly in terms of resource allocative efficiency and credit institution viability, and tend to be reversed when lenders ultimately resort to defensive credit rationing behaviour.

FOOTNOTES

¹Wide differences in cross country experiences are revealed in Jain [13].

²In a Brazilian case study, Fahlow [9] found that while agricultural inequality exceeded non-agricultural inequality in 1960, the situation was reversed in 1970.

³A fuller treatment of the Jamaican rural financial market is provided in Graham and Bourne [12].

⁴Four hundred and twenty-three farmers (3 per cent of the total population of SSFDP customers) were surveyed in 1979. For a succinct description of the survey, see Begashaw [2].

⁵Farm incomes are defined as net production income plus off-farm incomes. The latter component of farm income was zero or negligible for most respondents. Its size distribution was also the same in both years. The use of farm incomes instead of net production incomes does not bias the results.

⁶A Gini coefficient of 1 indicates perfect inequality and a coefficient of 0 indicates perfect equality. The closer the Lorenz curve is to the 45° line of perfect equality (i.e. the larger the ratio of the area under the Lorenz curve to the area under the 45° line), the smaller the Gini coefficient.

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