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THE IMPACT OF SUPERVISED CREDIT PROGRAMS ON TECHNOLOGICAL CHANGE IN DEVELOPING AGRICULTURE: COMMENT

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In a paper in the April 1977 issue of this *Journal* by Scobie and Franklin (1977) it is argued that supervised credit programs are of dubious value in promoting technological change in developing agriculture. However, the case presented by the authors is not conclusive and may be open to alternative interpretations because:

- (a) the general economic framework used by them is inappropriate for use in smallholder developing agriculture;
- (b) the results of the Guatemalan test case are inconclusive; and
- (c) these results can be plausibly explained in other ways in any case.

The General Economic Framework

The static profit maximising analytical framework used by Scobie and Franklin (1977, p. 11) may not be suitable for describing economic responses of small farmers who are more likely to be risk minimisers rather than profit maximisers.

The paper requires farmers to 'choose' (p. 6), to 'accept' (p. 7), to 'select' (p. 9) and to 'evade' (p. 12) and introduces us to 'rational' farmers (p. 9).

Perhaps these farmer decisions and responses would have prescribed decision theory as the proper analytical framework rather than the production function the authors used. If decision theory had been used, the analysis might have led to different conclusions, as shown below.

The Guatemalan Test Case

The authors test their review of policy instruments on one 'supervised' credit program for one crop in one country. Such a test is hardly conclusive. Moreover, as the paper indicates, the supervision function of the particular program failed with '. . . a 69 per cent total 'slippage' in the supervision' (p. 7). Whatever changes were observed by the authors cannot therefore be described as the result of *supervised* credit.

The data presented by the authors (Table 2) show that there was no significant difference in yields obtained by farmers who had joined the credit program and were supposed to have applied fertiliser, and yields by farmers who did not. It is incomprehensible to see no difference in output between the two groups. If the sampling technique used was satisfactory, either other factors prevented yield responses (which there-

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fore makes the Guatemalan case not a good test case) or the farmers in the member group did not apply fertiliser to their crop.

The latter event seems the more plausible. Perhaps many of the member group sold the subsidised fertiliser (and/or other inputs) to a third party for the full commercial value. The reported lax supervision of the program would certainly permit this. If decision theory had been used as the analytical framework, this decision—to sell—would no doubt have been taken into account as one decision the farmers could have made.

The paper does not present data on the relevant issue of sown area and usable land on the program farms. A socio-economic study (Federal Land Consolidation and Rehabilitation Authority 1977) of the Kemubu Irrigation District (on Malaysia's east coast) shows that, because of small farm size, about 50 per cent of the farmers in that area produce less rice than they consume. This group of farmers, therefore, cannot produce the cash to repay any loans obtained for fertiliser (or other inputs) since much, if not all, the incremental product is consumed by the farm family. The Kemubu farmers do not make use of existing credit facilities for the purchase of fertiliser. Given the insecurity (due to recurrent flooding in the Kemubu area) of their already very low income, not borrowing and not buying inputs is a rational decision.

The present data suggest that something similar may well have been going on in the Guatemalan credit program. Scobie and Franklin in Table 2 report a per caput value of farm food consumption of \$320 for the non-member group. With an assumed family size of six, consumption would equal about \$1920 out of an average 'total return to land, family labour and management' of \$2975. This suggests that the actual cash return to the non-members is \$1055 (\$2975 — \$1920). For the member group total incremental cash would be \$3712—(6 × \$352) or \$1600. The non-member therefore faces a decision to borrow and to have to repay \$975 (Table 1) to adopt new technology which would somewhat improve his family's diet, but which would improve his cash income by only \$545 (\$1600 — \$1055). It is not a very rewarding prospect. Given the insecurity of rainfed farming operations, the small farmer's best-bet decision may well be to join the credit program to obtain subsidised fertiliser and/or other inputs and to sell these at full commercial value, whilst obtaining unfertilised yields (Table 2). This chain of events is not inconsistent with observations made (which cannot here be documented) of what went on in the early years of the Bimas¹ program in Indonesia.

Summary

Sale of subsidised inputs to produce instant riskless cash is a plausible alternative explanation of the data presented in the authors' interesting

¹ The Bimas program essentially offered subsidised inputs, mainly fertiliser, to padi farmers to offset the lower than market prices offered to padi farmers by the Government's central buying agency. Both padi and input prices have been raised since the early phase of the Bimas program, *inter alia* to reduce the leakage of inputs from the padi industry.

paper. The very rationality of the farmers concerned prohibits them from making full use of available formal or informal credit sources since the absence of any cash at the end of the season to repay the borrowings would make borrowing a catastrophic exercise.

Traditional economic analysis should not be used in analysing data which pertain to small farms where much, if not all, of the product (e.g. rice or maize) is consumed on the farm and does not produce cash. In these cases a clear distinction should be made between 'benefits' and 'cash'.

In conclusion, the authors' interpretation of the Guatemalan credit program as having failed to effect technological change can be challenged on the following grounds:

- (a) their perspective was based on a conventional analysis of data pertaining to the unconventional problems of small farmers whose incremental product is consumed on the farm and therefore not available to produce cash to repay credit;
- (b) the reported lax supervision of the Guatemalan program;
- (c) the poor payoff accruing to farmers in the particular credit program.

The alternative interpretation of the data presented in this Comment may be of interest to agricultural economists who work in developing countries.

References

- Federal Land Consolidation and Rehabilitation Authority (1977), Report on the Socio Economic Survey of Kemubu, Kelantan, Irrigation District, Unpublished Government Report.
- Scobie, G. M. and Franklin, D. L. (1977), 'The impact of supervised credit programmes on technological change in developing countries', *Australian Journal of Agricultural Economics* 21(1), 1-12.