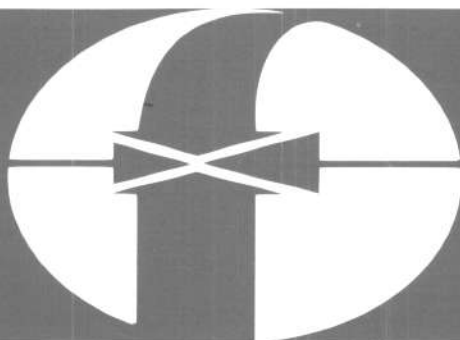


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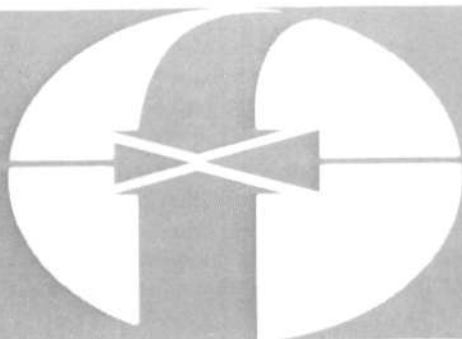
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CROP AND LIVESTOCK INSURANCE SCHEMES IN LESS DEVELOPED COUNTRIES: SOME ISSUES OF DESIGN (*)

Paul Mosley
University of Manchester

1. Introduction

For many years it was conventional to praise the principle of agricultural insurance in less developed countries as a potential means of reducing risk and hence one of the primary barriers to technical innovation amongst small farmers in the Third World (Weeks 1971; World Bank 1975). Such encomiums seldom went into any detail concerning the nature of the insurance scheme that was proposed. But a counter-revolution has now set in, and a number of recent contributions to the literature have suggested that insurance may in many cases provoke allocative and financial consequences worse than the disease it was intended to cure. One of the most distinguished such contributions, for example, argues that

multiple-risk crop insurance has proved disappointing, and it has fulfilled few of its supposed objectives. Governments would (therefore) be well advised to look carefully before embarking on large and costly multiple-risk crop insurance programmes. Insured risks should therefore be restricted to natural hazards such as hail, flood and hurricane damage (Hazell, Pomareda and Valdes 1986: 294-296).

This literature has performed the valuable service of forcing advocates of crop and livestock insurance to be more specific concerning the institutional form of insurance scheme which they are proposing, and in particular concerning the range of risks which each scheme should cover. However, this paper will seek to argue, on the basis of empirical evidence from various countries, that the decision to implement or not to implement a particular type of insurance scheme cannot be sensibly made in isolation from the context of a country's overall agricultural policy. Using this as a point of departure, it will further argue that the minimalist view of crop insurance presented above is by no means fully proven, and that in some countries the financial and allocative benefits of "costly multiple-risk crop insurance programmes" will outweigh the costs. However this conclusion is acutely sensitive to the way in which the scheme is designed. We shall be arguing for *compulsory* crop and livestock insurance, with no-claim discounts and reinsurance, as an adjunct to agricultural credit which will be of particular value in countries where lending agencies are subject to legal maxima on the interest rate which they may charge.

* The author is grateful to P S Pujari, N K Jain, T K Kaviswanathan and other staff of the National Bank for Agricultural and Rural Development, India, for criticism of the ideas presented here.

2. Definition of the Problem

The current state of the debate on the merits and demerits of agricultural insurance schemes is summarised at Table 1. This balance sheet concentrates on gains and losses in economic welfare, and does not consider the very considerable utility agricultural insurance may have as an instrument of political persuasion for capturing the support of a farmers' lobby¹.

However, it extends the frame of reference of the Hazell *et al* book by considering not only costs and benefits to farmers and to the insurance company, but also other financial institutions which lend to the agricultural sector.

The potential existence of all the costs and benefits linked in Table 1 is more or less common ground between all the protagonists in the debate: that is, the sceptics do not deny the existence of allocative and distributive benefits to be derived from insurance, but argue that they are outweighed by the practical problems of moral hazard, adverse selection and just assessment of claims. The debate therefore turns on whether it is possible to define an institutional design which overcomes these problems.

Table 1
POTENTIAL COSTS AND BENEFITS OF AGRICULTURAL INSURANCE SCHEMES

Benefits		Costs	
<i>Allocative</i>		<i>Allocative</i>	
1	Reduces risk, and hence makes farmers more willing to innovate	1	Moral hazard: insured farmers will devote less care to husbandry and/or make specious claims
2	Substitutes for collateral, and hence brings marginal farmers into the capital market	2	Adverse selection: if insurance is voluntary, insured farmers may have higher-than-average risks in relation to the premiums charged
<i>Distributive</i>		<i>Distributive</i>	
3	Pools risks, and protects some farmers against catastrophic decline in income	3	High costs of administration and supervision
<i>Financial</i>		<i>Financial</i>	
4	Save banks the liquidity, administrative and morale costs of chasing up defaulting borrowers and providing against bad debts	4	If risks co-vary (eg all insured farmers are struck by hurricane) insurers will have insuperable liquidity problems

1 See essays on the Japanese and Mexican crop insurance schemes by Yamauchi and Basocco *et al* in Hazell *et al* (1986).

«Design» for the purposes of this paper has three dimensions, namely a specification of:

- (i) the range of risks which any insurance scheme should cover;
- (ii) the manner in which it should be defended against the motivational and financial hazards set out under «costs» in Table 1;
- (iii) the agency which should be responsible for carrying it out.

We shall discuss these problems in sequence.

3. Costs and Benefits of «Comprehensiveness»

We may begin from two tautologies. Any insurance scheme will be socially beneficial if the benefits which flow from it exceed its costs in terms of premiums levied and it will be financially viable in any time period, if the premiums levied by the insurer are greater or equal in value to the claims he is obliged to meet.

Formally, if

B = social benefit

p = premium rate on individual

n = number of persons covered

a = administrative cost

m = number of claims per time period

c = average value of claims

then the condition for an insurance scheme to be socially beneficial is

$$B \geq \sum_{i=1}^n P_i \quad (1)$$

and the condition for it to be financially viable is

$$\sum_{i=1}^n P_i \geq a + cM \quad (2)$$

or, writing the average premium charged as p,

$$p = \frac{\sum_{i=1}^n P_i}{n} \geq \frac{a + cM}{n} \quad (2')$$

Clearly M , the number of claims per time period, will rise as the range of claims which the scheme is authorised to handle is increased. We may distinguish four levels of comprehensiveness at which an insurance scheme may operate:

- 1) Insurance against «acts of God» only, ie extremes of weather such as hail, flood and hurricane damage;
- 2) Insurance against damage or destruction to one of a farmer's capital assets: for example, a broken water pump, a wrecked tractor or death of livestock;
- 3) Insurance against inability to pay back agricultural credit for any reason, including those defined in (1) and (2)
- 4) Insurance against the eventuality of the farmer's income falling short of some given target income.

The first and second of these options may be operated either on a free-standing basis or as adjuncts to agricultural credit. The fourth, to the extent that it is subsidised by the government, may serve also as a mechanism for transferring income to farmers and winning their political support.

In Table 2 we attempt to summarise the available information for different institutions on how the cost of insurance varies with its comprehensiveness. The dependent variable in this table is the sum of claims and administrative costs, $a + cM$, as a proportion of the sum insured. Although this does rise, as we would expect, with the comprehensiveness of the coverage offered there does appear to be a kink in the curve between groups (3) and (4), that is, as the last step to fully comprehensive agricultural insurance is taken. Secondly, even within this small sample there is large variation of costs within insurance categories, which may arise from inter-country differences in climate, and in administrative efficiency: for example the inter-country difference in the cost of insurance against non-repayment of loans will vary with loan delinquency rates which vary across the world from 2% (in the Bangladesh example given) to over 90%.

We now consider the benefits to be derived from each type of insurance in relation to the *a priori* listing given in Table 1.

The traditional benefit to be expected from insurance is that, for all farmers, it will reduce the level of risk associated with a given technology and product-mix: in other words, it will notate the mean-variance trade-off anticlockwise as depicted in Figure 1. If this trade-off is thought of as a discontinuous line connecting a finite set of technical combinations as in the drawing of Figure 1, then a specific distributive outcome of this change in available options will become apparent: farmers trapped at point A, on the lowest

Table 2

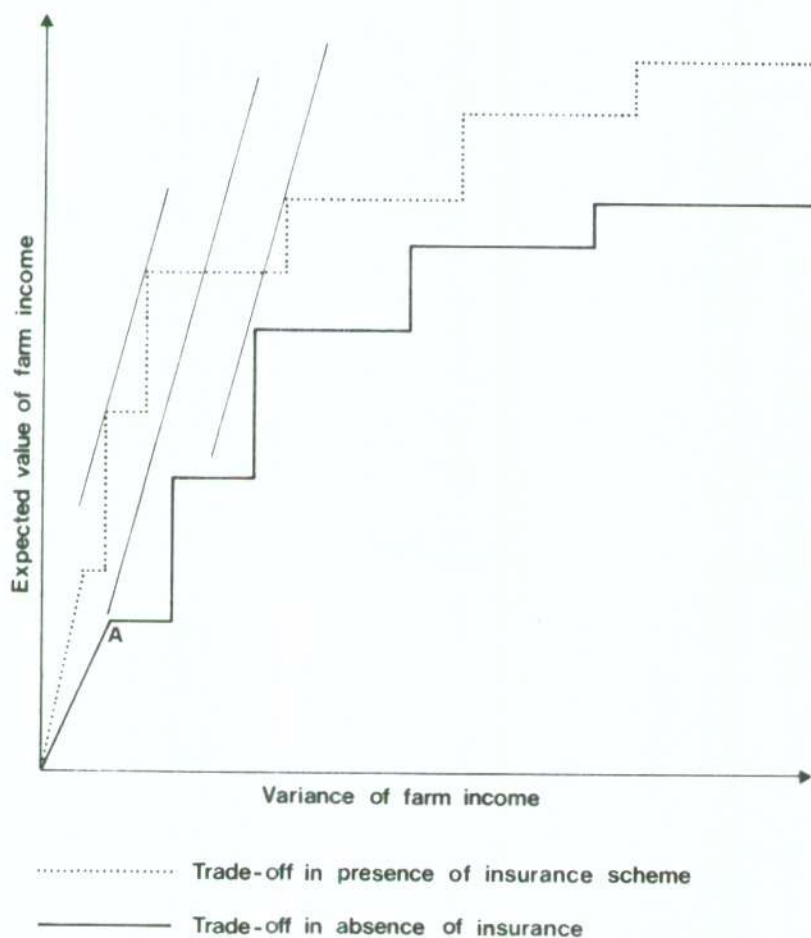
AGRICULTURAL INSURANCE SCHEMES: COSTS IN RELATION TO COMPREHENSIVENESS OF COVERAGE

Agency, crop and years	Indemnities + administrative costs as per cent of coverage	Source of data and notes
1 Insurance against 'acts of God' only		
United States, Federal Crop Insurance Corporation: all crops 1948-78	5.28	Hazell, Pomareda and Valdes 1986, p. 282. Scheme covers "drought, flood, hail, wind, winterkill, lightning, tornado, and such other unavoidable causes as may be determined by the Board"
Jamaica, bananas, hurricane damage only 1965-84	1.5	
2 Insurance against destruction of specific assets by whatever cause:		
India, NABARD: Livestock 1975-85	7.5	NABARD Annual Report, 1986 Ahsan 1985, p. 145
Bangladesh, Sadharan Bima Corporation 1978-82	8.2	
3 Insurance against failure of loan repayment from whatever cause:		
Bangladesh, Grameen Bank, 1979-85	6.5	Grameen Bank Annual Report 1986 Ajayi et al, 1986, p. 16
Nigeria, Agricultural Credit Guarantee Corporation 1977-84	10.5	
4 Insurance against deficiency in farmer's income:		
Costa Rica, INS, all crops 1970-81	16.5	Hazell, Pomareda and Valdes 1986, p. 282 NABARD unpublished data Hazell, Pomareda and Valdes 1986, p. 246
India, General Insurance Corporation wheat and rice 1984-86	15.00	
Brazil, COSESP, wheat 1979-80	16.4	

rung of the technical ladder, because they are unable to accept any higher level of risk, will know that they are insured and that without increasing their risk level they are now able to take a first step towards raising their productivity: for example, the purchase of fertiliser, pump-set or grade cattle. Since the poorest farmers are probably the most risk-averse², the offer of insurance facilities gives them the opportunity of acquiring modern productive capital assets for the first time.

² Weeks (1971), but note the contradictory findings in Binswanger and Sillers (1983), table 2, p 8, which suggest a fixed (and moderately high) level of risk-aversion across all farm income levels.

Figure 1 EXPECTED IMPACT OF CROP INSURANCE ON MEAN AND VARIANCE OF FARM INCOME



Various estimates, each of them requiring arbitrary assumptions to be made about the shape of the farmer's utility function, have been made of the utility gain to be derived from the offer of different forms of insurance. For example, Hazell *et al.*, using Mexican data, estimate that for maize farmers in 1976 the gain in expected utility per hectare from an insurance scheme of type 4 (income compensation for yields less than the normal level) would be 91 pesos per hectare, against a cost of c 300-400 pesos per hectare, and internal NABARD estimates for a scheme of type 2 (insurance against failure of specific types of capital asset) suggest that the utility gain to livestock farmers may be of the order of 9 per cent of the value of insured livestock.

Estimates differ concerning the cash value which it is appropriate to put on a given reduction of risk, with some writers claiming that such a reduction is a precondition of the introduction of green revolution technology³ and others taking a less essentialist view. Even if agreement could be reached on the right value for this parameter, we do not have enough estimates to be able to construct a «benefit function» which can be set against Table 2's cost function. Certain things about the relationship of benefit to type of insurance scheme, however, can be said. The first is that nearly all of the *allocative* benefit to farmers which can be derived from insurance against yield risk can be obtained from a scheme of type 2, that is insurance against natural disasters and against depreciation of farm assets caused by other means. The only additional benefit conferred by type 3 schemes is an increase in the financial security of those who lend to farmers. And all that income - compensation schemes of type 4 add to this is an offset to those income failures that are caused by factors other than natural disasters or asset failure, for example by mismanagement or illness. It is unlikely, in other words, that a shift from a type 3 to a type 4 insurance scheme will bring about any change in resource allocation or technical choice by farmers; it will simply transfer income to them⁴.

3 Eg Ahsan (1985), p 12: «One should not be surprised at the finding that the green revolution succeeded only in areas of substantially reduced risk and only among better-off farmers. The fear of crop failures kept many small farmers from using the credit facilities even if they were available, and thus barred them from participating in the green revolution».

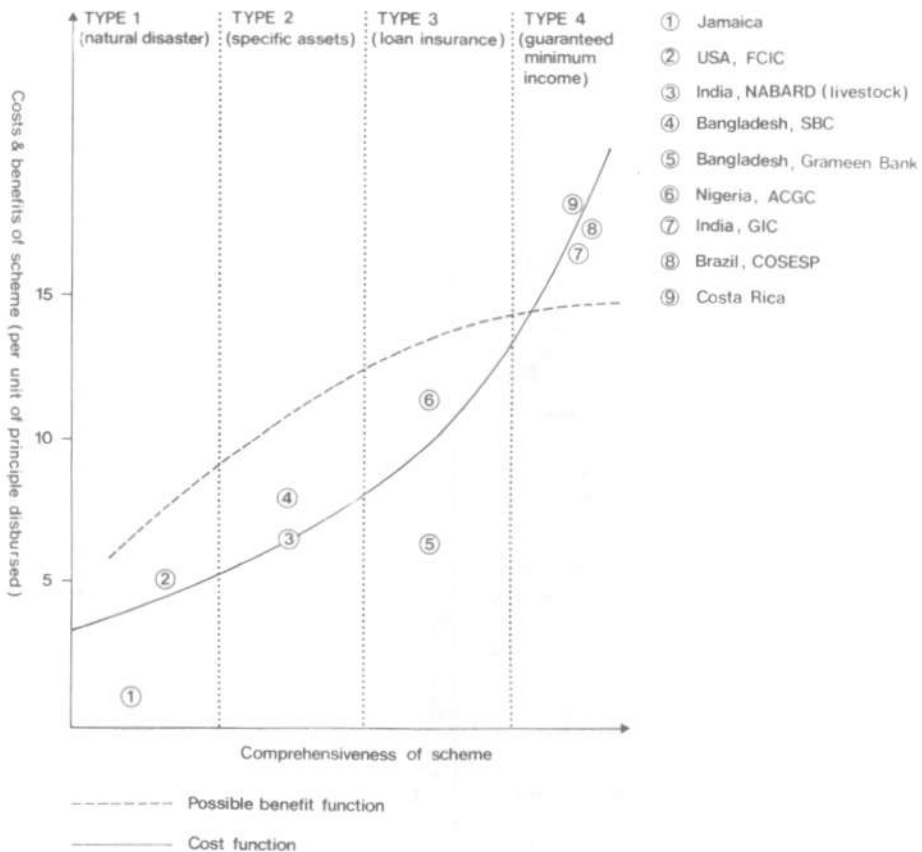
4 It may bring about a *perverse* allocative effect, if it sustains a protected and inefficient agriculture in being. In Japan, which has a rice insurance scheme of type 4, it is estimated that «each year of the insurance subsidy could have been used to import 2.5 times more rice than it induced in domestic production through the insurance programme» (Hazell *et al.* 1986: 154).

Although benefits consequent on the shift from type 2 (specific asset) to type 3 (loan repayment) insurance accrue to banks which lend to farmers rather than to the farmers themselves, they do have implications for the resource allocation as well as the finances of the lending banks. Banks which find an agricultural loan is in arrears by more than a given number of months can collect from the insurance company and recycle the proceeds in new lending. They are saved the labour and transport costs, after this point, of letters, visits to defaulting borrowers, and legal action, and the demoralisation which results from a persistently high level of overdue (von Pischke in Hazell et al 1986: 88). In short they are enabled, by the payment of the insurance premium, to lend money at lower cost. What is significant is that most of the costs involved in setting up an efficient system of loan insurance — in terms of regular visits to examine the organisation and finances of the farm — are in joint supply with the costs involved in agricultural extension and may therefore be regarded as conferring a pecuniary external economy (Scitovsky 1954) on the extension agency. Visits undertaken for the purpose of collecting repayments or crop-cutting to assess an insurance claim can at the same time be used to give advice on agricultural technology which will raise yield.

The connection between the two functions can indeed be made even closer by linking the level of insurance premium to the observance of recommended agricultural practices, as is done for example by the programme of Guarantee for Agricultural Activities (PROAGRO) in Brazil (Hazell et al 1986: 242-4). There is therefore reason to suppose the existence of substantial gains from extending existing agricultural insurance schemes to make possible the automatic repayment of loan arrears. Any attempt at quantifying this gain is bound to be a loose estimate; but the World Bank (1975) suggests that between 5 and 11 per cent of the value of total agricultural bank lending is tied up in supervision costs. Assuming that half of this figure would be saved by the existence of a loan-arrears insurance scheme, the resulting figure of 2 - 5 per cent certainly stands comparison with, and probably exceeds the marginal extra cost of type (3) schemes over type (2) schemes implicit in Table 2 above.

The cost and benefit functions arising from the above discussion are depicted in Figure 2.

Figure 2 COST AND BENEFIT FUNCTIONS FOR DIFFERENT TYPES OF AGRICULTURAL INSURANCE



4. Institutional Structure and Incentive

If the various institutional concepts set out as (1) to (4) in the previous section cannot be embodied in a viable and sustainable institution then they are, of course, of no practical value to third world governments and farmers. Much of the «minimalist» case made out in favour of what we have described as option (1) — insurance against Acts of God only — rests not on an argument that the other options are undesirable in principle but rather on the contention that they are made infeasible in practice by the difficulty of providing more comprehensive insurance without either perverting incentive or wrecking cashflow. The most frequently cited of these practical problems, which are summarised in Table 1 above are:

moral hazard — the possibility that the existence of insurance will make the insured alter their behaviour patterns, in particular that they will take less care of insured assets and take every opportunity to make spurious claims;

adverse selection — the likelihood that those who opt for insurance will be in high-risk categories so that it becomes impossible to pool risks between high and low risk individuals; and *exposure to catastrophe* (covering all risks) — the possibility that the insurer will go bankrupt through too great a co-variance of risks, for example by large numbers of simultaneous claims after a hurricane or flood, or simply become ineffective because he does not have the manpower to assess all the claims.

We shall now assess how far the four types of agricultural insurance scheme which we have examined are vulnerable to these problems, and whether there exists any potential defence against any or all of them.

There are two possible defences against moral hazard: *ex post* inspection procedures and *ex ante* deterrents; the weaker the former, the stronger the latter need to be. In the case of natural disasters such as hail and hurricane damage, *ex post* inspection can reliably confirm that a claim is genuine, which is the reason professed by the «minimalists» for confining agricultural insurance to this class of claim. Safeguards exist in respect of other types of claim: for example, in the scheme of livestock insurance operated by the India National Bank for Agricultural and Rural Development, claims are paid out on production of an ear-tag which was clamped to the animal's ear at the point when the insurance scheme was taken out, and cannot be removed without removing the ear at the same time. But the real problem for the insurers is to make sure that insured farmers do not take advantage of being insured to slip back from principles of good husbandry. This of course, is where the advantages of combining insurance,

credit, and extension in one exercise really come to the fore. If all insured farmers are subject to regular inspections by extension officers which can confirm that they are adhering to good agricultural practice, on pain of losing their right to indemnity payments⁵, the problem of moral hazard diminishes enormously; and if the extension officers double as loan supervisors, the problem of overdues diminishes at the same time. Beyond this, the normal *ex ante* safeguards which are employed to discourage spurious insurance claims in industrial countries — no-claim discounts and an «excess», or deduction, from the full value of any claim — will help to discourage the abuse of insurance facilities. But a reliable defence against moral hazard is much more easily mounted where these deterrents can be combined with a visual check of wrecked crops or equipment — as with the schemes we have labelled (1) and (2) — than in the case where all that can be checked is a claim that income did not reach its target level, as in scheme (4). Scheme (3) represents an intermediate case, where what has to be checked are the accounts of banks which participate in the scheme; the additional costs of auditing which this entails must be loaded on to insurance premia if the scheme is to be viable.

The best and only defence against *adverse selection* is compulsion. It is now a well-established result in the theoretical literature (Pauly 1974; Rothschild and Stiglitz 1976) that the market in insurance may fail for some risks because individuals subject to low risk are unwilling to pay insurance premia⁶ and insurance companies are unwilling to insure very high risks. It follows that if the Invisible Hand is unable to achieve proper pooling of risks, such pooling, if desired, must be imposed by an institution which is empowered by the force of law to require all individuals within a given reference group, not just those most at risk, to take out insurance. The ideal reference group for this purpose is membership of a credit scheme, which constitutes a further reason for suggesting that asset insurance (scheme (2)) should be backed up by loan-guarantee insurance (scheme (3)). By the same token, the insurer would be legally bound to accept all insurance proposals offered to it. The best and only defence against *exposure to catastrophe* is reinsurance of the insurer, enabling risks to be spread over time.

5 A watered-down version of this principle is practised by the Brazilian insurance agency PROAGRO, which charges a lower insurance premium for those who follow recommended agricultural practices (see Hazell et al.: 244).

6 This problem arises at the regional as well as at the individual level. India's General Insurance Corporation, in association with the National Bank for Agricultural and Rural Development, operates a crop insurance scheme for rice, wheat and oilseeds which individual states can choose to join or not. The poorer southern states, which are mainly dependent on rain-fed agriculture and thus have relatively high levels of risk, have all opted in. The richer northern states of Punjab and Haryana, where irrigation is almost universal and levels of risk consequently lower, have opted out; hence the scheme is deprived of a large part of its potential financial base.

Sometimes reinsurance can be arranged within the country of the insurance scheme, as is done for the Grameen Bank by the Credit Guarantee Corporation of Bangladesh (Commonwealth Secretariat 1982: vol. 2, 218). But sometimes it has to be done on the international reinsurance market, which has shown unwillingness to reinsure viable, well-managed programmes, for example in the cases of Panama, Bolivia, Puerto Rico and Chile (Hazell et al 1986: 265). The costs of reinsurance naturally have to be accepted as a surcharge on the basic insurance premium.

The foregoing argument dictates a large part of the answer to our third design question, namely which should be the agency that provides agricultural insurance? We have established that that agency needs to be *backed by the resources of the state* in two respects: to be able to compel members of the chosen group of farmers to accept insurance and (probably) to arrange reinsurance on the international market. But whereas that agency needs the support of the government, it does not have to *be* the government and there are arguments for suggesting that it should not be. An insurance corporation which is a part of central government is at risk of being staffed by the politically powerful but technically incompetent discards of other ministries; of being forced to lower its premium rate below the level required for financial viability by political pressure; and of not being forced to operate to strict profitability criteria, especially if it forms an adjunct to a credit programme being financed by external aid donors whose resources are believed to be limitless.

These are, of course, precisely the objections often levelled at those same specialised farm credit institutions (SFCIs) (Von Pischke 1983; Sanderatne 1986) which insurance schemes are intended to support and protect. But those institutions are now, for better or worse, part of the structure of policy by which influential rural interests are placated in developing countries, and as such it would be naive to expect them to be amenable to reform from without. It is therefore the more important that agricultural insurance schemes, which in most developing countries do not exist or are in their infancy, should be constructed in a way which is free from and, as far as possible, compensates for the inbuilt defects of the SFCIs which they shelter. This can best be done by entrusting the job of agricultural insurance either to a private company (as in the case of India) or alternatively to a mixed-capital venture in which the stock is owned by private companies, co-operatives, and other organisations having interests in the agricultural sector (including sometimes the insured farmers themselves)⁷.

7 This is the option currently being tried in Ecuador (Hazell et al. 1986: 266).

Either option offers the likelihood of avoiding the procedural rigidity and the improper pressure from political interests that are likely to obtain in the public sector, even though the weight of the state's legal authority and borrowing power will be needed to underpin this.

5. Conclusions

The central argument of this paper has been that the simplest, «acts-of-God only» model of agricultural insurance is not, contrary to current conventional wisdom, the only practicable way of correcting market failure in less developed countries, nor in all probability the most beneficial from a developmental point of view. We argued that the extension of insurance beyond mere acts of God to cover theft or breakdown of capital assets and nonrepayment of loans to agricultural banks promised benefits to farmers and to banks which might well compensate for the extra cost involved. More general insurance schemes of the «guaranteed minimum return» variety, however, seemed likely to raise costs very sharply without inducing farmers to allocate resources any better, and are best understood as means for making transfer payments to farmers from the rest of the community.

An examination of the practical difficulties of adverse selection and covariant risks suggested that these could be overcome, respectively, by making insurance compulsory within the chosen reference group and by judicious use of reinsurance. There remains the knot-tier problem of moral hazard. To the extent that this could not be overcome by *ex post* inspection, we argued that it could be contained by insisting that the insured should comply with approved agricultural practices, which would need to be regularly monitored by an officer of the government agricultural service or, if the insurance scheme underpins a programme of rural credit, by an officer of the agricultural development bank.

One major implication of this paper, indeed, is that the functions of agricultural extension, loan supervision and checking of insurance claims can with benefit be done by the same people as part of the same job, thereby economising on the scarce time of the few trained professionals who are competent to perform these separate functions. But this in turn requires that the proper design of insurance schemes be considered not in isolation, but as part of overall agricultural policy⁸. Much of the benefit confer-

8 This argument can be taken further. The insurance premium can be made an instrument of distribution policy by being graduated to the income of the borrower, and an instrument of environmental policy by making the premium inversely proportional to the previous year's rainfall, so as to accumulate capital with which to repair environmental damage caused by drought (Mosley 1986: 316).

red, in particular, by insurance against non-repayment of loans should be understood as an external benefit to the agricultural credit system rather than as an internal benefit to farmers.

The case here presented has been for the provision of agricultural insurance rather than for its subsidisation by government⁹. Indeed, the assumption which has prevailed throughout the paper is that insurance will be charged at its full cost, including the cost of administration, supervision and reinsurance, to the ultimate beneficiary. Subsidisation of any sort increases the risk that insurance schemes will be used as an instrument for conferring political favours on the rural elite rather than economic benefits on the rural mass. Considerations of the same kind dictate that the agency which provides insurance should be either a private or a mixed-capital venture; but the collaboration of the state as lawmaker, loan guarantor and provider of complementary services such as extension will be necessary at all times.

⁹ An argument for subsidisation is made, for example, by Ahsan (1985: 141).

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Abstract

Recent literature has expressed considerable pessimism about the practical feasibility of reducing risks for small Third World farmers by means of agricultural insurance schemes, and argued that such schemes, if implemented, should confine themselves to insurance against acts of God such as hail and hurricane damage.

This paper argues, on the basis of an empirical examination of the costs and benefits of a number of insurance schemes, that this pessimism is overdone, and that the extension of insurance beyond mere acts of God to cover breakdown or loss of capital assets and non-repayment of loans to agricultural banks might well compensate for the extra costs involved.

However, to work well such schemes need to be compulsory, to be properly reinsured and to be integrated with existing schemes of agricultural credit and extension, since the functions of technical advice, loan supervision and checking of insurance claims can with advantage be seen as part of the same job.

The agency which provides insurance need not be, and ideally should not, be part of the state apparatus; but the collaboration of the state as lawmaker, loan guarantor and provider of complementary services will be necessary at all times.

LES SCHÉMAS D'ASSURANCE DANS LE SECTEUR DE L'ÉLEVAGE ET DES CULTURES MARCHANDES: PROBLÈMES D'ENCADREMENT DANS LES PAYS EN VOIE DE DÉVELOPPEMENT.

RÉSUMÉ

Les analyses récentes sont assez pessimistes quant'à la possibilité concrète des pays du Tiers Monde de réduire le risque pour les exploitations agricoles de petite dimension qui recourent au système des assurances. Ces assurances, même si faisables, devraient se limiter à des phénomènes spéciaux qui ne sont pas contrôlables par l'homme comme, par exemple, le risque de grêle et d'orage.

Sur la base d'une analyse empirique des coûts et des bénéfices de nombreux schémas d'assurance, cet article arrive à la conclusion que le pessimisme n'est pas justifié. On peut élargir le cadre des assurances bien au de là des phénomènes non contrôlables par l'homme comme dans le cas de perte de capital ou de non remboursement de prêts aux banques agricoles. Dans ce cas, les bénéfices d'un recours à l'assurance dépasseront de loin les coûts supplémentaires.

Toutefois, pour assurer l'efficacité des schémas d'assurance, il est nécessaire de les rendre obligatoires, de les réassurer de façon adéquate et de les intégrer dans le contexte des systèmes de crédit agricole. De cette façon, plusieurs activités (conseil technique, supervision des prêts et contrôle des demandes de dommages) peuvent être très utilement concentrées et beaucoup plus efficacement effectuées.

Les compagnies d'assurance ne doivent pas normalement (et du point de vue théorique ne devraient jamais) être rattachées aux organismes étatiques. Toutefois, la collaboration avec les pouvoirs publics (comme pouvoir législatif, comme garants de prêts et comme fournisseurs de services complémentaires) est indispensable à chaque étape de leurs activités.

