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Title: The Co-Operative Organisation of Agriculture: Selected Issues for South African Discussion.

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THE COOPERATIVE ORGANIZATION OF AGRICULTURE: SELECTED ISSUES FOR SOUTH AFRICAN DISCUSSION.

> 'The work we are going about is this, to dig...and to sow corn, and to eat our bread together by the sweat of our brows...that we may work in righteousness and lay the foundation of making the earth a common treasury for all, both rich and poor....Not enclosing any part into any particular hand, but all as one man working together and feeding together...not one lording over another, but all looking upon each other as equals in the creation...'
>
> Gerrard Winstanley 1649 (1973: 84)

Introduction

Collective forms of organization in production along with common ownership of land and other resources have a long history of discussion that goes back way beyond the Levellers of the seventeenth century like Winstanley, probably at least to Plato and Aristotle (Schlatter 1951). To recall this duration and to recall as well the breadth of standpoints that have emerged in that time is a useful corrective to parochialism. As debates about the shape of our future society acquire momentum we may be inclined to believe that South African concerns and circumstances have few precedents. This is by no means the case.

One of my aims in this paper is to show the diversity of ideas about producers' cooperatives and self-management that exist,[1] and to argue strongly that viewpoints which are preconceived on political grounds, whether positive or negative, are not a satisfactory starting point for discussing land policies, nor indeed for any other matters involving organizational change.

It is true that in recent times collective decision-taking and ownership have been the preoccupation mainly of groups on the left of the political spectrum. But it seems also true, first, that this alignment has emerged only in the past century, and then as a direct result of the rise to prominence of 'liberal democratic theory'. A central concern of this body of thought is to legitimate private rights to property, to write into law 'an individual right to the exclusive use and disposal of parcels of the resources provided by nature and of parcels of the capital created by past work on them' (Macpherson 1978: 199-200). So that any subsequent espousal of an alternative, or a restriction on such rights, has now come to appear, simply by contrast, as left-wing.

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[1] In this field there is a variegated terminology which can be confusing. I discuss the distinction between cooperatives, collectives and communes later in this section but it should be noted that 'self-management', 'workers' control', 'co-determination' and 'profit-sharing' all refer to an overlapping range of institutions, yet lay emphasis on different features of the same organizational arrangements.

Secondly, there have been, and still are, strong religious, ethical and nationalist motives for advocating cooperative ownership and enterprise as alternatives to the wage relationship, whether the employer be capitalist firm or state corporation. These may or may not coincide with the political objectives of labour and socialist movements. Prominent examples in the contemporary world, of production and sometimes also consumption units organized for such varying motives, are a proportion of Israeli kibbutzim and moshavim, cooperatives of small and large scale in the US plywood industry and the Mondragon conglomerate in Spain, as well as religious communes, usually in the agricultural sector, like the Hutterite colonies of North America (Bonin & Putterman 1987: 4-8, 143f; Vanek 1975).

Thirdly, the progress of reform along with the changing context of its discussion in centrally planned economies has initiated the re-thinking of old ideological concepts and categories. It used to be the orthodox view that greater centralisation was the direction followed in the evolution of socialist institutions towards 'advanced forms',[2] but it is coming to be accepted that *'higher* levels of economic development now call apparently for *less* direct allocation and *more* market, and not the other way round, at least compared with the system introduced at the beginning of the 1930s' (Brus 1988: 441). Furthermore, for the past forty years Yugoslav self-management institutions have been rationalised as acceptably socialist on grounds of both the achievement of direct democracy in the basic units of production *and* distrust of a strong centralised state.[3]

As I argue later in this paper, I am sceptical that collectivized agriculture is an institutional form that promises much for a development path more broadly-based and redistributive than that followed in South Africa's past.[4] Yet, a more favourable judgement is also possible and would be valid if the evidence and its interpretation is appropriately marshalled. But, to repeat, what would not be acceptable are *a priori* arguments, either favouring cooperative forms of organization because they appear to conform to some undefined conception of a socialist economy, or alternatively, condemning them because they seem to conflict with the postulate of individual maximization in a pure market model.

What has economic theory to say about worker-owned and worker-managed enterprises? Are there clear-cut lessons to be culled from the experience of collectivized agriculture in centrally planned economies (CPEs)? What other historical examples, like the kibbutz and the 'Basic Organisations of Associated Labour' in Yugoslavia, can be consulted for guidance in the assessment? And finally, what is to be learned from placing these answers, however tentative they be, within the South African arena of discussion? These are the four issues addressed in this paper.

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[2] For instance, until recently it was official Soviet rhetoric to describe state farms (Sovkhozy) as a 'higher form' of socialised property than collective farms (Kolkhozy).

[3] That Stalin condemned this institutional form as heretical is in the contemporary world an added reason for rejecting the simple identification of centralised control with an advanced form of socialist democracy.

[4] It may be as well to admit, like one of the sources used in pre-paring this paper (Nolan 1988: 1), that in the past I accepted a common interpretation of Chinese experience to be found in the English language literature which held collectivization to be a strategy promising much for developing countries.

Before closing this introduction it seems advisable to say something about definitions. Generally speaking, a producers' cooperative (PC) is an enterprise in which all workers are members; who participate in control of the work environment, management and the taking of strategic decisions; who share in the distribution of net income; and who earn a return on capital. Normally one member-one vote is the governing principle, and 'all that is strictly ruled out is for individuals or institutions to be accorded decision-making or membership rights...by virtue of an ownership or creditor relationship [alone]' (Bonin & Putterman 1987: 62, 143).

This definition lends itself to further extension, which can be brought out by a contrast with the organizational form we know best. In a pure capitalist enterprise, worker participation in decisions and receipt of profit is zero; in a pure cooperative, member-worker control as well as ownership (and therefore their claim to revenue earned over costs, ie. the profit residual) is 100 per cent. In between there are differences in the extent to which producers have an effective voice 'through participation in assemblies, the election of representative organs and involvement in the appointment of managers' (Nuti 1987: 465). Similarly, there is variation also in respect to the contracts they enter and by the terms of which they share with capitalists in the results of their effort and enterprise. These questions are addressed in the literature on codetermination and profit-sharing. What provokes divergent opinion, even controversy, is whether a 'pure' producers' cooperative remains true to its organizing principles if it hires non-member labour and allows unequal share ownership, in the way of differential capital holdings and profit pay outs to worker-members. Vanek (1975: 11-36) is a useful survey and typology.

Lastly, while 'collectives', 'communes' and 'cooperatives' tend to be used interchangeably, in the agricultural sector there is one distinction which needs noting. In a *collective* farm or producer cooperative the labour supplied by several households works land under joint management 'such that there are no individual claims to the output of identifiable sub-fields or plots...and the predominant principle of distribution is in proportion to work input. A similar unit distributing in disregard of work input, eg. according to an equal claims principle' is called a *communal* farm (Putterman 1985: 197).

This difference is significant for analytical reasons, but linguistic usage has become corrupted by history and ideology. In the case of 'collectives' it is the association with Soviet institutions which causes the problem. From the beginning cooperative principles were negated in the collectivization drive; for instance, by coercive membership, by rules and norms imposed from outside, by wage payments rather than dividends, and by communist party appointments and promotions. 'Communes' on the other hand, has been the label applied in China to agricultural production units using both distribution systems, namely, according to need or to equal claims *and* according to work points (Nolan 1988: 32; Bonin & Putterman 1987: 127). These collectives and communes are examined further in a later section of the paper.

Theoretical perspectives

At least one strand of orthodox economics is sceptical about the efficiency and stability properties of producer cooperatives (PCs). It is clearly pertinent to understand why. In the past 20-30 years a number of contributions to the literature (notably by Ward and Domar)

have sought to show that a self-managed enterprise - synonymous here with a PC - will respond perversely to changes in its economic environment. They demonstrate this by contrasting two production organizations, identical except that one is conventionally profit-maximizing in the capitalist mould and the other a dividend-paying PC. One striking inference drawn from this exercise is that the self-managed unit will always contain a smaller labour contingent.

The technical reason is that the equilibrium marginal product of labour has to be higher in the cooperative than in the labour-hiring firm, and therefore the units of labour in the former fewer in number. Intuitively understood, this is because the marginal worker-member must be producing a contribution to the cooperative's total revenue which exactly matches the average dividend payment, ie. total revenue divided by the number of PC members. This marginal product will always be higher than that of the marginal worker in the capitalist firm who is being paid no component of surplus but only the wage. And the higher marginal product in the cooperative means a smaller number employed, given standard assumptions about the technology and the competitiveness of product and labour markets.[5]

The argument has been extended to show that, stemming from the same intrinsic feature, a favourable change in a PC's economic environment, like a rise in the price of its product or fall in fixed cost, causes a contraction of activity whereas, per contra, in its capitalist counterpart there would be expansion. Again the explanation for this perverse 'backward bending supply curve' is that the average dividend per head increases *more* than the value of the marginal member's product increases. So it is in the interest of the remaining recipients - the N-minus-one cooperative membership - to lay off the marginal member and obtain thereby higher average shares for themselves. Other predicted outcomes of the model are a reluctance to engage in self-financed investment, rising capital-labour ratios in response to the increased implicit cost of labour, and a tendency with declining numbers for the self-managed enterprise to metamorphose eventually into a single-owner capitalist firm with hired labour.

Our interest lies in asking what this theoretical treatment should alert us to in assessing cooperatives for employment generation and income creation in South African agriculture. There are a number of points to ponder. First, perverse responses appear to arise because those members appropriating the revenue are postulated both to have narrow objectives as individual maximizers but also to be collective owners with the authority jointly to make decisions about their own numbers. In other words, exit from and entry into the enterprise are a choice variable exclusive to them. The prediction is that a successful PC will attract

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[5] To expand this explanation further: when the maximand (the variable being maximized) is income per member rather than profit per worker (surplus over wage costs, assuming for simplicity that labour is the only purchased input) as in the capitalist firm, then the former magnitude will always be the greater. Cooperative members will be receiving in the dividend what is in effect a wage plus profit share. Then, given that the technology will exhibit diminishing returns so that labour's marginal product is lower than its average product over the relevant output range, efficiency requires that units of labour be paid the value of their marginal products. But in the cooperative these have to be higher because labour is paid more; hence it follows that the equilibrium employment level (determined by a higher position on the total product curve) will be lower than in the profit maximizing firm (Ward 1958; Estrin 1983: 14-22; Bonin & Putterman 1987: 13-21; Putterman 1989: 336-8).

aspiring entrants - either from a labour pool or from less prosperous cooperatives, depending upon what is assumed about the wider economy - whom it is unwilling to admit. The trouble arises because PC units are immune from labour market forces; they enjoy a form of monopoly power which they are free to deploy in their group interest. A pertinent question is whether this power is a fundamental component of self-management democracy, or does it instead conflict with the wider notion of a democratic economy?

Secondly, is short-run dividend maximization in fact a rational objective for the individual alone, given that one implied outcome could be loss of membership oneself? Much depends on what is assumed, not only about the representative member's preferences but also about hierarchies, social differentiation and coalition-formation within the membership. As Joan Robinson asked in response to these models: 'when profitability increases due to a change in a financial parameter [like the price of their product], how shall the members choose whom among the brethren will be dismissed so that the remaining members will enjoy a higher remuneration?' (Bonin & Putterman 1987: 20-21).[6] In addition, long run survival of the cooperative is as much an individual as a collective objective when the labour force itself is postulated to play the role of entrepreneur.

Thirdly, what is clearly pertinent too is the extent to which the odd behaviour predicted by this self-management model depends on the technical assumptions adopted in the original version (Ward 1958). Since then, models of increased complexity have been constructed, for example, incorporating more than one product, multiple inputs, alternative avenues of employment for labour, and containing an explicit identification of membership rights and duties. These do exhibit markedly less perversity, although the PC's slowness of response to changes in parameters like prices and costs, relative to the response speed of capitalist firms, still remains (Bonin & Putterman 1987; Estrin 1983; and contributions in Vanek 1975).

Finally, there is a considerable literature concerning the empirical applicability of these theoretical ideas about self-management, although there seems little consensus on whether real world examples do behave the way the theory predicts. For instance, there is no clear evidence that membership limitation is a *short-term* policy tactic used to raise earnings in Yugoslav units of self-management (BOALs), nor in the Mondragon cooperatives and certainly not in the kibbutzim. But whether a tendency for longer-term attrition of the membership through retirement and non-replacement is present is more problematic. Unemployment has been, and still remains, a major problem in parts of Yugoslavia, and the existence of cooperative institutions may or may not be a causative influence.

In Soviet and Chinese collectives, the issue simply does not arise because for most of their history entry and exit rules were strictly determined by outside authority. But such control

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[6] It is hardly surprising that this implication of the model is unpalatable to proponents of self-management: 'how can one reasonably expect that a working collective will mutilate itself (kicking out, say, one-tenth of the membership), if it has already realized a significant gain from a price increase, say 10 per cent of income, for the sake of gaining an extra, say 1 per cent? Indeed, this sounds like an extract from a book of rules of capitalist conduct.' (Vanek 1975: 356).

may itself have been initiated by suspicion of self-serving autonomy. As Maurice Dobb once asserted about the pre-reform planned economies: 'There is little doubt that this fear [of bias in the functioning of workers' collectives] has done much to harden the hearts of planners and senior administrators against changes involving enhanced democratic participation in framing policy at the enterprise level' (1970: 66).

A related concern is whether concentrating on the internal workings of a PC to the exclusion of all institutions in its decision-taking environment yields too partial a view, perhaps even a distortion, in this line of theorizing. In particular, the existence of a wider organization to which self-managed enterprises belong, and from which they consciously draw certain values and precepts along with institutional support, may be a key factor in their survival. In that case, when modelling the criteria that cooperative members apply in their decision-taking, a social compact that encompasses the worker-controlled sector as a whole would need to be incorporated, like that animating the kibbutzim movement in Israel.[7] This could rationalize the presence of values like solidarity, security and worker satisfaction, as well as an emphasis on collective consumption and growth-mindedness within successful self-managed units.

To sum up, there is as yet no standard view on how much utility this strand of theory has in providing insights into and supporting predictions about cooperative behaviour. A procedure that teases out the short-run implications of an assumed change in one variable taken at a time ('comparative statics'), and containing little institutional substance, may well generate the 'widespread dissatisfaction with these models expressed by applied workers in this field...[who] have generally denied that such firms actually do reduce membership as cost or demand conditions improve' (Estrin 1983: 246). But perhaps this means little more than that such propositions should not be treated as definitive and complete when assessing the properties of self-managed enterprise as compared with other organizational forms. And clearly also such models should certainly not be used to support *a priori* judgements of any kind. With that in mind Putterman's appraisal is a sobering one.

> 'Agricultural producers' cooperatives having membership-determining powers appear to behave much as the models predict. Unless they are part of a movement that takes membership expansion or job creation as a goal in its own right, or acts under the direction of or in identification with an organization representing workers or farmers as a class (and not only their own immediate members), such APCs [agricultural producer cooperatives] tend to expand, if at all, by hiring non-member employees, with new membership largely limited to children and other family members of existing members. The classic cases are the agricultural producers' cooperatives of Peru and Chile, which were created on former haciendas, through the agrarian reforms of the 1960s and early 1970s... (1989: 338)

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[7] Vanek (1975) argues forcefully that a 'sheltering organization' is essential for cooperative enterprises within a market economy; amongst other reasons this is because, when single and operating in isolation, PCs are disadvantaged in raising capital. Clearly the same difficulties may not arise in economies where there are non-market sources of mobilizing capital.

A related cluster of issues concerns incentives, work monitoring and the alternatives to hierarchical control that are feasible in self-managed enterprises. These are of first importance. Economic thought, at least the dominant stream of it, has always underscored individual material gain as the prime source of motivation in production. This has two aspects, linked but separate. First, an emphasis on performance-based rewards in distribution; and second, a justification for private property claims of one kind or another.[8]

Now, a producers' cooperative as we have defined it may conflict on either or both these counts with the orthodox postulate that material incentives are paramount. There may be strongly-held normative grounds for rejecting private property rights, as until recently was the case in socialist bloc countries, most kibbutzim and many cooperative movements. But rather weaker and more ambivalent attitudes prevail in respect to the first question: should payment be work-based or should it be needs-based within the self-managed enterprise? In the literature, this choice is sometimes posed as that between the principle of desert (what is deserved) and the principle of equal claims. Distribution by equal claims is not the same as distribution by needs, for well-known reasons, but I ignore that here and treat them synonymously.

A prominent historical example where material incentives were downplayed is that of the Chinese communes during the Great Leap Forward period of the late fifties and early sixties. It is generally admitted now, even in China, that their needs-based distribution policies were premature and too extreme, with 'a strong detrimental effect on work incentives, since the individual worker's effort now had little effect on his/her income' (Nolan 1988: 56). The problem has been illustrated neatly in game theory form, using the so-called 'prisoner's dilemma' setting.[9]

> Suppose that a typical member of a cooperative considers two alternatives, viz., to work hard (I_1) and not to work hard (I_0). He may make two assumptions about others in the cooperative, viz., that they will work hard (R_1) or that they will not (R_0). Consider a system in which people are paid according to needs (and not work), whereas their main concern is with their own welfare. A typical ranking of alternatives may then take the form (in decreasing order of preference): I_0R_1, I_1R_1, I_0R_0, I_1R_0. By working hard oneself

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[8] 'That which is common to the greatest number has the least care bestowed upon it. Everyone thinks chiefly of his own, hardly at all of the common interest; and only when he is himself concerned as an individual. For besides other considerations, everybody is more inclined to neglect the duty which he expects another to fulfil...' Aristotle, Politics (quoted in Schlatter 1951: 15).

[9] 'Prisoner's dilemma' is a nickname for the theoretical game depicting the choice situation facing two rational egoists who pursue their individual self interest to the exclusion of all other considerations. It can be shown that such behaviour is self-defeating in the straightforward sense that achieving individual goals is rendered more difficult: 'a strategy may depend crucially on how many others adopt it and the fact that a strategy initially successful may become self-defeating because its success leads others to imitate it'. (Rapoport 1987: 975-6). 'The universal fascination with this game is due to its representing, in very stark and transparent form, the bitter fact that when individuals act for their own benefit, the result may well be disaster for all' (Aumann 1987: 468).

> one adds very little to one's income since the principle of distribution is not work but needs, but there is still the hardship of toil. So given the actions of others, everyone may prefer not to work hard, i.e., prefer I_0 to I_1, no matter whether the others do R_0 or R_1. But at the same time they may each prefer everyone working hard to no one working hard, since the latter may be disastrous for all. In such a situation, however, guided by rational calculus everyone ends up not working hard, i.e. doing I_0, which is a strictly dominant strategy. But each would have preferred that all had worked harder. Individual rational calculations would seem to lead all to disaster' (Sen 1973: 97).

That producers' cooperatives may be seriously affected by incentive problems intrinsic to their organizational form is a question treated at some length in the more theoretical literature (Vanek 1975; Bonin & Putterman 1987; Nolan 1988; Putterman 1989). But it tends rather to be neglected in political economy discussions, or alternatively it is taken by presumption that altruistic preferences ('moral incentives' and a collectivist consciousness) exist within and amongst individuals by virtue simply of their voluntary membership and participation. There are a series of issues here which must be considered.

First, recognizing the possibility of shirking, in the sense of slack in the work process and a low intensity of effort, raises the question of monitoring and its costs. Under capitalism the profit receivers, ' residual claimants' as they are called, have a direct interest in the supervision of wage paid labour, who by presumption have little incentive to be diligent and responsible unless appropriately rewarded or punished, ultimately by loss of job. By contrast, in cooperatives residual claimancy status is diffused amongst the members themselves, which can have both positive and negative consequences for work effort. On the one hand, there can be 'positive collusion' or 'horizontal monitoring' within the peer group to encourage effort: 'If the numbers involved are not too large and shirking imposes perceptible losses on co-workers with whom there is some personal interaction...This represents a reversal of the widely observed "negative collusion" to restrict output under traditional piece-pay schemes, where informal social sanctions and even violence against "rate-busters" have a lengthy history" (Cable & Fitzroy 1980: 103). On the other hand, it has been argued (by Alchian and Demsetz) that incentives to monitor performance are weakened because they are insufficiently concentrated in cooperatives. No single member is an exclusive residual claimant, and monitoring effort is peculiar in being itself non-monitorable because inherently difficult to perceive, and therefore it cannot be satisfactorily purchased as a service input. This is clearly contentious (Bonin & Putterman 1987: 46-52; McCain 1982).[10] It may also be that hiring monitors, or appointing members to act as such whether or not differential shares are paid to them, would be a practice that sits uneasily within the philosophy of self-management. This is an equity question. But there can also be an efficiency one where the distribution principle is egalitarian. 'Work

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[10] 'The peculiarity [according to the Alchian-Demsetz contention] is that monitoring can not simply be purchased by the team, because it is difficult to observe, and because ultimately it is necessary to answer the question "Who monitors the monitor?"...a special incentive mechanism is required...by having the agent who monitors the other service contributors...[also] having claim to the enterprises's income net of those payments [ie. profit]' (Putterman 1988: 48).

supervision to ensure adherence to a "sincere effort" contract involves many problems [like alienation]...The feasibility of using [member] payments according to needs combined with vigorous supervision of work done is profoundly doubtful' (Sen 1973: 97-8).

Whether cooperatives are particularly disadvantaged in this respect - having the worst of both worlds - compared to wage labour modes of organization is an open question. Certainly though the incentive problem presented by size appears to cut across all production arrangements. In large corporations the residual claimants (shareholders) are far removed from the productive process; and likewise in public sector enterprises the ultimate profit receiver, the state, has its residual claimancy interest mediated through, and represented by, successive layers of bureaucrats. Also, in existing planned economies residual control is vested in the state via the party at a considerable distance from direct producers. In all these cases motivation deficiencies are highly probable and require stimulation devices of one kind or another.

The general question is currently under study as one consequence of imperfect information and of information asymmetrically distributed amongst decision-takers. Contracts cannot be complete and watertight where this is the case; there is a potential conflict of interest between the individual and others within the team or group because some terms of the needed contracts are differentially perceivable: some parties know more than others. In the present instance work effort is such a 'hidden action'. These phenomena, said to be pervasive in many economic activities, are labelled as problems of moral hazard:[11]

> 'defined as actions of economic agents in maximizing their own utility to the detriment of others, in situations where they do not bear the full consequences or, equivalently, do not enjoy the full benefits of their actions *due to uncertainty and incomplete or restricted contracts* which prevent the assigment of *full* damages (benefits) to the agent responsible' (Kotowitz 1987: 549, original emphasis).

To repeat, I raise such incentive issues not because I wish to assert that producers' cooperatives are peculiarly prone to such deficiencies but rather because micro-level queries like these need to supplement political economy debates about the desirability of alternatives to the capitalist firm. What should also be noticeable is that there are other difficulties that may arise. These include, first, the feasibility of substituting peer control for hierarchical control in the pursuit of self-management democracy where the advantages and disadvantages have to be weighed against each other.[12] Second, the sizes of the production, decision-taking and accounting (for the purpose of distribution) units that are

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[11] The idea of moral hazard arose in the theoretical literature on insurance against risk. If an insured person (or organization) knows that he or she will be fully compensated for loss, eg. through fire, theft, accident or crop failure, their behaviour is influenced thereby. In short, they take less care to avoid those contingencies that give rise to claims, and the risk therefore <u>increases</u> unbeknown to the insurer: hence the moral hazard outcome and, in practice, the insistence by insurers on less than full compensation being payable.

[12] 'The question is whether the decisions made democratically by members, whether over an investment strategy, over the details of organizational structure and delegation of authority, or over working conditions, can be efficient in view of the fact that (a) ultimate decision-making rights are dispersed through the workforce and (b) there are limits to the acquisition of managerial experience and training by the workforce as a whole' (Bonin & Putterman 1987: 56).

cooperatively organized - and which need not coincide - are a key factor in determining collusive action. The reason is that the mere existence of a common interest need not preclude free riding, nor need it be a sufficient incentive by itself for individual and collective action to coincide in the furtherance of group objectives. But size sufficiently small to allow face to face contact, group awareness and mutual trust, in other words the characteristics of a 'closed' group, seem to be significant in obviating many of these difficulties.[13] Third, where there are scale economies -potential falls in unit cost caused by specialization, indivisible or lumpy inputs and division of labour - there appear to be no reasons why these should not be as easily exploitable by cooperatives as by capitalist or state enterprises. But, as raised under the previous head, the institutional limitation on size required for efficient and equitable decision-taking in self-management could be a constraint upon increases in output scale and matching technology up to the minimum efficient size. Again, this remains more a theoretical possibility than a supportable generalization about cooperatives in view of their limited historical experience, small numbers and the difficulty of testing such propositions in a satisfactory manner.

A final concern in this section is whether agriculture as an economic sector has characteristics which favour or which hinder the emergence of self-managed organizations. Up to now I have discussed producer cooperatives on the premise that what flows from their distinctiveness (membership equality, collective ownership, participation and distribution rules) has implications, positive and negative alike, which are common to all productive activity. Yet agriculture has certain features differentiating it from manufacturing and services which we should take account of, both for theoretical purposes and for evaluating the performance of collectivized agriculture in the planned economies.

If we accept that a developing agricultural sector, under whatever system of allocation, requires large 'public good' inputs like infrastructure, research, education and extension services (ie. technical advice and at times material assistance for new methods and new technology), what are the implications for cooperatives? These support services have a public good character in economic terms because their benefits are not separably appropriable. No individual producer finds it profitable to invest in them by shouldering the full cost of such inputs. This would seem to apply irrespective of the organizational and institutional superstructure which may exist, whether family farms, capitalist proprietorships with hired labour including company farms, or cooperative enterprises. The public good characteristics of these inputs were not prominent in state and collective farms in centrally planned economies during pre-reform days, presumably only because the supplying institutions and agencies had little separate identity from all the others under the system of administrative allocation. And furthermore, where private cost-accounting and appropriation is not possible, public goods lose their distinctiveness. Their function nevertheless is vital and, for example, criticism of service agencies by Soviet state and collective farms has been lengthy and vociferous (Nove 1983: 88-9). With changes like the personal responsibility system in China, public good provisioning outside family and

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[13] 'The main condition for success [in collective action] is the ability of a group to suppress free riding...[success is] expected to be the greater the smaller the group, the more homogeneous its origin, the longer its members have been together or it has been in existence, the more complementary the goals of different members, the closer the social and physical proximity among its members...' (de Janvry, Sadoulet & Fafchamps 1989: 364).

collective units is likely to become more visible and an arena for lobbying and bargaining. By comparative international standards spending on agricultural research in China, for instance, is low (World Bank 1986: 48). But beyond such consequences there do not seem to be issues specific to cooperatives.

There may however be other determining features of agriculture which bear upon the choice of efficient organizational form. These include:

- spatial dispersion and the heterogeneity and immobility of land;
- transport and travel costs are high and time-intensive;
- seasonality of the production cycle;
- information acquisition and transfer is costly;
- special risk characteristics pertain to yield, pricing and timing;
- multiple decision takers;
- lengthy and sequential nature of work process;
- managerial diseconomies of scale;
- technology choice, specifically of capital-labour ratios, wider than in other sectors;
- flexible responses are required on a continuous basis;
- localized credit and tenure institutions (which affect price and market responsiveness);
- relatively elastic linkage between inputs and outputs. (Binswanger & Rosenzweig 1986; Binswanger & Elgin 1988; Nolan 1988; Timmer 1988; Wädekin 1989).

Accepting that this list identifies at least some of what makes agriculture different,[14] we need to ask which characteristics or combination of characteristics influence the viability of producer cooperatives in the sector. First, agriculture is decision-intensive because of 'seasonality, geographical dispersion and the role of risk and uncertainty...[so that] decision-making is in fact based on rational assessments of highly heterogeneous environments [and] substantial knowledge of micro environments is necessary...' (Timmer 1988: 295, 300). Because of such variety and variability inherent in production decisions it is contended that the separation of labour from management imposes an efficiency cost. On farms with labour forces larger than the (extended) family can supply this becomes further accentuated with the diffusion of managerial input, so that diseconomies of scale result in the sense that management effectiveness per unit of output declines. This is pertinent to producers' cooperatives because of the incentive problems and monitoring requirements discussed earlier, as well as because their decision-taking must take longer with more heads involved: 'households in collectives have to take savings and investment decisions jointly, an extremely difficult task' (Binswanger & Elgin 1988: 4).

Secondly, linking work effort to an identifiable product is difficult. This stems from the following: the extended time lapse between input and final output; agricultural work cannot be sub-divided into measurable segments and requires a flexible response not easily anticipated beforehand in the payment or distribution system; productive activity is physically dispersed and conditions may vary from one part of a farm to another. The

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[14] This is a composite grouping of agriculture's features extracted from the sources cited; these contain differences of emphasis and inference which I overlook here.

upshot is that direct inspection is necessary to assess quality. With the limited exceptions where piece-work can be instituted or subcontracted, this is a problem in all units greater than the family farm, and it intensifies with rises in scale. Where land-holdings are private, one solution is for the landlord to rent land beyond a threshold size to tenants or to enter into share-cropping arrangements. But rental markets are unlikely to be ideologically acceptable to a cooperative organization nor would extensive supervision be feasible or efficient, as already remarked. So this is a special problem which dovetails with that of incentives.[15]

Thirdly, production in agriculture contrasts markedly with industry in respect to the scale of certain elements of technology and the labour process (the production function). Some productive inputs are divisible so that their unit cost changes little if at all at higher output volumes, for instance, seed, fertilizer, chemicals, livestock and land. Other resources like large machinery items, transport equipment and buildings are lumpy in that they involve minimum sizes for efficient use. Still other requirements like credit are lumpy in principle (with fixed components of financing cost irrespective of amount), but dispersed and costly information and transport limits the actual size, density and efficiency of markets (Binswanger & Rosenzweig 1986; Nolan 1988).[16] It is necessary also to distinguish ownership units from operational units because the imperatives of efficient scale apply differently to them. Institutions like rental markets for land, for major inputs like machinery, processing facilities and transportation have evolved to allow the accumulation of ownership claims both greater and smaller than the size determined by efficient operation. And similar forces, although not resulting in differential scales and rights to property, underlay the institutions of Soviet agriculture after collectivization, like the Machine Tractor Stations.

In view of the diversity and unpredictability of responses to the question of input lumpiness and economies of scale in agriculture, it is perhaps not surprising that so few cooperatives have been formed spontaneously by small farmers coming together (although this is not to claim it as the only probable reason). Such cross-cutting complexity may also be the seed of error in early socialist discussions with their implicit or explicit presumption that the forces of production and of political necessity worked in both industry and agriculture symmetrically towards the creation of large scale units operated by a proletariat (Nolan 1988: 40f; Nove 1983: 85-90, 1989; Bellis 1989; Wädekin 1989: 24).[17]

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[15] Nove (1977: 139) quotes a saying common among Soviet tractor men: 'plough deeper: I see the director coming'; and the same source comments 'Who does not watch the work of the ploughman: the accountant, the supervisor, the brigadier, the representative of the People's Control, the rural Soviet, the agronomist, the agitator-political-organizer, and even a volunteer-quality-controller. Yet what sort of a peasant is it, if it is necessary to follow him about to ensure that he ploughs and harrows properly?'

[16] This is another problem treated in the economics of information, known as adverse selection. In a market containing products or customers (like applicants for credit) of varying quality whom the other transactors (banks or credit agencies) cannot distinguish between, the process of exchange between buyers and sellers then has peculiarities which make for inefficiency.

[17] 'The ambition of the planners was to apply to agriculture the two great principles of industrialization and modernization. The Sovkhozy were conceived as mechanized grain factories. The mass of peasants were to be organized in Kolkhozy constituted on the same model. But extravagant hopes of ensuring a supply of

Experience in centrally planned economies and elsewhere

Production units in the collectivized agricultural sectors of the Soviet Union, Eastern Europe and China differ fundamentally from the concept of producer cooperatives already discussed in this paper.

- They did not emerge out of a genuine voluntary movement but were imposed and are still sustained by administrative fiat.
- Management is appointed by bureaucrats or party officials.
- There is detailed intervention in decision-taking, including the imposition of mandatory plan targets and of distribution principles that involve what are essentially wage payments not dividend shares.
- Restrictions upon labour movement and occupational choice were imposed early and in certain respects still exist.

In consequence, pre-reform collective farms in the Socialist bloc have been likened to the manorial system of the Middle Ages in Europe (Bonin & Putterman 1987: 125; Nove 1983: 85-90); and as early as 1929 Bukharin characterised Soviet agrarian policies under Stalin as 'military-feudal exploitation of the peasantry' (Ellman 1984: 7-8).

However, the initial formation of collectives and communes in the Soviet Union (1918-27) and China (mid-fifties) was voluntary although not entirely spontaneous, as occurred more recently also in other national examples like Tanzania. But in virtually all cases 'early voluntarism gave way to the impatience of revolutionary leaders' and farmers were ultimately coerced (Putterman 1985: 177). This raises tantalizing historical questions of what might have been, including the research problem of disentangling the outcomes of the administrative planning system from those of collective organisation as such. Khan & Ghai's observation, while pertinent, is far from being a consensus one: 'That so many experiences of collective agriculture in the last half century have failed to serve as vehicles of agricultural growth is probably due more to inappropriate over-all policies towards agriculture than to any inherent difficulties with collective institutions' (1983: 302). This is a key issue about which no-one yet knows enough to venture a definitive judgement.

Collective agriculture has been advocated under 'existing socialism' for a range of reasons (Nolan 1987: 477-8). These include fear of an economically independent peasantry; the need for higher off-farm marketing rates; and, within the sector, the raising of saving and investment levels, the mobilizing of labour for accumulation purposes and the provision of a conduit for new production technology. There was in addition the desire to counteract the social and political costs of mechanization and economies of scale, believed to become manifest in the polarization between capitalist landowners and rural proletariat in the course of reaping the fruits of higher labour and land productivity.

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tractors and other machines sufficient to make such a project viable in practical terms were disappointed' (Carr 1979: 162).

Which, if any, of these reasons have been vindicated in retrospect is debatable. 'Did collectivization in fact contribute to capital accumulation?' has been a question subject to considerable controversy in the past decade (Nove 1989: 176; Ellman 1979; Bellis 1989). The weight of opinion at present is towards scepticism.

> 'The truth appears to be, then, that by any measure, Soviet agriculture proved a dead weight on growth of the Soviet economy; and this was so, I propose, because collectivization was a massive policy error...no one stood to gain, including the state. The contribution [to growth] that Ellman and others have sought to attribute to collectivization belongs instead to the introduction of the predatory agricultural procurement system - which helped to limit the losses collectivization brought about and thus raised the share of marketed output in the face of a decline in total output' (Millar 1983: 116). 'The view that "capital" was extracted from the villages by collectivization to invest in industry and offset against imports is an illusion....The reason *sovkhozy* have become the predominant form of agriculture in the last decade is not that they strengthen socialist agriculture. In fact, *kolkhozy* cost less and require less investment....It is because the *kolkhoz* system cannot produce a viable agriculture....The myth that collectivization was harsh but effective does not withstand an examination of the performance of Soviet agriculture' (Medvedev 1987: 96-7). 'The vision dies hard of agriculture as a resource reservoir to be tapped indiscriminately, without reinvestment or adverse consequences for growth, on behalf of the urban economy' (Timmer 1988: 301).

While agriculture may have been the 'Cinderella sector' in planned economies in the initial period after collectivization, in the sense of being last in the queue for resources, that is no longer the case in the Soviet Union, Hungary and elsewhere.[18] In the 1970s 'the agricultural sector [typically] was absorbing over one quarter of Soviet new fixed investment' (Nolan 1987: 478), and other estimates make the proportion even higher (Medvedev 1987: 418). Despite this large throughput of 'fuel' the sector has not grown at a satisfactory rate, and an analogy can be drawn with a vehicle stuck in low gear: to achieve higher production volumes the design itself has to be changed. China's post-Mao shift to the 'household production responsibility' or 'household contracting' system has generated large and sustained increases in farm output. This constitutes a form of decollectivization and it provides evidence of great systemic constraints upon productivity and performance existing pre-reform (Sen 1983; Ashton 1984; Bonin & Putterman 1987; Nolan 1988).

Besides being technically inefficient (low productivity of labour, land and capital, high energy intensity, high spoilage rates), CPE agriculture still shows certain developing country characteristics despite the trend changes of the past forty years. With the

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[18] 'With regard to the distribution of the accumulation burden between social classes, the original idea was to shift it mainly to the peasantry. This failed, either because of the necessity (as in the USSR) to avoid complete collapse of agriculture in the wake of the collectivization disaster by directing additional investment to the countryside, or because the idea was abandoned more (China) or less (Eastern Europe) explicitly. This is to say not that the peasantry did not suffer enormously (although probably nowhere to the same extent as in the USSR), but merely that the sufferings extended to the population as a whole, industrial workers included' (Brus & Laski 1989: 24)

exceptions of Czechoslovakia, the GDR, Hungry and recently Poland, more women than men were employed in agriculture in the 1980s; similarly, the age composition of the agricultural labour force shows 'a growing proportion of older workers' (ILO 1984: 88-9). More important, this sector shares with the economy as a whole the typical pattern of imitative development, which is the inability to break out of 'extensive growth' based on quantitative increases in capital equipment and labour and switch to 'intensive growth' coming from higher allocative and X-efficiency[19] along with technical progress.

So, concerning the collectivization experience of planned economies, it is difficult to find any positive statements at the present time - at least not in the English language literature - and judgements like the following are the norm.

> 'Collectivization, Soviet style, is surely a disastrous course, disastrous economically (production and efficiency suffer) and disastrous politically (mass coercion, "justification" of terror, cruelty, and so on)....It is essential [though] to distinguish *agricultural cooperation* from the Soviet-type of *collectivization*. The vital differences are voluntary as against compulsory member-ship; and self-government as against control from above' (Nove 1983: 85-6).

In the perspective of the present paper, the important question is what can be learned from the deformities of CPE collective farming which has a bearing on the viability of agricultural producers' cooperatives elsewhere, particularly in South Africa. Much that is negative is part of the answer. But the observation by Nove just quoted may also provide comfort for advocates of cooperative organistion, as suggested earlier. A great deal of experimentaiton is now in progress in CPE agriculture, most of it interpretable as steps - in certain respects the retracing of steps - towards cooperative forms (Wädekin 1989, Brada & Wädekin 1988). The innovation of small production groups, whether 'contract brigades', 'normless teams' or family responsibility units and partnerships, has the common aim of switching to remuneration by productive performance instead of fixed work norms linked to what in effect are wage payments. There are major obstacles to be overcome, some of a psychologicalnature,[20] but in March 1988 Gorbachev himself declared that 'collective and state farms should in the near future become in essence cooperative associations of financially independent contract groups', with the 'leasehold contract' to be regarded as the most appropriate (Brus & Laski 1989: 145; also Kornai 1986; Aganbegyan 1988).

Cooperative forms elsewhere, like worker-managed enterprises in Yugoslavia and Israeli kibbutzim set a much more promising precedent. But whether they are generalisable to other environments and other circumstances is another question. Yugoslav economic performance in the past forty years has been impressive but flawed, with high rates of inflation and unemployment, particularly on a regional basis. At this moment that economy seems vulnerable for a mixture of economic and political reasons that may come

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[19] That is, the best allocation of resources between producing units and the best use of them within such units, respectively.

[20] 'A reform of this sort requires officials (sovkhoz directors, kolkhoz chairmen and others) to negotiate and observe contractual obligations with their own subordinates, those to whom hitherto they had the power to give orders. A big change in approach is needed, complicated by the fact that these officials will themselves be under pressure from above to fulfill production and delivery plans' (Nove 1988: 21). What will have to be unlearned in other words is **administrirovanie**, *which is 'bureaucratic decision-making in accordance with the laws of hierarchy and subordination'(Ellman 1988: 32).*

to bear on our concerns in the future but at present require more research and more space than is available in this paper.

Are the kibbutzim 'a model for developing countries', as posed in the title of one useful source? (Morawetz 1983: Barkai 1980) The sensible answer must be that we do not know. While most Israeli agriculture has some cooperative dimension to it, kibbutzniks comprise only 3-4 per cent of the total population; furthermore for many, probably most, existing kibbutzim industrial activity has become economically more important than agriculture. The original kibbutzniks as a social group were self-selected voluntary members, better educated than the average, with strongly-held egalitarian or socialist beliefs, as well as subscribing to nationalist goals which led to high commitment and a strong work ethic. To some extent these characteristics have altered over the past 60-70 years; for example, certain kibbutzim now hire outside labour at wage rates lower than the incomes paid to members. In addition, all kibbutzim receive some measure of assistance from the state, and it appears that no single kibbutz has been allowed to fail on purely economic grounds.

Here we should recall the distinction drawn earlier in the paper (p.3) between cooperatives or collectives (distribution according to work input) and communes (distribution according to equal claims). The kibbutz is an instance of the latter and its limitations as an example for our purpose, which is looking at self-management organisation as a whole, will therefore be apparent.

> 'What I *am* arguing is that a *kibbutz* - that is, a commune in which all incomes are equal regardless of work input and productivity - is not transplantable on a large scale to developing countries, whether such a transplant is attempted on a voluntary basis (because few people would have the ideological commitment necessary for it to survive in the long term) or by compulsion (because in the absence of material incentives many members would work below full pace, inevitably causing an eventual breakdown)' (Morawetz 1983: 235)

Assessment

The following observations are stimulated by sources that identify the thinking of political groups on agricultural organisation in South Africa's post-apartheid economy (Lodge 1986; Archer 1987; ANC 1988; Marcus 1989; Wilson & Ramphele 1989). First, one cannot appraise programmatic statements that project only a vague and general vision, expressed in terms like 'land nationalization', 'collective/communal ownership', 'land redivided amongst those who work it', 'collective farms created to exist side by side with state farms to banish famine and land hunger', and so on. Such language has a function, but not at the level of discussion that this conference should be initiating. We need much more detailed, specific and operational descriptions of what policy options are advocated before the issues raised in this paper can begin to be appraised within the South African environment.

Secondly, there appears to be a presumption that land questions are inherently more charged with commitment and emotion than are other sources of economic conflict; that they carry more ideological baggage, particularly for rural people. This may well be so, but

it does not mean that we should allow our critical muscles to slacken when appraising proposals that emanate for instance, from within the 'widely shared utopian anti-capitalism' that Lodge identifies amongst certain groups (1986: 1). A useful corrective is to take a comparative look at precedents elsewhere in the world.

> 'The Peruvian and Cuban examples show that "land hunger" comes from unemployment or from the risk of unemployment or from ill-paid employment. "Land hunger" is not a specifically "peasant" feeling. "Peasants" who are given good alternative employment lose their "land hunger" (as has happened to millions of them in the industrialized countries), and...rural people of all descriptions (whether "peasants", or labourers or squatters, and so on) desire land of their own in order to have an assured supply of food and an assured opportunity of work. They will cease to desire land if such things are assured to them in some other way. What is in question is whether the land is an end in itself or whether land has an instrumental value, as a means of getting assured work and as a way to earn one's living. (Martinez-Alier 1977: 29).

A third implication of this survey is that the history of ventures with collectivism and state farming have generally been ones starting from household and peasant production bases. By contrast, in South Africa the beginning point would be a rather more variegated institutional structure, with the bulk of production organised capitalistically in large proprietary units employing wage labour and pursuing profit; but existing alongside a neglected subsector containing a fair segment of the population engaged in subsistence activities. We may have more to learn by a study of the Latin American experience where land reform in the 1960's aimed at transforming *haciendas* and *latifundia* into democratically managed cooperatives, as in Chile and Peru (McClintock, Podesta & Scurrah 1984; Caballero 1983). Future research efforts might steer in this direction.

In conclusion, I think it is wholly premature to draw any inferences about the potential role producer cooperatives might play in South African agriculture. This paper has intentionally raised a number of problems with self-management organisations. One should mount criticism though with one's eyes open, and recognise the limited range of options available to a political regime bent on some measure of land redistribution, however mild. But having said that, one also needs to be quite clear that their history and contemporary practice do not give cause for optimism about such modes of agricultural production. One does not have to be a market ideologue favouring private property rights to be profoundly sceptical about the wisdom of advocating agricultural collectives along planned economy lines. And the alternative, true cooperative forms of the kind sketched in this paper, remain as yet unknown and untried.

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