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# PROCEEDINGS OF THE THIRTEENTH INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS

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## The Economist and Farm People in a Rapidly Changing World

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# GROUP E

Chairman: J. HORRING
*University of Wageningen, Netherlands*

Rapporteur: M. M. PETIT
*Paris, France*

## *Vertical Integration and Contracts*[1]

J. S. MARSH

*University of Reading, England*

THE literature relating to contract farming is usually classified under the heading 'Marketing'. This paper argues that, apart from their purely marketing functions, contracts have important structural implications. By the use of contracts agriculture in developed countries can accommodate economic change with a smaller degree of modification in farm ownership and tenancy patterns than would otherwise be necessary. Indeed, the ability of the contract system to change the point at which decisions are made can render less clear-cut the whole concept of farm size.

Farming has been characterized by a relatively atomistic economic structure. Within the framework of the family farm, decisions have been made about the quantity, timing, type, and method of production. Today, in developed economies, the suitability of the family farm as the sole decision-maker in these matters is coming under growing pressure. Outside agencies are more and more involved in decisions affecting the volume and timing of farm output, the techniques of production, and the finance of the farm business. In some quarters, indeed, the very existence of the family farm is questioned.

To explore the role of contracts in this situation the paper examines, first, the reasons for this fundamental change in the position of the farmer as a decision-maker, second, the ways in which contracts can help to reconcile the requirements of farmers and other members of the agricultural industry, and, finally, some of the difficulties of contract farming as a basis for a new pattern of organization within agriculture. Government activity has been excluded from the analysis. The emphasis is upon the fundamental characteristics of contract farming, in the context of which varying policies may be devised to meet the diverse needs and aspirations of differing countries.

[1] For purposes of nomenclature the words 'vertical integration' are used, in their economic textbook sense, to refer solely to those situations in which a particular business is *taken over* by a firm anterior or posterior to it in the over-all productive process. On the basis of this definition, contract farming can represent an alternative to vertical integration.

I

The decline of the family farm as an independent decision-making centre has arisen from changes taking plate (*a*) on the farm, (*b*) among industries which sell to, or buy from, farmers, and (*c*) in the economy at large. In this section we shall consider each of these aspects in turn and in association with one another.

*Changes on the farm*

The rapid application of new techniques to farming has dominated agricultural production and output during recent years. Its immediate effect has been to increase the volume of production. In Western Europe farm output has risen by some 3 per cent per annum in the 1950s and 1960s.[1] Its secondary effect has been to undermine the prices farmers receive. Although demand for food products has risen, with growing population and incomes, this has not been sufficient to offset the increased supplies associated with technical progress. As a result, unless state support has been increased, prices and farmers' profit margins have tended to decline.

The full impact of falling prices is partially offset, in its effect on farm incomes, by the increasing volume of production made possible by technical progress. Figures for the United Kingdom illustrate the growing scale of farm production.[2] Between 1960 and 1965 the size of dairy herds has gone up each year by 4·5 per cent; pig herds by 8·5 per cent; broiler flocks by 33 per cent; during the same period the proportion of wheat producers growing 100 or more acres of wheat has risen from 26 per cent to 42 per cent. This growth has resulted in an intensification of many farming systems; further it has pushed many farmers in the direction of increasing specialization. The demands of large enterprises upon the financial and physical resources of the farm and the growing managerial problem of applying new techniques encourage the farmer to concentrate on fewer enterprises. Specialization has seldom been pushed to the point of monoculture, but a narrowing of the activities of the farm has assumed increasing importance among those small family farms where the availability of resources of all types is closely circumscribed.

The process of intensification and specialization means that the farmer needs more capital and more specific capital assets. More capital is needed to finance the increased stock which the farmer must carry. Further, a characteristic of much technical progress is its tendency to substitute bought-in inputs for labour employed on the farm. For example, in 1960/2, the percentage of gross output accounted for by current operating expenses (which exclude labour) was 14·8 per cent in Italy compared with 53·9 per cent in the United Kingdom,[1] where agricultural techniques are more advanced. This dependence upon purchased supplies adds to the need for working capital. Specialization may often require investment

[1] *The Structure of Farming in Britain*, H.M.S.O., 1966.

[2] *5th Report on Output, Expenses and Income of Agriculture in European Countries F.A.O.* (Geneva), 1965.

in relatively inflexible equipment for housing or machanization. In total the capital requirements for a relatively modest-sized farm have tended to grow beyond the resources of all but a few, relatively fortunate, families. In the United Kingdom, for example, a farmer will need something like £12,500 to equip a holding of 250 acres, in addition to a purchase price for the land of around £60,000. Credit institutions can help, but the risk they face, unless the farmer himself supplies a fair proportion of the equity, may prove a decisive deterrent to lending on the necessary scale.

The application of new techniques is itself likely to expose weaknesses in the managerial and technical competence of farmers. Relatively few farmers have an extensive technical training and even where this exists the application of new discoveries to farming operations presents formidable problems. This is made more acute because the greatest benefits from new production methods are likely to accrue to those who are quick to apply them. The evolution of such improvements depends largely on systematic scientific research usually conducted by large-scale private businesses or official research agencies. Such research is beyond the resources of individual farms and the techniques evolved are likely to be outside the experience of existing farmers. As a result there is a problem of communication and education if new discoveries are to be applied speedily.

One of the unpalatable features of specialization is that it increases the risks which farmers face. On both price and husbandry grounds, diversification added an important element of stability to the mixed family farm. Dependence upon fewer enterprises means that an unfavourable price movement or the failure of a particular enterprise through disease or weather is likely to result in a sharp fall in farm income. Risk may become even more difficult to handle if the farmer depends heavily upon borrowed capital. Such loans may have to be repaid even in years when the associated activities, for which they were lent, have proved unsuccessful. Thus, in so far as the farmer manages to secure credit to expand his business, he may have to accept a more difficult burden of risk.

*Changes among industries which sell to, or buy from, farmers*

The processes which have tended to make the family farm a diminishingly appropriate unit for the supply of capital, the development of farming techniques, and the bearing of risk have been accompanied by other, equally significant, developments in the non-farming sector of the agricultural industry. Outside businesses find that their fortunes are increasingly dependent upon decisions reached on the farm. Four important examples indicate this growing involvement.

Sales of farm inputs are closely related to production decisions on the farm. Suppliers of feed, fertilizer, and machinery need to be assured of a level of output which will utilize their own investment at a point which will permit low unit costs. Fluctuating demand by farmers can raise costs of production for the supplier. Where, as in the United Kingdom feeding-stuffs industry, competition between suppliers is keen, firms who

can sell a regular quantity to their farmer customers in sizeable loads are in a position to sell at lower cost and to win a larger share of the trade.

Many farm inputs are of increasing sophistication. Used properly, they may show a profit, but, misused, they are expensive and possibly dangerous. The supplier is thus dependent upon the technical competence of the farmer. Should this fail, his product may gain a bad reputation and his sales fall.

In developed countries relatively few farm products are sold direct to the ultimate consumer. Processing in various forms is of growing importance. The processor's prospects depend both on achieving a right volume of sales and upon ensuring that an adequate volume of suitable farm produce is made available to make optimum use of his plant. If the volume is to be correct, the production decisions of farmers must be brought into conformity with the market. If quality and timing are to be satisfactory, the farmer must carry out the right operations using the right seed or animals at the right time.

Growing concentration and sophistication in the retail market makes further demands on the farmer. In the U.S.A. the structure of retail food marketing has already been substantially adapted to the supermarket and a similar process is taking place in Europe. Both the supermarkets and the remaining 'independent' retailers are tending to become concentrated in relatively few horizontally integrated or co-operative groups. The full economies of modern retail methods can only be achieved if appropriate production decisions ensuring a timely supply of suitable goods are made by farmers.

*Changes in the economy at large*

Changes in the rest of the economy have tended to reinforce those arising in the agricultural sector. Rising levels of income make farmers less contented with static, or very slowly rising, farm incomes. Thus further urgency is added to the process of intensification and specialization. Again, richer consumers seek greater convenience in the food products they buy, entailing more elaborate processing and retail presentation. At the same time the growth of other industries offers an increasingly attractive rival demand for capital, thus intensifying the credit problem.

The complex but familiar issues reviewed in this section point to the fact that in several important respects the family farm is becoming a less feasible size of unit for some categories of agricultural decision. On the grounds of resources, competence, and security the farmer is dependent more and more on outside agencies. Other businesses find themselves vitally involved in farmers' behaviour and decisions. Decisions on each of these issues need thinking about on an appropriate scale and, while the appropriate scale may differ from case to case, it is less and less likely to correspond to the family farm.

## II

Contract farming can permit different effective sizes of decision-making unit to operate simultaneously for different purposes. In this way the

traditional family farm structure of ownership and farm operation may be able to survive while the changes resulting from new techniques and developments in other parts of the economy can be accommodated. Within the compass of this paper it is possible only to indicate some general ways in which contracts can achieve this end. The illustrations are drawn from typical practice in the United Kingdom. Many other examples could be provided both for the U.K. and for other countries.[1]

Contracts are frequently associated with the provision of capital, either in the form of goods or finance, by a firm with whom the farmers deal. They may be simply an elaboration of traditional merchant credit arrangements or they may introduce capital from entirely new sources. For both the farmer and his creditor they have several advantages. The farmer receives that amount of capital which is needful for a particular productive activity. He is assured of a market on known terms for his product. The additional capital is unlikely to reduce his creditworthiness in other directions, thus improving his over-all capital position. The creditor has the security of the goods which are being produced. His capital commitment is limited to those goods in which, as a supplier of inputs or buyer of the farmer's product, he is interested. If he were to acquire farms in order to produce the goods himself, he would need more capital and become involved in a series of farming activities irrelevant to his original business but essential to the economy of his farms.

A typical contract which exploits this capacity to use capital efficiently is offered by those feed merchants who supply contracting farmers with broiler chicks, feed, and medicaments. The farmer supplies the fixed equipment and the labour needed. The contract specifies husbandry practices and the division between the parties of the revenue from the final sale—which is negotiated by the merchant. Capital provided in this way adds directly to the merchant's sales of feed and involves no interference in the farmer's other activities.

Regulation of the quantity, quality, and timing of supplies is a feature of most contracts. Firms, who are in a position to make good forecasts of the market for their products, can offer contracts which will ensure that an appropriate supply of raw materials is forthcoming. Improved understanding of agricultural production processes makes it possible to incorporate clauses which will effectively relate the timing of production, the husbandry practices to be adopted, and the type of product to be produced to the requirements of the market. Uncertainties of yield persist but the contract can help to minimize these.

Assured supplies are especially important to the processor. If suitable products are not available at the right time, his factory may be idle. In the United Kingdom most peas are bought on contract. Contracts offered by pea processors specify the acreage to be sown, the type of pea and conditions of cultivation, the timing of harvesting, and the dispatch of peas

[1] See, for example, J. S. Marsh, *Contracts for Farm Products, an Examination of their use in S. E. England*, Reading, 1965. E. P. Roy, *Contract Farming, U.S.A.*, Danville, Illinois, 1963.

to the processor's factory. Similar contracts exist for a wide range of vegetable crops and for pigs, lambs, and beef.

Contracts are frequently associated with the provision of technical advice. Many firms which offer contracts provide technical advisory services. Husbandry problems can be discussed with experts who have a specialist knowledge of the problems involved. At the same time full use can be made of the farmer's own local knowledge and management skills. If a firm were to establish wholly owned subsidiaries, it would need to recruit a staff possessing just such local knowledge. Further, within a vertically organized firm staff motivation might present problems. The contract system offers advice which the farmer takes in order to maximize his profits. Such a response is conductive to good management. In a large, wholly owned subsidiary, the widespread nature of farming and the difficulty of supervision might make equal efficiency hard to attain.

A contract offered for calf rearing provides an example of the provision of technical advice. The farmer undertakes to deliver twelve-week-old calves in stated numbers at stated times. The firm which offers this contract provides technical and veterinary advice and lays down certain standards of feeding and cost recording. At all stages the company's representative has access to the calves.

The application of research findings on a commercial scale can be speeded by the use of contracts. Firms who have developed new seed, new strains of stock, or new husbandry practices can ensure that the farmer adopts suitable practices to give the project a reasonable chance of success. The farmer has security if the attempt to apply the new ideas on a farm scale runs into difficulties. Where a research agency or firm is seeking to exploit new techniques for the first time on a commercial scale contracts can be of especial value. For example, one firm which uses a contract for this purpose has done so in association with the development of a superior strain of bacon pig. The pigs are leased to the farmer. If they perform badly the farmer is compensated, provided he has observed the remaining conditions of the contract. These cover husbandry practices and offer an assured market for the finished pigs.

Finally, contracts permit the risks attaching to specialization to be borne more easily. In so far as the contractor forms a better judgement of the market than the farmer, some risk may be eliminated. Where contracts encourage farmers to apply improved but experimental techniques in confidence that a market will be available, losses in the course of production may be reduced. Those risks which remain may be shared on an agreed basis between the farmer and an outside firm in accordance with the terms of a contract. Since in contemporary conditions firms outside farming may be in a better position to bear risks, through more opportunity for diversification, or because they possess greater reserves or because of superior market knowledge, this shifting of risk may encourage a higher over-all level of production at lower unit cost.

Almost every contract involves some transfer of risk, not always to the benefit of the farmer. A contract which illustrates the extent to which

risks can be absorbed by an outside firm is offered for heavy hogs. Under its terms costs are calculated on an agreed basis when production is complete and the farmer is paid cost plus a margin on every pig delivered.

## III

The ability of contracts to accommodate the diverse interests of a variety of members of the agricultural industry suggests that they may play a major part in the adjustment of farming to new technical and economic opportunities and situations. Further they may do so with a minimum disruption of the pattern of family farming which is highly prized in many communities. In this section some of the difficulties which may strain contract relationships are discussed. Such difficultities are sometimes advanced as evidence that contracts can represent only a temporary stage between atomistic competition and vertical integration. Within the limits of this paper these issues must remain unresolved. Clearly they require further thought and research.

Contracts sometimes break down because of difficulties in enforcement. The costs of legal enforcement are high in relation to the value of the business involved, but, if the farmer fails to honour his bargain, the firm offering a contract may be in a worse position than if it were to rely on the open market. If the contract system fails for this reason vertical integration may appear more attractive despite the higher immediate cost in acquiring farms and fixed equipment. Equally, the farmer can only enjoy security if the contract is adhered to by all parties. If the wording of the contract is obscure or misleading, the farmer may be in a very weak position because he has committed himself to a degree of intensification and specialization which makes subsequent manœuvres more difficult.

The limited life of most contracts presents a different problem. A farmer who, perhaps in a state of euphoria induced by his first contract, invests in specialized equipment may be obliged to accept a subsequent contract even if the terms are relatively unfavourable. The most acute form of this problem is likely to arise where there are major imperfections in the market for the farmer's product. If these exist, then there may well be a case for state intervention to prevent abuses.

Contracts afford only one method of adjustment. Horizontal integration and farmers' groups are the subject of another paper at this Conference. Such developments are compatible with the use of contracts. In some cases contracts may not be used because of state-organized marketing or because a product for which there is a specialized limited market fits well into the requirements of vertical integration. Basically the advantages of the contract device are, first, that it involves relatively little disturbance to existing ownership and control structures and retains to a great degree the exploitation of autonomous action and, second, that it provides flexibility because different sizes of decision unit may co-exist for different categories of decision-making problem. On the other hand, enforcement must involve some costs. The potential stability of the contract farming

system will depend, of course, on whether these costs are so great as to make preferable, after all, the more rigid and more cumbersome alternative of vertical integration.

## GROUP E. REPORT

ALL participants agreed with the first part of Mr. Marsh's paper on the reasons for the change in the position of the farmer as a decision maker. Thus, the discussion centred on the advantages and disadvantages of contract farming and on its impact on the structure of agriculture. In addition, several participants sought to enlarge the scope of the subject.

Several examples were cited of the advantages of contracts in channelling capital and know-how into agriculture, particularly in the less-developed countries or areas. However, much publicity focuses on successful contractors but little is said about those who failed, in spite of their significant number. However, failures could be regarded as the price which had to be paid for the necessary flexibility in the industry.

The loss of independence by farmers was the feature which received the most attention. It appears that this loss of independence varies a great deal between countries and, within a country, between industries. With many opportunities for observation, American economists seem far from unanimous on this point. Some see farmers in the U.S. as generally not happy with contract farming, particularly when they are progressive and well informed. In the production of fruit and vegetables, contracts are taken as a matter of course. For broilers, on the other hand, contracts are well accepted in poorer areas but considered with great suspicion in areas where farmers have a better education. The success of the American Farm Bureau Federation in organizing broiler producers, even though the Farm Bureau was reluctant to engage in such an activity, was evidence of farmers' discontent with contracts. The view was expressed that firms contracting with farmers would be as predatory as the market situation would permit.

This last statement may provide the starting-point of a synthesis between the optimistic and pessimistic views. Those favouring contracts urged that a distinction be made between farmer's pronouncements and their actions. In the U.K. farmers are competing for contracts. One might think of the relationship between the firms offering contracts and the farmers as being of a symbiotic rather than predatory nature. Contracting firms are in business to stay and they want to preserve their image. Comments suggest that the strength of farmers' organizations and the situation of the market play a crucial role in this matter. For instance, the Dutch co-operatives control half of the feed supplies and a large share of the processing capacity for hogs and eggs but not for broilers. In this respect, it was pointed out that, to be efficient, co-operatives must behave very much like capitalistic firms. Thus, their main contribution is by providing alternative marketing channels and a check on predatory practices. In

order to keep members happy and proud of their co-operative, much attention must be given to the relationship between the co-operative and its members.

To conclude on this subject of farmers' independence, it was pointed out that when a farmer contracts for all his output he becomes only a labourer and without the protection of a workers' union. In this respect, it is interesting to note that a recent judgement in France said that fully integrated farmers should be considered as employees.

In the discussion on structure, the size of farms was seen as affected by the development of contracts because it is the larger and more efficient farms with whom the integrators most desire to contract. Furthermore, if contracts do bring more capital and know-how into agriculture, they do not decrease the amount of labour available in agriculture. In many developed countries, structural changes are required to permit the necessary substitution of capital for labour and thus labour must leave farming.

It is true that contracts are not the only, and even not the major, factor of structural changes, yet they play a crucial role because they facilitate necessary concentration and specialization within agriculture. Furthermore, if the structure of agriculture is understood to include the relationship between farm units and the directly related industries, there cannot be any doubt that contracts do bring about necessary structural changes.

Because of time and space limitations, Mr. Marsh had narrowed his subject to the impact of contracts on structural changes but he had invited participants to enlarge on it.

It was suggested that the title should have been interpreted as a comparison of contracts with other forms of vertical integration. Furthermore, he would have wished that this Group could discuss the practical issue of the 'Groupements de Producteurs' (Producers' group) in the E.E.C. whereby farmers, accepting some collective discipline, would receive a substantial subsidy on their investment. The chairman, however, suggested that they leave aside the problems of subsidies not directly related to the main subject of discussion.

The impacts of contracts on output and on stability of prices and income received much attention. The examples of the broiler industry in the U.S. and in other countries suggests that the development of contracts has fostered a rapid growth of production and a consequent decline in prices received by farmers. In addition, these prices are unstable. Even though the U.S. experience may not be exactly paralleled in other countries, the participants seemed to agree that the co-ordination of a moderately small number of farmers will not necessarily be easier than that of a large number. Thus, it should not be expected that the balance between supply and demand will be achieved without large price variations.

Finally, it was pointed out that the development of numerous interlocking relationships between farm units and other firms had an important impact on the location of decision centres. Family farms may no longer be considered as the norm. As a result, the allocation of resources may be affected as occurred in the U.S.A. during the 1940s when leasing contracts

interfered with the use of fertilizer. In addition, this development raises the question of the suitability of the concept of the independent family farm. A plea was then made to the economists that they create adequate concepts for statistical data collection on matters related to farm structure and also to prices.

Among those taking part in the discussion in addition to the opening speaker were: E. A. Attwood *Ireland*, D. R. Bergmann *France*, H. F. Breimyer *U.S.A.*, E. Dettwiler *Switzerland*, A. Kamali-Nafar *Iran*, J. Klatzmann *France*, A. Kraal *Netherlands*, M. Petit *France*, E. Thomas *U.K.*, H. C. Trelogan *U.S.A.*, T. K. Warley *U.K.*, R. G. Wheeler *U.S.A.*, M. D. Wright *U.K.*