THE FARM FIRM IN THE STRUCTURE OF THE AGRICULTURAL "SYSTEM"

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Early in the revolution in scientific thought which began several centuries ago an idea arose that a natural law governs the infinite universe and that finite man had only to take steps to discover it.

It was a simplifying thesis, and therefore a comforting one. It was particularly attractive to social scientists, who otherwise were hard put to apply rationality to the pulling and hauling which shapes human institutions.

Unhappily, that old confidence in a natural law which need only be perceived has dimmed. The natural law concept is now less acceptable in the physical sciences. It is almost in disrepute in the social sciences.

One consequence is to endow with mortality the organizational forms we live by. It is generally recognized that the ways we organize ourselves for both economic and social activity are always subject to change. Further, this admission of the transitory character of institutions is in contrast with the comparative timelessness of our values and goals.

The relevance of this introductory comment to a structural study of the farm firm is dual. First, the farm firm, like any human institution, is not carved in stone, assuredly to endure for all time. It is subject to change.

But the second derived meaning is the more profound and the harder to deal with analytically. An institution such as the farm firm did not arise purely out of happenstance. Nor is it the product of single-dimensional influences. Least of all is it the product of solely technological influences. It is also a reflection of deeply held socio-political aspirations and values. That is to say, as an institution of human society it also incorporates human values and goals. Therefore, any review of the setting for the institutional organization of agriculture must include cultural as well as technological considerations. It must be inclusive on either normative or positive grounds: educational leaders have an obligation to consider what "ought to be" as well as "what will be"; and any prediction of what will be could easily go astray unless society's capacity to express its non-economic goals is taken into consideration.

Definition of the Farm Firm

In the analysis that follows, the typical farm firm will be described in terms of the independent proprietorship commonly known as the family farm. This has been the prevailing unit everywhere except principally in plantation areas of the South and in parts of the Far West.

Definitionally, the farm firm will be regarded as a managerial unit in which labor and physical capital are applied to land in order to produce primary farm products.\(^1\) It basically produces non-differentiated (i.e., homogeneous) products. The typical farm firm combines laborer, supplier of capital goods, and manager in a single person.

In the majority of cases the farm operator is also owner. But not always. A sizable part of all land is owned by landlords. Question may be asked. Is a comparable part of managerial control thereby transferred off the farm, or outside agriculture? The answer seems to be that an appreciable share of management does reside off the farm, but to date little has moved out of agriculture. The majority of landlords are associated with farming, many being retired farmers or relatives of the operators. Ownership of land by town doctors and lawyers -- and even a few affluent economists--may be called absentee landlord control. However, the weighty issue in land holding and managerial control concerns how much ownership rests with nonfarm commercial investors who hold large acreages and formally manage their holdings. Thus far, commercial landholding of that kind is of secondary importance.

Moreover, modern technology probably transfers some of the seat of managerial power to the holder of physical capital, and away from the holder of land.

In other words, the farm firm generally combines the four factors of production in a single person.

\(^1\)Elsewhere I have treated the traditional structure of agriculture in the following terms: "... (it) may be described variously, depending on whether one's interest is in institutions of the land, relations with the market, or other features. Probably the following is a nearly complete list of attributes of the structure:

"(1) Land is privately owned and cultivated.
"(2) Much of the land is owned by persons within agriculture, rather than by a nonfarm propertied class.
"(3) The individual proprietor is manager and laborer and provides most or all his operating capital; he may also own his land.
"(4) Consistent with (3), the individual proprietorship is comparatively small.
"(5) The farm buys its supplies and sells its products in market exchange."

Sovereignty is internal in another sense. It is that the managerial function is performed primarily according to market data. This is implicit in calling the farm firm an independent managerial unit—or, perhaps, even in calling it a "firm." Traditionally, the farm has obtained its supplies in market purchase and has disposed of its product in market sale. Further, more recent and more sophisticated theory has recognized some further characteristics. The farm firm is usually in the position of a "price taker." For the supplies it buys it pays "made" prices. Moreover, in the past those prices have been uniform to all buyers; to the farm they have described a perfectly horizontal supply curve. For the products it sells the farmer also lacks the capacity to establish reservation ("administered") prices except insofar as that is done for him by government programs of price support or in some cases by cooperative bargaining.

These characteristics are full of implications. For example, the farm firm makes its production decisions internally, yet some of the paying price data may be unknown when those decisions are made, while most of the prices to be received are absolutely unknown. Further complicating the situation is the fact that for many farm products the production interval is long. A recognition of this perpetual chancery bears on the nature of management in agriculture and on the policy issue of instability (e.g., cyclicality) in agriculture. Does the farmer make habitual errors of anticipation of prices to be received? If so, there are management consequences. Therein is explained economists' interest in new techniques of supply analysis such as Marc Nerlove's distributed lags. Therein is credence found for such policy proposals as D. Gale Johnson's forward pricing.

Origins of the Traditional Farm Firm

It may be helpful to consider how the traditional structure of the farm firm came into being.

That firm has two origins. One is economic, the other socio-political.

Economically, the detached farmstead has advantages because farming is space-consuming. Machinery is heavy and slow. Also, farm products are bulky and many are perishable, and there is good economic reason to reduce their bulk and make them more storable and transportable right on the farm. This extends to feeding feedstuffs to livestock.

This does not explain why each farmstead is also a managerial entity, and each farmer a person of two or more economic roles. Here the biological nature of farming, the non-simultaneity of processes John Brewster notes, and similar factors have militated in favor of managerial independence. The composite-role farmer can certainly manipulate the production processes without costly bureaucratic overhead.
Historical events helped the farmer to gain and hold independent firm status. In the New World land was cheap, but much took some clearing. John Locke said that as much land as a man could clear, that much should he have. For centuries tillers of the soil had yearned for land of their own to till. On occasion they did more than yearn; they revolted for it. Their incentive was not only economic: Ownership of land was the badge of status -- social status and political status.

So with land so plentiful it became easy to indulge husbandmen in their wish. In the U.S. it eventually became national land policy to do so. First the policy was to help them to get land. For a century the policy has also been to help them to hold it.

But society does not answer all petitions affirmatively. Why did it so answer farmers? In the broader sense, why did our nation adopt, and, particularly, retain, so precedent-breaking an institution as individual freeholding of land? (In feudalism land was not owned; it was enfeoffed.) If the plowman wanted to own his land, why did society choose to let him do so? Why was land made a virtual commodity, to be bought and sold? Again, its early abundance was the original explanation. In my judgment there are two current reasons. One is that the performance record of our agriculture has been extremely good. The second is that our system of landholding has been one of small land holding. It is doubtful that society would long tolerate private oligopoly in land.

Forces for Change

Evidence is abundant that there are forces which press for change in the organization of the farm firm. They may even press toward elimination of the traditional farm as the central unit of agriculture.

It is worth a self-reminder that the firm, however identified, need not be the unit of scholarly inquiry and of applied "farm' management. P.J.D. Wiles makes clear in his good book Price, Cost and Output, that "... before 1870 ... there was ... no 'theory of the firm' as a separate branch of economics. Supply and demand in large markets, currency and credit, public finance, international trade and the elements of welfare economics were studied, but not the production function nor the pricing policy of the entrepreneur." Moreover, "practically without exception" economists then "held the full cost doctrine." 2

Before we attribute too much wisdom to Mr. Wiles' sententious statement we would do well to remember that before 1870 many other analytical tools of today were nonexistent. There was no theory of imperfect competition. Although the Austrian school was beginning to be influential it had

not yet gained wide recognition. William Stanley Jevons did not publish his *Theory of Political Economy* until 1871, and Menger's *Grundsätze* came out in the same year. Obviously, Marshall's blend of cost-of-production theories of value with marginal utility, in which he employed the idea of the typical firm, was not to appear on the scene until later.

Moreover, in the second edition to his book Wiles writes, "We need words and a schema that enable us to set the classical owner-managed enterprise among the various other kinds of enterprise: the peasant farm, the modern corporation, the producer's cooperative in Yugoslavia or else where, the 'establishment' in a Soviet-type command economy." 3

Wiles adds that the firm as a corporate structure to combine factors of production embraces not only enterprise, the managerial factor, but "sovereignty, the right to give ultimate orders to the firm, beyond which there is no appeal;" and "equity, the right to receive the net profit." He explains further that "sovereignty and equity are not factors of production but rights." 4 Sovereignty implies the capacity to decide what is to be maximized. Wiles says a "sovereign" might want to run this firm at a loss in order to pay high prices to one of its suppliers, in which he was still more deeply interested." 5

Forces pressing for change in the nature of the farm firm and therefore in the structural organization of agriculture may be classified broadly into those of the technology of production and those of markets, in the most comprehensive sense of each term.

**Technology of Production.**

The concept of technology of production may be subdivided into techniques as such, and into the kinds of resources employed.

That techniques are becoming more complex and more scientific is common knowledge. The point needs little elaboration. "A successful farmer is expected to know the chemistry of nitrogen applications, the physics of hay handling, the engineering of a balky tractor motor, the economics of selling hogs on the best market, the finance of long-versus short-term credit, and the laws of when to discontinue stilbestrol implants in the ears of steers." 6

The advance in technology is a signal achievement, deserving eulogy. There is a dramatic contrast between "the skilled and competent family farmer of today...(and) his peasant forbear of only a few centuries ago.

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3Ibid., p. x.
4Ibid.
5Ibid., p. xiii.
That advance in skills and status is among the most dramatic and heartening the world has ever seen. To large extent it can be credited to education, and it stands as a flaming tribute to the powers of education...

"But even so, let us guard against over-rating our attainments, or misreading their meaning. Our generation has wrought wondrous things in agriculture, but so did our fathers, and so did their fathers. It is questionable whether the cotton picker is a more clever or more revolutionary piece of machinery than was the cotton gin in its day. And neither ranks alongside that most marvelous of all mechanical inventions in agriculture, the metal moldboard plow, which presents a mathematical surface that baffles the wizards of mathematics. It replaced crude tools for scratching the soil that had existed since the dawn of time."\(^7\)

The proliferation of new knowledge in agriculture has several consequences. As one, it accounts in part for a trend toward more specialization in farm production. As a second, it puts emphasis on more effective educational programs for agriculture.

More than that, it raises question as to whether the individual farmer can master the manifold knowledge and multiple skills modern technology demands. Will modern technology doom the independent farmer and firm? Theodore W. Schultz denies that it will. He avers the opposite. He says, "as farmers adopt and learn how to use modern agricultural factors an increasingly larger part of all farming is taken over by owner-operators."\(^8\)

On the other hand, many observers suggest that complex technology militates toward multi-farm units that make specialization of duties possible.

But technology in the sense of "how to do it" is only half the story. Most new technology has been applied in connection with bringing new resources to agriculture -- or vastly expanding the use of some that previously were neglected. This is the economics of employing a great many more capital inputs in farm production.

Thereby has agricultural productivity been enhanced. This result alone has some meaning to farm management, and more to farm policy.

But an associated feature of that productivity is packed with significance to farm management. It is the fact that it is a controllable productivity. The annual output of an individual farm (and of all agriculture) is

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\(^7\)Harold F. Breimyer, "Relations between Agricultural Policy and Freedom," Paper delivered at joint sessions of Marketing and Agricultural Economics-Rural Sociology Sections of the Association of Southern Agricultural Workers, Atlanta, Georgia, February 3, 1964.

\(^8\)Theodore W. Schultz, Transforming Traditional Agriculture, Yale University Press, 1964, p. 119.
subject to governing control in a way and to a degree that was not true in an earlier, more agrarian age. Control is exercised primarily through the quantity of variable capital inputs employed. In this way the managerial task is made much more complex than it was when a manager's annual decisions concerned principally how to apportion a nearly fixed quantity of resources among alternate uses. Now the manager must decide also how many total resources (inputs) to procure and utilize each year.

It is in this respect that the uncertainty as to prices to be received becomes a serious impediment to good management. Moreover, if farmers as a group tend to make patterned errors in anticipating future prices, chronic instability in agriculture is likely to result.

Another way of viewing the managerial perils of a more technological and more commercial agriculture is to take note of how much annual cash production expenditures have increased and how large a part they are of gross cash receipts (75 percent in 1963). Today's agriculture is truly commercial. In a classical vocabulary, it can be said to be rationalized.

Linked therewith are issues of how to obtain adequate capital funds of the preferred kind, particularly equity capital. Also arising in that connection are means to temper the element of risk in farming.

Changes in Markets

However much methods of production have changed, it is possible that developments in farm markets have been even more momentous.

First of all, marketing has become ever more divorced from production. Producers of farm products generally do not now perform many marketing services themselves. Marketing has become a huge activity and a specialized one. It is conducted largely according to the rules of the nonfarm business world.

Marketing has become more influential. It has forced production to become more market oriented. It has even reduced it to a subsidiary role.

Market considerations find a greater place for several reasons: its growth in magnitude, the transition to more direct trading; impatience of market firms with so variable and unpredictable a market supply of products as typically comes from agriculture; the trend toward mass handling and mass distribution, which requires uniform, standard quality of products; and consumers' growing discrimination as to quality.

The resulting pressure for a more orderly supply of farm products of specified quality is known as the drive toward specification production. It prevails throughout agriculture.
It could be viewed, to be sure, as a managerial problem in production as such. It does indeed involve problems of how the biologic processes of agriculture can be reduced, managerially, to the neat order the marketing system wants.

But management in production responds only to stimuli. The stimulus, the incentive, has traditionally been expressed via the market pricing route. Increasingly it is being transmitted by more direct methods of the several kinds lumped under the broad term, "vertical integration." Integration will be named later as one of the alternate forms of organization of U.S. agriculture. Let it be recognized here that the managerial function and in fact the definition of the farm firm itself are affected by the manner in which the drive for specification in production is expressed. Wherever integration is complete, the idea of a farm firm no longer has meaning. Moreover, although integration once again combines production and marketing in a single entity, in the early version management rested primarily at the farm level but nowadays it usually is at the marketing level.

The search for more order and regularity in the marketing of farm products may be of primary importance to the marketing sector, but its secondary significance to the economics of the firm in production is awesome.

As a quick side comment, by no means all the interest in vertical integration arises in the search for tighter specification of quality (and timing, etc.). It has a source also in the greater concentration of size and power in parts of the marketing system. Earl Crouse of the Doane Agricultural Service declares that changes in retailing are the biggest motivating factor. Control over channels of supply (or distribution) is an instrument of market power.

Partly because many market firms have become larger, we have seen some departure from the established principle that farmers buy and sell on a "perfect" market insofar as price discounts (or premiums) for quantity are concerned. Large farmers can sometimes buy supplies at discounted prices for large quantity. They may also get higher prices for what they sell if they deliver a particularly large volume. The latter opportunity is confined chiefly to giant farms in specialty products, although it extends to some livestock products. Wherever these conditions prevail, the simplifying assumption of horizontal price curves for supplies bought and product sold is no longer applicable.

The nature of the structure of the market cannot be passed without a comment on the market for the important factor of land. Its price soars. There is no need here to expound reasons; they doubtless extend from the marginal worth of added land to accommodate overinvestment in machinery, to favorable tax laws for the capital-gains-wealthy, to the enticement of speculative investment. Whatever the reasons, land prices are high, and the consequences bear on the economics of the farm firm. A question is raised
as to how land costs are to be funded—also the question of whether an influx of nonfarm capital will compromise the operator's managerial role, perhaps eventually transferring management out of agriculture. All this is true despite the fact that farm operator-owners have a stout defense in their willingness to forego some imputed return to investment in order to be able to own land.

What of the Future?

The above review of how we got where we are, the nature and meaning of our present system, and the changing structural influences, are prologue to speculation as to where we may go next.

A convenient and meaningful distinction to be made is that between horizontal and vertical changes in the organization of the firm.

Horizontal Combination

Horizontal changes in turn are those of cooperation of various kinds, each with its unique significance both economically and socially-politically; and those of combining present farms into multi-farm corporate structure. The latter would be corporate in both formal organization and in administration. It would have all the trappings of specialization of jobs, a layer-cake executive hierarchy, a public relations officer, and a "public service advertising" budget. It would also be built largely on non-farm finance capital. In fact, a heavy introduction of non-farm finance capital would likely lead to such an organizational structure, if only by force of habit. A few existing farmers would become executives and more would be supervisors, but the majority would be laborers. Public services to such an agriculture would change materially. Research and education, for example, would be confined largely to work of basic and technical nature.

There are now some super-farms, as King Ranch and some specialty producers. More prevalent are large units in broiler and egg production and in cattle feeding.

Cooperation includes not only the familiar farmer cooperative associations but cooperative bargaining associations, such "self-help" techniques as marketing agreements and orders (state or federal), and direct government programs of types ranging from Section 32 surplus-removal to price supports that set floor prices. All these affect the managerial function in farm production, in some way and to some degree.

Vertical Integration

The other possible direction is toward vertical integration. By definition this involves a reconstitution of management. In principle, sovereignty could be shifted almost anywhere; that of the farm firm could be increased greatly if the farm were to take over marketing. In reality almost
all integration to date has transferred sovereignty off the farm. The only likely possibility of retaining it in agriculture is via cooperative arrangements. These too are being discussed in some circles.

Vertical integration introduces more complicated changes in the structure of the farm firm than does horizontal combination. If integration is achieved by the non-farm integrator's acquiring ownership of farms, sovereignty will be transferred out of agriculture and the status of farmers will change much as in corporate super-farms. If integration is by contract instead of common ownership, the status of the farmer and his distributive share will depend on the terms of contracts and the elbow room each farmer enjoys in contracting. If contractual integration proceeds far, however, much sovereignty will be lost and the farmer's distributive share will be reduced except insofar as it is sustained by group action.

Analytically, in an integrated agriculture many present techniques of farm management analysis would be rendered inapplicable. Their replacement would be the economics of imperfect competition in its infinite complexity.

The call for public services in an integrated structure would likely be even less than in a horizontally combined one. On the other hand, more of some kinds might be given without call. For there would be a need for surveillance and adjudication, for protection of the interests of erstwhile farmers. It is harder to protect political and social (i.e., "democratic") values in vertical combines than in a market economy.

**Epilogue**

The brief review of horizontal combination and vertical integration is offered as limiting cases. In the more diverse agricultural economy of the future there will be actual instances of each -- there are a number now. But there will be myriad mixed and half-way situations too. Also more cooperatives and bargaining associations as defensive measures. And quite possibly a new direction in farm policy that will extend a helping hand from government.

The least to be said is that the single traditional model of a farm firm will no longer be as nearly universal as in the past. Various other models will command study and adoption. One of the complicating features of the emerging market structure as it affects the economics of the firm in agriculture is that it makes for more variation, more diversity.

Production economics thereupon becomes more difficult, farm management more comprehensive and complex, and the farm policy implications more profound but also more baffling.