

THINKING ABOUT FARMERS' COOPERATIVES, CONTRACTS,
AND ECONOMIC COORDINATION

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In this essay, I am interested in exploring possible roles of farmers' cooperatives in dealing with the fundamental problems of coordinating economic activity in the real world of uncertainty. In a private enterprise economy, coordination takes place across markets and within firms, always, of course, within a set of institutional constraints imposed by governments and custom. Coordination across markets and within firms requires transactions. In both cases, the transactions involve exchanges of claims to benefits and **agreements**--implicit and explicit contracts. In transactions across markets, explicit prices are central to coordination and contracts tend to be more specific. Transactions within firms involve more general agreements, authority relationships, and implicit prices (i.e., opportunity costs are recognized and dealt with as implicit but contingent prices). Cooperatives represent a third general mode of organizing coordination, combining characteristics of markets and internal (integrated) coordination in ways that are different from either.

The Coordination Problem

In the modern economy, the activities of thousands of people and resources scattered over thousands of miles contribute to producing and distributing a single product such as a loaf of bread. The contributions are made over a period of many years, past contributions being embedded in capital goods, knowledge, institutional structure (including firm organization), and inventories. How to coordinate these contributions, when at each step in the production-distribution sequence information and mechanisms of control are imperfect, **is** a central economic problem. Production decisions must be made under conditions of uncertainty as to future supplies of inputs and demands for products. The future is inherently uncertain. If information about future input supplies, product demands, and transformation functions were perfect, resources were perfectly mobile and divisible, contracts were perfectly drawn and enforceable, and no firm had power to influence its prices, coordination would be simple. But none of these conditions exists in the real world. Our interest is in mechanisms that effectively coordinate economic activity under real world conditions.

The coordination problem involves at least four levels of aggregation:

1. Coordination within firms (micro-micro coordination).
2. Coordination between individual firms (micro coordination).
3. Coordination of total supply with total demand for commodities or industries at each step in the production-distribution process (macro coordination).

*I thank my reviewers, J. Staats, H. Riley, V. J. Rhodes, P. Vitaliano, E. van Ravenswaay, I. **Dalziell**, and D. Street for helping me think about this topic but properly accept responsibility for the paper, having stubbornly resisted some of their suggestions.

4. Coordination of aggregate demand with aggregate supply for the economy as a whole (**macro-macro coordination**).

A theory of coordination needs to address the problems and mechanisms of coordination at each of these levels of aggregation and the interrelationships among the levels. Decisions within firms influence the outcomes of markets, and the prices resulting from market interaction are part of the environment to which firms respond. Price uncertainty is created by uncertainties about future total supplies and demand for inputs and products which are determined by individual firm decisions based on uncertain future prices. Mismatches of aggregate supply and demand similarly affect prices and create price uncertainties. Addressing the economic coordination problem involves examining governance mechanisms at all levels. Cooperatives are one of these mechanisms of coordination.

Integration and Coordination

Before turning to the central question of the potential roles of farmers' cooperatives and relating the roles of cooperatives to the characteristics of markets and transactions, it will be useful to briefly discuss integration in general. Vertical integration is defined as coordinating technically separable activities in the vertical sequence of production and distributing products under the control of an organization by ownership. The incentives for vertical integration include: reducing the costs or problems involved in transactions across markets; costs of search, negotiation, and monitoring; and problems of uncertainty, impacted information, opportunism, and externalities, as discussed in the previous section, and capturing economies of scale in allocating lumpy inputs over a set of activities. Integration also may take place to achieve growth goals of management, as an investment by firms with accumulated funds or by mistake.

Horizontal integration involves combining within an organization multiple production-distribution systems that are technically separable for the same product. Examples are two processing lines or two plants to make tomato paste. Incentives for horizontal integration include potential improvement in the match of supply with demand (macro coordination), potential market power, and generally improved ability to control the environment associated with size and economies of scale.

Scope integration involves combining within one organization the production-distribution of multiple products or services that are technically separable. The conglomerate firm producing butter and lamp shades is an example. Incentives for scope integration include potential of economic power and possible economies of scale, especially in selling. Limited coordination benefits are apparent from scope integration per se. Large conglomerate firms may have the capacity to influence system coordination through the exercise of political and economic power, especially by the use of advertising and merchandising to improve the match between supply and demand.

What then limits the extent of integration? Or what determines how a subsector or economy is organized, its combination of integration and the markets coordinating its economic activity? Given the incentives for integration and the related problems of coordination across markets, why do markets in intermediary products and services persist?¹

Organizations require bureaucracies, and the larger and more diverse the functions of the organization, the larger and more complex the bureaucracy. Participants in an organization have their own interests and perceptions that may not be congruent with the owners. Organizations have internal transactions costs. Information may be impacted; behavior may be opportunistic, etc. Valuing inputs and allocating overhead costs is difficult and subject to internal political pressure. Organizational slack develops. The incentive to expend effort and pay attention to details and opportunities is generally less in large organizations than for individuals and small firms which are more directly subject to the immediate discipline of a market.

Substantial economies of scale exist in producing particular inputs. It may be less expensive and less risky to acquire inputs across a market than to produce them. A food processor, for example, would have to be very large to achieve economies of scale from ownership of a steel plant to produce the raw material for tin cans. And acquiring a steel plant for such purposes **would** reduce flexibility and add risk associated with changing preferences and technology for food packaging. The risks would be less for a specialized steelmaker supplying a diverse set of firms. To achieve economies of scale in the production of all inputs used in processing would require a huge, diverse organization with all of the problems of a huge complex bureaucracy.

Capital constraint is an issue. Generating capital internally is a slow process, and investors, to reduce risks, seek to diversify their investments. Managements of very large organizations are capable of making very large mistakes. Integrating into an unfamiliar business has significant costs and risks. Lack of knowledge is a significant barrier to entry as the large number of divestitures indicates. Finally, there is a political constraint on the accumulation of market power.

Farmers' Cooperatives and Integration

A farmers' cooperative consists of an association of farmer patrons, democratically governed, that owns one or more firms from which member-patrons receive benefits (or incur costs) based on patronage rather than stock ownership. The distinction between the **cooperative** association and the firms owned by the association is an important one.² The cooperative appears to be horizontally integrated among members and vertically integrated between members and the firms owned by the cooperative association. However, this is an illusion.

The cooperative association is not a horizontal integration of its members' firms. The member firms are independently owned, represent independent profit centers, and act independently except as they have agreed to own a

firm(s) jointly or have negotiated agreements to act collectively. The association has the potential to affect horizontal coordination, as in the case of a bargaining cooperative, but market power requires a mechanism of collective action to control the purchase or production decisions of independent members.

Nor does a cooperative **represent vertical** integration between member firms and the patron-owned firm ("POF").³ The members own the POF, but the members remain independent. Neither the association nor the management of the POF control the member farm firms.

Integration within a firm is very different than the relationship between members and their cooperatives. The failure to recognize this difference seems to be a source of confusion among some who attempt to treat a cooperative as an integration of members' firms in applying antitrust laws or in considering the undue price enhancement provision of the Capper-Volstead Act. The cooperative is a third mode of organizing coordination.

Integration usually is defined by ownership. However, ownership through stock ownership of an investor-owned firm (IOF) or membership in a cooperative does not translate directly into control. The separation of ownership and control is a topic with a large literature in economics. The ownership of a firm by the association of members does not imply control by individual members any more than ownership of shares of an IOF implies control of an IOF. In this respect, integration between the member firms and their jointly-owned firm differs from integration within a firm.

The POF is a bureaucratic organization that carries out functions under the direction of a management appointed by a board representing the association. As with any firm, the employees have interests and perceptions of their own which are not completely congruent with those of the owners. And in contrast to an IOF, where owners have a common objective of achieving profits, the owners of a cooperative have divergent interests that reduce the **capacity** of the board to represent the interests of particular member-owners.⁴

Owners of an IOF influence the firm through the board of directors and by buying and selling stocks. The market for stocks is a major disciplinary force for the IOF, a force that is absent for the cooperative (Staatz, pp. 368-69). The owners of a cooperative firm, in contrast, influence or discipline management through political processes, through purchase of stocks, through joining or exiting the cooperative, and through patronage of the firm. This difference in disciplinary mechanisms is important in analyzing the differences in potential performance of IOFs and cooperatives.

The relationship between members and their cooperative most resembles a contingency contract in market coordination (Staatz, pp. 187-89). Transaction terms are not fixed but are contingent on the patronage rebate, which is influenced by the performance of the firm and extent of patronage. Coordination between members and their cooperative's firm also are influenced by the terms of the membership agreement, which in effect becomes part of the

contingency contract. The explicit and implicit terms of the contract are critical to the performance of the coordination function. More about this later.

Consider the difference between a farmers' cooperative and an **IOF** owning both the cooperative's firm and the farms of the members. The coordinating transactions would be quite different. The latter would be conducted through bureaucratic relationships, and the former would be similar to those across markets, but with the added potential of the patrons influencing the firm's performance through an elected board. **IOFs** have integrated farming with farm supply and product marketing, but this integration generally has been limited to small scale. Large-scale integration of these functions has been limited by several factors. Farming is very capital intensive. To acquire the capital necessary for both the farms and, for example, a facility large enough to achieve economies of scale would require a very large investment and involve considerable more risk relative to payoff compared to alternative investments of comparable size. While farms tend to be specialized, there are complementary enterprises; a farmer can combine farming with **nonfarm** activities. Expanding the scope of the firm to take advantage of complementarities in farming would complicate the bureaucratic problems. More importantly, bureaucratic coordination on a large scale is difficult in farming because of geographic dispersion and the importance of paying attention to details on a day-to-day basis. An employee in a large bureaucracy is not likely to have the same incentives to attend to details and expend effort as an independent farmer whose rewards are immediately related to performance. Generally, a decentralized organization of farming coordinated across markets or through cooperatives has significant advantages over large-scale integration. An important question is the potential advantages of **cooperative** organization compared with coordination strictly across markets.

The extent of integration of a POF is a different matter. Should a farm supply POF vertically integrate into feed manufacturing or horizontally integrate by acquiring multiple retail outlets? Should a marketing POF vertically integrate into processing or retailing or horizontally integrate by acquiring multiple processing plants? Should a POF integrate in regard to scope by extending ownership to unrelated activities such as building motels? The incentives and limitations of integration are similar for the POF and for **IOFs** except that to the extent that the firm's objective function is to provide benefits to members related to patronage rather than profits to the firm and that members influence management decisions, a POF will be different than an **IOF**. Cooperatives are less likely to integrate into unrelated activities or into products that compete with products of members and are more likely to integrate into activities that expand markets for members' products (Staatz, pp. 70-73). Absent effective member control, the POF might be indistinguishable from an **IOF** in regard to integration propensities except that it operates under a more limited access to capital for expansion.

Two additional modes of organizing coordination will simply be mentioned. Joint ventures between a cooperative and an **IOF** are an example of coordination across a private treaty market using a contingency contract.

This is similar to integration; performance depends on the detailed provisions of the agreement.

A group of farmers may choose to organize a farm supply or product marketing firm as an **IOF**, returning benefits to the owners based on some combination of return to capital and patronage and relating voting rights to stock ownership rather than one-member/one-vote. A comparison of such organizations with pure cooperatives and **IOFs** deserves attention, but it is beyond the scope of this brief essay, except to say that such organizations may have advantages in particular situations.

The explanation for the evolution of the mix of modes of **coordination** is indeed complex. Comparative performance of alternative modes does not suffice to explain it. At least two additional factors deserve mention. A particular mode of coordination may develop based on inaccurate expectations. Performance of new organizations always is very uncertain. Once a mistake is made, future options are changed. Organizations have a tendency to persist. Similarly, legal advantages and disadvantages may favor one of the modes. It is not valid to assume that whatever pattern of organization evolves will provide the most effective coordination.

Also, there may be a systematic advantage in initiating **IOFs** compared to cooperatives as coordinating modes because of the greater potential rewards to the initiating entrepreneur. This advantage derives from the fact that benefits from the successful **IOF** are reflected in the value and dividends of stock that can be captured by the entrepreneur through stock ownership, while no comparable benefits are available from establishing a cooperative. Thus, just the fact that a cooperative is a superior method of coordinating economic activity in terms of transactions costs, etc., does not necessarily lead to the establishment of a cooperative. This does not address the question of comparative transaction costs in establishing these alternatives, which may be substantial and deserving of empirical investigation.

Some Implications of Characteristics of Markets and Transactions

To say that transactions across markets, between members and the POF, and within firms are alternative modes of organizing economic coordination is a simplification. Markets, cooperatives, and **IOFs** come in great varieties. They adapt to different environments, they adopt different structures and standard operating procedures (SOPs), and these variations influence their coordinating performance.

To think somewhat systematically about markets and cooperatives as alternative modes of coordination, I have identified twelve characteristics of markets, prices, or transactions that seem to me to be particularly relevant to coordination. **I** briefly discuss the relationship of each to market and cooperatively organized coordination.

It is assumed that the world is uncertain, that participants attempt to reduce this uncertainty for themselves by controlling aspects of their

environment, including influencing the terms of trade, that they seek to reduce transactions costs, and that these motives influence the mode of coordination. I do not assume the counterfactual characteristics of the "perfect" market or accept it as a norm against which other modes or organization are judged. In a world meeting the conditions of the perfect market, a comparison among markets and cooperatives would be irrelevant because performance would be essentially the same with or without cooperatives. However, this comparison is relevant in the real world of uncertainty, transactions costs, bounded rationality, opportunistic behavior, impacted information, externalities, differentiated products, endogenous preferences, lumpy inputs, fixed assets, economies of scale and scope, differential power, and sticky prices. Such characteristics of real world economies complicate the problem of coordination, and they need to be taken into account in comparing alternative coordinating institutions.

Contracts

Explicit and implicit contracts are particularly important in determining coordination performance. Transactions involve contracts or agreements of enormous variety and *complexity, which makes generalization about coordinating mechanisms difficult. Williamson discusses three classes of contracts that have relevance for coordination (Williamson, pp. 233-61). In classical contracting, "... all relevant future contingencies pertaining to the supply of a good or service are described and discounted with respect to both likelihood and **futurity**" (p. 236). Relationships between the transacting parties other than specified by the agreement are considered irrelevant, and the contract is relatively **easy** to enforce by legal authority. This type of contracting describes the usual relationship in spot auction markets and is apparently assumed in the perfectly competitive market of economic theory.

Long-term contracting under conditions of uncertainty may be impossible under the classical scheme because complete specification of contingencies would be prohibitively expensive or impossible. This gives rise to neoclassical contracting, which allows some flexibility in the agreement and sets up a process for resolving disputes and evaluating each party's performance with respect to contract provisions. An agreed-upon procedure and third-party arbitrator is more flexible and less expensive than litigation. Pressures to sustain long-term relations involving many transactions has led to what Williamson calls relational contracting, where an array of norms beyond those centered on the exchange come into play in governing the transactions. Contingencies unspecified by contract are settled without conflict based on a more general code and the desire to continue the relationship.

Thinking of contracting in these terms suggests that the distinction between transactions across markets and within firms is not clear-cut. Transactions among employees or units within a firm are difficult to distinguish from relational or even neoclassical contracting. Agency theory is enlightening in this respect as it describes a firm more or less as a contract system. Production contracting in farming as, for example, in the case of broilers, seems closer to governance within a firm than coordination across a **spot** market. This suggests that more attention needs to be paid to the nature of

contractual relations while avoiding overgeneralization about the differences between transactions within firms and across markets.

In situations that benefit from neoclassical or relational contracting, the owner-patron relationship that characterizes the cooperative seems to provide the potential for advantages in coordination for cooperatives over **IOFs**. Whether these potentials are realized depends on the **SOPs** adopted by a cooperative. Because the transaction between an individual member and the cooperative always is contingent on the performance of the cooperative, it is never as simple as is implied by classical contracting. The potential for improved coordination performance through the design of the implicit contracts between members and their cooperatives is an important area for analysis. Some ideas along this line are included in the discussion that follows.

Types of Markets

In thinking about coordination across markets, I find it useful to differentiate six general types of markets. Of major importance for coordination effectiveness is the difference between spot markets, which deal in goods already produced, and forward contract markets, which deal in promises to deliver goods or services in the future. Transactions in goods already produced or in forward contracts can be across markets characterized as auctions, posted price, or private treaty, which yield the six types of markets. Each of these types of markets produces different information and incentives, involves different transactions costs, and thus influences the effectiveness of **coordination**. To understand the possible roles of cooperatives in coordination, it would be instructive to compare alternative ways of instituting transactions between members and their POF and each of these types of markets. I have suggested some of these comparisons in the following discussion of characteristics of markets and transactions, but they do not constitute the complete and systematic analysis the topic deserves.

What follows is a brief discussion of each of twelve characteristics of markets and transactions that seem to me to be particularly important in influencing the effectiveness of coordination along with brief **comments about** the possible implications for cooperatives' roles in coordination. My purpose in this section is the narrow one of identifying potential functions or roles for cooperatives, responses they could make to characteristics of markets, and transactions involving problems in coordination. It is not intended to be a comprehensive evaluation of cooperatives' effectiveness in these roles or a comparison between cooperatives and alternative modes of coordination.

Twelve Characteristics:

1. The point of time in the production-distribution **sequence** when terms of **trade** are determined. Predictable terms of trade facilitate planning and coordination. Errors in expectations result in errors in planning--too much or too little is invested, produced, distributed, and stored. Within limits, markets in contracts can result in predictable terms of trade, at least for the participants. The length of the contract relative to the length of the

production planning is critical. For example, contracts for hogs longer than the gestation period would reduce errors in planning the number of hogs to breed but would not solve the problem of planning investments in confinement housing that might have a useful life of 20 years. A **20-year** contract in an otherwise uncertain world would create added planning problems and risks for the buyer.

Most market transactions in the food system entail immediate or very short-term delivery, thus providing little contribution to planning. Auction markets in contracts are very rare. Most markets in contracts are private treaty markets.

Cooperatives --Cooperatives usually do not have formal contracts specifying future purchases from, or delivery of, products or commodities to their patrons. However, **SOPs** of the cooperative may offer what amounts to an implicit contract.⁶ For example, marketing and processing cooperatives may offer what amounts to a negotiated contingency agreement to accept all that members deliver with specified bonuses and discounts associated with product characteristics and delivery dates. Most importantly, the cooperative guarantees the existence of a market, which reduces the risk of investment and the vulnerability to loss of asset value due to opportunistic behavior by an investor-owned processor (Staatz, pp. 164-67). A cooperative cannot offer a guaranteed price because the price received by a member must depend on the performance of the cooperative, although the cooperative could offer improved price expectations by contracting with its buyers or by hedging on the futures market. The pooling arrangement also may affect price expectations, reducing price variability (Staatz, pp. 189-92).

A cooperative capable of attracting members who produce a large part of the total production of a commodity could facilitate matching supply with demand through binding contracts with members and forward delivery contracts with buyers. Such contracts would necessarily involve contingencies that might be difficult to specify in detail. Here a question is whether the cooperative could provide effective relational contracting. Such contracting would depend on developing trust among members and buyers.

2 The flexibility of prices. The relative flexibility or stickiness of prices is a critical factor in coordination and involves complex relationships. Planning is facilitated by predictable prices and predictability is enhanced by reduced variability. However, in an uncertain world, plans are seldom fulfilled. Yields, competitors' production plans, demand, etc., are not perfectly predicted. Once products are produced, flexible prices are needed to direct these products to their best uses. Market systems vary substantially in the way these two apparently incompatible needs for coordination are reconciled.

Auction markets for immediate delivery with large numbers on both sides of the market provide very flexible prices, adjusting minute to minute to changes in supply or demand and to information about conditions. They are excellent institutions for allocating products already produced, but their volatile prices make planning difficult. Both posted price markets and private treaty markets tend to result in sticky prices, which adjust slowly

to changing conditions. Transactions costs influence the type of market developed at different stages in the food system. For example, posted prices at retail reduce transactions costs, while auctions offer low transactions cost where large quantities of standardized products are exchanged at wholesale levels. Private treaty markets tend to develop where product characteristics are variable and where characteristics are important to a specified user. Contract markets tend to be private treaty, although auctions in contracts are feasible.

A major coordination problem in the food system is created by the mix of types of markets. Posted price markets at retail and private treaty for labor, the largest input in the food system, create sticky prices, requiring greater adjustment in first-handler markets for farm products, increasing the volatility of prices in these markets, and thus making planning more difficult and imposing adjustment costs on farmers.

Cooperatives -- As previously stated, cooperatives have limited capacity to guarantee forward prices. However, they have the potential to influence production plans through providing information to members, contracting with members, and to influence downstream participants through collective bargaining, contracting, and promotion. As previously suggested, a cooperative representing a large portion of production could improve the match of aggregate production and demand, thus contributing to price stability and coordination.

A patron-owned processor may have a competitive advantage in product markets derived from the contingency nature of raw product transactions with its members. An IOF offering fixed prices either on a spot or forward contract market may assume considerable risk due to uncertain future prices. In a cooperative, members assume this risk and the price of the raw product is more like an internal transfer price than a transaction across a market. Investor-owned processors sometimes attempt to shed this risk by making raw product prices contingent on prices received for finished products. Farmers, however, are reluctant to accept such contracts partly because of their concern about opportunism. Whether growers benefit from the contingent prices of the POF depends on the astuteness of management and the risk premium built into the fixed prices of investor-owned processors. ⁷

3 Thinness. A thin market is characterized by a small number of transactions or a very limited capacity to absorb variations in deliveries. An open auction market may be thinly traded because most of the trading in the commodity bypasses the market as private treaty transactions, which may in turn be tied to the auction market quotation. In this case, the problem is the representativeness of the auction market quotations. Much of the information about supplies and demand is obscured by the private treaty transactions, and chance variations in the quantities crossing the auction market may result in price variations unrelated to the quantities actively marketed. Livestock markets with large volumes of direct packer deliveries and eggs are examples.

A second example is markets with limited capacity to absorb day-to-day variations in quantities delivered. City markets in perishable fruits and

vegetables are a specific example. In such markets, two or three too many loads of a particular commodity delivered on a particular day may result in prices below the costs of transporting the commodity to market. Prices can be highly volatile and unpredictable. Improved coordination involves some mechanism for managing the day-to-day flow to market.

Cooperatives--Farmers' cooperatives have several possible roles in improving coordination in thin markets. A cooperative could provide information about private treaty transactions to its members, assisting them in private treaty negotiations. This information would be useful in tying the dispersed private treaty transactions to the auction market. Improving the information on transactions outside the auction should make the auction price more representative of supply-demand conditions. A cooperative would have potential advantages in gaining reliable information compared with a governmental agency or private firm **if it** were able to generate a sense of community among its members. An additional step would be for members to institute an iterative process of announcing intentions with an agreement among themselves to produce quantities consistent with their final intentions. The iteration procedure would provide the members with information about the aggregate intentions of the group. More effective would be a marketing cooperative that could control the flow of members' products to and among markets. Apooling **agreement** could further **reduce** the risks to members under some **circumstances**.

The success of such a cooperative depends on the market share of the cooperative; the closer to 100 percent, the more effective the cooperative. Because the benefits would tend to accrue to all market participants, the free-rider problem is significant. A cooperative acquiring raw products from members where the product is traded in a thin market, with or without a large share of the market, has a problem in assigning a value to members' products.⁹ Thus special attention to the terms of the implicit contingency contract is required in regard to pooling and the assignment of overhead costs.

4 Transparency The transparency of a market refers to the extent to which the terms of all transactions are open to observation by all potential participants in the market. Open auction markets are transparent to those present, but for those not present, transparency depends on the accuracy and extent of market news reporting. Posted price markets appear to be transparent, but appearance may be deceptive if individual deals are negotiated and if qualities are uncertain. Also, the cost of search reduces transparency in a dispersed market. Private treaty markets are not open to observation without systematic market information reporting. The absence of transparency clearly hinders coordination, increasing transaction costs, uncertainty, and errors in resource allocations.

Cooperatives --Cooperatives may provide an information service where transparency is lacking. Bargaining cooperatives may be used to counteract the lack of open information in private treaty markets. Impacted information may coexist with private treaty markets. Private treaty transactions may involve complex contracts. A cooperative could provide not only information on contract terms and legal advice, but also standardized contracts.

Improved information may be one of the most important outcomes of bargaining, contributing to more effective coordination.

5. Specification. **Specification** coordination refers to: (1) the extent to which characteristics of the product or service transferred across a market are known to the parties and (2) the extent to which preferences about characteristics and costs associated with particular characteristics are communicated between potential participants in the market.

A product or service typically has a large number of characteristics or attributes that add to, or reduce, the desirability of the product in a variety of different uses. The combination of characteristics incorporated in a product affect its cost. The number of identical products produced by a particular producer affects cost as well; economies of scale are related to the size of production runs. Matching characteristics produced with consumer preferences is a horrendous problem fraught with uncertainty (Shaffer; Hirschman).

Spot markets deal in products already produced. Producers selling in these markets have to speculate not only about the bundle of characteristics desired by potential buyers, but also about the products likely to be presented by other suppliers that will affect the demand for their products. The market feeds back information to producers in the form of prices in the case of auction markets and the amount of sales at different prices in posted price markets. Auction markets tend to provide more immediate and more discriminating information than posted price markets, but in both cases the quality of the information is very limited and uncertain. To which of the many characteristics were buyers responding? Was the price or volume of sales related to a particular quality characteristic or to other factors? In spot markets, buyers can respond only to product characteristics presented. The response does not reveal preferences for products with different bundles of characteristics than those currently entering the market. Buyers typically have little incentive to communicate information about more desirable characteristics. The buyer does not know the production possibilities for different bundles of characteristics. Some characteristics of products cannot be observed, and buyers may base their purchases on false expectations, thus sending false messages across the market. That is, a purchase may be taken as an expression of preference for future products of the same characteristics but may have no such meaning.

Research to acquire purchasers' preference information can provide valuable information about desired characteristics, but it also involves uncertainty in translating responses to a limited set of hypothetical questions to the market situation. Such research is often expensive and of limited value to the sponsor because success can be copied without incurring the cost of the research.

The problem of communicating information about desired product characteristics, of course, is complicated in an industrial food system by the fact that many different firms are involved in producing and distributing a single product. The bureaucracies of processing or distribution firms may not have the incentive or capacity to transmit needed information to their

marketing cooperative **could, within** the limits of **uncertain** farm production, improve the match between **supply** and demand in respect to characteristics.

While an individual farmer cannot afford to do consumer preference research related to characteristics of farm commodities, it may be feasible for a large cooperative to do such research on behalf of its members. An investor-owned marketing agency has little incentive to do such research because it cannot capture the benefits which accrue to farmers. The investor-owned processor is not interested in a particular farm commodity but in its own products. At the same time, marketing cooperatives may be less oriented to consumer preferences because of fixed assets and members' preferences to continue producing commodities with specific characteristics.

6. Contingencies and settlement. What is traded in markets are promises and* rights to goods and services. The transaction usually involves some degree of uncertainty. The promises (contracts) involve contingencies. Effective coordination across markets requires the definition of contingencies and a process for settling in case of failure to meet the terms of the promise. Because a great many uncertainties exist, contracts usually are incomplete and the settlement process becomes important. Aspects of contracts are implicit or recognized by custom. Where the contingencies are complex and uncertain and enforcement difficult and expensive, the market may be an inappropriate coordinating mechanism.

In a spot market, the time between transaction and delivery is short and the promise is to deliver the product as it appears to be. Of course, not all product characteristics are observable. There is, for example, a promise that a fertilizer or pesticide is formulated according to description. There may be an implied warranty that if the product is not as represented, damages may be due. But costs of settlement may be high. The classical system of contracting prevails.

In long-distance trading, exchange is by description with contingencies associated with failure to deliver or accept a shipment. If trading partners behave opportunistically, that is with guile or trickery, transactions costs increase, inhibiting market exchange. Trading may be facilitated by a neoclassical approach to contracting, including the use of third-party inspection and arbitration.

Additional problems arise when trading is in contracts for goods not yet produced. Because of uncertainties, contingencies must be included in the contracts. The longer the contract period, the more uncertainty and the more important the contingency clauses become. Effective coordination would be served by specifying product characteristics, quantities, terms of trade, timing of delivery, etc. However, many factors beyond the control of the parties affect the ability to meet the terms of a very specific contract. The effects of uncertainty can be mitigated by schedules of bonuses and penalties attached to specific provisions of the contract. Contract prices may be tied to prices in another market, or prices may be established by a formula involving aggregate supply of, and demand for, the product and close substitutes. Skill in contingency contracting is therefore important to effective coordination. As the problems of settling contingencies in

transactions across markets increase, relational contracting, or at the least sophisticated neoclassical contracting, may be required for effective coordination. Bounded rationality and opportunism become more important obstacles to transactions across markets.

Cooperatives--Trading transactions between members and their POF always are contingent on the performance of the cooperative and the **SOPs** that affect terms of trade and settlement.

SOPs

are of great importance in distributing benefits among members and in attracting patronage, which in turn affects the performance of the cooperative (Staatz).

The contingency nature of transactions differentiates the transactions between members and their POF from the usual transaction across **markets**.¹² In a processing POF, for example, the uncertainty of future finished product prices remains, at least in part, with the individual member, in contrast to the risk being shifted to the buyer, as takes place in the usual auction or posted price market. The extent to which the uncertainty remains with an individual member or is shared by all members depends on pooling and dividend SOPs. At the same time, the transaction differs from a transaction within a firm.

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price plays a more important coordinating role. The transactions have the characteristics of relational contracting. That is, a set of norms and procedures that are not explicitly included in the transaction agreement come to be mutually acceptable for settling contingencies. A comparison of the cooperative with relational contracting across markets would be instructive.

The cooperative may miss opportunities to improve coordination by failing to have more explicit contracts with its members. The cooperative's performance may depend on the delivery or purchase of predictable quantities, for example. A system of forward delivery contract transactions conceivably could improve the coordination of supply and demand in agricultural production and distribution. Settlement of contingencies would be an important problem in such a system. Could a cooperative organize such a system with specific supply agreements with members and relational contracting with buyers?

7 Personal relationship and trust.

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indifferent and indiscriminate among customers. This
ly is the case in spot markets for highly standardized commodities. However, when exchange involves products with characteristics that are not observable, contracts are incomplete, difficult to enforce, and contain contingencies related to uncertainty. In such a situation, discrimination among trading partners becomes important to participants and to effective coordination. Trust greatly facilitates trade and reduces transactions costs. Knowledge of the producers often carries information about product

characteristics as **well** as information about the difficulty of settling contract disputes and reliability of fulfilling the implicit and explicit terms of contracts. Opportunism and fear of opportunism restrict contractual agreements. A general lack of trust in an economy leads to more transactions in private treaty markets, barriers to entry, and restricted exchange, limiting the potential benefits from both specialization and scale economies. Relational contracting, especially, relies on trust.

Cooperatives --Trust can make or break a cooperative. Because of the contingent nature of trading transactions, a farmer must have faith that the board and management will provide a fair and honest settlement of the implicit agreement. Otherwise he or she will not participate. On the other hand, where contingency contracting is important to effective coordination, a cooperative may have an advantage over market transactions because the member has access to political influence and information inside the organization as well as market-like influences. Access to information about the internal accounts is critical to contingency contracting where the contingency involves gross margins or finished product prices, for example.

Trust in a cooperative may be related to the size of the organization because a member may perceive that his or her political influence and access to information would be nil in a very large cooperative. Trust may be enhanced by successfully establishing an ideology of service to members within the cooperative's firm and by providing information to members.

A cooperative is not immune from opportunistic behavior by members or employees. In some instances, an **IOF** may be more effective in dealing with opportunism than a cooperative because of the greater reluctance to impose sanctions on a member-owner than on an ordinary trading partner.

8. Frequency of transactions. Uncertainty and the potential for opportunism increase when long-term contracting is needed to facilitate coordination. An opportunistic participant is disciplined when he or she depends on repeated transactions; the dissatisfied customer does not return as long as he or she has an alternative. In the case of frequent transactions, learning takes place and search effort can be spread over a number of transactions. Relational contracting is fostered by repeated transactions.

Cooperatives --A cooperative may be a desirable alternative to a market for farmers where the goods or services provided involve infrequent but repeated transactions for a particular farmer, especially where a nonstandardized product is involved. The cooperative would act as the farmer's agent, thus reducing search costs and uncertainty.

Axelrod provides an interesting insight into the relationship between repeated transactions and cooperation, defined narrowly as not defecting in a prisoner's dilemma, which is similar to not behaving opportunistically. A critical factor promoting cooperation is the fact that a subsequent transaction is expected. If the current transaction is the last, defection is likely. This suggests that cooperative policy promoting continued patronage by members, including barriers to exit, would discourage opportunistic behavior and facilitate contingency contracting under

uncertainty. It also suggests that such cooperatives might have an advantage over markets in coordination requiring future delivery agreements.

9. Asset specificity. A particularly difficult coordination problem arises when transactions involve assets that are highly specific to those transactions. Once made, the value of the asset depends on its supplying goods and services for a particular user, or its value may depend on the continued availability of the supply of particular inputs. Without alternative uses, the salvage value of the asset is low compared to its acquisition price. The investment may be in specialized plant and equipment or in specialized skills.

Take, for example, the case of a tree fruit useful only for processing that can be transported only a short distance without loss of qualities desired for processing. At the same time, processing it requires specialized facilities that would have little value in alternative uses once they are fixed in a particular location. Not only is the farm investment in trees large, specialized, fixed, and long-term, but specialized equipment and skills also are required. Before making such investments, farmers would want an assured market at prices sufficient to provide a return on the investment. A prospective processor, at the same time, would want an assured supply at prices it could afford to pay based on prices it can get for the processed product. The solution is either some form of vertical integration or long-term contracts without which the investments are not likely to be made. If they are not made, the economic opportunity will remain unexploited, depriving participants of potential profits and consumers of a desirable product. If either the growers or processor are expected to behave opportunistically, contracting is not likely to be acceptable. The processor, for example, may have an incentive to encourage excess capacity in growing to assure supplies in years when output may be reduced due to weather, etc. Thus the contract would need to deal with both price and quantity. But guaranteeing both price and quantity makes the processor highly vulnerable to changes in demand for its product. A means of sharing the risk is needed. Complex contracting with trust and enforcement mechanisms seems essential.

Now assume that either the growers have alternative markets or the processor has alternative uses for its facilities. Contract enforcement would be more important and difficult. By behaving opportunistically, the trading partner with the alternatives could extract the value of the fixed assets of the other partner (Staatz, pp. 164-70). While these may be extreme examples, a great number of examples of transactions involving assets that are fixed and specialized in varying degrees exist in intermediate markets in the food system.

Cooperatives --The cooperative mode of coordination is particularly adapted to deal with the problem of asset specificity. Because of the uncertainties and potential for very profitable opportunism, effective coordination across markets is difficult. In anticipation of the problems, investments in assets highly specific to particular transactions may not be made, eliminating potential markets for farmers and desirable products for consumers. Integration by an **IOF** to solve the problem could require very large

investments in farm assets and the problems of bureaucratic management of farms and related risks. A cooperative solves these problems. However, if the transaction specific asset lies in the POF, and if members have' alternatives,. long-term contracts between members and the cooperative to assure use of the asset at levels sufficient to achieve scale economies may be necessary or at least desirable. Otherwise a member may find it individually advantageous to withdraw, imposing costs on other members. A sequential process where each withdrawal increases the incentive for subsequent withdrawals could destroy the value of the asset. The usual membership agreement and investment, if relatively small, might not be sufficient to protect the value of the asset.

The other side of the coin is that the cooperative may be more reluctant to adjust to new technologies or changing market conditions than would an IOF in an attempt to protect the value of member assets. To the extent that members are isolated from the consequences of failure to adjust to changing conditions, coordination of supply with demand may be impeded.

10 Externalities. Externalities exist when economic actions result in benefits or costs to third parties that do not enter the private accounts of the decisionmaking unit. The recipients of these consequences sometimes are referred to as free or unwilling riders. What is important for our purposes is that market transactions frequently fail to take into account important third-party consequences, thus reducing the effectiveness of economic coordination. The remedy, if there is one, is either a change in property rights or integration, bringing the consequences within a firm or other organization. Externalities are pervasive.¹³ It is neither practical nor desirable to eliminate all externalities. Economic theorists frequently have concluded that pecuniary externalities can be ignored. However, this is a gross generalization and simplification. Pecuniary externalities influence behavior, and it is difficult to identify purely pecuniary effects in the real world.

Externalities create a significant problem in the coordination of supply with demand in farm commodity subsectors. For example, when individual farmers increase production of a commodity with an inelastic demand, the revenue of other farmers is reduced. This might not be a matter of social concern if the farmers increasing production were simply more efficient than other farmers and, in fact, marginal revenue from the increased production exceeded marginal costs. But what if the increased production is based on false expectations of prices and marginal revenue turns out to be less than marginal cost? All farmers suffer the consequences of the mistakes. Not only that, but such behavior increases price uncertainty, which will influence future production decisions. This is not simply a pecuniary externality that does not matter. Forward contracting with wide participation could reduce the problem.

Cooperatives --Cooperatives have the potential to deal with some externality problems. They can make it possible to capture some benefits or avoid some costs not possible in coordination across atomistic markets. Contracting in general also has potential for reducing externalities.

For example, the costs of promoting a product for an individual farmer would exceed the benefits to the farmer. The benefits, if any, would accrue to all producers of the product. In contrast, a cooperative could initiate a quality control, product identification, and promotion program jointly financed by members who would collectively capture the benefits. Consumers would benefit as well from the reliable improved quality made possible by the quality control and product identification.¹⁴ Cooperatives with broad-based participation also may be able to reduce the externality problem associated with the failure to match supply with demand through the use of member and buyer contracts.

11. Structure. Market structure refers to the size and number of firms competing in a market, market share by largest firms, and conditions of entry. Structure is a market characteristic that is important to coordination performance because it ~~is~~ associated with market power or the capacity to influence terms of trade and trading relationships. Market structure not only influences coordination, but also is influenced by the nature of the coordination problem as firms seek to reduce or mitigate the consequences of uncertainty.

In The New Industrial State, Galbraith divides the economy into the planning sector and the market sector.¹⁵ The planning sector is made up of the large firms in the economy that have market power. They have the capacity to influence their prices. It is a sector of administered prices. The market sector involves smaller firms that are in competitive markets and are basically price-takers.

In the modern industrial economy, very large investments are required to take advantage of economies of scale and scope related to technology, distribution, merchandising, and organizing a skilled work force of specialists including management and scientific-technical personnel. To protect these large investments, and even to venture to make them, managements of these firms seek to reduce uncertainty by controlling their economic environment. They engage in long-term planning and seek to implement the plans. First of all, they seek size and high market shares to enhance their potential for control and influence. They seek to protect themselves from the uncertainty of capital markets by generating capital from earnings made possible by their ability to administer prices based on market power. They seek to protect themselves from uncertainty of input markets through contracts, personnel relations, and the exercise of oligopsonistic market power. They seek to reduce uncertainty of demand for their products through advertising, merchandising, and contracts. They seek to reduce uncertainty of regulation and the variations in the value of money through political influence, including the strategic location of plants in many congressional districts.

Large firms are necessarily bureaucratic. This fact, when combined with all their efforts to protect against uncertainty,¹⁶ leads to very sticky prices for their products, especially on the down side. Decisionmaking involves SOPs based on collective decisions, thus tending to reduce flexibility. Clearly the behavior of the firms in the planning sector contributes to the predictability of their own prices and reduces uncertainty in some of their

market relationships, especially through contractual arrangements. Private treaty markets among the large firms reduce uncertainty and are rich in coordinating information. Retail posted price markets dominated by planning sector firms are likely to be slow to adjust to changing conditions of supply of raw product, but at the same time to be very risky for new entrants, even though prices are attractive. This risk is due to the potential response of large firms designed to protect their market share.

The planning and control efforts of large firms contribute to important aspects of coordination, largely at the micro-micro and micro levels and to a lesser extent at the macro level. However, these efforts exacerbate the coordination-planning problems at the macro-macro level and within subsectors that are coordinated across a series of markets, some of which are atomistically structured and others dominated by planning sector firms. They shift the burden of adjustment to industries that rely on coordination across atomistic markets, such as those for farm products.

There is at least a hypothesis with substantial supporting evidence that rigidities in the planning sector result in unemployed resources, most noticeably labor, especially at low points in the business cycle. A plausible, at least partial, explanation of the business cycle is that individual firms overinvest, not knowing the plans of competitors and having excessively optimistic expectations of demand. Then, in response to failure in effective demand, they restrict output rather than adjusting prices. This process has substantial spillover consequences for the firms outside of the planning sector.

Similarly, in subsectors with a mix of atomistic and concentrated markets, the adjustment to changing conditions falls much more heavily on the firms buying and selling in atomistic markets (or at least where one side of the market consists of a very large number of small firms). This is the case for many subsectors that include farmers. Farm input markets are concentrated, as are many of the markets coordinating activity of the industries supplying firms using farm-produced inputs. This imposes added uncertainty, volatility, and adjustment problems on the farming industries. Note the frequent failure of posted retail prices to reflect changes in supply at the farm level.

Conditions of entry and uncertainty affect both short-run and long-run coordination. Uncertainty and fear of reactions by other firms inhibit investment by prospective entrants, thus tending to protect firms in concentrated markets. Because of uncertainty, fear, and the nature of scale economies, niches that would otherwise be profitable to fill by investment in plant and equipment are left empty, often to the disadvantage of firms in subsector. For example, one processing plant might profitably serve a farming area where two would be unprofitable due to the nature of economies of scale. The plant may remain unbuilt because of the fear either that another firm might by mistake enter the market or that sufficient supplies of raw products are not assured.

Cooperatives -- Cooperatives may reduce concentration in the markets of a farm commodity subsector by entry. Even the threat of entry may change behavior

of existing firms in concentrated markets, contributing to improved coordination (see Rhodes). The cooperative may be a creditable threat of entry when entry by an IOF is unlikely due to the difference in benefits available to the members of a cooperative compared to those available to stockholders. A farmers' cooperative also may profitably influence consumers' demand through promotion and merchandising where such efforts would not be profitable for an individual farmer, thus contributing to adjusting demand to existing supply. Such efforts are not profitable for individual farmers because the benefits occur to all producers of the commodity. The cooperative does not solve the free-rider problem but may reduce it. A cooperative also may fill an empty niche for a processing plant supplying a market for farm products or supplies of farm inputs by assuring a supply or purchases through explicit or implicit contracts. This role for cooperatives is especially important in situations involving high fixed and specialized investments because of the potential of appropriating the value of the fixed assets once the investment is made (Staatz, pp. 164-70).

The arguments on structure support the view of the role of cooperatives as the "competitive yardstick" advocated by Nourse. They also suggest that the cooperative has advantages as a coordinating mode in oligopolistic markets.

12 Elasticities. Elasticities of supply and demand are important characteristics of markets influencing economic coordination. The neat and simple supply and demand curves of static economic models are of a different character in a dynamic uncertain world. The difference in short-run and long-run elasticity of supply is well recognized. But the problems of coordination in the real world involve constant adjustment. Assets are neither completely fixed nor completely variable. Supply curves are not reversible, because every change in price affects expectations and investments that alter future supply curves. The introduction of time also alters the concept of the demand curve, which also varies with the length of run. In the very short run, for example, a change in price may result in changes in inventory positions with no change in consumption while, in the long run, a price change can result in changes in preferences altering future demand.

Price variability can significantly affect future supply and demand. Suppose, for example, that a price increases as a result of planning decisions in a previous period. The higher price may result not only in additional investments in the production of the commodity, thus shifting the supply curve, but also may cause consumers to find substitutes, resulting in new preferences and shifting the demand curve for the original commodity to the left. In this case, the quantity supplied would be greater, and the quantity demanded would be less, at the original price, and if the original price equated marginal cost and marginal revenue, the new market clearing price could be below average costs of production. The point is that prices not only affect the quantity supplied and taken in the short run, but at the same time change the longer-run supply and demand curves, affecting what will be supplied and taken in future periods. Price elasticities are a function of past prices, which complicates the coordination problem.

The farm problem sometimes is described as a chronic mismatch of supply and demand. At least a part of the problem arises from the nature of supply and demand elasticities as they interact in a dynamic, uncertain world. Given these conditions, spot markets do not provide an effective mechanism for industry-wide coordination of supply and demand.

Cooperatives--Again a market characteristic that is common for farm products indicates the need for a coordinating institution other than a spot market to deal with the macro coordination problem of matching supply and demand for specific commodities. Also, as suggested before, forward contracting provides the potential for improving macro coordination if a sufficient market share can be included and the problems of contingency contracting can be solved. An important question is whether farmers' cooperatives can be effectively organized to provide this coordinating function. Would they have advantages over a contracting system that operated across an electronic market organized by a private firm or a governmental agency? The discussion of market characteristics indicates the need for such a contracting system, and the cooperative is an institution available to farmers to deal with this problem of major importance to them. It is important to distinguish farmer collective action through cooperatives to achieve improved macro coordination and collective action designed to extract monopoly advantage. Without control of production, monopoly profits are limited to those available through possible discrimination among markets. A cooperative-managed forward contracting system with high levels of participation could achieve improved macro coordination without extracting monopoly profits. This fact supports the case for a policy to facilitate the performance of this function by cooperatives. The design of such a system is beyond the scope of this paper.

Conclusion

Micro-Micro Coordination

The POF does not seem to offer inherent advantages with respect to coordination performance within the firm as long as the firm is operating in highly competitive markets. The market disciplines all firms to seek effective mechanisms of internal coordination. Even so, directors representing patrons have potential access to more knowledge about the consequences that internal coordination processes have for service to patrons and may have more incentive to influence these processes than directors representing investors.^{ES} The case is different for firms operating in less than competitive markets for such firms have a surplus which may be divided among the participants in the form of profits, compensation, or slack performance. The POF has a unique group of participants with standing in the firm's policymaking process--the patron-owners. They have an incentive to press for reduction of slack to provide better prices and services to patrons. Of course, they may or may not exercise their influence. Effective policymaking requires dedicated directors with knowledge of bureaucratic organization and behavior, among other things. At the same time, the absence of a market for the stock of a POF eliminates the pressure on management to attend to the price of the stock, including investment analysis and corporate takeovers.

Groups of patron-members also may influence internal coordination to their advantage by affecting internal transfer prices or the allocation of overhead costs. **Thisis** a major problem to be solved, complicating the job of management and directors and potentially creating conflict among members (Staatz). Nonetheless, a reasonable conclusion is that cooperatives have a role in improving the internal coordination of firms operating in markets that permit a significant level of organizational slack.

Micro Coordination

The cooperative mode of organizing firm-to-firm transactions may be more or less effective than coordination across a market, depending on the **SOPs** of the cooperative and the characteristics of the market alternative. The potential for more effective coordination may be unrealized. If the POF operates to simply maximize its net revenue of the POF, its role in micro coordination may differ little from an **IOF**. However, given the conditions in the real world, the cooperative mode of organization has potential for more effective micro coordination.

More specific forward agreements between members and the POF seem to offer significant potential. For example, supply cooperatives could reduce inventory and delivery costs and mistakes in ordering, as **well** as improve the timely availability of exactly specified farm inputs by instituting advanced order systems. Advanced specification of product characteristics, quantities, and delivery schedules improves coordination for processing and marketing. Where transaction specific assets are involved in either supply or marketing, long-term agreements may make investments feasible that would not be made at all without them. The more extensive use of contracts between members and the cooperative would seem to make it possible to capture more of the advantages of the vertically integrated firm while maintaining the advantages of decentralized decisionmaking. Procedures for settlement of agreements made under uncertain conditions are critical to forward contracting systems. A combination of careful specification of contingencies and trust are required.

Because the outcome of all transactions between members and the cooperative is contingent on the performance of the cooperative, trust is a more important factor in the cooperative relationship than in transactions across a market. A critical factor in the performance of a cooperative, therefore, is the development of an organizational ideology emphasizing mutual responsibility and trustworthiness.

Macro Coordination

Cooperatives have a significant potential role in coordinating the total supply of a commodity with total demand at prices reflecting costs of production and consumers' preferences. Spot markets may efficiently allocate commodities that already are produced among alternative uses, but they do not provide a mechanism for effective macro coordination. Effective macro coordination requires a mechanism to provide reliable information on future supply, demand, and prices prior to important production decisions. A forward delivery contract market system was suggested with cooperatives

managing the system and, most specifically, providing a mechanism for enforcing and settling contingent contracts.

Marketing and bargaining cooperatives may originate with an incentive to improve macro coordination. The policy problem is to differentiate between macro coordination and monopolistic pricing. Open membership limits the potential for monopolistic practice and places the emphasis of the cooperative on macro coordination. A cooperative-managed forward contract system addresses the problem of macro coordination and provides no threat of monopoly pricing, even with a rule requiring participation in the system.

The roles of farmers' cooperatives in macro coordination deserves a good deal more attention. Cooperatives may buffer the price signals associated with changing market demand on technology, slowing the adjustments of members to the changing conditions. Failure to adjust may be detrimental to the POF and members alike. On the other hand, the cooperative may provide a more stable environment for farmers, thus contributing to a more orderly and less painful planned adjustment. ¹⁸

Macro-Macro Coordination

Volatile agricultural product supplies and prices complicate the problem of coordinating aggregate demand and supply. Instability of the value of the currency, interest rates, and exchange rates in turn complicate the problem of food system coordination. For example, food prices are an important component in the cost of living index, and many contracts and programs are tied to this index. Improvements in macro coordination in the food system, reducing the volatility of prices associated with mistakes in production decisions, would contribute to improved macro-macro coordination for the economy, which in turn would reduce the adverse effects that instability in the aggregate economy has on the food system.

Notes

1. See Coase for the pioneer discussion of the question.
2. I thank Eileen van Ravenswaay for initially calling my attention to the importance of this distinction.
3. I will use the term POF for the firm or firms owned **by** an association of member-patrons, and cooperative to refer to the combination of association and its firms or operating units.
4. I recognize that **IOF** directors have some differences in objectives, such as payment of dividends vs. stock appreciation or long-run vs. short-run profits. I am arguing that the range of objectives for the firm is significantly different for a POF than an **IOF**.
5. There are, of course, examples of successful **IOF** integration involving several stages of production and distribution. Cooperatives also face problems accumulating capital.

6. Marketing and bargaining cooperatives may have formal contracts specifying the cooperative as the sole marketing agent and setting forth other terms, but they seldom specify quantities and terms prior to production commitments.
7. Patron-owned processors frequently are said to break the product market price because they are not committed to a raw product price. **This** suggests that the commitment to market all of the members' products along with contingent pricing may put downward pressure on prices.
8. It will depend on the design of the pooling agreement and the differences in price variability among commodities in the pool. Pooling can shift risks among members, adding to the instability of revenues for some members.
9. The value of the finished product provides a guideline, of course, but without a meaningful raw product price the problem of allocating costs among products becomes critical.
10. Contracting at the consumer end of the food chain might be feasible in terms of transactions costs through consumer cooperatives. Other possibilities also exist.
11. The voice option is one of attempting to influence an organization's performance through direct communication or political action, compared with the exit option, which is simply to not purchase, sell, or belong to the organization.
12. Note, however, that similar contingencies can be included in transactions across markets. For example, a processor may offer to pay on the basis of finished product prices, becoming essentially a custom processor.
13. See **Schmid** for an elaborate treatment of this topic.
14. The cooperative is one of several means of dealing with this externality/free-rider problem. Other possibilities are through marketing orders and possibly through contracts between a group of growers and firms marketing their products. Some type of collective action is required.
15. This section uses ideas from the Calbraith analysis, but is not to be taken as a description of his analysis.
16. See Okun for a comprehensive discussion of sticky prices.
17. This may not be true of inside directors of an **IOF**. There are many examples to the contrary. The potential feedback from member to director exists but may not be utilized.
18. Donald Street, in his review of this paper, suggested this to be an important question.

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