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A Comment on Phillips' "Economic Nature of the Cooperative Association"

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The cooperative has no more economic life or purpose apart from that of the participating economic units than one of the individual plants of a large multi-plant firm.
—Richard Phillips (1953, 74–75)

In the 1940s and early 1950s, economists began to develop formal economic models of farmer cooperatives. The aim was to bring some of the deductive power of such models to questions that earlier cooperative activists and writers such as Nourse (1945) and Sapiro (1993) had treated in a more literary way. Economists hoped that, in applying these models, they could separate scientific analysis of these issues from the proselytizing fervor that had accompanied some of the earlier discussion of cooperatives. The questions addressed included:

- What makes cooperatives different from investor-owned firms (IOFs)?
- Given that cooperatives are somehow different from IOFs, what, operationally, should cooperatives strive to maximize?
- What are the implications of the cooperative's pursuing alternative goals for the welfare of its members and for society as a whole?
- Are there impediments to cooperatives' or members' behaving in a way that would enhance member or societal welfare?
- What are the implications of the foregoing for cooperative management and public policy?

Phillips' article was a key contribution to this debate. His central tenet was that the cooperative was an *association*, not a *firm* with any degree of independence from its owner-patrons. Building on earlier work by Emelianoff (1942), Phillips constructed a model of the farmer cooperative as a form of joint action by firms at one level in the food system aimed at gaining the benefits from vertical integration.

His view of the cooperative as a nexus of contractual relationships among the member firms presaged later theoretical work on the cooperative as a coalition (see Staatz 1989). He sparked a long debate about whether cooperatives did in fact behave to some degree independently of their member firms. (This debate was often phrased in terms of whether cooperatives were really firms.) And his comments about how a heterogeneous

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membership creates challenges to holding a cooperative together were highly suggestive of the difficulties faced by cooperatives decades later in dealing with issues of equal vs. equitable treatment of members.

The following comments focus on Phillips' contributions to cooperative theory in light of subsequent work that viewed the cooperative as a coalition. Royer (in this issue) analyzes Phillips' contributions from a more neoclassical perspective and discusses in more detail the equilibrium solution posited by Phillips.

Key Elements of Phillips' Argument

Phillips held that cooperatives were simply coordinators of joint action by otherwise independent firms. Because the cooperative operated at cost, it did not incur profits or losses itself. Only its member firms incurred profits or losses.

> When a group of individual firms form a cooperative association, they agree mutually to set up a plant and operate it jointly as an integral part of each of their individual firms (or households in the case of a consumer cooperative). . . [T]he participating firms agree to function *coordinately* with respect to their joint activity. . . They must forgo some of their individual sovereignty in favor of themselves as a team. It is technically correct to speak of the cooperative plant and of cooperating firms, but not of the cooperative firm (pp. 74–75).

This conception of the cooperative is very close to the idea of a coalition in game theory. Member firms band together, voluntarily giving up some of their independence, because each is better off in the coalition than operating separately. Phillips saw these gains resulting from scale economies in processing and input acquisition and from stabilization of revenues through pooling of risks. Once a member no longer benefits from the joint action, he or she exits the coalition. If enough members defect, the cooperative coalition ceases to exist. The key contractual relationship here is *among* the members themselves with respect to the joint action, not between the members and the cooperative entity itself.

Phillips argued that, because the cooperative did not exist independently of its member firms, the relationship between member firms and their cooperative was similar to that of a multi-plant firm. Each member's farm and the cooperative facility represented one plant in the multi-plant firm. He then derived, from the economist's standard model of the multi-plant firm, the equilibrium conditions under which member-firms' profits would be maximized. His proposed equilibrium solution, which implicitly assumed Cournot-Nash behavior on the part of each member firm, set off a long debate over whether farmers would really have either the knowledge or the incentive to produce at that level. (See Royer in this issue, and Sexton 1984 for a summary of the debate.)

Much less discussed in subsequent literature was Phillips' analysis of the role cooperatives could play in stabilizing farmers' returns through risk pooling. This analysis portended discussions twenty years later on the mean-variance approach to analyzing risk aversion. Until recently, few cooperative theorists explicitly included benefits from risk-pooling in models of cooperative behavior. Yet had Phillips or subsequent authors

pushed the analysis of risk pooling further, they would likely have been forced to discuss its limits as well as its benefits. Persistent cross-subsidies across pools, in the name of risk sharing, create incentives for producers of the goods that generate the subsidies to leave the cooperative. Phillips' discussion of how benefits and costs should be shared in the cooperative (see below) implies he would have opposed such persistent cross subsidies. A logical conclusion from his model is that the benefits from risk pooling should balance out across the membership over time.

Sharing the Benefits and Costs of Cooperation

Phillips summarized his vision of the cooperative association in a chart that represented the member firms as slices of a pie. The uninscribed center of the pie, where the pieces came together, signified the joint cooperative enterprise. Apart from this joint center, the member firms were independent.

Typically, member firms do not participate equally in the cooperative (the slices of the pie are of different widths). Phillips argued that, in order to achieve a static optimum, each member firm would have to share the benefits and costs of the joint plant in direct proportion to the member firm's share of business conducted through the cooperative. Similarly, the costs and benefits of individual departments should be allocated among members in direct proportion to their use of those departments.

Such an approach appears consistent with the cooperative principles of service at cost and returning net benefits to members in proportion to their patronage. But the "doctrine of proportionality," as it became known, assumes all costs can be unambiguously allocated to a given activity (i.e., there are no truly joint costs) and that the cooperative's various activities generate no external effects. If, for example, the reputation of Land O'Lakes butter helps sell Land O'Lakes margarine, then spill-overs in costs and benefits occur across divisions, and it is no longer clear that those selling butter through the co-op should bear all the costs of the butter division. Similarly, if a cooperative plays a competitive yardstick role in a concentrated market, then non-members share in the benefits of the co-op without paying any of the costs. In short, the synergies and jointness inherent in collective action (or in technical jargon, the superadditivity of the profit function) mean that conclusions about strict proportional allocation of costs and benefits among members cannot be made as starkly as Phillips implied.

Nonetheless, Phillips' stress on sharing benefits and costs proportionately to participation highlighted the question of equal vs. equitable treatment of members. He clearly came down on the side of giving greater voice and obligations to those conducting a larger volume of business with the co-op. For example, he held that financing ought to be proportional to patronage, an idea now embodied in practices like base-capital plans. More controversial was his view that voting rights should also be proportional to patronage, arguing the principle of one-member, one-vote was "inaccurate or irrelevant" (p. 87). His conclusion about voting rights set off a sharp debate that continues today over what, in practice, is meant by "democratic

control" in cooperatives and whether it is compatible with the holding together of the cooperative coalition.

There is some inconsistency between strict interpretation of the doctrine of proportionality and Phillips' comments about the value of the cooperative in stabilizing farmer returns through risk pooling. To the extent risks are pooled, at any given time the benefits derived by different products marketed through the pool may not be proportional to their contribution to the co-op's net margins. But Phillips seems to imply that, on average, a given activity should not be continually cross-subsidized by other activities of the association. In other words, over time, the benefits of pooling should be proportionately shared among the membership.

Phillips also clearly recognized that, for the cooperative association to be cohesive, especially in the context of risk pooling, the interests of the membership could not be widely divergent. To achieve "optimum stability in the participating firm . . . the anticipated conflict of interest among participating entrepreneurs must be minimized. This means an association of reasonably homogeneous, rather than heterogeneous, participating firms" (p. 85). He went on to stress the importance of designing the bylaws in a way to minimize potential conflicts of interest. By stressing the importance of homogeneity of membership interests in holding the cooperative together, Phillips anticipated the debate over whether one cooperative could serve the interests of all farmers. Such concerns underlay much of the work in the 1980s on game-theoretic approaches to modeling cooperative behavior (Sexton 1986; Staatz 1989).

Limitations to Phillips' Approach

Phillips' model suffered from the same limitation as most simple market and game-theoretic models, namely the assumption that there are no transaction costs in organizing collective action. The vision of the cooperative as solely an "association consist[ing] of the sum of the multi-lateral agreements among the firms participating in the joint activity" (p. 76) assumes there are no costs involved in coming to agreement among co-op members about what the co-op plant should produce and at what level, about monitoring the behavior of cooperative employees, and about adapting to changing market circumstances. This assumption led to the dubious conclusion that cooperatives "will be more adaptable to changing technical and economic conditions facing the firm" than would firms that are not vertically integrated.

More fundamentally, once one admits there are costs to making decisions and monitoring their implementation within a cooperative, then hired management needs to be considered as a possible component in the model of the cooperative.[1] With transaction costs present, it becomes more economical for members to delegate some decisions to hired managers than for the owner-patrons to make those decisions themselves. The greater the transaction costs, the greater the autonomy of the management and hired staff to follow their own agendas (Bartlett 1973). Rather than acting as day-to-day decision makers for the cooperative, the owner-patrons simply exercise veto power over the decisions of management

when those decisions diverge too widely from perceived owner-patron interests.

Critics of Phillips' work (such as Savage 1954) argued that common observation demonstrated the cooperative was a "firm" in the sense that John Commons defined the term: a "going concern" that operated to some degree independently of its owners (Commons 1924). Ignoring that reality, the critics argued, meant ignoring the cooperative's behavior that was motivated by the managers' quest for market share, potential conflicts between the growth of the cooperative firm and the growth of its member-owners (e.g., in the allocation of capital), etc.

The problem was that some of the critics went to the other extreme. The next major milestone in modeling farmer cooperatives, the Helmberger-Hoos model, pictured all decisions in the cooperative being made by a single individual, the "peak coordinator" (e.g., the manager), who set and maximized a single objective for the cooperative. Whereas decision making in the Phillips model was entirely decentralized, residing solely with the farmer members, the subsequent cooperative-as-firm models saw decision making as being entirely centralized in the peak coordinator.

In the parlance of game theory, allowing some role for management as well as farmer-members in a model of cooperatives is equivalent to broadening the cooperative coalition to include management as one of the players. In other words, analyzing how the cooperative actually behaves involves looking at how farmer members and the management work out strategies that serve both their interests, which may not be entirely congruent. Cooperative practitioners have known this for a long time, but economists were slow to incorporate it into their formal models of cooperative decision making. Recent work by Scandinavian writers have broadened the analysis even further to include how organized labor and government interact with management and farmer members to influence cooperatives' behavior (Ollila 1983). A shortcoming of this approach, however, is that it sometimes only indicates a *range* of possible outcomes, not clean, determinate answers.

Conclusions

Phillips formalized the view, expressed earlier by Nourse and others, of the cooperative as joint action by farmers to gain the benefits of vertical integration. Such a view has been at the heart of U.S. public policy toward cooperatives (e.g., with respect to taxation). The view that the cooperative exists *solely* as the intersection of its member firms, however, ignores much of what cooperatives really are. There is, of course, a danger of focusing exclusively on the cooperative entity as separate from its member firms, for then benefits that accrue from cooperation are counted only in terms of the co-op's net margins. What is needed is a balance between Phillips' view of the cooperative as purely an extension of the member firm and the view that co-op entities simply maximize profits on their own account and then rebate those profits back to members.

Ultimately, part of the controversy revolves around whether models should be purely prescriptive ("normative") or descriptive ("positive"). Phillips, as well as subsequent theorists such as Helmberger and Hoos,

focused on how co-ops *should* behave if they were to maximize member profits in the context of perfect knowledge and under varying assumptions about price taking and other aspects of market structure. More recent modeling efforts have focused on how co-ops *would* behave if the various stakeholders in the cooperative each pursued their own objectives, which are not perfectly congruent with one another. Which approach to modeling is most appropriate depends on the question one wants to answer. Phillips' article, as one of the first attempts to model formally cooperative behavior, clarified many of the key questions that economists have subsequently debated as they have attempted to build improved models to analyze cooperative management and policy issues.

Note

1. This statement is analogous to Coase's (1937) argument that transaction costs explain why firms exist. If there were no transaction costs, it would be more economical for every actor in the economy to handle transactions entirely through the market, and no resources would be allocated by fiat within organizations like firms. Analyses of how the internal workings of firms affect economic performance only become relevant once one admits there are transaction costs in the economy.

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