



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

The Organizational Nature of Agricultural Cooperatives: A Perspective from the Farm Problem Theory¹

by

Vladislav Valentinov

Institute of Agricultural Development in Central and Eastern Europe
Halle, Germany

Abstract

This article uses the farm problem theory as the framework for a comparative analysis of cooperative, market and hierarchical organization in the agrifood system. In order to carry out this analysis, the article proposes the organizational economics approach to the farm problem which supplements the traditional approaches explaining it in terms of low opportunity costs and high mobility costs of factors employed in agriculture. According to the proposed organizational economics approach, the farm problem is the outcome of inappropriateness of hierarchical and market organization for effective coordination of agricultural activities. The central argument of the article is that agricultural cooperatives are important because they partially perform the coordination functions not effectively delivered in agriculture by the conventional hierarchical and market types of economic organization.

Key-words: cooperative, market, hierarchy, farm problem, structural change.

Introduction

In the last decade, the research in organizational economics has undergone a remarkable shift from the paradigmatic dichotomy between markets and hierarchies to the study of a broad set of hybrid organizational arrangements which cannot be attributed to any of the former (Menard, 2004). Cooperatives have also been recognized as hybrid organizations exhibiting a mixture of properties of markets and hierarchies (Beckmann, 2000; Bonus, 1986). The pervasive presence of cooperatives and other hybrids in the capitalist economies naturally provokes a question why markets and hierarchies, coordinated respectively by prices and authority relations, are not sufficient to provide efficient governance of transactions (see *e.g.*, Williamson, 1991; Grandori and Soda, 1995; Menard, 2004). A suitable arena for conducting such a comparative institutional analysis is represented by the agrifood system containing a

¹ This research has been supported by Marie Curie Incoming International Fellowship of the Sixth Framework Programme of the European Community.

number of distinct types of economic organization, such as family farms, markets, hierarchies, cooperatives, and other forms of vertical coordination.

This article will be aimed to identify the organizational economics rationale behind agricultural cooperatives existing within the capitalist agrifood systems. Three questions will be hereby addressed: 1) why cooperatives exist there beside markets and hierarchies?; 2) what are (some of) their comparative advantages and disadvantages?; 3) what role is played by cooperatives in processes of structural change?

In the organizational economics literature there are a number of important studies identifying the advantages of cooperatives in comparison with alternative organizational forms. For example, Bonus (1986) and Staatz (1987) explain the choice of cooperative organizational form in terms of its ability to economize on transaction costs, whereas Hansmann (1996) traces the existence of cooperatives to high costs of market contracting and low costs of ownership for cooperative members. Whereas both Staatz (1987) and Hansmann (1996) seem to recognize that the agrifood system represents a particularly suitable field for the formation of cooperatives, their explanations still do not explicitly clarify what sector-specific characteristics of the agrifood system make cooperatives organization superior over its alternatives.

The objective of this article is to offer a sector-specific explanation of agricultural cooperatives. The distinctive feature of such an explanation is that it will not only focus on the ability of cooperatives to reduce certain types of transaction costs and overcome market power asymmetries, but also show how these transaction costs and power asymmetries are conditioned by the organizational attributes of the agrifood system. This explanation will be developed by means of resorting to the farm problem theory which is aimed at the identification of disadvantages of agricultural producers in their economic relations with their up- and downstream business partners (the major references of the theory are Schultz, 1945; Johnson, 1960; Tweeten, 1971; Brandow, 1977; Cochrane, 1958 and 1985; and Gardner, 1992. The major disadvantages of this type analyzed by the theory, include: inelasticity of demand for agricultural products and inputs; dependence upon stochastic biological and climatic factors (see *e.g.*, Seitz *et al.*, 1994); high asset specificity which impedes resource mobility out of agriculture (see Hathaway, 1963); the significant length of production cycle; significant differentials in market power between agricultural producers and up- and downstream firms. These disadvantages have been giving rise to disparities in the socio-economic development of agriculture and the adjacent sectors in the agrifood system. A major economic aspect of these disparities lies in the fact that factor incomes in agriculture have been evaluated as persistently lower and more unstable than in other sectors, which has become known as ‘the farm problem’².

² It has to be pointed out that this view of the farm problem, though dominant, is not the only one existing: Benedict (1955: xv, quoted in Gardner, 1992:63), for example, broadly defined the farm problem as “the whole array of grievances and aspirations that cause farmers to seek government aid”. However, regardless of the differences between specific conceptual views of the farm problem, their bottom-line idea lies in the fact that agriculture experiences relatively more socio-economic problems than the other sectors. It is this bottom-line formulation that will be used as the starting reference point of this study.

The idea of this article is to rationalize the cooperative organization as the response of agricultural producers to the above-mentioned limitations of agriculture which give rise to the farm problem. The relationship between cooperation and the farm problem is not immediately obvious; however, its visibility depends on the theoretical approach that is used to explain the farm problem itself. Whereas the traditional approaches to the farm problem focus on intersectoral differences in opportunity costs and mobility costs of production factors, they largely leave out of consideration the organizational attributes of agricultural production. The article seeks to fill in this gap by developing the organizational economics approach to the farm problem, explaining it by the poor suitability of market and hierarchical organizational instruments for the organizational attributes of agricultural production. In the framework of the organizational economics approach, agricultural cooperatives assume those functions of intra- and intersectoral coordination that cannot be effectively delivered by markets and hierarchies.

Agricultural cooperation and the farm problem

The objective of the section is to briefly review the existing theoretical approaches to the farm problem and to develop an alternative, organizational economics, approach.

Traditional views of the farm problem

A most straightforward explanation of the farm problem has been developed by Schultz (1945) on the basis of supply-demand mechanism dynamics. According to Schultz, the farm problem results from the inelasticity of both supply and demand of agricultural products. The short-run and, more importantly, long-run inelasticity of supply is explained by uniqueness of agricultural occupation in rural areas, and high sector-specificity of capital investment. The depressed condition of agricultural prices is caused by two factors: 1) disparity in the rates of growth of supply and demand; and 2) inelasticity of supply and demand, disabling the effective adaptation to this disparity. Johnson (1960) attributed the farm problem to high asset fixity in agriculture, defined as commensurate to the distance between the acquisition cost of farm assets and their salvage value. The very low salvage values (approaching zero) of assets make it worthwhile to continue productive use even after a decline in prices.

Cochrane (1958) has proposed the so-called “treadmill model”, which attributes the expansion of output in the face of falling prices to technological innovation. According to the model, by early adoption of new technologies, progressive farmers can receive above-average short-run profits. As the pressure to adopt the technology increases and it becomes more popular, the profits are dissipated, while output is increased and prices have further declined.

These and other known explanations of the farm problem share in common their focus on low opportunity costs on factor use in agriculture and high factor mobility costs, *i.e.*, on the technical features of agriculture as opposed to those of other sectors of the economy.

Institutional view of the farm problem

Hagedorn (2003) has argued that although the “technical” explanations of the depression of factor incomes in agriculture can be true, the specific institutional framework of agriculture also plays an important role for maintaining the farm problem. The institution of family farm has a special integrative nature because it simultaneously functions in several roles: 1) the family of the farmer as a social system; 2) the joint household of the family members; 3) the farm as the technical production unit. Consequently, the family farm is characterized by “institutional cumulation of transaction costs” because the costs of factor mobility not only accrue to the individual members of family farm separately, but are jointly and as a whole taken into account in the collective decisions of the farm family on factor reallocation, which leads to delay in structural change and the disparity of factor incomes. Thus, in Hagedorn’s framework, the farm problem is caused by special institutional characteristics of the family farm.

The limitation of this institutional approach to the inter-sectoral disparities in the agrifood system lies in its relevance only for the family farm system, whereas these disparities are also quite significant for transitional economies, where family farms often occupy a minor share in terms of area and agricultural output. This limitation can be overcome by employing the organizational economics approach to the farm problem, which focuses on the general organizational attributes of agricultural production.

The viewpoint of economic organization

This section presents an organizational economics approach to the farm problem which is based on a comparison between markets and hierarchies, on the one hand, and cooperatives, on the other, in promoting the economic interests of agricultural producers in the agrifood system. This approach allows to establish the explicit conceptual links between the farm problem and cooperative organization, which mainly could not be achieved in the framework of the traditional approaches discussed above.

The limitations of hierarchies and markets in agriculture

Agriculture as an area of productive activity has a number of general attributes importantly distinguishing it from other sectors of the economy, including high asset specificity which impedes resource mobility out of agriculture (Hathaway, 1963); inelastic demand for agricultural products and inputs; special role of land as a production factors, etc. However, the most fundamental sector-specific attribute, having dramatic implications for agricultural organization, is the significant dependence of agricultural production on nature, including biological and climatic factors.

High dependence on nature means that agricultural producers have relatively low control over the processes and results of production, which complicates its planning, monitoring, and supervision (Schmitt, 1993b:57). The problem of supervision becomes particularly acute in the case of using hired labor due to the following reasons:

1) the workers for technological reasons cannot be gathered together in a single location (Pollak, 1985:591), and therefore cannot be effectively monitored; 2) the outcomes of production are inherently uncertain due to unpredictable and often incomprehensible natural phenomena, and therefore are not unambiguously related to efforts expended by hired workers, which means that these workers cannot be held fully accountable for their work. Both reasons generate asymmetric distribution of information between employer and employee, which can be opportunistically used by the latter, representing a typical case of principal-agent problem (see also Binswanger and Rosenzweig, 1986:519; Schmitt, 1993a).

The consequence of the severe agency problems, caused by high dependence of agricultural production on nature, is the low feasibility of hierarchical organization of this production activity and the resulting dominance of family farms. According to Pollak, “the family farm can be regarded as an organizational solution to the difficulty of monitoring and supervising workers” (1985:591), which seems to be also accepted by most other writers on the subject. However, as noted by the author, it is not always so that agricultural tasks cannot be monitored in terms of inputs and outputs; whenever possible, family farms are “overshadowed by other forms of agricultural organization. For some crops and some tasks hired labor can be concentrated into work gangs and supervised directly, so plantation agriculture is possible” (1985:591), which generally confirms the idea that supervision difficulties represent the main factors dictating the optimality of family governance in agriculture.

Why is it so that family governance represents an appropriate solution to the difficulties in monitoring and supervision? Pollak indicates the following advantages of family governance: all family members have claims on family’s resources, which creates a residual interest to expend proper work efforts; information is not so asymmetrically distributed within families due to easier monitoring and intra-family communication; families are characterized by affectional relationships, which limit opportunistic behavior; finally, working diligently forms a part of maintaining “family loyalty”, which often represents an important value in social settings. Due to these characteristics of family governance, family workers choose not to take advantage of ample shirking opportunities, which would be otherwise used by hired workers.

The important consequence of low feasibility of hierarchical organization in agriculture and the resulting optimality of family farms is the fact that the size of production units in agriculture is limited by the size of family. Because of the given difficulties in supervision and monitoring, family members are limited in their ability to use hired labor. As argued by Schmitt (1991:448), other things being equal, lower opportunity costs of family farm labor will be inversely proportional to the optimal size of family farm. Since the transaction costs of monitoring hired workers also represent the opportunity costs of family farm labor, there is an incentive for the family farm to maintain smaller size by minimizing the use of hired labor. This limitation on size generates two organizational problems of family governance and is beset by two problems: 1) *intra-organizational*, lying in their inability to realize the potential economies of scale in the delivery of certain business functions (such as supply of

inputs and credits, product marketing, machinery pooling, insurance, political lobbying, etc.); and 2) *inter-organizational*, lying in the fact that up- and downstream firms in the agrifood system often have sizes significantly exceeding those of agricultural enterprises.

The inter-organizational problem essentially means that *the market organization* of linkages between agriculture and the input/output sectors is also not effective because of the resulting exposure of relatively small sized agricultural producers to highly concentrated markets dominated by a small number of huge firms. Apart from the threat of monopolistic pricing behavior, high specificity and fixity of assets (in the sense of Johnson and Hathaway) in agriculture give rise to the emergence of significant appropriable quasi-rents, thus enabling opportunistic behavior on the part of input/output firms toward agricultural producers. Whereas transaction cost reasoning would predict that in such situations more unified and coordinated governance of inter-sectoral transactions is necessary, the use of this governance is limited by the above-mentioned monitoring and supervision difficulties.

However, a crucial point largely underemphasized by transaction cost theory is that the coordinated governance needs not to be represented solely by hierarchy. Cooperatives also represent a form of coordinated governance, which substitutes hierarchy when the latter would exhibit prohibitively high transaction costs. The contribution of cooperatives to overcoming the organizational disadvantages of family governance is the subject of the following section.

The role of agricultural cooperation

The preceding discussion shows that while hierarchical organization in agriculture is not perfectly feasible, the market organization of inter-sectoral linkages in the agrifood system is perfectly optimal for agricultural producers, thereby dictating the need in the use of family governance. This section will demonstrate: 1) how agricultural cooperatives can contribute to the solution of the own problems of family governance; and 2) how agricultural cooperatives are able to avoid difficulties in supervision and monitoring characteristic for hierarchical organization.

The intra-organizational disadvantage of family governance, lying in its inability to capture external economies of scale, is overcome by machinery pooling cooperatives, specialized service cooperatives, credit cooperatives, as well as diverse variety of rural cooperatives providing benefits to rural households. Such cooperatives represent an extension of individual family farms allowing to combine the advantages of family governance with economies of large-scale production of required goods and services. The inter-organizational disadvantage of family governance, lying in their low market power in comparison to that of their up- and downstream trading partners, is overcome by marketing, purchasing, and bargaining cooperatives and associations. These cooperatives also manage to capture the economies of large-scale business organization by retaining the economic and legal independence of their members (which of course have to fulfil their obligations toward their cooperatives).

How, then, do cooperatives manage to avoid the fate of hierarchy in the situation of

high potential for agency problems caused by difficulties in supervision and monitoring? First, it should be mentioned that cooperatives do not explicitly undertake the tasks where these difficulties are particularly pronounced. Rather, such tasks are left to family governance, whereas cooperatives concentrate on a number of “supporting” functions, whose need is dictated by the size disadvantages of family farms, although, to be sure, the tasks that cooperatives perform may not be necessarily characterized by high observability of processes and outcomes. Consequently, cooperatives are not generally free of incentives for shirking and free-riding.

Second, the transaction costs of governance in cooperatives may stay in reasonable limits due to two mutually supplementing factors not characteristic of hierarchical organizations: 1) cooperative members always hold residual claims in the performance of their cooperatives, which serves to combat the agency problem; and 2) cooperative members, especially in the inception stages of operation of their cooperatives, personally know and trust each other, *i.e.*, possess social capital in the sense of Coleman (1988) or Putnam (1993)³. Access to and ability to productively use social capital represents a fundamental characteristic of both cooperatives and family farms. Whereas in family farms social capital is ensured by kinship-based affectional relationships, noted by Pollak (1985), cooperatives draw social capital from cooperative ideology, embodied in particular by cooperative “values” and “principles”. Therefore, the first of the mentioned factors – the presence of residual claims – provides an economic rationale of why farmers should cooperate, the availability of social capital explains why this cooperation should be possible. Both of these considerations seem to be equally important for the existence of cooperatives.

It should be pointed out that the importance of social and psychological relations for the emergence and development of cooperatives has been recognized long time ago, most remarkably on the above-mentioned concept of “the double nature” of cooperatives elaborated by Draheim (1955:16), who argued that every cooperative represents simultaneously: 1) an association of persons in the sense of sociology and social psychology, *i.e.*, a social group, and 2) a joint enterprise, owned and operated by the same members of the group. According to Draheim, an individual may wish to join or create a cooperative as a social group due to such factors as: longing for social life and “emotional security”; the wish to become an active subject rather than a passive object; the wish to be a part of a stronger and larger social whole; the search

³ In the literature, there are two distinct approaches to theoretical understanding of social capital. One approach, most clearly represented by Burt’s (1992) theory of structural holes, considers social capital as one’s relationships with “friends, colleagues, and more general contacts” (Burt, 1992:9) and posits that it can be used by individuals to achieve individual advantage. The second approach, advocated by Coleman (1988) as well as in overall terms by Putnam (1993) defines social capital as a variety of different entities, with two elements in common: they all consist of some aspect of social structure, and they facilitate certain actions within the structure (Coleman, 1988:98). In the understanding of Coleman and Putnam, social capital is represented mainly by trust, norms, and values present within social groups and networks and benefits all members of such networks. This is the understanding relevant for cooperatives, since all members of cooperatives benefit from intra-cooperative social capital.

for social importance; love for other people, readiness to help, sympathy, humanitarian aspirations, religious motives, etc. Summarizing this list, the author himself admits that “although these immaterial motivations may not always be separable from economic-rational ones, they predominantly stem from the irrational sphere of man” (1955:16). On the other hand, though, as follows from the preceding discussion, the social orientation of cooperatives (*i.e.*, the importance of belonging to the cooperative social group) may be explained without reference to irrational motivations: developing and maintaining social capital is a rational response to the need to combat the collective action problems.

Moreover, there is no guarantee that social capital will always be sufficient in cooperatives to ensure their efficient informal governance. Cooperatives are known to have a number of incentive problems, which include: common property problem (the members’ equity contribution may not be proportional to the distribution of resulting benefits); horizon problem (members can capture benefits from their investment only over the time horizons of their expected membership in the organization, which causes a bias toward short-term investment and/or underinvestment); monitoring problem (decision management is allocated to decision specialists who are not residual claimants); influence cost problem (some groups of members may have opposing interests and engage in costly lobbying activities); decision problem (large number and heterogeneity of members complicate the reaching of a consensual decision) (Borgen, 2003). Democratic decision making is generally associated with higher transaction costs than hierarchical ones (see *e.g.*, Schmitt, 1993a). The argument presented here only suggests that in those cases when social capital is actually sufficient, then cooperatives represent an organizational mechanism to economize on transaction costs of monitoring and supervision. The difference from hierarchies in this respect is that even if they had access to the required social capital, the formal instruments of governance would nevertheless have to be utilized and the respective transaction costs would also have to be incurred.

To summarize, the benefits provided by agricultural cooperatives are mainly those benefits that the hierarchical organization would have provided if it could function effectively in agriculture. Whereas instruments of hierarchical governance such as monitoring and imposition of rewards and sanctions are associated with prohibitively high transaction costs in agriculture, they can be substituted by voluntary self-governance characteristic of cooperative organization. However, as was established above, the effective use of cooperative self-governance requires social capital. The extent of this substitution is therefore limited by the availability of social capital, since without it cooperative self-governance will also involve high transaction costs of its own. Since social capital is also scarce, cooperatives cannot fully compensate for the intersectoral disparities. However, they can continually invest in social capital to enable at least a partial compensation of this kind.

This argumentation can provoke the following question: if cooperatives can outperform hierarchies by utilizing social capital, why cannot hierarchies themselves utilize this social capital? In itself, this question is rather deep and requires a separate theoretical investigation. On the surface of it, however, it appears that the lower abil-

ity of hierarchies to accumulate and use social capital can be attributed to the important differences in economic objectives of stakeholders of hierarchical organizations, specifically by inherent controversies between the objectives of employees, employers and owners, whereas the economic objectives of family farm members or cooperative members are more mutually congruent. In other words, the group morale is promoted by homogeneity of economic interests of group members and inhibited by their heterogeneity. This arguably explains why hierarchies do not develop as much as family farms and cooperatives can, and even if they accidentally had access to social capital, they still could not utilize it productively.

Implications for the structural change in the agrifood system

The traditional explanations of the farm problem, referring to low opportunity costs on factor use in agriculture and high factor mobility costs, attribute its existence to low ability of agricultural production units to undertake structural changes, which are necessary when returns on factors in agriculture fall below the respective returns in other sectors. In turn, the insufficient ability of agricultural production units to undertake these changes can be attributed to the particular nature of governance adopted by them. Family governance prevents rapid structural adaptation due to the intertwining of the three basic roles of family farms – production unit, household, and social system. As emphasized by Hagedorn (2003), if a certain factor reallocation appears expedient for a family farm as a production unit, it might be undesirable from the viewpoint of its other roles.

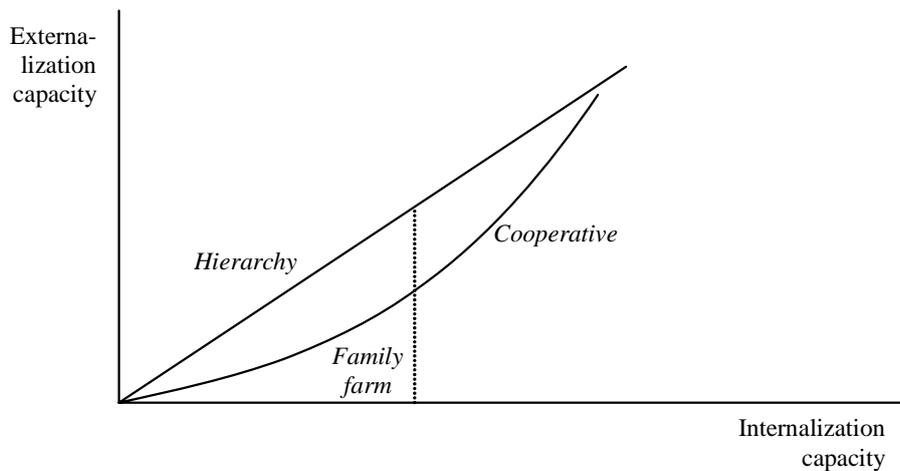
These difficulties would be evidently not relevant for hierarchical organization, which is characterized by clear separation of decision making processes of all involved stakeholders. Hierarchy is considerably less restrained in its ability to reallocate production factors in a way which is optimal from the viewpoint of business profitability. Therefore, in addition to the above described intra- and inter-organizational disadvantages related to the small size of family farms, family governance exhibits a drawback with respect to its ability to undertake rapid structural changes. This drawback, just like the two discussed above, can be also partially compensated by agricultural cooperatives.

To describe the way how cooperatives contribute to the structural development of agriculture and the resulting alleviation of intersectoral disparities (farm problem), a recourse can be made to the concepts of internalization and externalization of transaction costs introduced by Hagedorn (2003). In this context, internalization of transaction costs means that decision making processes on factor reallocation take account of possible externalities that may occur as an outcome of factor reallocation. For example, the decision to shut down a farm and find an employment in an urban area, though economically expedient, could impose negative externalities on members of family farm as a family. Conversely, externalization of transaction costs here means the ability of decision making units to ignore possible externalities of this kind. Using this terminol-

ogy it can be stated that family farms exhibit a tendency to internalize more transaction costs in their decision making processes on factor reallocation than hierarchies. The roles of cooperatives here is to promote the externalization of those transaction costs not sufficiently externalized by family farms.

There are arguably two types of transaction costs that can be externalized by cooperatives: 1) costs represented by losses of farmers resulting from monopolistic practices and opportunistic behavior of upstream and downstream agribusiness firms; 2) structural change-related costs represented by losses of farmers due to delayed structural change. Cooperatives can be quite effective in externalizing the first type of transaction costs to those agribusiness firms which cause them, although, as follows from the previous section, this externalization would be limited by the extent of availability of social capital among cooperative members. Cooperatives, however, are more limited in externalizing costs of the second type, since in the long term these costs increase due to general technological progress. But here, it is important to note that technological progress exerts significant pressure on family farms to undertake structural changes in those cases when it occurs on these farms, as predicted by the Cochrane's (1958) model. Cooperatives, however, can also perform the function of technological innovators, and respectively assume part of these pressures upon themselves, thus alleviating pressures on family farms.

Figure 1. Hierarchies, family farms, and cooperatives: differences in externalization capacity



The comparative properties of hierarchies, family farms, and cooperatives with respect to the balance between internalization and externalization of transaction are demonstrated graphically in Fig. 1. In the Figure, hierarchies are assumed to maintain an equilibrium between internalization and externalization; family farms, due to their institutional characteristics, internalize more than externalize, and cooperatives externalize this residue (not externalized by family farms) and in this way maintain the equilibrium of internalization and externalization of transaction costs in agriculture. Accordingly, the “cooperative” section of the curve is shown to approach the hierarchy line. Theoretically, it may even exceed the hierarchy line if cooperatives are so strong that they externalize more transaction costs than are internalized by family farms, which may reflect the situation in those Western economies, where agricultural lobbies are extraordinarily strong and bring benefits to farms at the expense of taxpayers.

Concluding remarks

Whereas the traditional approaches to the farm problem explain it in terms of low opportunity costs and high mobility costs of factors employed in agriculture, the article proposes an alternative, organizational economics, approach according to which the farm problem is the outcome of inappropriateness of hierarchical and market organization for effective coordination of agricultural activities. The organizational economics approach to the farm problem suggests that agricultural cooperatives are important because they partially perform the coordination functions not effectively delivered in agriculture by the conventional hierarchical and market types of economic organization. Specifically, the feasibility of hierarchical organization in agriculture is impaired by significant difficulties in monitoring and supervising hired labor; the resulting use of family governance which is expected to substitute the hierarchical organization generates additional problems: family farms find it difficult to realize external economies of scale and to develop market power comparable to that of their up- and downstream trading partners. These disadvantages represent major motives for the creation of agricultural cooperatives.

Yet another disadvantage of family governance lies in its insufficient ability to effect structural changes required to bring the returns on factors employed in agriculture in conformity with respective returns in other sectors of the economy. This has been attributed to the tendency of family farms to internalize more transaction costs than they externalize, which is again compensated by agricultural cooperatives serving to externalize these costs.

On the whole, it has been argued that the role of cooperatives in agriculture essentially lies in enabling the realization of advantages of hierarchical organization without the need to incur its transaction costs which are prohibitively high in agriculture, whereas the advantage of cooperatives over hierarchies lies in the ability of the former to develop high amounts of intra-organizational social capital. Consequently, availability of social capital also represents a major limitation on the ability of cooperatives to perform these organizational functions.

References

- Beckmann, V. (2000). *Transaktionskosten und Institutionelle Wahl in der Landwirtschaft: zwischen Markt, Hierarchie und Kooperation*. Berlin: Edition Sigma.
- Benedict, M. (1955). *Can We Solve the Farm Problem?* New York: Twentieth Century Fund.
- Binswanger, H. and Rosenzweig, M. (1986). "Behavioural and Material Determinants of Production Relations in Agriculture". *Journal of Development Studies*, 22:503-539.
- Bonus, H. (1986). "The Cooperative Association as a Business Enterprise: A Study in the Economics of Transactions". *Journal of Institutional and Theoretical Economics*, 142:310-399.
- Borgen, S. (2003). "Rethinking Incentive Problems in Cooperative Organizations". *Journal of Socio-Economics*, 33:383-393.
- Brandow, G.E. (1977). "Policy for Commercial Agriculture" in L. Martin (ed.) *A Survey of Agricultural Economics Literature*. Vol.1. Minneapolis: University of Minnesota Press, pp. 209-292.
- Burt, R. (1992). *Structural Holes: The Social Structure of Competition*. Cambridge: Harvard University Press.
- Cochrane, W. (1958). *Farm Prices: Myth and Reality*. Minneapolis: University of Minnesota Press.
- (1985). "The Need to Rethink Agricultural Policy in General, and to Perform Radical Surgery on Commodity Programs in Particular". *American Journal of Agricultural Economics*, 65:1002-1009.
- Coleman, J. (1988). "Social Capital in the Creation of Human Capital". *American Journal of Sociology*, 94:95-120.
- Draheim, G. (1955). *Die Genossenschaft als Unternehmungstyp*. Goettingen: Vandenhoeck & Ruprech.
- Gardner, B. (1992). "Changing Economic Perspectives on the Farm Problem". *Journal of Economic Literature*, 30:62-101.
- Grandori, A. and Soda, G. (1995). "Inter-Firm Networks: Antecedents, Mechanisms, and Forms". *Organization Studies*, 16:183-214.
- Hagedorn, K. (2003). "Rethinking the Theory of Agricultural Change in an Institution of Sustainability Perspective" in G. Vanhuylenbroeck *et al.* (eds.) *Importance of Policies and Institutions for Agriculture*. Ghent: Academia Press, pp. 33-56.
- Hansmann, H. (1996). *The Ownership of Enterprise*. Cambridge: The Belknap Press of Harvard University Press.
- Hathaway, D. (1963). *Government and Agriculture: Public Policy in a Democratic Society*. New York: Macmillan.

- Johnson, G.L. (1960). "The State of Agricultural Supply Analysis". *Journal of Farm Economics*, XLII:423-452.
- Menard, C. (2004). "The Economics of Hybrid Organizations". *Journal of Institutional and Theoretical Economics*, 160:1-32.
- Pollak, R. (1985). "A Transaction Cost Approach to Families and Households". *Journal of Economic Literature*, 23:581-608.
- Putnam, R. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton: Princeton University Press.
- Schmitt, G. (1993a). "Why Collectivization of Agriculture in Socialist Countries Has Failed: A Transaction Cost Approach" in C. Csaki and Y. Kislev (eds.) *Agricultural Cooperatives in Transition*. Boulder: Westview Press, pp. 143-159.
- (1993b). *Über die Besonderheiten der landwirtschaftlichen Produktion: das "Wesen" und die Zukunft des landwirtschaftlichen Betriebes*. Diskussionsbeitrag 9307. Goettingen: Institut fuer Agrarökonomie der Universitaet Goettingen.
- Schultz, T.W. (1945). *Agriculture in an Unstable Economy*. New York: McGraw-Hill.
- Seitz, W., Nelson, G. and Halcrow, H. (1994). *Economics of Resources, Agriculture, and Food*. New York: McGraw-Hill.
- Staatz, J. (1987). "Farmers' Incentives to Take Collective Action via Cooperatives: A Transaction Cost Approach" in J. Royer (ed.) *Cooperative Theory: New Approaches*. ACS Service Report 18. Washington, D.C.: USDA, pp. 87-107.
- Tweeten, L. (1971). *Foundations of Farm Policy*. Lincoln: University of Nebraska Press.
- Williamson, O. (1991). "Comparative Economic Organization: The Analysis of Discrete Structural Alternatives". *Administrative Science Quarterly*, 36:269-96.