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An essay on the agricultural production organization in former communist countries

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Abstract

This paper reviews and interprets existing information and transaction costs theories of firm organization and entrepreneur's role in order to provide a consistent explanation of the farm-sector dynamics in former communist countries. Important determinants of farm restructuring are economic factors, such as relative productivity of existing human and physical capital in different organizations, risk, terms of trade, transition specific distortions, and factor intensity of agricultural production. To a large extent, however, the phenomenon of various new enterprises being established represents not just general economic and policy conditions but also a diverse population of economic agents.

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1. Introduction

After reform legislation in former communist countries was enacted, state and collective farms have been transformed into a wide variety of farm organizations, such as producer co-operatives, joint stock companies, limited liability companies, and individual family farms.¹ Large-scale producer organizations are still widely observed in Bulgaria, Hungary, the Czech Republic, and Slovakia. However, in Albania, Romania, and the Baltic States, individual family farms dominate.² Important determinants of farm restructuring are economic factors, such as relative productivity of existing human and physical capital in different organizations, risk, terms of trade, transition specific distortions, and factor intensity of agricultural production.

The analysis of farm organization put forward in this paper reveals the circumstances under which the dynamic rationality of differentially endowed agents, acting in an environment of high transaction costs, would lead them to differentiated asset-use behavior, and ultimately to a differential farm organization regime. Knowledge of the production activities and the inherent skills are highly separated in former communist countries' agricultural production systems and not concentrated in one type of agents. Entrepreneurship among farm workers is negatively influenced by the absence of capabilities and norms, which are adjusted to the peculiarities and the heterogeneity of decision-making problems in individual farm operations. Human capital cannot be reorganized like other assets and may therefore be a "conservative" factor in the restructuring process.

Here we present an analysis of the theories concerning the role of information and human capital in the evolution of production organization in agriculture under conditions of high transaction costs. Different economic agents confronted by the same signal, in Arrow's terms, or simply by incomplete information, in Knight's terms, will respond differently because they have a different set of experiences from which to evaluate that incomplete information. The incomplete knowledge and the heterogeneity of agents determine their different decisions in the uncertain environment of former communist countries, characterized by high transaction costs.

The paper consists of four sections following the introduction. First, we discuss the role of information in production organization. Next, the literature on the role of entrepreneurship in production organization and resource allocation is reviewed. Further, the transaction costs theories with reference to agricultural production organization are critically

analyzed. Finally, a conclusion about the likely evolution of agricultural production organization in former communist countries is drawn.

2. Information and the diversity of production organization

The fundamental condition of incomplete knowledge leads us to focus on the firm as an organization whose main feature is processing information. “The elements of a firm are agents among whom both decision making and knowledge are dispersed ... Each agent observes a random variable, termed a signal ... Each agent has a set of actions from which choice is to be made ... We may call the assignment of signals to agents the information structure and the choice of decision rules the decision structure” (Arrow, 1974, 1985).

How will economic agents, and ultimately hierarchical organizations, respond when confronted by incomplete knowledge? Knight’s answer is “differently,” because agents differ “in their capacity by perception and inference to form correct judgments as to the future course of events in the environment” (Knight, 1921). In addition, there are differences in “men’s capacities to judge means and discern and plan the steps and adjustments necessary to meet the anticipated future situation.” Thus, to some extent, the phenomenon of a new organization being established represents not just imperfect information, but a diverse population of economic agents. That is, diversity in the population of economic agents may ultimately lead to diversity in the types of organizations populating the enterprise structure.

Diversity, however, is also a source of a high degree of turbulence. Marshall (1920) describes the dynamic nature of production organization evolution as a process where, “... the young trees of the forest struggle upwards through the benumbing shade of their older rivals.” Building on Marshall’s analogy, Brown, Hamilton, and Medoff (1990) observe that, “the health of the forest fluctuates from year to year, depending upon rainfall, temperature, etc. and their effects on the rates of birth, death, growth, and decline. In the long run, the forest will get larger or smaller and more or less dense depending upon how these rates react to the ecological environment, the richness of soil, disease, management practices, and so forth. And, over extended periods, a forest will need new varieties of trees or new strains of existing vegetation in order to adapt to changing circumstances.”

At the same time, there are two arguments weighing against the benefits that restructuring economic activity and resulting diversity of production organization may have on factor allocation and productivity growth. Ferguson (1988), for example, argues that all of these tend to be promoted when companies and agents have more incentives to invest in long-term commitments, or what is sometimes referred to as “relationship capital.” Further,

Ferguson writes on the case of the U.S. "... fragmentation, instability, and entrepreneurialism are not signs of well-being. Fragmentation discouraged badly needed coordinated action—to develop process technology and also to demand better government support." A second negative externality associated with a more turbulent structure is employment dislocation—however, temporary it might be. The social and psychological costs from such displacement can also be significant. What appears, however, to be market turbulence may well be, in fact, the market selection process that shapes the organizational structure. Thus, divergences in beliefs across economic agents about what should be produced and how it should be produced, lead to a plethora of experiments and trigger the subsequent market selection process. Ultimately it is through this selection process that the structure evolves by incorporating economic agents that survive the selection process, either within incumbent organizations or through the alternative—by starting up a new one.

Most of the literature on production organization in former communist countries did not initially make a distinction between privatized firms and newly established private firms (or *de novo* firms). However, early observers such as Kornai (1990) and Murell (1990) suggest that the *de novo* private sector could play a crucial role in the transition from communism. Later Bilsen and Konings (1998) and Konings (1997), among others, provide evidence supporting this view and emphasize the role of entrepreneurship and new firm formation in the transition process. *De novo* private (entrepreneurial by nature) firms seem to outperform privatized and state-owned firms, with little difference in performance for the two latter categories. State-owned and privatized firms have one feature in common, disorganization, while *de novo* firms do not face such a problem.

3. Entrepreneur's role and production organization

Clearly, beyond the objective, economic, and natural forces there is something more, "the invisible force of entrepreneur," that makes the diversity of production organizations observed. Empirical studies indicate that the major sources of economic success are not factors such as capital per labor unit but some residual, which can be attributed to the combiner or coordinator of capital and labor, the entrepreneur.³ Adam Smith and Jean-Baptiste Say talk about the entrepreneur in the firm, but economists have much later qualified the entrepreneur's role. There are two main stories about entrepreneurship, told by Schumpeter and Knight, respectively.

In the "Theory of Economic Development" Schumpeter (1934) calls attention to the role of the entrepreneur, who plays a central role in his analysis of capitalist evolution. It is

the entrepreneur's social function that is central. The entrepreneur as a member of a social class is what gives rise to continued self-generated growth. While it is the "... essentially unadventurous bourgeois class that must provide the leadership role, it does so by absorbing within its ranks the free spirits of innovating entrepreneurs who provide the vital energy that propels the system" (Heilbroner, 1984). With respect to structural organization, Schumpeter (1950) points out that the extent to which large firms replace small enterprises will negatively influence growth as the resulting economic concentration will start to have a negative feedback effect on entrepreneurial values and innovation. This in turn will cause technological change to decline in the large companies, thus bringing slower economic growth. The link to developments in the agricultural sectors of former communist countries is obvious.

While Schumpeter makes a functional distinction between the entrepreneur and the capitalist (the financial function), for Knight (1921), the entrepreneurial and capitalist functions are inextricably intertwined. Entrepreneurs must finance themselves and bear the risk of their failure. Thus, for Knight, the superior foresight of the entrepreneur and his/her willingness to bear risk must go hand in hand. Who becomes an entrepreneur is determined not by personality (MacClelland, 1969) but by (1) entrepreneurial ability, and (2) the extent to which agents form accurate estimates of their entrepreneurial abilities. In this line, Jovanovic (1982), Kihlstrom and Laffont (1979), and Lucas (1978) have built formal models of Knight's view. Jovanovic considers a model where individuals are unsure of their abilities when they enter business, but uncover their true efficiencies over time with a Bayesian learning process. This analytical background seems especially appropriate to build on in order to explain the farm-sector transformation, taking place in former communist countries.

4. Agricultural production organization—a transaction costs view

An economic enterprise, such as an agricultural capitalist company (ACC), an agricultural producer co-operative (APC), or an individual family farm (IFF), is a coalition of resource owners with diverse features. In general, a firm emerges and survives because it is costly to use the price mechanism, and the size of the firm is curtailed because it is costly to use the firm's internal allocation mechanism. Competition selects the combination of firms and markets that minimizes costs. Hence, the organizational structure determines, to a large extent, the efficiency of the resource allocation and, therefore, the factor productivity and competitiveness. The setup and running of each type of organization is connected with information, organization, and coordination costs, namely transaction costs. Besides transaction costs, production costs exist so that the total costs will decide on the competitiveness of each organization. In this respect it

has to be kept in mind that high transaction costs might be compensated by low production costs and vice versa. Ultimately, cost minimization is significantly related to the knowledge and abilities of entrepreneurs.

Transaction costs include the costs of acquiring and processing information which is not available free of charge, the costs of monitoring and supervision, and also the costs of enforcing contracts between economic agents which are necessary for reducing the risks and uncertainty associated with pure market transactions (Williamson, 1991). Imperfect information implies bounded rationality and opportunistic behavior of both agents and (at least to some extent) the principal. The potential losses from imperfect information are particularly large in agricultural production due to the spatial dispersion of the production process and the need to constantly adjust to micro-variations of the natural environment (Binswanger & Rosenzweig, 1986). All three major types of agricultural organization, ACC, APC, and IFF, are affected by these costs but to a different extent.⁴

The APC are characterized by the fact that their members are both co-workers and co-entrepreneurs, or employees and employers of the co-operative. In addition to the major problems with incentives and underinvestment, discussed by neo-classical theory, this “identity principle” has far reaching consequences for the organizational structure and hence for the transaction costs. APC are not only affected by principal-agent problems due to the relatively large number of workers, which also concerns ACC (e.g., supervision problems), but also due to their decision-making regulations (“one member-one vote”).

The IFF—typically worked jointly by a married couple and their children, or in many societies by members of the extended family who live together in a single household—has been the dominant form of agricultural organization in market economies for many years (Allen & Leuck, 1998; Pollak, 1985). One of the main reasons for this seems to be the fact that IFF while changing themselves tremendously over time benefited largely from the technological change in market economies.⁵ Economies of scale, size, and scope favoring large-scale organizations seem to be fairly restricted in agricultural production, so that production cost advantages of large-scale farms are rather small or even not existent (Binswanger & Rosenzweig, 1986; Schmitt, 1993). In addition, IFF can realize economies of scale to a large extent by joining with other farms in executing certain activities, which has been proven by the success of service co-operatives since the middle of last century.

On the other hand, the transaction costs of both the ACC and the APC seem to be quite high due to difficulties in solving the principal-agent problem in agricultural production. Most

farm activities are hard to monitor in terms of inputs or outputs so that the farm manager has to trust his workers. Even if work performance can be controlled in great detail, which is highly costly, it is difficult to assess the contribution of each worker to the overall performance due to the fact that it is largely determined by natural conditions and only to a smaller extent by individual efforts.

Similarly, it is very difficult to set up an efficient incentive system in agriculture. In this respect the governance of the family as a production unit offers advantages due to the smallness of the group and the hierarchical structure of family governance so that shirking and free riding among family members is restricted. Therefore, it is argued that “the family farm can be regarded as an organizational solution to the difficulty of monitoring and supervising workers who, for technical reasons, cannot be gathered together in a single location” (Feder, 1985; Pollak, 1985). Only if specific tasks can be monitored easily, wage labor will be applied.

This aspect is reinforced by the implicit long-term nature of the family enterprise. There is neither easy exit nor easy entry over time. The family members on the farm as both decision-makers and workers have expectations for a continuing relationship with the farm and claims on its profit. This implies that IFF seem to have a more efficient reward and sanction system. APC and ACC can also reward successful managers and workers/members with salary increases and promotions, but performance is difficult to assess and agents may be able to manipulate short-run indicators of performance at the expense of long-run objectives of the enterprise. Because family members expect continuing relationship with the farm, they are less tempted to sacrifice long-run advantages for short-run gains. In addition, the IFF provides social security in case of accident, sickness, old age, etc., to the family members and this seems to be the most efficient incentive for a more co-operative behavior within the household (Schmitt, 1993). Therefore, close supervision and monitoring of the performance of both managers and workers can be cut on the FF due to the intimate linkage of social and work relations.

In this respect it has been argued that IFF are not *per se* characterized by reducing transaction costs to a minimum. Rather this is the result of a long lasting peasant tradition (Cheung, 1969). The socialization process within a farm family can be understood as a specific investment in human and social capital, i.e., it can be seen as a transaction specific investment and accumulation of attitudes and skills, which are adjusted to peculiarities of decision making in IFF units (Huffman, 1977).

Finally, the FF shows a high level of flexibility in adjusting (family) labor in farm, off-

farm, and household production according to prevailing comparative advantages. In the course of long-term economic development, farms have to adapt to changing factor price relations and to changing production technologies. In particular, labor input has to be reduced or/and production capacity of farms has to be increased in order to achieve factor productivity improvement over time. In the short-run, considering seasonal fluctuations, IFF have to adjust the use of their resource endowments, especially labor supply. IFF realize a whole bundle of options in making effective use of their labor force besides performing farm activities. These range from taking up off-farm activities to enlarging household production, be it by one member only or by all the family members, be it permanent or seasonal, be it close to the family residence or outside the region, implying seasonal migration.

ACC and APC cannot react to changes of the economic framework that flexibly. ACC may and certainly have reacted to changing factor price relations by reducing farm labor input or by increasing farm size. In APC the reduction of labor input is more difficult to achieve not only due to their very nature, but also due to the fact that members are the owners of the land resource. The release of members can therefore be (in case when the member contributes land and labor) linked to a corresponding loss of farmland and hence a reduction in size (Jackson, 1997).

However, the disadvantages of family governance have to be recognized as well. Particularly, three aspects are to be mentioned. First, conflict may spill over from the social sphere to work relations and vice versa. Conflicts between parents and children (particularly timing and conditions of succession) or between siblings (particularly rivalries and tension among the younger generation taking over the farm) may influence the behavior and work performance of various members. Second, inefficient behavior or slack performance may be tolerated because of the difficulty of evaluating and disciplining family members. Although the family has a wide range of options of social rewards and sanctions up to ostracism, in practice, however, the family may not be able to calibrate these options effectively. Third, and very important as we showed in previous sections, there might be an inappropriate ability match with respect to the capacities and talents of the family members and the needs of the IFF. Certain activities require special abilities and it is not always secured that the necessary ability mix is available within the family in a particular generation. The balance of the advantages and disadvantages of the IFF would decide on the level of transaction costs (Pollak, 1985).

5. Conclusion

At this point, it should be emphasized that the focus of this paper is to identify the main patterns of transition in former communist countries' agricultural production organization and provide a lens through which one can view them. Therefore, an important implication of this analysis is that not only does market turbulence play a pervasive role in the dynamics of the sector, but also that the extent of turbulence varies substantially across economic agents depending on, among other things, their abilities and entrepreneurialism.

The household comprising a small number of persons seems to be most suitable team in organizing agricultural production. An incentive efficient division of labor can be set up among the family members. Although they do not dispose of the same level of information, they co-operate with each other due to their common interests. The higher the divergence of interests and abilities and the larger the production team the more transaction costs will rise and the production process will become less efficient in terms of resource allocation. The partly possible savings effects in production costs due to economies of scale, size, and scope do not seem to compensate for the higher transaction costs which go together with wage labor or with an organizational structure such as APC. So far, no institutional and organizational pattern has been established in agricultural production as, e.g., in other economic sectors, which facilitates large-scale corporate type of production through an appropriate incentive system for the workers in reducing uncertainties and free riding and hence the transaction costs. This seems to explain why in market economies the IFF is the dominant type of organization in agricultural production. In a long run, this is the most likely outcome for former communist countries as well, conditional on convergence in abilities and knowledge across economic agents.

Notes

- 1 The former Communist countries that are referred to here are part of East Central Europe (ECE) and include Albania, Baltic States (Estonia, Latvia, and Lithuania), Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia, and former Yugoslavia.
- 2 Production organization also significantly varies within a country.
- 3 See, e.g., [Abramovitz \(1956\)](#), [Solow \(1957\)](#), and others summarized in [Nafziger \(1990\)](#).
- 4 In the following comparative analysis we implicitly assume constant production costs. There has been an extreme increase in average farm size of IFF while the available labor per farm family decreased to some extent during the last century in market economies

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