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A revival of large farms in Eastern Europe—how important are institutions?

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Abstract

Contrary to expectations, large farms are still the dominant form of farm organization in most countries of the Commonwealth of Independent States and are important in some Central and Eastern countries. This paper analyzes the reasons for these failed expectations, focusing on the experience of Russia. The framework of institutional economics is applied to explain the reasons why the conventional approach, based on economies of scale and on-farm transaction costs, does not apply to the evolution of farm size in the east (and even the west). Specific institutions, which are partly embedded and informal, and legal, but loosely enforced, suppress the birth of family farms in Russia and stimulate the growth of large farms, leading to holdings that are not observed in developed market economies. Hence, survival and growth of large farms are not necessarily based on comparative advantage of these farm organizations in a market economy environment.

JEL classification: Q12, Q15, Q18

Keywords: transformation; Russia; embedded institutions; large farms

1. Introduction

The discussion of farm sizes is an old theme in agricultural economics. Can anything new be added to the debate? Hopefully, yes. The ongoing debate seems to have focused on four issues.

First, the measurement of farm sizes is still an unsolved problem (Lund, 1983; Lund and Price, 1998). The amount of arable or agricultural land per farm is certainly an inadequate indicator of farm size: the value of sales or value added per farm is better, albeit not ideal. Yet, this indicator has not been used in empirical work, due to lack of data.

Second, opinions about the optimal farm size differ because this optimum is difficult to define because opinions about the objective function of farmers may differ, and because the same determinants can affect farm size in different ways across different farms. Further, while on-farm transaction costs are generally considered to be among the most important determinants of farm size, their importance depends largely on the farm operator's ability to monitor and to enforce labor contracts. Another important determinant, economies of size, depends in turn on the pattern of production.

Third, in spite of the difficulties mentioned above, according to Western economic wisdom and experience, farm sizes in the transitional economies of the Central and Eastern Europe Countries (CEECs) and the Commonwealth of Independent States (CIS) in 1990 were considered to be too large.

Finally, family farms, which are the dominant mode of production in most market economies, were expected to emerge rapidly in these transitional countries.

However, contrary to expectations, large farms are still the dominant form of farm organization in most countries of the CIS (Lerman et al., 2002) and are important in some CEECs. Large holdings have emerged in Russia, while in East Germany, a more stable economy, large farms have survived, and the number of large private farms has even increased in recent years.

This paper analyses the reasons for these failed expectations, focusing on the experience of Russia. The

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Table 1
Land use shares (in percent) by type of farms in Russia, 1990–2001

	Total farm land			Arable land		
	Farm enterprises	Individual farms	Household plots	Farm enterprises	Individual farms	Household plots
1990	98.1	0.0	1.8	97.9	0.0	2.0
1991	96.8	0.6	2.6	96.5	0.6	2.4
1992	92.3	3.3	4.4	93.3	3.7	3.1
1993	90.4	5.0	4.5	91.4	5.5	3.1
1994	89.9	5.2	4.8	91.0	5.8	3.2
1995	89.4	5.4	5.2	90.4	6.0	3.6
1996	89.1	5.7	5.2	90.0	6.4	3.6
1997	88.3	6.2	5.4	89.0	7.2	3.8
1998	87.4	7.0	5.6	88.2	8.2	3.7
1999	86.4	7.2	6.4	87.2	8.7	4.1
2000	86.1	7.9	6.0	85.7	9.4	4.9
2001	n. a.	n. a.	n. a.	85.1	9.1	5.8

n. a. = not available.
Source: Calculated from Russian Cadastre Service data. Table quoted from Serova, 2003.

following section provides a brief description of the evolution of farm size and structure in Russia. In this section, the reasons why the conventional approach, based on economies of scale and on-farm transaction costs, does not apply to the evolution of farm size in the east (and even the west) are also examined. In the main section of the paper the importance of institutions[1] for the determination of farm sizes and their development is investigated.

The term "institution" is broad, and this paper follows Williamson's (2000) classification, which distinguishes four levels of institutions. First-level institutions are embedded and are shaped by informal rules, customs, cultural beliefs, norms, traditions, and religion. Second-level institutions include the institutional environment, such as laws and property rights. These are the formal rules of the game. Third-level institutions concern the way the game is played, aligning governance structure with transactions. Whereas second-level institutions are crucial for *ex ante* decisions, third-level institutions are concerned with assessing and sometimes modifying *ex post* decisions. Finally, fourth-level institutions concern the rules for resource allocation and employment.

2. The evolution of farm structure and farm size in Russia

Unfortunately, information on the agrarian structure in transitional economies is not easily available. The information presented here is mainly based on Lerman (2003) and Lerman et al. (2002).

The use of land in Russia has not changed much over the past decade. Individual or family farms cultivated less than 8% of total farm land and less than 10% of arable land in 2001 (see Table 1). While the number of these private farms increased in the first years of transition (Table 2 and Figure 1), it has stagnated and even declined since 1996. The share of farm enterprises in use as arable land has declined from 97.9% in 1990 to 85.1% in 2001, or about 13 percentage points. The share of household plots in use as arable land has increased significantly, from 2.0% in 1990 to 5.8% in 2001, and the number of household plots has slightly increased.

The average size of private farms in Russia is smaller than the average size of scale-efficient family farms in the United States and the EU, while the average size of agricultural enterprises is much larger than the average size of efficient Western family farms. Surprisingly,

[1] The terms institutions and organizations are used as suggested by North (1990). Institutions are rules that may be set officially or may have evolved unofficially; they make human behavior predictable. Organizations are groups of individuals bound by common objectives, and are comparable to the players in a game.

Table 2
Relative magnitude of farm-enterprise sector and individual sector in Russian agriculture (percent)

	1995			2000		
	Farm enterprises	Private farms	Household plots	Farm enterprises	Private farms	Household plots
Number of units	26,900	280,100	16.3 mill.	27,600	261,700	16.0 mill.
Average size, ha	5,700	43	0.36	5,400	58	0.38
Agricultural land[a]	81.7	5.0	4.7	80.0	7.4	5.6
Agricultural production	50.2	1.9	47.9	43.4	3.0	53.6
Agricultural labor[b]	60	40		49	10	41

[a] "Other users" complete the sum to 100%.

[b] Very rough estimates based on data from two sources: total number of employed in agriculture from *Rossiiskii statisticheskii ezhegodnik 2002* and number of agricultural workers in farm enterprises from *Sel'skoe khozyaistvo v Rossii 2002*; employment in the individual sector estimated by difference. For 2000, employment in private farms obtained from *Agricultural Activity of Private Farms in Russia 2000*, Goskomstat, Moscow (2001); household plot employment estimated by difference.

Source: Table provided by Zvi Lerman, The Hebrew University, Rehovot, Israel and the World Bank, Washington, DC.

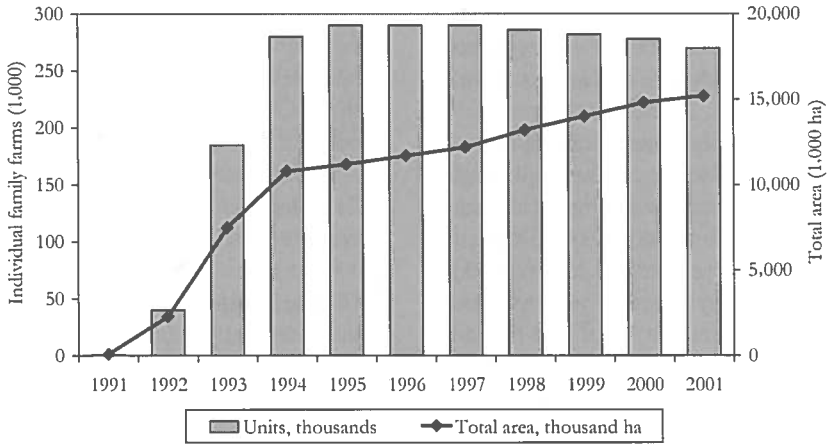

Figure 1. Number of individual farms in Russia and land area used by them. *Source:* Csaki et al. (2002, p. 57).

the number of these large enterprises increased between 1995 and 2000, while the average size declined by only 5 percentage points. Hence, the share in arable land held by enterprises declined only slightly (by 2.8 percentage points) over this period.

The organization of the agricultural sector has changed significantly in Russia over the past 5 to 6 years and, starting in 1997, and now includes new companies called agro-holdings. These are collectives of several juridical entities where one is the mother enterprise and the others have to accept the mother's decisions.[2] The mother enterprise prepares the consolidated or common financial statements of the holdings, coordinates the flows of financial resources and commodities, and may have the right to hire and fire managers and specialists in the subsidiary companies. In 2003, 13 of these holdings encompassed more than 100,000 ha each, with one reaching 500,000 ha. Some of them hold a high share on regional markets (up to 50%), and even on national markets (up to 12%). According to estimates, in 2002, 30 to 40 holdings in Russia included about 6% of all agricultural farms and contributed between 10% and 20% of total agricultural production.

In a random sample it was found that the 16 interviewed companies had 36,000 ha of arable land, meadows, and pasture on average (Rylko, 2001). The

[2] Information provided by Täuber, German Embassy, Moscow, 2003.

agricultural land plots of the interviewed companies ranged from 2,000 ha to one company that owned 19 collective farms in two regions totaling about 150,000 ha. These companies are, therefore, much larger than the typical former collective farm size of 4,000 to 8,000 ha (Rylko, 2001). It is estimated that these large holdings control 5–6% of the agricultural land, but the share is much higher in those oblasts (regions) with fertile land. To the author's knowledge there is no comparable development in any market economy.

2.1. The traditional approach to farm size

Large farms are thought to be inferior to family farms, first because they do not gain significantly from economies of scale, and, second because they incur higher transaction costs mainly due to the cost of supervising hired labor.

These hypotheses are highly questionable with respect to farm sizes in the former centrally planned economies. In their extensive review of empirical studies on productivity and efficiency in the agriculture of transformation countries, Gorton and Davidova (2003) found that all these studies may have left out important determinants, namely, management input and human and other resources, and that these factors may affect variation in productivity within farm size groups more than between farm size groups. In addition, most studies neglect the important impact of external institutions on the efficiency of farm size and on the evolution of the farm size structure.

The transition from plan to market requires considerable adjustment to a drastically changed economic environment. Adjustment pressures in the agricultural sector in most of these countries were delayed for a short while so that the need for structural change seemed apparent at least to many agricultural researchers. To assess the effects of external institutions on the evolution of farm structure and farm sizes in selected transitional countries, it is necessary to investigate how family farms or single-owner farms emerge and grow, as well as how large-scale farms survive. What institutions affect the birth of family farms? Why do family farms survive as they are, and why do they change so slowly? What institutions contribute to the inefficiency of large-scale farms? Why do new large farms get established, and why do they survive if they are inefficient?

This paper examines the hypothesis that institutions, which are generally country-specific, determine birth, survival, and the death of specific farm sizes and farm organizations.

3. Organizations and institutions on the farm level

3.1. Embedded institutions

Embedded institutions (first-level institutions according to Williamson, 2000) include informal rules, customs, traditions, norms, and religion. The importance of these institutions in the transformation process has been widely accepted (Greif, 1994; Dewatripont and Roland, 1996; World Bank, 1997; Bardhan, 2001). However, the importance of institutions for agricultural transformation, and in particular, for the development of farm structure has been less elaborated.

3.2. Embedded institutions and the comparative advantage of individual types of farms

"Cultural beliefs are the ideas and thoughts common to several individuals that govern interaction—between these people and between them, their gods, and other groups and differ from knowledge in that way that they are not empirically discovered or analytically proved" (Greif, 1994). There is ample evidence that embedded institutions differ among societies and that they have significant implications for economic performance. Embedded institutions have an influence on the way people behave and how they interact with each other, how they collect and deal with information, and how willing they are to change. Moreover, embedded institutions may have a strong impact on policy makers and influence how they prefer to design policies. Such cultural beliefs as part of embeddedness are important for "would-be" or "could-be" private farmers, for their survival, for the survival of large farms, and for the birth of new large holdings.

People's behavior depends not only on economic incentives, as generally assumed in neoclassical economics, but also on embedded institutions. To quote Alan Greenspan, Chairman of the Federal Reserve Board of the United States, capitalism is not human

nature, but, as the Russian disaster indicated, "not nature at all, but culture" (quoted in Pfaff, 1999). Hence, the reaction to changes in the economic environment depends on the given culture in a society. Mental models are the micro-level basis of culture because they describe the underlying beliefs that influence the way people behave (Lindsay, 2000), and how they think the world works. Mental models are crucial for understanding the willingness of people and a society to change.

However, mental models cannot measure human behavior, and therefore they can only suggest the effects of embedded institutions on the structure of farms.

Table 3 provides an overview of some specific first-level institutions that might be of importance on the farm and policy level. Openness of a society is a main determinant of prosperity, as openness determines willingness to change. Rural societies in Russia were largely isolated from urban regions and even more so from other countries. Hence, they were not well prepared to react to changes in the economic environment. This situation was aggravated by the structure of human capital in rural regions, where the average level of education was generally less than in urban areas and out-migration after the onset of transition eroded the stock of human capital even further. Societies, which are less open, tend to be more risk averse than others. This point is of special relevance in transition countries, as the environment was quite uncertain and there were no developed insurance markets. Thus, it is not surprising that most first-generation private farmers were not former employees. A survey in Russia revealed that 75% of early private farmers in Russia were ex-urbanites, and only 5–7% were former members of state and collective farms. "Romantics of the rural way of life" and demobilized military personnel accounted for 20% of private farmers (Wegren and Durgin, 1997). Thus, outsiders were the first generation of new farmers in Russia. It is difficult to assess which had the most impact on this outcome: embedded institutions or rational economic behavior, especially when the less risky alternative of working on the household plots under the umbrella of the large farm cannot be singled out exactly.

Some societies are more risk averse than others. However, the nature of agriculture, with its exposure to the elements and the long delay between investment and returns, means that farmers always have to bear risk. It is reasonable to assume that the willingness to bear risk is also dependent on education and personal experience during childhood and work. In planned economies, workers were not educated or

Table 3
Embedded institutions and the comparative advantage of individual types of farms

Farm level	
Against private farms	In favor of large farms
Not open to change[a]	Not open to change
Lack of trust	Strong belief in comparative advantage of large farms
Preference against being self-employed	Social responsibility
Preference for leisure	Belief in specific role of the state
Attitude with respect to risk	Production oriented and less profit oriented
Insufficient understanding of formal rules	Corruption and nepotism
Preference for collective action as compared to self-reliance	
Attitude against to land ownership and land sales	
Corruption and nepotism	
Policy level	
Private farms	Large farms
Mistrust in individualism	Mistrust in functioning of food markets
	Political influence
	Belief in comparative advantage of large-scale agriculture

Notes: [a] Human capital in rural areas had already eroded before the transition started. The rural population was less educated than the average person in the country and less prepared to change.

trained to be entrepreneurs nor undertake risky activities. Hence, the number of potential entrepreneur-farmers in a transitional country is likely to be limited, at least in the short term. For example, some of these societies, being risk averse, seem to be unwilling to take credit. In addition, some societies may be culturally averse to incurring debt or reluctant to do so. It is considered as "something which one should not do" because it indicates living beyond one's means. This cultural belief may explain why so many new farmers in these countries had to give up farming after a few years. Even in eastern Germany, where the potential of a new farming generation seemed to be high, 42% of the new single-owner farms had negative net investments, and 34% had to accept a negative change in equity (Koester, 2000). These individuals were either unable to become good farmers, because they lacked the necessary skills and became indebted, or they tended to live beyond their means. Therefore, changing from a planned to a market economy may likely trigger an exodus of farmers from the business and expansion of those farms that remain. The willingness to incur debt is one prerequisite for any successful restructuring.

World Bank interviews in Russia 1994 (Lerman et al., 2002) found that 42% of respondents were not willing to become a private farmer because they did not wish to change their lifestyle, while 56% were afraid of risk. The attitude toward risk is also related to culture, education, experience in dealing with risky situations, and the availability of risk-reducing institutions.

Prospective farmers might also shy away from setting up a private farm due to corruption and nepotism, which are at least partially embedded institutions. Corruption creates uncertainty and enhances the risk of starting a new activity, in particular if long-term engagement is needed. Unfortunately, most former socialist countries were and still are prone to corruption. Pervasive corruption reduces trust, but trust is a necessary ingredient of a market economy.[3,4] Even if there is a stable and reliable legal framework in place, trust is needed in order to exploit the potential of productive interactions. Hence, lack of trust reduces the division of labor in an economy. This aspect could have been quite important for the creation of new private farms, more so, as markets were not functioning well (see below) and new farmers had to rely on discretionary decisions by bureaucrats, policymakers, and managers of large farms. Lack of trust and badly functioning markets help to explain why small-scale enterprises were the backbone of the recovery of the economy, but not so in agriculture. New farms in agriculture need long-term investment, which is often specific. Hence, some of the new assets have to be produced to order, implying a high risk for the producer of the asset concerning the willingness of the purchaser to pay, and also a high risk for the purchaser, as he does not know the exact quality of the asset. In contrast, it is easier for small-scale enterprises to expand in sectors that do not rely on asset specificity as much as agriculture and that do not need as much long-term investment.

Farmers in the Western market economies own at least some share of the land they cultivate. Indeed, the survival of many farms in these countries is only possible because farmers own land, and are, therefore, able to survive for as long as a generation even if they lose equity year after year. Potential successors of small farms seem to be inclined to run the farm because they consider the activity on the family farm as somewhat special, as the farm may have been in the hands of the family for generations and as farmers, they think in generations and stick to the soil. There are indications that embedded institutions with respect to landownership point in the opposite direction in Russia. This has important implications for the initial mode of privatization, which would not matter much if land were highly mobile. However, experience has shown that many new owners are not willing to sell or lease out their land. Land seems to have a specific value in addition to being an asset. Even if the owners wanted to, they may not be able to sell or lease out their land because they do not possess a title, (which proves ownership) or because buyers are not creditworthy, or because land is highly

[3] "Corruption is a contractual relationship between economic agents for the abuse of position for private gains" (Reja and Talvitie, 2000).

[4] There is much empirical evidence in the institutional literature in both economics and sociology that sustainable rural communities in a contemporary global economy need to develop both horizontal (within the community) and vertical (outside of the community) bridging ties (Woolcock, 1998; Flora and Flora, 1993). However, these ties require a level of trust that was certainly not fostered during the 70 years of Soviet authoritarian rule. Given a lack of trust, households, as rational economic actors, will devote most of energy on the development and maintenance of highly dense networks of trusted family and friends (O'Brien, 2002, pp. 169–173).

fragmented and users of individual plots can hardly cultivate them.

The negative attitude toward private ownership in Russia is clearly expressed in interviews. About 90% of respondents in a survey conducted in Russia (Serova, 2000) disagreed with the concept of land reform and seemed to be against private land ownership. Interviews in Novosibirsk and Shitomir revealed that only 33% of the farmers were willing to mortgage their land (Schulze et al., 1999). Owners seem to be afraid of losing their land because land may be considered an important asset in risk hedging. Given the constraints on the land market due to the mental models of landowners and the rural population, it is difficult for the sector to adjust to the rapidly changing environment during the transition period. If, in addition, the initial land allocation is inefficient, this situation can be exacerbated.

Some rural people have a specific attitude with respect to land ownership. A survey conducted in Novosibirsk province revealed that 78.6% of respondents working in agriculture disapproved of selling and buying farmland (Schulze et al., 1999). This may partly explain why land may remain idle in these countries, in spite of rural unemployment. All the above-mentioned constraints to changes in land ownership accentuate the importance of the original farm structure. Taking into account embedded institutions, which are relevant for managing a farm, does not mean that family farms are necessarily inferior to large-scale farms. It only suggests that specific policy actions might be needed to overcome these embedded institutions. Williamson (2000) estimates, somewhat pessimistically, that it may take up to 100 to 1,000 years to change these institutions. Economists could play a role in accelerating this process, as education and dissemination of information will likely shorten the needed time horizon.

3.3. Embedded institutions and the survival of large farms

Embedded institutions in the form of juridical entities also play a significant role in the management of large-scale farms. Some societies strongly emphasize kinship. People in charge of hiring, monitoring, granting licenses, etc., favor their relatives. This fact has implications for managing a farm that relies on many wage earners. In a functioning market economy, managers are expected to monitor and enforce labor contracts, and to assess the performance of employees. If the manager is not the owner, he is the agent of the owner and may have a juridical role. At the same time the manager is the principal of the worker. This dual role may lead to corruption and may hinder the efficiency of this farm type.

Corruption and nepotism play a larger role if large farms are connected with household farms as in Russia. Farm workers can shift their effort from the mother farm to the household farm and can even expropriate the large farm. Given their small share in land use, the only way household farms can produce a large share in total agricultural production is through their easy access to farm inputs from the large farm. The prevailing law even allows large farms to sell inputs at below market price to the household farms, and thus encourages cross-subsidization. There is ample evidence that household farms even receive inputs and services at zero prices. The relationship between large farms and household farms negatively affects the incentive to become a private farmer. Those individuals who opt for this alternative forego a fairly secure and predictable environment in exchange for one with a high degree of economic and political uncertainty.

Managers of large farms believe in their comparative advantage, and hence hinder those who want to leave the farm. Moreover, managers were used to feeling socially responsible for the employees on the farm. Their objective was, and still is, not just to maximize profit. Instead, they are still often production-oriented, and believe in a specific role of the state, namely to accept social responsibility for the survival of the large farms.

Mental models of policymakers are also often very important in explaining the survival of large farms. First, policymakers are widely convinced that they have to intervene in markets for food security reasons. Moreover, they believe in the comparative advantage of large farms and the need to set production targets. Hence, they are inclined to bail out large firms if they face financial problems, allowing most large farms to survive even if they are not profitable. Consequently, the comparative advantage of private farms is negatively affected in two ways: first, when large farms do not go out of business they reduce the supply of land that would be available otherwise, and second, access

to soft budgets affects the behavior of employees who operate a household farm, encouraging them to exploit the mother farm (Koester, 1999).

3.4. The institutional environment and the comparative advantage of individual types of farms

According to Williamson, second-level institutions are formal rules (constitutions, laws, property rights), which make individual behavior predictable. Markets are the most important second-level institutions for the comparative advantage of individual types of farms. When these markets, in particular, those for land and rural credit, do not function, structural change in agriculture is impeded. Private farms, which may start with a minimum land endowment, cannot lease or buy additional land because of restrictive land legislation and poorly functioning markets, in particular with regard to the problems of incomplete information. The potential buyer or long-term lessee has insufficient information when estimating future returns of an asset and the supplier of these factors has insufficient information when assessing creditworthiness. Good legislation would help, but is not sufficient. In general, inadequate second-level institutions increase transaction costs and thus reduce the division of labor in the economy. Private farms have to accept lower farm gate prices for their produce and have to pay higher prices for their inputs. As transaction costs are partly related to the volume of exchange, large farms incur lower transaction costs per unit of purchase or sale than private farms.

Large farms are also favored by the Russian tax system (second-level institution), which is nontransparent and inconsistent. It is almost impossible for anyone to comply fully with the law. Larger farms, which are backed by regional or central administration, can take advantage of tax authorities' discretion in prosecuting tax violations.

3.5. Governance and the comparative advantage of individual types of farms

Third-level institutions are about governance, which affects the enforcement of formal rules set in second-level institutions (the legal framework). It is important for decision makers to know what happens if the terms of a contract are violated or affected by changes in the economic or political environment. Third-level institutions play a major role in determining the comparative advantage of individual types of farm in transition countries. First, market activities may become less profitable than subsistence production, not only because of adverse macroeconomic conditions (high inflation, an inefficient tax system, etc) but also because a weak legal framework increases uncertainty for farmers. Second, nontransparent markets increase information costs in the markets for agricultural produce. As these costs per unit of output sold or per unit of input bought are smaller for larger than smaller volumes, this uncertainty increases the comparative advantage of large farms over small family farms. Uncertainty due to weak enforcement of contracts affects the setting up of new family farms even more. Access to credit is generally crucial for prospective farmers, whereas existing farms may survive without any access to credit. Third, poor governance favored existing large collective farms or their successors because the government has often intervened strongly and inconsistently in the markets. Large farms also have a better network of contacts and are, therefore, better informed than the small family farms. Finally, large farms often received favorable treatment in the form of allocation of fuel and other inputs, or credit by bureaucrats who consider these farms important for local food security and the rural social infrastructure.

3.6. Institutions concerning resource allocation and employment, and the comparative advantage of individual types of farms

Neoclassical theory assumes that decision makers at the farm level assess alternatives with respect to maximizing an objective function. It is unlikely that farm managers in transition countries use such a procedure. First, they may face incomplete information to a much more severe extent than their colleagues in market economies do. Second, they suffer from certain deficits in education, e.g., they may not be familiar with basic concepts such as opportunity costs and marginal analysis. Finally, they may take into consideration nonmonetary factors, e.g., the preference for subsistence production, taking care of those who are in social need, etc. Hence, the outcome of the decision-making process with the same given constraints may be quite

different in market economies than in transition countries.

It can be assumed that managers of family farms lack, even more than managers of large-scale collective farms, these necessary elements of rational decision making. It is possible that, under *working* market conditions, family farms might be superior to large-scale farms, but that the environment existing during the transition period has given a comparative advantage to large farms.

In conclusion, the comparative advantage of individual types of farms depends on various institutions. Privatization is but one of them and may not be the determining advantage in the performance of the farm. Therefore, it is not surprising that an investigation of the impact of land privatization on sector performance does not lead to conclusive results (Lerman, 1998).

3.7. Institutions and the recent changes in the farm structure

The Russian farm sector has undergone significant restructuring over the last two years (Rylko, 2001), and a new type of farm has emerged with new outside operators. Unfortunately, there are no official records of land transactions (Serova, 2002a), with the exception of sale and rent of state-owned land included in official statistics; yet, the bulk of transactions is conducted between private agents (Serova, 2002b). Serova reveals that in a small study of three Russian regions up to one third of all farms increased their area planted by three- to seven-fold, and that external operators (processors, traders, oil companies, etc.) have become more active in the land market.

Interviewers of 16 such enterprises received the following answers to their inquiry on farmers' motives for expansion: "we got tired of non-payback by farms and decided to control the whole production chain," "we wanted to receive the necessary quantity of inexpensive quality raw material on a timely basis," "we thought that agriculture was a good place to put money in." One operator expressed what was on many others' minds: "We don't see any reason why agriculture in Russia cannot be a highly profitable business. You only need new assets, new technology, new management, and new people" (Rylko, 2001). Fortunately, Rylko and others also report on the development of some of these enterprises. Their history reveals quite clearly that the recent and ongoing development cannot be explained with the help of neoclassical theory alone, but needs to be supplemented with the framework of institutional economics.

3.8. Embedded institutions and the birth of agricultural holdings

Embedded institutions seem to have played a major role in this context. As already discussed above, many of the large farms have not been able to adjust to the changed economic environment but have benefited from soft budget constraints and other support from policymakers. In spite of this support many large farms became gradually insolvent, productivity went down, workers did not receive wages, and shareholders did not get lease payments. Such enterprises were weak, and an easy prey for taking over by outside operators, especially considering the extent of their political support. The support took the form of subsidies and decisions to accept the creation of new enterprises and leaving behind the highly indebted old ones. This procedure was at least tolerated or even promoted by the officials. The most outstanding model was applied in Belgorad oblast (Rylko, 2001), where a special decree by the Governor allowed the transfer of all bad farm debts of insolvent collective farms (about one third of all farms) to the oblast budget. At the same time, the insolvent farms were assigned to strong nonagricultural and agricultural enterprises and to private farmers. It would have been possible to partition the collective farms and to create small family farms, but existing first-, second-, and third-level institutions prevented such an alternative.

Private ownership of land has been possible in Russia since 1991, and according to federal legislation all transactions of land have been permitted since 1993 (Serova, 2002). However, there persisted high uncertainty concerning the stability of existing land regulations. The law on mortgage in 1998 forbade the use of land as security, and thus constrained landowner rights. It was only in 2002 that the State Duma accepted a land law and ended the long-lasting uncertainty on the land market. Up to this point agricultural land had been mainly transferred in the form of lease contracts. However, the procedure for leasing out is extremely burdensome, implying several administrative steps. It is well known that paying bribes and kickbacks can speed up the process. One of the interviewed enterprises

even mentioned that it gave personal computers to the local office of the land committee to try to speed up the lengthy process of registration. It is quite clear that private farmers who might have been interested in smaller areas are less able to pay competitive bribes. Moreover, they would incur higher search costs per ha of land transacted in order to find out the magnitude of a successful bribe. Landowners seem to prefer handing over land to large operators due to lack of trust in prospective private farmers. This lack of trust is partly embedded, but also supported by weak third-level institutions. Farmers may suffer from delayed payments and even from theft. Large operators are better positioned to collect debt and to secure themselves against theft. It is reported that some large farms even use armed groups with automatic guns to protect the crops on the fields. Family farmers cannot resort to such methods in order to compensate for weak third-level institutions, i.e., weak enforcement of the law.

3.9. The effect of second- and third-level institutions

Second-level institutions may also favor the creation of large farms. First, agriculture is exempt from income or other taxes; it only incurs a land tax, which is not related to farm profits, but to cadastre values of the land. Outside operators of agricultural enterprises can, therefore, save on taxes by shifting the profits from nonagriculture activities to farm activities. Second, poorly functioning land markets allows the new operators, who often enjoy regional monopoly powers, to suppress lease prices. Although rental prices are very low compared to those in other countries, they are high compared to what the former farm operator is used to. Third, badly functioning credit markets improve the comparative advantage of the new large farms. External operators that had profits to invest, proven credit worthiness, and political influence, have a comparative advantage in the land market. Transfer of a huge number of total farms instead of smaller farm units was also in the interest of many owners. Given the state of the social security system and the social infrastructure in rural areas, weak landowners prefer to lease to those potential leasers who are able to provide some social services and are considered to be reliable. Again, the weak second- and third-level institutions favored outside operators.

4. Challenges ahead

This analysis suggests that the creation of very large enterprises in Russian agriculture and their ongoing growth was not a reflection of the comparative advantage of these farms in market economies, but a consequence of embedded institutions and an inadequate institutional framework. What might be the macroeconomic and long-term implications of this development?

Russian agricultural output has increased over the past decade, which may be due to either an increase in yields or a decline in theft, or both. Indeed, this development is not surprising, since outside operators, who expected to make profits in farming, invested heavily. As a result, the share of profit-making enterprises has increased. However, the long-term effects might be highly negative.

First, the new enterprises move to highly capital-intensive production and release workers. In the absence of alternative employment, the danger of the creation of a class of landless unemployed workers in rural areas seems to be real. Given the present level of factor endowment and productivity in Russia, the shadow price of labor is low, which indicates the profitability of less capital-intensive activities. If large-scale farms release workers it is likely due to high wages, labor market legislation, and low productivity of labor. The old collective farms could not move to capital-intensive production because they had less access to credit and felt committed to preserving the social well-being of the labor force.

Second, whether the present trend of enlarging the large farms and creating new farms is reversible in the near future is an interesting point. Even if more efficient markets could improve the competitiveness of family farms, a path-dependency in the evolution of the agrarian structure would have been created. Family farms can only develop if some of the large farms are subdivided. However, as these farms have market power and political clout, it is likely that they will continue to operate in the future.

Third, the creation of these farms affects the political markets in the regions. This point can be illustrated by the recently proposed change in the agricultural tax system. The Russian parliament intended to introduce a profit tax in agriculture, as in other sectors. Not surprisingly, the new large farm operators opposed this legislation and succeeded in keeping control over

decisions on whether the old system of only a land tax or the new system should be applied in the region.

In summary, the survival of large farms and the creation of new large holdings in Russia is not a reflection of market forces, but of the specific institutional environment. It may be that the short-term overall economic effects of the present changes are positive, but there is a real danger of long-run negative economic and political effects, such as rural unemployment among a new class of landless people, and even social unrest.

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