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A Decade of Land Reform and Farm Restructuring What Russia Can Learn from the World Experience

by

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The transition from plan to market initiated in Russia in the last months of 1991 had a clear overall objective: replace the attributes of the Soviet command economy with the attributes of a market economy. Of course there were deeper and finer nuances to this sweepingly general goal, but they can be relegated to the level of political reality and practical implementation. In very general, almost schematic terms, the transition was expected to cure chronic inefficiency and improve productivity by abandoning the traditional Soviet model and emulating the market model in agriculture (and, of course, also in other sectors of the economy). Given this formulation of the transition objective, it is useful to evaluate the achievements of Russia's land reform and farm restructuring efforts during the last decade against the benchmarks of agriculture in market economies.

The Transition Agenda in Agriculture

The transition agenda as it emerged back in 1991-92 essentially reflected the required changes in basic features of the command economy. On the macro level, the agenda prescribed introduction of a long list of market institutions, which in particular included

- elimination of central production targets,
- liberalisation of prices, exchange rates, and trade regimes,
- privatisation and, more importantly, demonopolisation of service channels (such as marketing, processing, and input supply),
- introduction of hard budget constraints and enforcement of bankruptcy procedures.

On the farm level, the transition agenda more narrowly prescribed

- privatisation of land as the main resource in agricultural production,
- abolition of collective forms of organisation in agriculture.

Ultimately, these institutional changes were intended to reform the entire system of incentives faced by farms and individuals, leading to a more efficient and competitive agriculture. It is only natural to evaluate the progress of agrarian reforms in Russia and in other transition countries relative to this agenda. Our article does not attempt to cover all the dimensions of reform, and we primarily focus on the farm-level issues – changes of land policy and farm structure – that have the most immediate and direct impact on the organisation of the agricultural sector.

Ownership and Transferability of Land

Private ownership of agricultural land is the norm in market economies, and incentives associated with property rights in privately owned land are usually regarded as one of the factors conducive to efficient agriculture. Privatisation of land is therefore a major institutional change envisaged by the transition agenda. Russia has achieved tremendous progress with land privatisation, as the share of state-owned agricultural land declined from 100% in 1990 to less than 40% in 2000. Unfortunately, privatisation of land ownership so far

has not resulted in transfer of direct control to individuals, and most land privatised by the state is managed and cultivated by large-scale successors of former collective farms. As a result, the expected gains of privatisation could not have been fully realized. Nonetheless, every possible effort must be made on the political front to preserve this achievement – perhaps the one most tangible achievement of agrarian reform during the last decade. It is inconceivable to market-oriented economists and Western observers that Russia's legislators should even consider the option of a new land code that turns the wheel back to exclusive state ownership of farmland or adopts the miserable compromise restricting private ownership to household plots of less than 1 hectare (as in Belarus).

In addition to property rights, there is another important source of productivity gains in agriculture: it is associated with the flow of resources to more efficient producers through the medium of the land market. This flow is enabled by a variety of land transactions, which include buying and selling of land, as well as various leasing and renting arrangements that many farmers substitute for outright purchase. Transferability of land and development of land markets are as important as privatisation of land in determining the impact of land policies on productivity and efficiency in transition countries.

Table 1. Purchases of Land by Individuals from the State and from Other Individuals or Private Entities in Russia, 1993-96

	Number of transactions					Average per transaction 1993-96, ha
	1993	1994	1995	1996	Total 1993-96	
From the state:						
all transactions	137,263	112,299	64,425	43,907	357,894	0.31
land for private farming	763	380	175	2.75	1,840	21.41
From individuals:						
all transactions	9,990	100,133	231,611	218,759	560,493	0.16
land for farming uses	6,339	79,590	182,040	171,046	439,015	0.14

Source: Wegren and Belen'kyi (1998).

Russia's achievements on the level of transferability and transactions in land have been much less impressive. Formally, there is no blanket prohibition on land transactions in Russia, and the recent evidence collected by Wegren and Belen'kiy (1998) from Roskomzem clearly shows that land is being bought and sold. A total of 920,000 transactions are reported for the four years 1993-1996, involving nearly 200,000 ha (Table 1). The data clearly highlight the development of private land markets: the number of transactions with the state declined from nearly 140,000 in 1993 to less than 45,000 in 1996, while the number of transactions between individuals increased explosively from 10,000 in 1993 to more than 200,000 in 1995 and 1996. Yet the volume of transactions – 200,000 ha over a period of four years – constitutes a mere 1% of land in the individual farming sector or 0.1% of all agricultural land in Russia. These transaction rates appear to be substantially lower than in Central and Eastern Europe: in Romania land sales encompassed 0.1% of agricultural land in just one year (1998), while in Slovakia and the Czech Republic the rate of land sales was 0.2-0.3% of agricultural land in that year (Klaus Frohberg, IAMO, private communication). The average transaction from all sources and all uses in Russia was 0.2 ha, which may represent a modest augmentation of the 1 ha household plot cultivated by rural residents. The number of transactions involving land for commercial farming was less than 2,000 in four years (although the average transaction

size was naturally much larger – about 20 ha). According to an entirely different source (Goskomstat 2000), 6% of peasant farmers and 1% of farm enterprise managers participating in a national survey report having knowledge of buy-and-sell transactions in land.

Buying and selling of land is an emotionally charged issue in Russia. Political, psychological, and bureaucratic attitudes fueled by these emotions impose severe constraints on the development of land markets, even though the legal barriers are not insurmountable. In this context it may be useful to mention the experience of the developed market economies, where many farmers are "operators" and not "landowners": they cultivate land that they do not own. Thus, farmers in Belgium, France, and Germany rent more than 60% of the land they cultivate, while the overall "tenancy rate" in the 15 countries of the European Union is 40% (Table 2). In Canada, 30% of farmed land is not owned by the farmers, and in USA, only one-third of farmed land is fully owner operated: another 55% is a mixture of own land with land leased from others and 10% is cultivated by farmers who do not own any land. An important conclusion regarding farm sizes emerges from the data for both the European and the North American countries: land leasing is definitely conducive to larger farms. In Europe, the average farm size is almost 40 hectares in countries where farms operate with more than 30% of leased land, compared with 18 hectares in countries where farms have less than 30% of leased land; in Canada farms with leased land are 40% larger than farms operating with own land (224 ha and 164 ha, respectively); and in the USA farms operating with a mixture of own and leased land are more than three times as large as farms that use own land only (358 ha and 112 ha, respectively). Transferability is important no less, and perhaps even more, than private ownership for the development of land markets that enable the farmers to adjust the size of their holdings and allocate resources to the most efficient producers. In Russia, land leasing appears to be much more common than buying and selling: according to Goskomstat surveys mentioned above (Goskomstat 2000), about 30% of respondents report the existence of land leasing transactions (33% of private farmers and 24% of farm enterprise managers).

Table 2. Share of tenant farmed land (in percent) and average farm size (in hectares) in EU countries

Country	Owner farmed land, %	Tenant farmed land, %	Average farm size, ha
Belgium	32	68	19
France	37	63	39
Germany	38	62	30
Luxemburg	47	53	40
Sweden	55	45	34
United Kingdom	65	35	70
Countries with more than 30% tenant-farmed land	**46**	**54**	**39**
Netherlands	71	29	18
Portugal	72	28	9
Greece	75	25	5
Spain	77	23	20
Denmark	77	23	40
Finland	78	22	22
Italy	78	22	6
Austria	80	20	15
Ireland	88	12	28
Countries with less than 30% of tenant-farmed land	**77**	**23**	**18**
EU 15	61	39	18

Source: based on Eurostat data.

Recognising the world experience, the state should desist from restricting the development of land transactions, be it buying and selling or leasing. The role of the state is to create an institutional and technical framework that supports land markets. The most important component of this framework is the rule of law, or more specifically, availability of contract enforcement mechanisms. Individuals will be understandably reluctant to lease out their land unless there are strong guarantees that they will retain their ownership rights even though they do not cultivate the land personally. Leaseholders, on the other hand, will not necessarily take the best care of the leased land if they may lose it any time through arbitrary administrative actions. In addition to contract enforcement, the state should provide adequate registration and titling arrangements to ensure the existence of proper ownership and transfer records, including records of lease agreements and mortgages, where necessary. These records are necessary to support any contract-enforcement mechanism.

Farm Organisation and Farming Structure

Farms during the Soviet era differed in two main respects from farms in developed market economies: their organisational form and their size. The Soviet farms were organised as collectives or production co-operatives, an organisational form that suffers from inherent inefficiency due to moral hazard, shirking, and free-riding (Deininger 1993), and is therefore rarely observed in market economies – in agriculture or in other sectors. As to their size, the average collective farm in Russia in the 1980s managed 8,500 ha of agricultural land or nearly 5,000 ha of sown land, and employed 420 workers. These collective farms were too large to be efficiently manageable under market conditions: as farms become larger, transportation, agency, and transaction costs, including the costs of monitoring and enforcing the agreements within the team, increase, making the farm less efficient. The increasing costs can be offset by sufficiently pronounced economies of scale, but these unfortunately are not easy to achieve in primary agriculture.

The unusual organisational form and the sheer size of Soviet farms would render them uncompetitive in a market-oriented environment. The transition agenda accordingly included two prescriptions for changing the inherited farm structure: decollectivisation and downsizing.

Individual Farming

Decollectivisation could proceed along two alternative tracks: breakup into individual farms as the antithesis of collective farm or transformation into corporate entities with non-collective organisation and profit-oriented objectives. In principle, both organisational forms – individual and corporate farms – exist in market economies. Yet the farming sector in countries with a developed market economy is typically dominated by individual family farms, and corporations play a relatively minor role in world agriculture. Table 3 shows that, in the USA, 87% of the nearly 2 million farming entities are individual or family farms ("physical bodies"), and practically all the corporate farms ("legal bodies") are classified as partnerships or family corporations with less than ten shareholders. These are essentially family farms that incorporated as legal entities from considerations of inheritance and tax benefits. Traditional corporations with a relatively large number of shareholders account for less than one-half percent of all farms and control 1.4% of land. In Canada, they represent 2% of all farms. Admittedly, corporate farms in the USA generate a disproportionately high volume of sales and net farm income, presumably because of their greater specialisation that

leads to higher efficiency, but even by these measures their share is very small: about 5% of both farm sales and net farm income.

In Russia and throughout the rest of the CIS the concept of individual agriculture usually evokes the image of highly fragmented stamp-sised farms, the outcome of ruthless dismantling of former collectives into individual holdings. This view is naturally rooted in the phenomenon of small household plots, which were the main representative of individual agriculture in the Soviet Union and have maintained this role in its successor countries. Yet in market economies an individual farm is not necessarily a small farm. In the USA, the average individual farm controls 144 ha and the average family corporation 443 ha (Table 3). The US family farms are much larger than the household plots or even the peasant farms in Russia, although they are an order of magnitude smaller than the traditional collective farms. There is no connotation of smallness in the concept of individual farm: the size of an individual farm is limited only by the capabilities of the owner, including his or her managerial capacity and availability of physical and financial resources.

Table 3. Distribution of Farms by Organisational Form: USA and Canada (1997)

	Individual or family farms	Partnerships and family corporations	Other corporations
Canada: Farms (275,592)	61.0%	37.0%	2.0%
USA: Farms (1,896,888)	86.6%	12.9%	0.4%
Land in farms	67.6%	31.0%	1.4%
Sales	52.6%	41.7%	5.6%
Net farm income	50.4%	44.2%	5.4%
USA: Average farm size	144 ha	443 ha	610 ha

Source: Statistics Canada; USDA agricultural census.

An individual farm is not defined by its size: it is defined by its organisation and management. The term "individual farming" refers to a specific organisational form in agriculture, just as collective and corporate farms are specific organisational forms. In an individual farm, all decisions are made by the owner or the family, who enjoy all the benefits of success and also bear all the risks of failure. In a corporation, on the other hand, a hired manager runs the farm on behalf of the owners (the shareholders), and in case of failure the hired manager simply leaves and moves on to find another managerial position. The manager's risk exposure is much less than that of the farmer operating a family farm, and as a result the manager will put less effort into ensuring the corporate farm's success than the individual farmer (all other conditions being equal). Indeed, numerous empirical studies show that, on balance, individual farms have a performance advantage relative to co-operative and corporate forms of organisation in market economies (for a recent literature review, see Hanstad 1998). Technical progress, however, may be easier to achieve by corporate than individual farms.

Contrary to the prevailing experience of market economies, Russia so far has not embraced individual farming. The individual sector in Russia (household plots and peasant farms) controls less than 15% of agricultural land, and the remaining 85% is managed by large-scale farm enterprises that succeeded the Soviet collective farms and effectively "inherited" the land shares assigned to their members in the process of land privatisation. Although land has been privatised and the ownership rights have been transferred on paper to individuals, the privately owned land largely remains in joint cultivation by the various successors of collective farms and is generally not cultivated by the new owners. The individualisation

record of agriculture varies across the transition countries in CIS and Central Eastern Europe (CEE), and we observe a clear positive correlation between the degree of individualisation (i.e., the share of agricultural land in individual use) and agricultural growth since 1992 (i.e., after the initial shock that dramatically depressed economic performance in all transition countries). Figure 1 shows that countries with a higher share of individual farming register higher agricultural growth. This observation does not imply that individual farming is the only factor responsible for agricultural growth: many other institutional and policy factors influence the performance of the agricultural sector. Yet it clearly shows that individualisation of farming has a definite positive impact on agricultural growth, and as such should be encouraged rather than ignored.

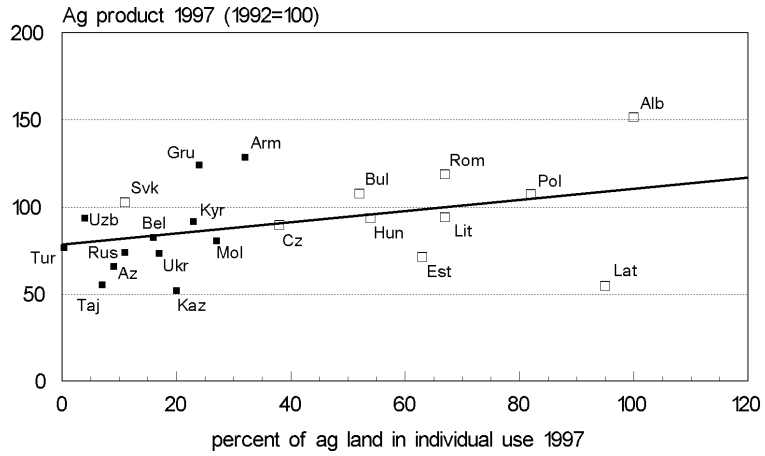

Figure 1. Change in Agricultural Product (1992-97) versus Land in Individual Use. Legend: black squares – CIS countries; white squares – CEE countries; the straight line shows the regression fit with slope coefficient ($b = 0.32$) significant at 10% ($p = 0.08$), $R^2 = 0.14$.

Distribution of Farm Sizes

Land reform affected the size of large farm enterprises in two ways. First, some of the land managed by collective and state farms in the 1980s was transferred to the individual sector through augmentation of household plots and creation of peasant farms. Second, allocation of land and asset shares to the rural population allowed reconfiguration of resources and triggered a process of farm restructuring, which at least in some cases led to fragmentation of the original large-scale collective into two or three independent entities. The land resources controlled by the large farm enterprises declined from 202 million hectares in 1990 to 165 million hectares in 1998, a decrease of nearly 20%. At the number of farm enterprises increased from 25,800 in 1990 to 27,300 in 1998 – a very slight increase of about 6% in farm numbers, but still evidence of some division through restructuring. As a result the average farm enterprise reduced its agricultural land holdings from 8,000 hectares in 1990 to less than 6,000 hectares in 1998. In parallel, the farm enterprises registered a reduction in the sown area, the number of workers, and the livestock herd (Table 4). Despite the observed downsizing, however, the farm enterprises in Russia remain much larger than farms in market economies (compared with the average size of US farms in Table 3). Farm restructuring so far has failed to produce units of manageable size by world standards.

Table 4. Downsizing of Farm Enterprises During Reform: 1990-98

	1990	1994	1998
Number of farm enterprises	25,800	26,900	27,300
Agricultural land per farm	7,800	5,800	6,000
Sown area per farm*	4,300	3,300	3,000
Number of workers per farm	322	272	193
Heads of cattle per farm	1,756	1,093	636
Pigs per farm	1,050	539	315

*Sown area is a subset of arable land, representing the area under actual cultivation in a particular year.
Source: Goskomstat (2000).

Minimal downsizing is not the only sign of inadequate farm restructuring in Russia (and in many other CIS countries). Farm-level surveys indicate that most farm enterprises continue to be organised and managed like former collective farms, despite their new legal forms and new names (Brooks et al. 1996). So far, farm restructuring has not transformed the traditional collectives into profit-oriented entities of manageable size that operate under strict financial discipline and base their decisions on market principles.

Another insight into inadequacy of farm restructuring is provided by a comparison of the entire distribution of farm sizes (and not just the average farm size) in Russia with that in market economies. During the Soviet era, the farming sector in Russia was characterised by a sharply dual structure, with millions of small household plots controlling just 2% of agricultural land and 25,000 large farm enterprises controlling 98% of agricultural land. Like everything else in Soviet economy, this dual farming structure emerged as a result of highly restrictive government policies, and not through market mechanisms.

The transition reforms have produced a certain reallocation of resources from the former collective sector (the sector of large farm enterprises) to the individual sector. The share of household plots more than doubled from 2% to 5% of agricultural land, and their average size increased from less than 0.5 ha to something closer to 1 ha. A new category of substantially larger peasant farms with 40 ha of land on average has emerged to fill the gap between the very small household plots and the very large farm enterprises. Unfortunately, this medium-sized group control less than 10% of agricultural land after a decade of reforms, and the number of peasant farms remains around 250,000. Therefore, despite the reallocation of land to the individual sector, the farm size distribution in Russia essentially retains its dual structure from the Soviet period, with about 15% of agricultural land in the relatively small individual farms and 85% in the very large farm enterprises that have succeeded the collective and state farms.

Figure 2 compares the farm size distribution in Russia with the pattern observed in market economies. In this figure, USA represents the market economies, but the distribution curve is practically the same for Canada and the fifteen countries of the European Union (although the average farm sizes are very different in these three market economies). The distribution of farmland in market economies is also nonuniform, with the largest farms controlling a disproportionate amount of land. Yet the top 10% of largest farms control 35-40% of farmland in market economies, whereas in Russia they control about 95% of land. The bulk of farmland in market economies is held by medium-sized farms, which hardly exist in Russia. The farm size distribution in market economies, however nonuniform, is very far from the sharply dual distribution that characterises Russia (and other CIS countries, such as Ukraine, Belarus, and Kazakhstan). The transition to a market-oriented pattern clearly necessitates further massive reallocation of land from large farm enterprises to the individual

sector with the objective of creating a sizeable representation of middle-sized farms, as we observe in market economies.

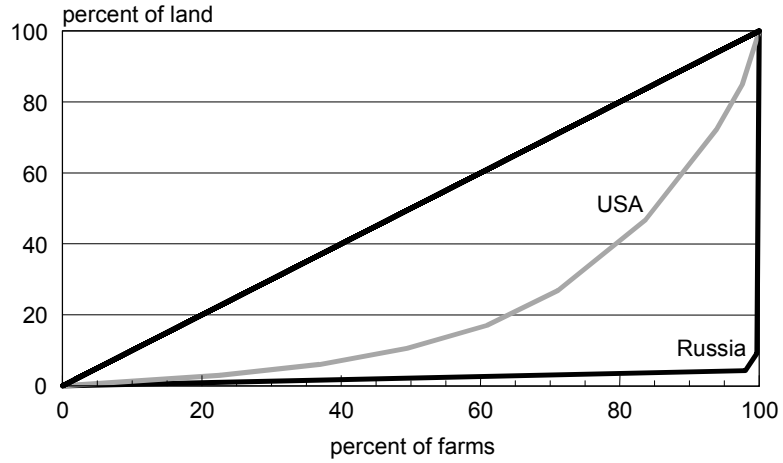

Figure 2. Land Concentration: Russia and USA (1997).

While Russia's agriculture is characterised by a sharp duality of land holdings, US agriculture (and agriculture in other market economies) is characterised by a sharp duality of output. Figure 3 shows the land concentration and output concentration curves for US farms based on USDA census data. In USA, the top 5% of largest farms are responsible for 60% of the agricultural output, while they control about 10% of farmland. In other words, the largest farms produce 60% of agricultural output on 10% of land, while the small farms produce 40% of output on 90% of land. The situation in Russia, of course, is the reversal of this pattern. It is the large farm enterprises that produce 40% of output on 85% of land, while the small household plots and other individual farms produce 60% of agricultural output on less than 15% of agricultural land. Figure 4 shows the distribution of output by land holdings (and not by the number of farms, as in the two previous figures) in Russia and USA, clearly demonstrating the reversed patterns in these two countries: while the output concentration curve for USA is downward convex, showing that the largest farms controlling a small share of land produce most of the output, the output concentration curve for Russia is upward convex, showing that the smallest farms controlling a small share of land produce most of the output.

After a decade of transition, the Russian farm structure is still abnormal – compared to the farm structure in market economies – by the same three measures that distinguished it during the Soviet period: the farm sizes are still too large, the farm structure remains sharply dual, and it is the smallest farms that continue to be much more productive than the large farms. Russia's agriculture still has a long way to adjust until it begins to approximate the market pattern of farm structures.

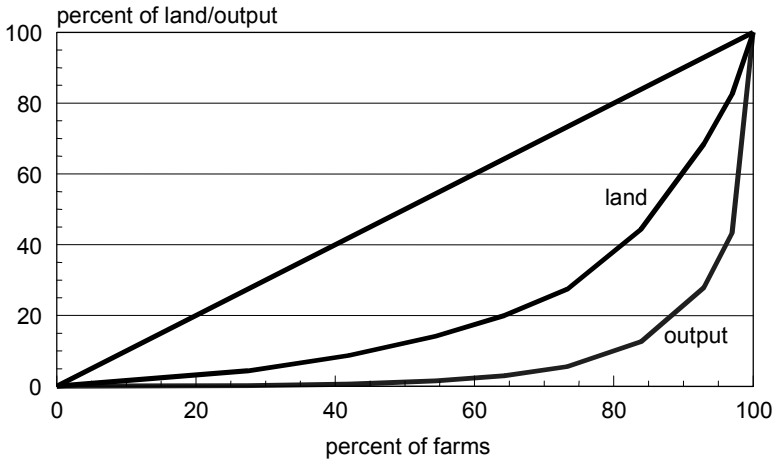

Figure 3. Concentration of Land and Agricultural Output: USA (1997).

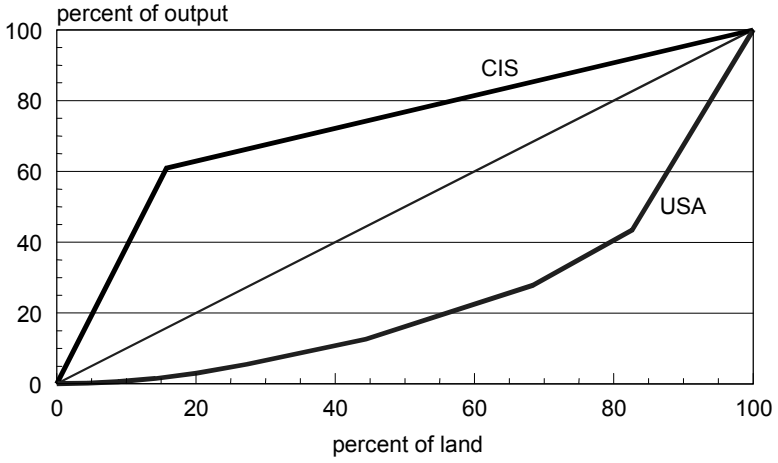

Figure 4. Concentration of Agricultural Output and Land: USA and CIS (1997).

Reforms, Policy Environment, and Agricultural Performance

Efficiency and productivity improvements during transition are obviously the key to measuring and evaluating the success of land reform and farm restructuring policies. That reform matters for efficiency has been demonstrated by Sedik et al. (1999), who show that higher technical efficiency of crop production is associated, by some indicators, with deeper implementation of reforms across Russia's oblasts. A similar overall relationship between technical efficiency the level of reforms is observed by Uvarovsky and Voigt in their analysis of crop and livestock production (2001). A more direct way would be to compare the production efficiency of different organisational forms that emerged during the decade of reform, specifically individual versus corporate farms in different countries. There are indications of higher technical efficiency for individual farms in a number of transition

countries (Mathijs and Swinnen 2000; Sarris et al. 1999), but the evidence is still preliminary. Yet the available empirical results from various sources for transition countries in both CIS and CEE clearly show that the large collectives or co-operatives do not outperform the newly created individual farms anywhere in the region. This in itself is a finding of tremendous importance in that it contradicts the inherited socialist belief in the superiority of large-scale agriculture.

While awaiting the accumulation of sufficient empirical data to test for differences in productivity and efficiency across farms of different organisational forms, we are forced to look for less direct techniques of elucidating the impact of reform. Growth naturally suggests itself as a possible candidate for measuring the impact of reform on the country level. It is sometimes argued that the former socialist agriculture actually may have been required to contract rather than grow after the elimination of the massively wasteful government interventions of the pre-reform era. Therefore, looking only at differences in agricultural growth across the region as a measure of performance may be inappropriate in the setting of transition. Attaining higher GDP, on the other hand, is an accepted objective of all countries in a market environment, as it typically leads to a higher level of wealth per capita. Since one of the stylised facts of agricultural development is the positive relationship between the growth in GDP and the growth in agricultural output (World Bank 1982, pp. 44-45; Timmer 1988), we compared the transition countries by both measures of growth, namely the growth in agricultural output versus the growth in GDP. On a purely technical note we should stress that the agricultural output used in our analysis is gross agricultural product, which includes all intermediate uses and is calculated based on sectoral flows. It is different from "agricultural GDP" – the share of agriculture in GDP, which is calculated in national accounts net of intermediate uses. While the use of these two variables is grounded in statistical conventions accepted in former socialist countries, the fact that they derive from different sets of accounts is probably an advantage ensuring statistical independence of the data sources.

Figure 5 plots the 22 transition countries in a plane where the vertical axis is the change in agricultural output from 1992 to 1997 and the horizontal axis is the change in GDP (1992=100 for both variables). Growth is measured since 1992, skipping the very first years of transition, when all countries experienced a dramatic downward shock. The freely drawn diagonal line separates the "growth" region, where countries show growth between 1992-1997 by at least one of the two measures, from the "no growth" region, where both agricultural output and GDP in 1997 are below the 1992 level (in practice, the "no growth" region is the south-western quadrant in the corresponding plane). This diagonal line also neatly separates the CEE countries from the CIS: 8 out of 10 CEE countries fall in the "growth" region, and 9 out of 12 CIS countries fall in the "no growth" region with negative changes in the two output measures since 1992. Russia is in the middle of the "no growth" cluster. The average growth rates for CEE and CIS are summarised in Table 5: the CEE countries clearly achieved much better growth performance than the CIS countries by both GDP and agricultural product.

The first conclusion from the diagram in Figure 5 is that overall economic growth is conducive to growth in agriculture: there is a significant positive correlation in transition countries between GDP growth and agricultural growth (correlation coefficient 0.7). Positive changes in the overall economic environment lead, among other things, to creation of functioning market services, which were missing in the command economy. The emergence

of market services stimulates agricultural production through improved supply of farm inputs, better access to financial facilities, and improvements in sales channels and processing arrangements. The positive correlation between GDP growth and agricultural growth probably explains why it is virtually impossible to achieve recovery in agriculture while the overall economy is stagnating.

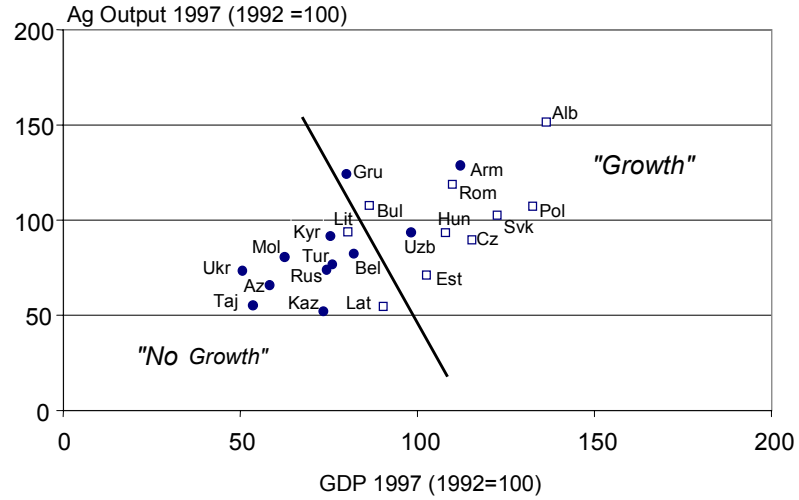

Figure 5. Change in Agricultural Output versus Change in GDP: 1992-1997. Legend: black circles – CIS countries; white squares – CEE countries.

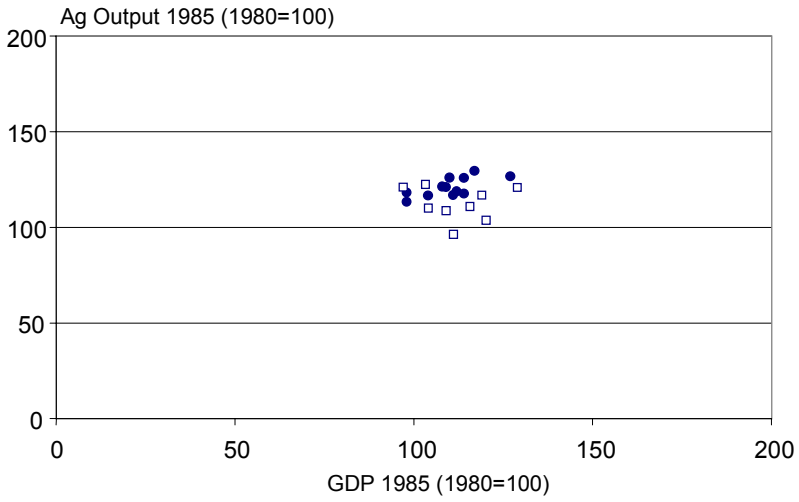

Figure 6. Change in Agricultural Output versus Change in GDP Before Transition: 1980-1985. Legend: black circles – 12 former Soviet republics corresponding to CIS after 1990; white squares – Comecon countries and Baltic republics corresponding to CEE countries after 1990.

The second conclusion is that the CEE countries as a group appear to have outperformed the CIS countries by the two measures of growth between 1992-97. To verify that the observed differences in growth are indeed a manifestation of dynamic divergence between CIS and CEE in the process of transition and have not been inherited from the Soviet period, we repeated the growth analysis for the distant pre-reform period 1980-85. In the pre-transition period, the variability in annual growth rates among the countries and between the two

subregions was much smaller than in 1992-97: the country points formed a tight cluster in the 1980-85 growth plane (Figure 6), which sharply differed from the widely scattered cloud in the 1992-97 plane. The growth rates decreased for both subregions during transition, but to a much greater extent for CIS than for CEE.

Table 5. Economic and Policy Indicators of CEE and CIS

	CIS (12 countries)	CEE (10 countries)
Land in individual tenure in 1997 (percent of agricultural land)	16	63
Percentage change 1992-97:		
GDP	-25	8
Agricultural product	-17	-1
Agricultural employment	9	-16
Agricultural labor productivity	-21	25
Institutional and policy reform indices (on a scale of 1 to 10: higher values imply closer to market environment):		
ECA Agricultural Reform Index (1998)*	4.8	7.6
Average index of institutional and policy reforms (1997-98)**	3.8	6.6

* Csaki and Tuck (2000).

** Calculated as simple arithmetic average of five policy-oriented indices: the ECA Agricultural Reform Index (Csaki and Nash 1998), the Freedom Index (Karatnycky et al. 1997), the Liberalisation Index (de Melo et al. 1996), the Creditworthiness Index (*Euromoney*, September 1998), and the CPIA Index (internal World Bank documents).

In parallel with general economic and agricultural growth, agricultural labour productivity increased markedly since 1992 in the CEE countries and declined in the CIS countries (Table 5). The improvement in agricultural labour productivity has been largely due to sharp reductions of agricultural employment in some CEE countries rather than any significant growth in agricultural output. Labour migrated out of agriculture as a result of creation of alternative job opportunities in economies with higher GDP growth rates.

We have already seen in Figure 1 that land policies and individualisation of agriculture make a positive contribution to agricultural growth. However, as noted by Lerman (1999), individualisation of agriculture is not a sufficient condition of success: agricultural transition apparently depends on additional political and social factors that determine the emergence of market institutions both in agriculture and in other sectors of the economy. Obvious differences in the institutional and policy environment have emerged since 1990 between CIS and CEE. In the domain of land policy, these differences are manifested in the attitude toward private land ownership (universal acceptance in CEE, heated debates in most of CIS), the land privatisation strategy (restitution to former owners in CEE, distribution to agricultural workers in CIS), the land allocation strategy (physical plots in CEE, land share certificates in most of CIS), and the legal framework for land transferability (significantly more permissive in CEE than in CIS). The divergence between CIS and CEE is also reflected in other dimensions of institutional and policy reform, which are directly linked to the components of the transition agenda formulated in the first section of the article.

A number of policy indices developed by international organisations attempt to capture the progress of reforms in additional dimensions. In these indices, various sets of transition-related variables are assessed by a mixture of expert judgments and quantitative techniques to arrive at a measure of progress in economic policy and institutional reforms. The World Bank's Europe and Central Asia (ECA) Agricultural Reform Index (Csaki and Nash 1998; Csaki and Tuck 2000) assesses specific policy and institutional reform measures in five

dimensions that affect agriculture and rural development: market-conforming trade and price policy for agricultural commodities, land reform, privatisation and demonopolisation of agroprocessing and input supply, rural financial systems, and public institutional framework relevant for the rural sector. In 1998, the value of the ECA Agricultural Reform Index was 4.8 out of 10 for CIS and 7.8 out of 10 for CEE (Table 5). Higher scores correspond to greater progress in transition: countries with higher values of the ECA Agricultural Reform Index are more advanced in their institutional and policy reforms.

While the World Bank's ECA Index is geared specifically to reforms in the agricultural and rural sector, other international indices evaluate institutional and policy reforms in a much broader spectrum of economic, financial, social, and political dimensions. These include the CPIA (Country Policy and Institutional Assessment) Index, the Euromoney Creditworthiness Index, the Freedom House Freedom Index, and the World Bank Liberalisation Index. The indices published in various sources are highly correlated, and we calculated an aggregate index as the average of these five policy-related indices. The aggregate index of institutional and policy reforms also produces a substantially higher score for CEE than for CIS (bottom line in Table 5): about 7 out of 10 for CEE, compared with 4 out of 10 for CIS (the difference is statistically significant).

We see from Table 5 that, in general, higher values of policy indices are associated with higher growth (or more moderate decline) in GDP and with improvement in productivity of agricultural labour. In other words, a country's economic performance improves as it achieves greater progress in implementing a broad mix of market-oriented institutional and policy reforms (in the rural sector and throughout the rest of the economy).

It is impossible to disaggregate the effect of the various dimensions of policy and institutional reform that are folded into these international indices. Thus, for instance, we do not know at this stage how much of the superior growth performance of CEE countries is attributable to land policy, how much to demonopolisation of agroprocessing and development of farm market services, and how much to liberalisation of foreign trade and the exchange rate regime. No one particular policy or reform measure is decisive, but the entire portfolio of institutional and policy reforms making the transition countries more market-oriented has a definite beneficial impact.

On a more rigorously quantitative level, regression analysis shows that the change in agricultural productivity depends on the growth in GDP, which in turn depends on policy indices. The tangible differences in economic performance between the two groups of transition countries are thus clearly related to differences in land reform as well as differences in the policy and institutional environment. It is very likely that the political, social, and macroeconomic factors characterising the different policy environments in the two groups of countries, as reflected in the policy-oriented indices, have in fact influenced their different land reform decisions. Land reform alone may have been insufficient to trigger and sustain the divergent trend, but combined with political commitment and resolve it has produced the results that we observe today.

Conclusion

What can Russia learn from the success of CEE countries relative to CIS? In very general terms, it seems that the CEE countries have implemented and continue to implement relatively radical reforms in agriculture and in the rest of the economy. This is evident in their attitude to land; this is also evident in the restructuring of the traditional large farms, which

have either disappeared completely in these countries or have undergone deep internal changes in management and operations. Contrary to the fears initially expressed by opponents of market reforms in agriculture, the "successful" countries have not switched to small-scale family farming. They support farms in a wide range of organisational forms, but consistently with the experience of mature market economies these farms are on the whole smaller than the traditional socialist farms both by their land endowment and by the number of workers they employ. The "successful" transition countries finally appear to be moving away from the Soviet pattern of farms that were paradoxically large by all three production factors – land, labour, and capital, while their "unsuccessful" counterparts have largely retained the old model.

The generally higher levels of institutional and policy reform indices suggest the following features of the transition process in the "successful" countries:

- Consistently strong commitment to reform at all levels of government – executive, legislative, regional, local;
- Clear acceptance of private land ownership and individualisation of agriculture;
- Facilitating land transactions (including leasing) to allow farm size adjustment;
- Introduction of hard budget constraints to force a shift to market orientation;
- Enabling the emergence of market support services in the rural sector.

This list is not all-inclusive, but it certainly highlights a range of factors that are probably essential for successful agricultural recovery. Of all these factors, consistently strong commitment to reform at all levels of government is probably the decisive factor that distinguishes between the "successful" CEE countries and the "less successful" CIS countries (and within CIS between the "leaders", such as Armenia and Georgia, and the rest). The other factors are important each from its own perspective, but the experience of the last decade shows that it is definitely the co-ordinated commitment of the government that makes reform happen. Two examples may help to illustrate this point. Back in 1994, the author was interviewing a group of private farmers in Tver oblast, about 300 miles north-west of Moscow. In response to the author's question why no real reforms were happening in agriculture despite the President's progressive initiatives, one of the peasants answered, "Yes, but the President is in Moscow, and we are here with our oblast governor." A more recent example comes from Moldova, where in 1998 the central government, with the full support of Parliament, initiated a radical program of farm debt resolution simultaneously with farm restructuring. The cabinet and Parliament passed all the necessary legislation, and left the implementation to the lower levels of government. It very soon became clear that the radical program was not moving because of the attitude of the lower officials, who did not share the central vision or simply did not fully understand the intention of the cabinet and Parliament. It took nearly six months to achieve proper policy co-ordination between all levels of government, and after that the entire program encompassing nearly 1,000 farm enterprises was completed in one year.

* * *

Russian agriculture is undergoing a process of marginalisation, like agriculture in all market economies, presumably due to the growth of the service sector. The share of agriculture in the economy has declined since 1990 from 16% to less than 6%. Yet a look at the resource side of Russia's agriculture reveals an astonishing picture: the share of agriculture in total employment has remained fairly steady and quite high (14% in 1990, 13.4% in 1999); the

share of agriculture in total productive assets has actually increased (20% in 1989-1990, 25% in 1999); and the rural population has remained at 27% of Russia's total population – most of it dependent on agriculture for its living. Agriculture thus remains tremendously important in Russia, but its efficiency seems to have dropped dramatically since 1990 relative to other sectors of the economy. Agricultural output has contracted much more than the output of other sectors, while its resource endowment has remained relatively constant and very large.

These negative developments in agriculture are entirely attributable to the critically poor performance of the "large farm" subsector: the subsector of farm enterprises that succeeded the traditional kolkhozes and sovkhozes. The output of the individual sector registered a healthy increase in 1991-1993 in response to allocation of additional land to household plots, and has remained relatively constant since that initial period. The output of the "collective" subsector, on the other hand, has declined sharply and continues to decline. Since the "collective" subsector controls 85% of agricultural land in Russia, its underperformance determines the continuing decline of Russia's agriculture.

This picture only highlights the main theme of this article: after a decade of reforms, there is still a need for genuine radical restructuring of the large farm enterprises. The Russian (and Ukrainian) dream is to transform inefficient large farms into efficient large farms. The world experience shows that such a horizontal transformation simply does not work. To create efficient farms, Russia should follow the market path of farm growth: start from small individual units and allow them gradually to consolidate, through land market transactions, up to limits prescribed by the managerial capacity of the farmer-operator in each case. If this is not done, most of the 85% of Russia's agricultural land currently controlled by large farm enterprises will remain unproductive, despite the anecdotal "success" stories of industrial corporations that take over thousands of hectares of farmland to secure their sources of raw materials. This trend is a drop in the sea, and a mass reform at the farm level is required to resuscitate Russian agriculture.

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References

Brooks, K., Krylatykh, E., Lerman, Z., Petrikov, A., and Uzun, V. 1996. *Agricultural Reform in Russia: A View from the Farm Level*, World Bank Discussion Paper 327, The World Bank, Washington, DC.

Csaki, C. and Nash, J. 1998. *The Agrarian Economies of Central and Eastern Europe and the Commonwealth of Independent States: Situation and Perspectives, 1997*, World Bank Discussion Paper No. 387, The World Bank, Washington, DC.

Csaki, C. and Tuck, L. 2000. *Rural Development Strategy: Eastern Europe and Central*

Deininger, K. 1993. *Cooperatives and the Break-up of Large Mechanized Farms: Theoretical Perspectives and Empirical Evidence*, World Bank Discussion Paper 218, The World Bank, Washington, DC.

De Melo, M., Denizer, C., and Gelb, A. 1996. "From Plan to Market: Patterns of Transition," Policy Research Working Paper 1564, The World Bank, Washington, DC.

Goskomstat 2000. *Statistical Yearbook of Russia 1999*, Goskomstat, Moscow.

Hanstad, T. 1998. "Are Smaller Farms Appropriate for Former Soviet Republics?" RDI Report on Foreign Aid and Development No. 97, Rural Development Institute, Seattle, WA, February.

Karatnycky, A., Motyl, A., and Shor, B., eds. 1997. *Nations in Transit 1997: Civil Society and Markets in East Central Europe and the Newly Independent States*, Transaction Publishers, New Brunswick and London.

Lerman, Z. 1999. "Land Reform and Farm Restructuring: What Has Been Accomplished to Date?" *American Economic Review*, 89(2): 271-275.

Mathijs, E. and Swinnen, J. 2000. "Major Features of the New Farming Structures in Central and Eastern Europe," in: C. Csaki and Z. Lerman, eds., *Structural Change in the Farming Sectors in Central and Eastern Europe: Lessons for EU Accession*, World Bank Technical Paper 465, Europe and Central Asia Environmentally and Socially Sustainable Rural Development Series, The World Bank, Washington, DC, pp. 22-38.

Sarris, A., Doucha, T., and Mathijs, E. 1999. "Agricultural Restructuring in Central and Eastern Europe," *European Review of Agricultural Economics*, 26(3): 305-329.

Sedik, D., Trueblood, M., and Arnade, C. 1999. "Corporate Farm Performance in Russia, 1991-1995: An Efficiency Analysis," *Journal of Comparative Economics*, 27: 514-533.

Timmer, C. P. 1988. "The Agricultural Transformation," in Chenery, H. and Srinivasan, T. N. (eds.), *Handbook of Development Economics*, Vol. I (Chapter 8), Elsevier Science, Amsterdam, pp. 275-331.

Voigt, P. and Uvarovsky, V. 2001. "Developments in Productivity and Efficiency in Russia's Agriculture: The Transition Period," *Quarterly Journal of International Agriculture*, 40(1): 45-66.

Wegren, S. and Belen'kyi, V. 1998. "The Political Economy of the Russian Land Market," *Problems of Post-Communism*, 45(4): 56-66.

World Bank. 1982. *World Development Report 1982*, Oxford University Press, New York.