



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

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

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

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

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

האוניברסיטה העברית בירושלים
The Hebrew University of Jerusalem



המרכז למחקר בכלכלה חקלאית
The Center for Agricultural
Economic Research

המחלקה לכלכלה חקלאית ומנהל
The Department of Agricultural
Economics and Management

Discussion Paper No. 2.12

Land reform and farm performance in Europe and Central
Asia: a 20 year perspective

by

Zvi Lerman

Papers by members of the Department
can be found in their home sites:

מאמרים של חברי המחלקה נמצאים
גם באתרי הבית שלהם:

<http://departments.agri.huji.ac.il/economics/indexe.html>

P.O. Box 12, Rehovot 76100, Israel

ת.ד. 12, רחובות 76100

Land reform and farm performance in Europe and Central Asia: a 20 year perspective¹

Zvi Lerman

Department of Agricultural Economics and Management, The Hebrew University of Jerusalem, Israel

Executive summary

The most striking feature of the land reform in the post-Soviet space has been the overall shift from collective to individual land tenure in agriculture, generally accompanied by privatization of legal land ownership. Individualization of farming has been among the main factors that acted to arrest the initial transition decline and to produce agricultural recovery in the region. In CIS countries, the recovery point for agricultural growth is closely linked with the observed watershed dates for individualization of farming. Furthermore, the rate and the attained level of recovery are higher in countries that pursued decisive individualization policies (Transcaucasus, Central Asia), while in countries with less sweeping individualization reforms (European CIS) the recovery has been sluggish.

In addition to resumption of agricultural growth, land reform and individualization have also led to significant improvements in agricultural productivity due to the higher incentives in family farming. Greater production and higher productivity have contributed to significant poverty reduction observed since 2000. Rural incomes rise with the increase of the land allotments in family farms and with the increase of the share of output that farms are able to sell. To ensure continued improvement of rural family incomes and poverty mitigation, policy measures should be implemented that facilitate enlargement of very small family farms and encourage the access of small farms to market channels and services. Enlargement of small farms requires development of land markets both for buying and selling of land and for land leasing. Improvement of market access requires development of services for sale of products (collection, sorting, packing, quality control), availability of competitive processing plants, and rental arrangements for farm machinery and mechanical services. Further productivity improvements require re-establishment of extension and advisory services, attention to animal health through modern veterinary services, and introduction of artificial insemination for higher yielding breeds. FAO has an important role in shaping these policies and providing technical assistance in its many areas of expertise.

¹ Paper prepared for the Twenty-eighth FAO Regional Conference for Europe (ERC), Baku, Azerbaijan, 16-20 April 2012.

Introduction

The rural sector in nearly all the countries of Central and Eastern Europe (CEE) and the Commonwealth of Independent States (CIS) has undergone a shift from predominantly collective to more individualized agriculture. At the same time, most of the land in the region has shifted from state to private ownership. These two shifts – a shift in tenure and a shift in ownership – were part of the transition from a centrally planned economy to a more market-oriented economy that began around 1990 in the huge post-Soviet space stretching from Prague to Vladivostok. The transition reforms in the region were unprecedented in their scope and pace. Some 150 million hectares of agricultural land transferred ownership in these countries in just one decade of reform (1990-2000), compared with 100 million hectares in Mexico during 75 years (1917-1992) and 11 million hectares in Brazil during 30 years (1964-1994) (Deininger 2003). The basis of this shift from collective to individual agriculture lay in two interrelated aspects of agricultural policy reform: *land reform*, which concerns issues of land use rights and land ownership; and *farm reform*, which deals with issues of restructuring of farms into individual land holdings. Land reform, together with farm restructuring, set an agenda for the transformation of socialist farms into hopefully a more efficient farm structure with a clear market orientation

Starting conditions and transition desiderata

The transition to a market-oriented system, emulating the economic order of the more successful capitalist countries, was regarded in the early 1990s as a new strategy to cure the chronic inefficiency of the socialist economic system in general, and socialist agriculture in particular. Because of the broadly common organizational and institutional heritage in agriculture, efficiency considerations suggested a fairly uniform conceptual framework for agricultural reform in all transition countries in CEE and CIS (Lerman, Csaki, and Feder 2004).

A strategy of agricultural transition aiming to improve the efficiency and productivity of agriculture in CEE and CIS required the replacement of institutional and organizational features of the former command economy with attributes borrowed from the practice of market economies. The ideal transition desiderata for key areas of economic activity can be summarized as follows:

- Production: eliminate centrally prescribed targets and allow free decisions
- Prices: eliminate central controls and liberalize prices
- Finance: eliminate state support and debt write-offs, institute hard budget constraints
- Inputs, sales, processing: eliminate state-owned monopolies, privatize and demonopolize
- Ownership of resources: go from state and collective ownership to private ownership
- Farming structure:
 - downsize large-scale farms;
 - individualize farming structure;
 - eliminate sharply dual land concentration;
 - ensure level playing field for farms of all organizational types

The conceptual framework for transition in agriculture envisaged a transformation from collective to individual or family farming as the ultimate goal, because both theory and world

experience suggested that individual responsibility and direct accountability would cure free riding, shirking, and moral hazard that make collective organizations generally inefficient. Property rights associated with private ownership of land (or with secure tenure) would induce farmers to put a greater effort into production. Individual farmers, once established as independent entities, would engage in land-market transactions to optimize the size of the holdings given their management skills and availability of resources. Transferability of use rights would facilitate the flow of land from less efficient to more efficient producers, or more concretely from passive landowners (such as pensioners in an aging population) to energetic active operators.

Change in the ownership of resources (land reform proper) and change of farming structure (restructuring of traditional collective farms) encompass the main components of agricultural transformation. Land reform in the context of transition implies establishment of private property rights in land in countries where land was nationalized (e.g., Albania, the Baltic states, the rest of the former Soviet republics) and restoration of the primacy of ownership rights over use rights in countries where private ownership was never abolished, but privately owned land was inducted into collective use (most of the CEE countries). Farm restructuring implies transformation of large-scale cooperatives and collectives to operations based on market-oriented principles, including emergence and proliferation of individual farms alongside corporate organizational forms.

Land reform in Eastern Europe and the CIS

Although nearly all CEE and CIS countries decided to privatize land, strategies for land privatization differed fundamentally between these two groups of countries. In the CEE countries where legal records of current or previous owners still existed, restitution of actual plots of land was the primary privatization strategy. In these countries most agricultural land formally remained under private ownership throughout the socialist period. People joined cooperative farms during collectivization, but their land was not appropriated by the state or turned into collective land by the cooperative. People lost the right to utilize their land, but they did not lose title to the land.

In actual practice, it was not always possible to return the exact plot of land to an individual or to their descendants. Often other plots were offered to former landowners in compensation, *inter alia* to avoid the fragmentation of large, technically integrated farm complexes into uneconomical smallholdings. For this reason, restitution in CEE did not necessarily lead to land fragmentation. Rather, it may have facilitated the transition from socialist cooperatives to corporate farms (Mathijs and Swinnen 1998). Many large farms were downsized, but maintained as corporations.

There were exceptions to this general scheme. Like the CIS countries, Albania went through privatization of state owned land followed by equitable distribution of land in former cooperatives to rural residents. State farms in Albania were eventually auctioned off to large investors. Poland is also a separate case, since collectivized agriculture was essentially abandoned after the 1956 uprising. The land that had been devoted to state farms was eventually auctioned off. The pattern in the Yugoslav successor states was much like Poland: most of the land had remained in individual family farms during the socialist period.

In the CIS, agricultural land had belonged to the state since 1917 and the first step was to legalize private ownership of agricultural land – a step that was not necessary in CEE (with the exception of Albania). Collective farms were then transformed into corporate farms (joint stock companies, partnerships, etc.) and land shares were distributed within these farms to workers and to local rural population (a kind of “redistributive land reform”). The new corporate farms continued to operate on collectively owned and collectively farmed land, although the share owners had the right to exit with a physical plot of land for individual farming.

While this pattern was followed in most of the CIS, two exceptions can be noted. The first was in Central Asia, where land formally remained state property long after its redistribution began in 1991-1992. Uzbekistan and Turkmenistan, where agricultural land still remains state property, retained collective and state farms and distributed state leaseholds (“use rights”) rather than land shares. Kazakhstan, Kyrgyzstan, and Tajikistan distributed land shares to collective farm workers, though they initially left agricultural land under state ownership (Kyrgyzstan and Kazakhstan subsequently legalized private ownership of land – in 1998 and 2003, respectively). The second exception was the South Caucasus, where collective and state farms were physically disbanded and actual plots of land were distributed early on, from 1992 in Armenia and then in Georgia, and from 1996 in Azerbaijan. In this respect, these countries were closer to CEE than to other CIS countries.

Since the distribution of land shares to corporate farm workers often did not change farm management, the new “private” corporate farms operated much like the socialist collective farms (with their associated problems). Further changes were needed. Thus, Kyrgyzstan, Tajikistan, Moldova, and Ukraine had converted land shares into titles to land parcels or to actual land parcels by the end of the 1990s (Lerman and Sedik 2008; Lerman et al. 2007). In Kazakhstan, the June 2003 Land Code annulled the permanent rights associated with land shares and forced the share-holders either to acquire a land plot from the state (by outright purchase or by leasing) or to invest the land share in the equity capital of a corporate farm, thus effectively losing ownership rights.

Farm reform

A second component of agricultural policy reform was farm restructuring, in which the individualization of landholdings was critical. In the CEE countries, the restitution of land use and ownership rights to individuals could be followed by decisions regarding the use of the land plots, leading either to family (individual) farming or continuation of corporate farming. In the CIS countries, the distribution of land shares could lead to similar decisions.

Despite far-reaching commonalities imposed by the communist regimes on societies and economies, the agricultural sectors in CEE and CIS followed divergent paths of farm reforms. By 2004 there was a substantially higher level of individualization achieved in CEE than in CIS (**Table 1**). Despite significant progress with individualization, both CEE and CIS still lag far behind the United States (and the EU-15).

Table 1. Agricultural land in individual use 1990-2004 (percent)

	1990	2004
CEE	14	65
CIS	4	30
U.S.		98.6
EU-15		96

Source: calculated from official country statistics. EU-15 from Eurostat/Agriculture: percent of agricultural holdings being a natural person.

In the CIS clear sub-regional differences are apparent in farm policy indicated by the depth (percent of sown land in individual farms) and timing (watershed dates) of the individualization of landholdings. These differences have resulted in substantially different levels of recovery from the transition recession since the turnaround date (**Table 2**).

Table 2. Sub-regional differences in farm policies and agricultural recovery in CIS countries

	Central Asia	Caucasus	Russia, Western CIS
Farm policies			
Dominant farm organizational form	Individual, corporate	Individual	Corporate, individual
Land sown in individual farms (% 2007)	71	97	34
Share of gross agricultural output produced on individual farms (% latest year)	88	97	62
Watershed date for individualization	1996-98	1993	None
Agricultural output recovery*			
Turnaround year	1998	1993	1999
Production relative to 1991 level (%, latest year)	105	114	76

* Gross agricultural output (GAO).

Source: Computed from official country statistics.

Agricultural recovery and individualization in CIS

There is a traceable link between the beginning of recovery (the turnaround year in **Table 2**) and the implementation of significant individualization reforms in CIS. The countries in the South Caucasus individualized land early and decisively, and the turnaround came already in 1993 (Transcaucasia in **Figure 1**). The Central Asian countries began individualization much later, between 1996 and 1998, and agricultural growth in the region as a whole resumed in 1998. Central Asian countries have achieved remarkable progress with individualization of farming structure in the past few years (despite continued state ownership of agricultural land in Uzbekistan, Turkmenistan, and Tajikistan) and this progress is apparently responsible for the robust growth in the region. The laggards in the date and degree of individualization have been Russia, Belarus, Ukraine, and Moldova. In fact, Russia and Belarus have not yet appreciably individualized landholdings to this date, which may account for the sluggish recovery in agricultural production in the European CIS.

Further direct evidence shows that individualization has a positive effect on agricultural growth. Among the CIS countries, those with more land in individual use have achieved faster growth since the start of recovery (Lerman 2010). In Russia, a similar relationship between agricultural growth and individual land use is observed across the 80 provinces. This seems to explain why recovery in Russia and Western CIS lags behind the recovery in

Central Asia and South Caucasus: individual land use in Russia and Western CIS is at a substantially lower level than in the rest of CIS.

Individualization also has a positive effect on agricultural productivity, which measures the value (or aggregate quantity) of agricultural output per unit of land (“land productivity”) or per agricultural worker (“labor productivity”). Land productivity in many CIS countries is observed to be highest in household plots – the classical example of an individual farm with most pronounced family-driven incentives and personal accountability (Lerman 2010; Lerman and Sedik 2009, 2010; Lerman et al. 2007; Lerman and Sedik 2012). Labor productivity, similarly to agricultural growth, is observed to increase with the share of agricultural land in individual use across Russia’s 80 provinces (Lerman, Csaki, and Feder 2004: 186-187; Lerman and Schreinemachers 2005).

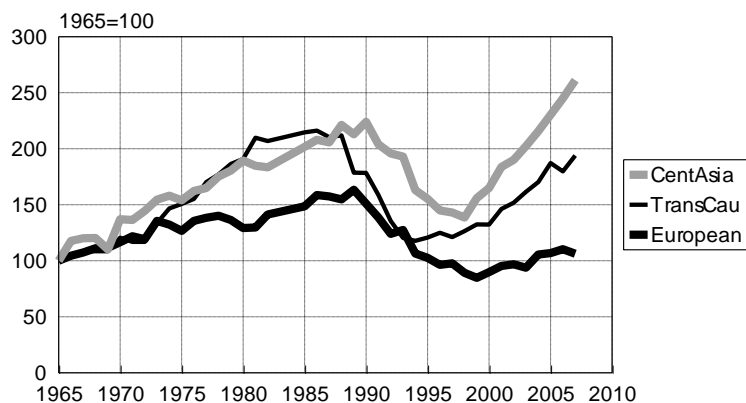


Figure 1. Regional agricultural growth in CIS 1965-2007: average GAO index for three regional groupings of CIS countries. Source: based on official statistics.

The outcome of transition: resumption of agricultural growth in CEE and CIS

The transition from central planning to a market-oriented economy involved breaking up an established economic system. This inevitably caused initial disruption and led to sharp declines in the economy as a whole and in agriculture in particular. The transition decline hit all the countries in the region, but the decline in CIS was deeper and lasted longer than in CEE. Agriculture began to recover in CEE as early as 1994, whereas in CIS the steep decline continued until 1998 (**Figure 2**). At that point in time, the agricultural output in CEE had returned roughly to the 1992 level, whereas the CIS countries bottomed out at 75% of the 1992 output. Scholars attribute the divergence in the early transition behavior of agriculture to differences in resolve and political will in the two sub-regions: while CEE forged ahead with large-scale market-oriented reforms, the approach in CIS was by and large much more hesitant and indecisive (Lerman, Csaki, and Feder 2004). Thus, by 1998 the World Bank ECA agricultural reform index had reached 7.8 for CEE, with CIS scoring only 4.9.²

Despite the initial transition decline, all the countries in the region persevered in their reform efforts, which eventually produced a turnaround leading to recovery of agricultural growth. As discussed above, the timing of turnaround was clearly linked with breakthroughs in individualization of land use. The pattern of agricultural growth in CEE and CIS changed dramatically after the turnaround point. While agriculture in CEE on the whole stabilized

² The World Bank’s ECA Agricultural Reform Index introduced by Csaki and Nash (1998) quantifies the status of agricultural reforms in CEE and CIS on a scale from 1 to 10, where 1 corresponds to a command economy and 10 to an economy with completed market reforms.

without showing significant growth after 1994, agricultural output in CIS continued to grow at a fairly fast rate after 1998 (**Figure 2**). As a result, CIS agricultural output increased by nearly 70% since 1998, while agricultural growth in CEE was about 15% since 1994. CIS caught up with CEE by measures of agricultural growth in 2003 and by 2007 agricultural output in CIS had reached 125% of the 1992 level, compared with less than 110% in CEE. The growth performance of CIS agriculture since 1998 is presumably the outcome of the cumulative effect of policy reforms implemented since the beginning of transition: the deep changes involved in the transition from central planning to market needed time to mature before their positive effects became apparent.

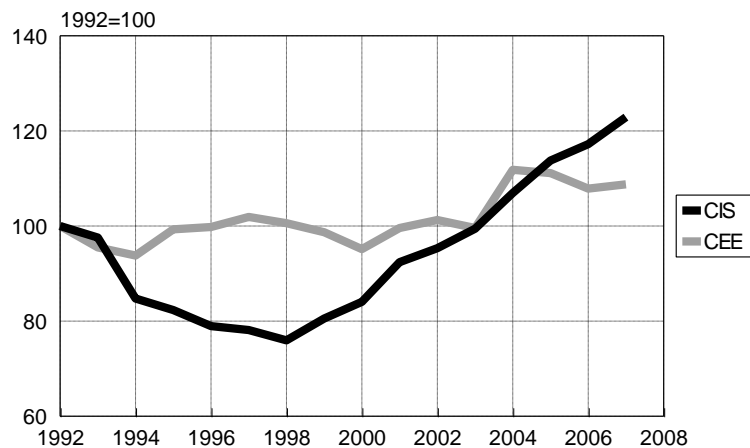


Figure 2. Agricultural output in CEE and CIS 1992-2007 (percent of 1992). Source: official country statistics, Eurostat, and CISSTAT.

Due to the faster growth in agriculture, CIS has overtaken CEE by absolute production volumes. In 1992 CEE agriculture produced 50% more than CIS (in current U.S. dollars); by 2009 the roles had reversed and now CIS produces 50% more agricultural output than CEE (also in current dollars). In other words, CIS today accounts for 2/3 of regional agricultural output – a fact that should be kept in mind by investors looking for new opportunities in agriculture.

Agricultural reform and poverty mitigation in CIS

It is difficult to establish a rigorous causal relationship between land and farm reform and the reductions in poverty that have been observed in CIS countries since 2000 (Alam et al. 2005), because there are no comparable rural poverty assessments spanning the period of land reform that specifically examine landholdings over time. Studies of the connections between land and farm reform and rural welfare rely on cross-section evidence on landholdings and farm incomes.

Still, it is clear that land and farm reforms in CIS countries have helped reduce rural poverty in two respects. First, they have increased household assets via one-off transfers of land, livestock, and farm machinery from corporate farms to households. Farm survey data from many CIS countries show a positive correlation between family landholdings and incomes – both total family income and more importantly income per capita (Lerman et al. 2007; Lerman and Cimpoies 2007; Lerman 2008; Lerman and Sedik 2010). Second, asset transfers from collective and state farms to individual farms increased agricultural productivity (as noted above) and specifically raised crop yields (Dudwick, Fock, and Sedik 2007). Higher productivity and higher yields increase farm production and thus improve family welfare both

directly – through higher consumption of home-grown products, and indirectly – through additional cash income from sales of surplus products.

This highlights commercialization, or sale of farm products, as another important factor – alongside land holdings and productivity – that positively affects rural incomes. Survey evidence convincingly shows that farm sales increase family incomes and also improve the subjective perception of family wellbeing. On the other hand, families with more land tend to be more commercially oriented, selling a greater share of their output. Commercialization completes the loop between land reform and rural family incomes: land reform shifts land to individual farms and raises their incomes through increased production (part of which is consumed in kind by the family); more land and greater production stimulate rural families to sell more of their output; greater sales contribute additional cash that also raises family incomes.

Policy measures to improve rural incomes

Agricultural reform across the region produced tens of millions of small family farms in place of tens of thousands of large-scale collectives and production cooperatives. **Table 3** illustrates how small the average farm is in CIS. The situation is no different in CEE: of the total of nearly 8 million farms in the ten New Member States, 4.5 million (58%) are holdings of less than 2 hectares and only 80,000 (just 1%) have 50 hectares and more (Csaki and Jambor 2009). However, these small farms are not pure subsistence operations: surveys show that between 60% and 80% of small farms in CIS sell some of their output, and farm sales average 30%-50% of the output in these “semi-commercial” farms. Yet smallholders in CEE and CIS, like small farms all over the world, face what is sometimes described as the “curse of smallness”: low incomes due to limited asset base and difficulties with access to market channels for sales and services.

Table 3. Average size of family farms in some CIS countries

	Average farm size, hectares
Armenia	1.38
Georgia	0.96
Azerbaijan	1.86
Kyrgyzstan	3.80
Tajikistan	3-5
Turkmenistan	4-5

Source: Farm-level surveys 2000-2010.

In view of the links between land holdings, commercialization, and family income, it is important to consider what policy measures can be applied to enlarge family land holdings and to encourage smallholder farms to sell more of their output. It is, of course, also important to focus on options for increasing productivity, as higher productivity will improve rural livelihoods by enabling smallholders to produce more with limited resources.

Policies for enlargement of small farms

Two main policy measures can be applied to enable enlargement of small individual farms (from 0.5 hectares to 5 or even 10 hectares, say). The first policy measure is to distribute land from the state reserve to smallholder farms, continuing the land privatization process that originally led to dramatic enlargement of household plots and creation of new peasant farms.

There are large reserves of state-owned land in most CIS countries (with the possible exception of Central Asia). These reserves are generally used inefficiently by large corporate farms, or in extreme cases are simply left unused. Governments should channel these reserves to more productive use by distributing them to small family farms. It is therefore sad to note that Georgia has opted for an opposite policy: the government recently cancelled the existing leases of smallholder farms to state land – one of the proven market mechanisms for small farm enlargement – and began auctioning reserve land to outside investors. Officials are very pleased with the cash revenues from this process and argue in justification that it will raise Georgia’s agriculture to higher levels of commercial production. In this way they completely disregard the interests of the large rural population and ignore the hard evidence of greater productivity of smallholder farms, which make a crucial contribution to both sectoral growth and rural livelihoods.

The second policy measure that may lead to enlargement of smallholdings is encouragement of land market development. Land markets provide a mechanism that allows land to flow from passive or inefficient users to active, efficient users and thus leads to farm size adjustment. The basic prerequisite for land market development is to allow transferability of land ownership and land use rights: this has been accomplished as part of the reforms in all CEE countries and in most CIS countries, but it is still not the case in parts of Central Asia. Another prerequisite for the development of land transactions is registration and titling of all privately owned plots. Modern registration and titling systems exist in all CEE and CIS countries, but the “titling coverage” is generally limited, apparently due to complex bureaucratic procedures and high costs. Simple and transparent registration procedures should be instituted, with minimum transaction costs, to encourage rural land owners to register their land and obtain legal titles.³

Table 5. Lease markets work to adjust farm sizes

	Farms operating on own land only, ha	Farms operating on own and leased land, ha	Percent of farms with leased land
<i>CEE countries</i>			
Romania	3.0	4.1	7
Bulgaria	1.1	4.8	9
Hungary	3.4	19.6	8
Poland	7.3	25.7	17
<i>CIS countries</i>			
Armenia	1.3	2.6	14
Georgia	0.7	8.7	2
Azerbaijan	1.8	15.7	7
Kazakhstan	160	272	11
Tajikistan	18	144	3
Moldova			
1997	2.8	16.9	6
2003	3.8	11.6	21
2005	3.7	9.5	28
Ukraine	53	227	53

Source: Lerman, Csaki, and Feder 2004; Lerman et al. 2007; Lerman and Sedik 2010.

³ These and additional issues of land market development are covered in more detail in FAO (2010).

As another policy measure, governments should guarantee contract enforcement and rule of law. This is crucial *inter alia* for the support of land leasing, which appears to be even more important than buying and selling of land as a mechanism for the enlargement of smallholdings. **Table 5** demonstrates that land leasing indeed works to enlarge small farms, and the example of Moldova shows that land leasing becomes more widespread over time.

Land consolidation programs are often promoted as a vehicle for farm enlargement. This is an acceptable option as long as consolidation is designed to be driven by market mechanisms, i.e., free negotiations and mutual agreements between owners of fragmented plots (as, for instance, under the World Bank project in Moldova or under the forthcoming USAID project in Kyrgyzstan, which heavily relies on the Moldova experience; see also FAO 2010). Consolidation is neither acceptable nor can ever succeed if driven by the government's heavy handed intervention.

Policies to increase commercialization

Policies intended to support commercialization of small farms should primarily focus on improving the access of small farms to market services:

- Services for marketing farm products
- Channels for purchase of farm inputs (including quality seeds)
- Farm machinery services (rental and maintenance)
- Veterinary and artificial insemination services
- Extension services to raise the level of technology and knowhow among small farmers
- Credit services for small farms

Best-practice world experience suggests that farmers' service cooperatives provide the most effective way of improving the access of small farmers to market services. Such cooperatives can cover the whole field-to-market value chain, including joint purchase of farm inputs, organization of machinery pools for field work, establishment of sorting and packing facilities, transport of farm products to markets, processing, etc. Service cooperatives do not rule out private initiative: private trade intermediaries, integrators, and service providers should be allowed to co-exist with service cooperatives and continue their currently developing operations. Admittedly, there is a strong resistance to the entire notion of cooperatives among the rural people in the region, motivated by the long negative experience with Soviet-era collectivization. A focused education campaign is required to make farmers recognize and accept the huge benefits of cooperation. The cooperative systems in the United States, the Netherlands, and other Western countries should be carefully studied, as they provide excellent proof of the advantages of service cooperatives and also examples of effective government organizations charged with promoting cooperation.

Improved access to services is also essential for increasing both crop and livestock productivity. Extension and advisory services are the main mechanism for dissemination of technology and knowhow among farmers. They advise farmers on introduction of new varieties, effective use of elite seeds, and efficient cultivation techniques. All these activities combine to increase crop yields, thus raising production and contributing to greater commercialization. Veterinary and artificial insemination services play a crucial role in raising livestock and poultry yields by keeping animals healthy and improving the genetic stock.

It is furthermore important to ensure realistic options for access to alternative sources of credit for small farmers. Credit is needed for the expansion of farm operations in new directions, thus allowing farms to sell more and diversify their activities with the aim of reducing risks and increasing incomes. In addition to borrowing from commercial banks, farmers should be able to borrow from micro-finance institutions and should be encouraged to create credit cooperatives or credit unions. Raising credit requires collateral, and the issue of bankable farm collateral for smallholder farms should be addressed in existing legislation (even though there is no clear evidence that land mortgage actually facilitates access to farm credit).

The main issue in designing policies to improve rural incomes is the attitude of the government toward small farms. It has to undergo a radical change from the prevailing neglect and disdain to full recognition of the huge role that small farms play in agriculture and in rural well-being. Government officials and decision makers have to acknowledge the contribution and importance of small farms, abandon the traditional preference for large farms, and focus on policies that ensure a supportive market environment for successful operation of the small-farm sector instead of continuing the unsuccessful attempts to guide production decisions. This change of attitude requires a strong political will at all levels of government, starting with clear direction from the very top.

Role for FAO

FAO can harness its established technical and advisory expertise to improve the level of service delivery and the access of smallholders to essential farm services. Of the highest priority are services that can increase productivity by raising crop and livestock yields. This includes assistance with the development of extension and training, as well as advisory services focusing on production issues and technologies. Improvement of livestock productivity requires attention to animal health and veterinary services – another area where FAO has considerable expertise. FAO should also be able to assist with issues related to animal feed, including feed formulas and introduction of high-yield varieties of field crops.

FAO can provide technical assistance and advice concerning the establishment of marketing cooperatives and farm machinery pools, all of which are necessary for overcoming “the curse of smallness”. Assistance with credit unions is also needed. Finally, FAO can help with designing land consolidation programs in the spirit of the recently formulated voluntary guidelines (FAO 2010).

Conclusion

Small family farms have become the backbone of post-transition agriculture in both CEE and CIS. They may not control most of the land, but they nevertheless dominate agricultural production due to their higher productivity. Recovery of agricultural growth is clearly seen to be associated with individualization of farming – the transition from exclusive dominance of large corporate farms to prevalence of substantially smaller family farms that exist in a wide range of sizes. The new farming structure requires development of a new market infrastructure for farm services – marketing, input supply, machinery, extension. Government policies should be designed to meet this challenge: government’s new role is to create a supportive service environment for family farms.

References

- Alam, A., Murthi, M., Yemtsov, R., Murrugarra, E., Dudwick, N., Hamilton, E., and Tiongson, E. (2005): *Growth, Poverty, and Inequality: Eastern Europe and the Former Soviet Union* (Washington DC: World Bank).
- Csaki, C. and Jambor, A. (2009): *The Diversity of Effects of EU Membership on Agriculture in New Member States*. FAO Regional Office for Europe and Central Asia Policy Studies on Rural Transition No. 2008-1 (Budapest: FAO Regional Office for Europe and Central Asia).
http://www.fao.org/fileadmin/user_upload/Europe/documents/Publications/Policy_Studies/EUeffects_en.pdf
- Csaki, C. and Nash, J. (1998): *The Agrarian Economies of Central and Eastern Europe and the Commonwealth of Independence States: Situation and Perspectives 1997*. World Bank Discussion Paper 387 (Washington DC: World Bank).
- Deininger, K. (2003): *Land Policies for Growth and Poverty Reduction*. World Bank Research Report (Washington, DC: World Bank).
- Dudwick, N., Fock, K., and Sedik, D. (2007): *Land Reform and Farm Restructuring in Transition Countries. The Experience of Bulgaria, Moldova, Azerbaijan and Kazakhstan*, World Bank Working Paper No. 104 (Washington, DC: World Bank).
<http://go.worldbank.org/2W17PBZ490>
- FAO (2010). *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests*, first draft (Rome: Food and Agricultural Organizations of the U.N.).
- Lerman, Z. (2008): "Agricultural Development in Central Asia: A Survey of Uzbekistan, 2007-2008." *Eurasian Geography and Economics*, 49(4): 481-505.
- Lerman, Z. (2010). "Agricultural Recovery and Individual Land Tenure: Evidence from Central Asia." In *Changing Landscape of European Agriculture: Essays in Honour of Professor Csaba Csaki*, edited by I. Ferto, C. Forgacs, and A. Jambor (Budapest: Agroinform).
- Lerman, Z. and Cimpoies, D. (2006): "Land Consolidation as a Factor for Rural Development in Moldova." *Europe-Asia Studies*, 58(3): 439-455.
- Lerman, Z., Csaki, C., and Feder, G. (2004): *Agriculture in Transition: Land Policies and Evolving Farm Structures in Post-Soviet Countries* (Lanham, MD: Lexington Books).
- Lerman, Z. and Schreinemachers, P. (2005). "Individual Farming as a Labor Sink: Evidence from Poland and Russia." *Comparative Economic Studies* 47(4): 675-695 (December).
- Lerman, Z. and Sedik, D. (2008): *The Economic Effects of Land Reform in Tajikistan*. FAO Regional Office for Europe and Central Asia Policy Studies on Rural Transition No.

2008-1 (Budapest: FAO Regional Office for Europe and Central Asia).

http://www.fao.org/fileadmin/user_upload/Europe/documents/Publications/Policy_Studies/Tajikistan_en.pdf.

Lerman, Z. and Sedik, D. (2009). "Agricultural Recovery and Individual Land Tenure: Lessons from Central Asia." *FAO Regional Office for Europe and Central Asia Policy Studies on Rural Transition* No. 2009-3 (Budapest: FAO Regional Office for Europe and Central Asia).

http://www.fao.org/fileadmin/user_upload/Europe/documents/Publications/Policy_Studies/AgDevelopmentCA_en.pdf.

Lerman, Z. and Sedik, D. (2010): *Rural Transition in Azerbaijan* (Lanham, MD: Lexington Books).

Lerman, Z. and Sedik, D. (2012). "Russian Agriculture in Transition." In *Handbook of Russian Economy*, edited by Michael Alexeev and Shlomo Weber (New York: Oxford University Press, forthcoming).

Lerman, Z., Sedik, D., Pugachov, N., and Goncharuk, A. (2007): *Rethinking Agricultural Reform in Ukraine*, Studies on the Agricultural and Food Sector in Central and Eastern Europe, Vol. 38 (Halle: IAMO).

Mathijs, E. and Swinnen, J. (1998): "The Economics of Agricultural Decollectivization in East Central Europe and the Former Soviet Union," *Economic Development and Cultural Change*, 47(1): 1-26.

PREVIOUS DISCUSSION PAPERS

- 1.07 Joseph Gogodze, Iddo Kan and Ayal Kimhi – Land Reform and Rural Well Being in the Republic of Georgia: 1996-2003.
- 2.07 Uri Shani, Yacov Tsur, Amos Zemel & David Zilberman – Irrigation Production Functions with Water-Capital Substitution.
- 3.07 Masahiko Gemma and Yacov Tsur – The Stabilization Value of Groundwater and Conjunctive Water Management under Uncertainty.
- 4.07 Ayal Kimhi – Does Land Reform in Transition Countries Increase Child Labor? Evidence from the Republic of Georgia.
- 5.07 Larry Karp and Yacov Tsur – Climate Policy When the Distant Future Matters: Catastrophic Events with Hyperbolic Discounting.
- 6.07 Gilad Axelrad and Eli Feinerman – Regional Planning of Wastewater Reuse for Irrigation and River Rehabilitation.
- 7.07 Zvi Lerman – Land Reform, Farm Structure, and Agricultural Performance in CIS Countries.
- 8.07 Ivan Stanchin and Zvi Lerman – Water in Turkmenistan.
- 9.07 Larry Karp and Yacov Tsur – Discounting and Climate Change Policy.
- 10.07 Xinshen Diao, Ariel Dinar, Terry Roe and Yacov Tsur – A General Equilibrium Analysis of Conjunctive Ground and Surface Water Use with an Application to Morocco.
- 11.07 Barry K. Goodwin, Ashok K. Mishra and Ayal Kimhi – Household Time Allocation and Endogenous Farm Structure: Implications for the Design of Agricultural Policies.
- 12.07 Iddo Kan, Arie Leizarowitz and Yacov Tsur - Dynamic-spatial management of coastal aquifers.
- 13.07 Yacov Tsur and Amos Zemel – Climate change policy in a growing economy under catastrophic risks.
- 14.07 Zvi Lerman and David J. Sedik – Productivity and Efficiency of Corporate and Individual Farms in Ukraine.
- 15.07 Zvi Lerman and David J. Sedik – The Role of Land Markets in Improving Rural Incomes.
- 16.07 Ayal Kimhi – Regression-Based Inequality Decomposition: A Critical Review And Application to Farm-Household Income Data.

- 17.07 Ayal Kimhi and Hila Rekah – Are Changes in Farm Size and Labor Allocation Structurally Related? Dynamic Panel Evidence from Israel.
- 18.07 Larry Karp and Yacov Tsur – Time Perspective, Discounting and Climate Change Policy.
- 1.08 Yair Mundlak, Rita Butzer and Donald F. Larson – Heterogeneous Technology and Panel Data: The Case of the Agricultural Production Function.
- 2.08 Zvi Lerman – Tajikistan: An Overview of Land and Farm Structure Reforms.
- 3.08 Dmitry Zvyagintsev, Olga Shick, Eugenia Serova and Zvi Lerman – Diversification of Rural Incomes and Non-Farm Rural Employment: Evidence from Russia.
- 4.08 Dragos Cimpoeies and Zvi Lerman – Land Policy and Farm Efficiency: The Lessons of Moldova.
- 5.08 Ayal Kimhi – Has Debt Restructuring Facilitated Structural Transformation on Israeli Family Farms?.
- 6.08 Yacov Tsur and Amos Zemel – Endogenous Discounting and Climate Policy.
- 7.08 Zvi Lerman – Agricultural Development in Uzbekistan: The Effect of Ongoing Reforms.
- 8.08 Iddo Kan, Ofira Ayalon and Roy Federman – Economic Efficiency of Compost Production: The Case of Israel.
- 9.08 Iddo Kan, David Haim, Mickey Rapoport-Rom and Mordechai Shechter – Environmental Amenities and Optimal Agricultural Land Use: The Case of Israel.
- 10.08 Goetz, Linde, von Cramon-Taubadel, Stephan and Kachel, Yael – Measuring Price Transmission in the International Fresh Fruit and Vegetable Supply Chain: The Case of Israeli Grapefruit Exports to the EU.
- 11.08 Yuval Dolev and Ayal Kimhi – Does Farm Size Really Converge? The Role Of Unobserved Farm Efficiency.
- 12.08 Jonathan Kaminski – Changing Incentives to Sow Cotton for African Farmers: Evidence from the Burkina Faso Reform.
- 13.08 Jonathan Kaminski – Wealth, Living Standards and Perceptions in a Cotton Economy: Evidence from the Cotton Reform in Burkina Faso.
- 14.08 Arthur Fishman, Israel Finkelshtain, Avi Simhon & Nira Yacouel – The Economics of Collective Brands.
- 15.08 Zvi Lerman - Farm Debt in Transition: The Problem and Possible Solutions.

- 16.08 Zvi Lerman and David Sedik – The Economic Effects of Land Reform in Central Asia: The Case of Tajikistan.
- 17.08 Ayal Kimhi – Male Income, Female Income, and Household Income Inequality in Israel: A Decomposition Analysis
- 1.09 Yacov Tsur – On the Theory and Practice of Water Regulation.
- 2.09 Yacov Tsur and Amos Zemel – Market Structure and the Penetration of Alternative Energy Technologies.
- 3.09 Ayal Kimhi – Entrepreneurship and Income Inequality in Southern Ethiopia.
- 4.09 Ayal Kimhi – Revitalizing and Modernizing Smallholder Agriculture for Food Security, Rural Development and Demobilization in a Post-War Country: The Case of the Aldeia Nova Project in Angola.
- 5.09 Jonathan Kaminski, Derek Headey, and Tanguy Bernard – Institutional Reform in the Burkina Faso Cotton Sector and its Impacts on Incomes and Food Security: 1996-2006.
- 6.09 Yuko Arayama, Jong Moo Kim, and Ayal Kimhi – Identifying Determinants of Income Inequality in the Presence of Multiple Income Sources: The Case of Korean Farm Households.
- 7.09 Arie Leizarowitz and Yacov Tsur – Resource Management with Stochastic Recharge and Environmental Threats.
- 8.09 Ayal Kimhi - Demand for On-Farm Permanent Hired Labor in Family Holdings: A Comment.
- 9.09 Ayal Kimhi – On the Interpretation (and Misinterpretation) of Inequality Decompositions by Income Sources.
- 10.09 Ayal Kimhi – Land Reform and Farm-Household Income Inequality: The Case of Georgia.
- 11.09 Zvi Lerman and David Sedik – Agrarian Reform in Kyrgyzstan: Achievements and the Unfinished Agenda.
- 12.09 Zvi Lerman and David Sedik – Farm Debt in Transition Countries: Lessons for Tajikistan.
- 13.09 Zvi Lerman and David Sedik – Sources of Agricultural Productivity Growth in Central Asia: The Case of Tajikistan and Uzbekistan.
- 14.09 Zvi Lerman – Agricultural Recovery and Individual Land Tenure: Lessons from Central Asia.
- 15.09 Yacov Tsur and Amos Zemel – On the Dynamics of Competing Energy Sources.

- 16.09 Jonathan Kaminski – Contracting with Smallholders under Joint Liability (revised January 2012).
- 1.10 Sjak Smulders, Yacov Tsur and Amos Zemel – Uncertain Climate Policy and the Green Paradox.
- 2.10 Ayal Kimhi – International Remittances, Domestic Remittances, and Income Inequality in the Dominican Republic.
- 3.10 Amir Heiman and Chezy Ofir – The Effects of Imbalanced Competition on Demonstration Strategies.
- 4.10 Nira Yacouel and Aliza Fleischer – The Role of Cybermediaries in the Hotel Market.
- 5.10 Israel Finkelshtain, Iddo Kan and Yoav Kislev – Are Two Economic Instruments Better Than One? Combining Taxes and Quotas under Political Lobbying.
- 6.10 Ayal Kimhi – Does Rural Household Income Depend on Neighboring Communities? Evidence from Israel.
- 7.10 Anat Tchetchik, Aliza Fleischer and Israel Finkelshtain – An Optimal Size for Rural Tourism Villages with Agglomeration and Club-Good Effects.
- 8.10 Gilad Axelrad, Tomer Garshfeld and Eli Feinerman – Agricultural Utilization of Sewage Sludge: Economic, Environmental and Organizational Aspects. (Hebrew)
- 9.10 Jonathan Kaminski and Alban Thomas – Land Use, Production Growth, and Institutional Environment of Smallholders: Evidence from Burkinabe Cotton Farmers.
- 10.10 Jonathan Kaminski, Derek Heady and Tanguy Bernard - The Burkinabe Cotton Story 1992-2007: Sustainable Success or Sub-Saharan Mirage?
- 11.10 Iddo Kan and Mickey Rapaport-Rom – The Regional-Scale Dilemma of Blending Fresh and Saline Irrigation Water.
- 12.10 Yair Mundlak – Plowing Through the Data.
- 13.10 Rita Butzer, Yair Mundlak and Donald F. Larson – Measures of Fixed Capital in Agriculture.
- 14.10 Amir Heiman and Oded Lowengart – The Effect of Calorie Information on Consumers' Food Choices: Sources of Observed Gender Heterogeneity.
- 15.10 Amir Heiman and Oded Lowengart – The Calorie Dilemma: Leaner and Larger, or Tastier Yet Smaller Meals? Calorie Consumption and Willingness to Trade Food Quantity for Food Taste.
- 16.10 Jonathan Kaminski and Eli Feinerman – Agricultural Policies and Agri-Environmental Regulation: Efficiency versus Political Perspectives.

- 1.11 Ayal Kimhi and Nitzan Tsur – Long-Run Trends in the Farm Size Distribution in Israel: The Role of Part-Time Farming.
- 2.11 Yacov Tsur and Harry de Gorter - On the Regulation of Unobserved Emissions.
- 3.11 Jonathan Kaminski and Renata Serra-Endogenous Economic Reforms and Local Realities: Cotton policy-making in Burkina Faso
- 4.11 Rico Ihle and Ofir D. Rubin- Movement Restrictions, Agricultural Trade and Price Transmission between Israel and the West Bank
- 5.11 Yacov Tsur and Cees Withagen- Preparing for Catastrophic Climate Change.
- 6.11 Jonathan Kaminski- Subjective Wealth, Policy Change, and Political Opinions: Evidence from the Cotton Reform in Burkina Faso.
- 7.11 Zvi Lerman- Tajikistan’s Vulnerability to Climate Change.
- 8.11 Zvi Lerman and Bettina Wolfgramm - Vulnerability to risk among small farmers in Tajikistan: results of a 2011 survey.
- 9.11 Zvi Lerman and Bettina Wolfgramm - Land use policies and practices for reducing vulnerability in rural Tajikistan.
- 1.12 Yacov Tsur and Amos Zemel- Dynamic and stochastic analysis of environmental and natural resources
- 2.12 Zvi Lerman - Land reform and farm performance in Europe and Central Asia: a 20 year perspective