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Agriculture in transition economies: from common heritage to divergence

Zvi Lerman [a,b,*]

[a] *Department of Agriculture Economics and Management, Faculty of Agriculture, The Hebrew University, Rehovot 76100, Israel*
[b] *The World Bank, DECRG, 1818 H Street NW, Washington, DC 20043, USA*

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Abstract

The 23 former socialist countries in Central and Eastern Europe (CEE) and the Commonwealth of Independent States (CIS) started the transition in 1989–1990 from a common institutional and organizational heritage, represented by the Soviet agricultural model. Despite the common heritage in agriculture, the reform policies in CEE and CIS diverged from the start, as significant differences emerged between the two groups of countries in legal attitudes to private land ownership, transferability of land, the extent of agricultural privatization and individualization, and restructuring of farms. This divergence in the implementation of agricultural reform has led to divergence in standard development measures: the CEE countries are outperforming the CIS countries by growth in GDP and agricultural product since 1992; the productivity of agricultural labor in CEE is generally increasing, and in CIS it is decreasing. While the CIS countries at best can be characterized as reluctant reformers, the CEE countries have achieved significantly higher levels of economic and institutional reform. Better performance in CEE is associated with greater readiness of the governments in these countries to implement a comprehensive package of economic and social reform policies, including more radical land reform and deeper individualization and restructuring of agriculture. © 2001 Elsevier Science B.V. All rights reserved.

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1. Introduction

A decade ago, as the Soviet Union was on the verge of dissolution, the countries of the former "communist" bloc in Central and Eastern Europe (CEE) and the new independent states that were rapidly replacing the USSR embarked on the process of transition "from plan to market". It is these 23 countries spanning 11 times zones from Prague in the west to Vladivostok in the east that are referred to as transition economies in the current jargon. The iron curtain that had separated this region from the western world since the end of World War II lifted in 1989, and yet there is sometimes a feeling that the Cold-War iron curtain has been replaced by another "east/west divide", which now lies further east, along the borders of what has become known as the Commonwealth of Independent States (CIS), a political entity comprising the 12 successor republics of the former Soviet Union (excluding the Baltic states). The divide is felt both in politics and in the media. On the political arena, the countries west of the divide, which include the former Comecon members in CEE and the former Soviet republics in the Baltics, are applying for accession to the European Union and are

* Tel.: +972-2-570-1481; fax: +972-2-570-1686.
E-mail address: lerman@agri.huji.ac.il (Z. Lerman).

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making plans to join their former adversaries in modified NATO frameworks. The CIS countries east of the divide remain introvert and relatively isolated from the rest of Europe, viewing the west with undisguised suspicion. In the media, western journalists paint the events in CEE in rosy, optimistic colors, writing of great successes and encouraging achievements. In contrast, the colors used to describe the events in CIS are dark, bleak, and pessimistic: the tone in the media is gloomy, depressing, sometimes apocalyptic.

This striking difference in the popular western perception of the two components of the former "communist" bloc in Europe — CEE (including the Baltic states) and CIS — has prompted us to explore the possible existence of a similar divide in agriculture, a traditionally prominent sector in most countries in the region and thus an important component of their transition strategies. The post-World War II regimes imposed far-reaching commonalities on the societies and economies of all these countries in general, and on their agriculture in particular. Yet deep cultural, social, and economic differences remained, even if hidden under the surface by the pretense of socialist fraternity of nations. These inherent differences may have influenced the specifics of the implementation of agricultural reforms in the two groups of former socialist countries. We will examine how agricultural sectors in CEE and CIS, having started from a common institutional and organizational heritage — the so-called Soviet model of agriculture, are beginning to diverge along the path of market reforms.

The transition of agriculture from plan to market is a complex multidimensional process, engineered with the objective of improving the notoriously poor productivity and efficiency of socialist agriculture. This paper does not attempt to cover all the dimensions of agricultural transition. It focuses on land reform and the restructuring of large socialized farms as the most visible and widely discussed components of agricultural transition, and presents a picture of the divergent paths of these processes in transition economies. We start with a brief discussion of the common features that agriculture in CEE and CIS inherited from the Soviet era and show how this common heritage predetermined the agricultural reform agenda. We then describe the three most visible elements of agricultural transition — privatization of land, individualization of farming, and restructuring of the traditional socialized farms — highlighting the differences in the approaches adopted in CEE and CIS. These descriptive sections largely draw on field work conducted by the World Bank and other institutions since 1992. For more details and additional references, the reader may wish to consult Csaki and Lerman (1997), Lerman (1998), and Swinnen et al. (1997). Finally, we examine the intriguing interrelationships between land reform, economic growth, and policy factors, showing how differences in implementation of agricultural reforms are reflected in the divergence of development indicators of CIS and CEE countries.

2. Commonalities and the transition agenda

The countries of CEE and CIS entered the transition in 1989–1990 with a common institutional and organizational heritage in agriculture: most land, regardless of its ownership, was cultivated collectively in large-scale farms that managed thousands of hectares and employed hundreds of member-workers; the commercial production from the collective sector (which included large production cooperatives and state farms) was supplemented by subsistence-oriented individual agriculture based on rural household plots of less than 1 ha; product markets and input supply channels were largely controlled by state organizations within an administrative command framework; budget constraints virtually did not exist. This, in effect, was the Soviet model of socialist agriculture that dominated the region since the early 1950s. Poland and the former Yugoslavia partially deviated from this common pattern: their agriculture remained largely based on small individual farms throughout the decades following World War II, and yet pervasive central controls plagued farmers in Poland and Yugoslavia exactly as in all other socialist economies.

The well-documented persistent inefficiency of socialized agriculture (Cook, 1992; Easterly and Fischer, 1994; Lerman et al., 1996) was of course an inevitable result of the command economy, which insulated the farms from market signals, imposed central targets as a substitute for consumer preferences, and allowed farms to function indefinitely under soft budget constraints without proper profit accountability. Yet this inefficiency also can be attributed to two "micro-level"

factors, which sharply distinguished socialist agriculture from agriculture in market economies: exceptionally large farm sizes and collective organization of production.

As farms become larger, agency and transaction costs, including the costs of monitoring and enforcing the agreements within the team increase, making the farm less efficient, unless it can enjoy pronounced economies of scale. The tendency toward very large farms in socialist agriculture was indeed motivated by considerations of scale economies, mainly those associated with lumpiness or fixity of farm machinery. These considerations may have been valid in the socialist non-market environment that precluded the development of machinery rental and leasing services, but they generally do not apply in market economies, where machinery need not be purchased, as it always can be rented when needed (Binswanger et al., 1995). The farm sizes in the former socialist countries were accordingly far too large compared with the "best practice" farm sizes observed in market economies, and their sheer size probably renders them uncompetitive in a market-oriented environment.

Collective or cooperative production, which was the prevailing mode in CEE and CIS prior to 1990, is very rare in countries with a market-oriented economy, where individual farming is the dominant organizational form in agriculture. Production cooperatives, both in agriculture and in other sectors, suffer from inefficiency due to well-known phenomena of moral hazard, shirking, and free-riding (Deininger, 1993). Numerous empirical studies show that, on balance, individual farms have a performance advantage relative to cooperative (and even corporate) forms of organization in market economies (for a recent literature review, see Hanstad, 1998).

The strategy of agricultural transition aimed to improve the efficiency and productivity of agriculture in CEE and CIS by replacing the institutional and organizational features of the former command economy with attributes borrowed from the practice of market economies. The ideal transition agenda formulated in the early 1990s through intellectual cross-fertilization between local politicians and western experts accordingly envisaged a transformation from collective to individual agriculture as the ultimate goal. 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. They would form associations to ensure efficient provision of farm services or patronize private commercial suppliers. Pragmatic considerations suggested an intermediate stage involving transition to downsized but still relatively large corporate or cooperative farms based on private ownership of land and assets, with radically modified, profit-motivated management showing significant accountability to individual members and shareholders. Unlike the traditional collectives, these corporate agricultural producers would neither be subject to pervasive intervention of the state nor rely on its largess. The sections that follow examine the implementation of this agenda in CEE and CIS.

3. Privatization of land: legal aspects

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. Privatization of land is therefore a major component of the transition agenda. Yet another important source of productivity gains in agriculture 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, which many farmers substitute for outright purchase. Transferability of land and development of land markets are as important as privatization of land in analyzing the impact of land policies on productivity and efficiency in transition countries. The discussion of land privatization in this section is accordingly organized around the twin issues of private land ownership and land transferability in CEE and CIS.

3.1. Private land ownership

Despite the universal collectivization of agricultural production in CEE and CIS, these countries entered the transition in 1990 with significant differences in the legal status of land ownership. In the

Soviet Union, all agricultural land was state-owned. Agricultural land in the original constituent republics of the Soviet Union was nationalized, i.e., transferred from private to state ownership, within days of the October 1917 revolution. In the Baltics and in western parts of Ukraine, Belarus, and Moldova, agricultural land passed from private to state ownership when these regions were integrated into the Soviet Union after World War II. The first step in market-oriented land reform in the former Soviet Union therefore required a very fundamental decision: should the state give up its exclusive ownership of land and transfer agricultural land into private ownership? This difficult decision had to be taken separately by each of 15 former Soviet republics, which became sovereign states after 1991, and in Russia alone by more than 20 federation members, which in the new era had constitutional freedom of action on the issue of land ownership.

In CEE, on the other hand, private ownership of land did not cease after World War II. Albania was the only country that nationalized agricultural land by its 1976 Constitution. In all other CEE countries, state land was typically created by confiscating the holdings of socially and politically undesirable elements, such as Nazi collaborators, the church and monasteries, or relatively large farmers, while the property of most individual land owners remained untouched. Individuals entering the socialized cooperatives and collectives in the 1950s retained ownership of their land, and however nominal this ownership became under the new socialist regime, their title was actually recorded in the cooperative's books. Eventually, as some cooperative members or their heirs left the cooperatives and migrated to the city, their ownership rights in land were taken over by the cooperative or the state. The decision concerning post-1990 land ownership in CEE was thus fundamentally different from that in the former Soviet Union. There was no need to legislate for private ownership of land (except in Albania). It was only necessary to decide what to do with the ownership of state and cooperative lands.

Table 1 summarizes the land-ownership decisions of all the countries in which the state was the sole legal owner of land prior to 1990. Albania is the only country outside the former Soviet Union that had to switch from sole state ownership to private ownership of land. The other 15 countries in Table 1 — the Baltic states and the CIS members — are all former Soviet republics. In CEE countries not listed in Table 1 (i.e., Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia, and Slovenia), private ownership of land was allowed before 1990 and is of course allowed today.

In the CIS, the legal efforts to allow private land ownership began before the dissolution of the Soviet Union in December 1991 and the transition of its former republics to full independence. The relevant legislation in most CIS countries was passed in 1991–1992 (see Table 1). Georgia, Azerbaijan, and Kyrgyzstan were the latest among the former Soviet republics to legalize private land ownership: in Georgia and Azerbaijan the relevant legislation was adopted only in 1996, whereas Kyrgyzstan allowed private ownership of land following the June 1998 referendum (the corresponding legislation is still not in place, however). As of 1999, the legality of private land ownership is less than universal only in Belarus and in three Central Asian states. Belarus initially followed the example of Russia, Ukraine, and Moldova in legalizing private ownership of land, but in June 1993, the land code was changed restricting private ownership to household plots of up to 1 ha. Kazakhstan has adopted a similar strategy, whereas Uzbekistan and Tajikistan retain full state ownership of land.

Private ownership of land is an emotionally charged issue in all CIS countries. Contentious attitudes are not restricted to the countries that still do not allow private ownership of land. Russia legalized private land ownership back in 1990, and put it in the new constitution in 1993. Yet there is a permanent ongoing debate in the Russian parliament between conservative and reform-oriented factions on the nature and scope of private ownership of land. The conservative-dominated parliament periodically has come up with a land code that severely restricts the scope of private land ownership (as in Belarus and Kazakhstan, for instance), and this land code in turn has been periodically vetoed by the president, whose decrees since 1991 have shaped the prevailing concept of private land ownership in Russia. Ukraine similarly failed to adopt a market-oriented land code under two presidents during the 1990s, whereas Moldova took until 1996 to overcome the political and legal obstacles to the concept of unrestricted private ownership of land.

Table 1
Legal attitudes to land ownership and transferability in countries with pre-1990 exclusive state ownership

	Potential private ownership	Relevant legislation	Transferability of land and restrictions on private land ownership
Albania	All land	Land law, July 1991	Buy-and-sell, leasing
Estonia	All land	Law on land reform, October 1991	Buy-and-sell, leasing
Latvia	All land	Land reform in rural areas act, November 1990	Buy-and-sell, leasing
Lithuania	All land	Law on land reform, June 1991	Buy-and-sell, leasing
Armenia	All land	Land law, January 1991; law on peasant and peasant collective farms, January 1991	Buy-and-sell, leasing. Mountain pastures not privatized; program to sell state-owned land to private owners
Georgia	All land	Law of agricultural land ownership, February 1996	Buy-and-sell, leasing. Mountain pastures not privatized
Azerbaijan	All land	Constitution, November 1995; land reform law, July 1996	Buy-and-sell, leasing
Moldova	All land	Law on property, January 1991; constitutional court rulings on amendments to the land code, January 1996, October 1996	Buy-and-sell, leasing
Russia	All land	Law on land reform, November 1990; constitution, December 1993	Leasing, buy-and-sell dubious; private land ownership prohibited by 10 ethnic republics
Ukraine	All land	Supreme Soviet resolution on land reform, December 1990; law on forms of land ownership, January 1992	Leasing, buy-and-sell dubious
Kyrgyzstan	All land	Presidential decree on deepening land and agrarian reform, February 1994; referendum, June 1998; presidential decree on private land ownership, October 1998	Prior to referendum, use rights in state land secure to 99 years and transferable; after referendum, use rights to be converted to private ownership and 5-year moratorium imposed on buying and selling of land
Kazakhstan	Household plots only	Presidential decree on land reform, February 1994	Use rights secure to 49 years and transferable; buy-and-sell of private plots dubious
Belarus	Household plots only	Land code, June 1993 (reversal of earlier recognition of private land ownership)	Use rights nontransferable; buy-and-sell of private plots dubious
Tajikistan	None	Land code, December 1996; amended 1999	Use rights transferable
Uzbekistan	None		Use rights nontransferable
Turkmenistan	All land	Constitution, May 1992	Use rights nontransferable

3.2. *Transferability of land*

As we discuss private ownership of land in transition economies, we should bear in mind that the semantics of private ownership in these countries has a distinctly different shading from the usual meaning of this concept in the west, and especially in North America. A detailed discussion of legal restrictions on property rights in land in CEE and CIS is provided by Prosterman and Hanstad (1999). Most notably, private ownership in transition countries is not synonymous with the right to transfer land among users: some transition countries circumscribe the right of land owners to engage in transactions in privately owned land, while other countries ensure full transferability of use rights although the land remains state-owned (Table 1).

All CEE countries plus four CIS countries (Armenia, Georgia, Moldova, and Azerbaijan) recognize private ownership of land and have no legal barriers to land transactions (although various pre-emptive conditions may make it difficult to sell one's private land in the open market). Russia and Ukraine, which control the bulk of farmland resources in the region, legally recognize private land ownership, but buying and selling of land is restricted in practice, and land

transactions are therefore mainly limited to leasing. The remaining countries — Belarus, Kazakhstan, Uzbekistan, Tajikistan — generally do not recognize private land ownership, but they differ in their attitude toward land transactions. Land use rights are secure and transferable in Kazakhstan and as of very recently also in Tajikistan. Full transferability of use rights was also accepted in Kyrgyzstan before the June 1998 referendum, when all the agricultural land was state-owned (after the referendum, however, Kyrgyzstan perversely imposed a 5-year moratorium on buying and selling of now privately owned land). Uzbekistan and Belarus, on the other hand, prohibit any transactions in land. Turkmenistan is a special case: its post-Soviet constitution (adopted in May 1992) specifically recognizes private ownership of land, yet land owners are not allowed to transfer their holdings in any way, not even by subleasing. The rights of private land owners in Turkmenistan are thus no different from the rights of tenants in Belarus and Uzbekistan, who do not own the land they cultivate.

Perhaps, it should be mentioned here that the use rights in all CEE and CIS countries are characterized by a high degree of formal security of tenure (which, of course, does not guarantee against sudden reversals of policy by the state). The security-shattering "redistribution" mechanism, as applied periodically in Chinese villages, is unknown in CEE and CIS: once allocated in ownership or usufruct, land remains in permanent possession of the beneficiary, at least as long as it is actively farmed. Use rights in land are universally inheritable, even in countries where land is otherwise non-transferable.

As a result of the various restrictions that prevail in one form or another in many CEE and CIS countries, land markets have not really developed across the region during the decade of transition: the frequency of buying and selling of land is very low, and leasing of land from various sources and in various guises is the main practical mechanism for adjustment of farm sizes. If land transactions, be it sale or leasing, are restricted, there are no mechanisms for transfer of land to better, more efficient operators and farmers are prevented from adjusting their operations to a more efficient scale. The Polish experience after World War II has proved that restriction of transfer rights in land is an obstacle to efficiency improvement, regardless of the legal form of land ownership.

After a decade of transition in CEE and CIS, we can schematically divide the 23 countries into three groups by their attitude to ownership and transferability of land (see Table 1). The first group includes countries that legally allow private ownership of potentially all land. These are the CEE countries, Russia, Ukraine, Moldova, the three Transcaucasia states (Armenia, Georgia, Azerbaijan), and since very recently Kyrgyzstan — a large majority of 18. In principle, private ownership in these countries implies freedom to transfer the ownership rights to others, although in practice this freedom is circumscribed (one hopes temporarily). At the other extreme, there are the hard-core countries that retain exclusive state ownership of farmland (all or most of it) and do not allow the individual use rights to be transferred (other than by inheritance). These are Belarus, Uzbekistan, and actually also Turkmenistan, as the notion of private ownership in this country looks like a semantic misunderstanding. Finally, there is an intermediate group of countries (Kazakhstan, Tajikistan) that retain exclusive state ownership of practically all farmland, and yet allow the use rights to be freely transferable, like standard property rights in a market economy. Unfortunately, no statistical information is available at this stage on actual land transfers in these countries.

4. Disposition of socialized land: restitution versus distribution

Privatization of land in CEE and CIS follows two fundamentally different procedures: restitution to former owners and distribution to workers. Restitution to former owners is the procedure adopted by most CEE countries (except Albania) and by the Baltic states among the former Soviet republics. The CIS countries and Albania have adopted the "land to the tiller" strategy: land ownership is distributed to workers without any payment and in a perfectly equitable manner. Hungary and Romania are two CEE countries that use a mixed strategy: land is restituted to former owners and also distributed without payment to agricultural workers in the interest of social equity. In other CEE countries, agricultural workers have priority in acquiring land, but they must purchase it for a full payment. The restitution versus distribution dichotomy of land

Table 2
Distribution versus Restitution

	Distribution to workers	Restitution to former owners
CIS (12 states)	•	
Albania	•	
Hungary, Romania	•	•
Bulgaria, Czech/Slovak Republics		•
Baltics (3 states)		•
Poland, Slovenia	Mainly individual land holdings pre-1990	

privatization in transition economies is demonstrated in Table 2.

Under the restitution strategy, title to land is returned to the original pre-collectivization owners or their heirs. Cooperative members who over the years retained private ownership of their collectively cultivated land get their plots re-surveyed and receive updated title documents. Different restitution mechanisms were devised in different CEE countries. Hungary based its restitution on a quasi-money mechanism: former land owners received value-denominated certificates which could be used to bid for equivalent plots of land anywhere in the country through a market-driven auction process, or even purchase non-land assets in privatization auctions. Estonia and Lithuania gave beneficiaries the choice between receiving land or money-denominated vouchers that could participate in privatization of urban land or various assets. Romania generally returned land in the original location. Bulgaria attempted to return land in the exact former boundaries or to substitute quality-equivalent plots in other locations. Poland and Slovenia did not have to devise full-scale restitution schemes, because state and cooperative land ownership had always been marginal in these countries. Restitution proved to be a long and tortuous process plagued by difficulties with establishing the rights of claimants and dealing with properties fragmented into non-contiguous parcels and strips. In retrospect, the Hungarian strategy of "golden crown" certificates allowing the restitution beneficiaries considerable freedom of choice among a wide range of assets other than land appears to have been the most successful: Hungary is the only country where the restitution process is finished for all practical purposes.

Albania departed from the CEE pattern and did not opt for formal restitution to former owners. It adopted a strategy of direct distribution of ownership to all rural residents. State-owned land previously cultivated by collective farms was directly privatized to all rural residents without payment, and many of these beneficiaries simply happened to be former owners who had never left the village. Absentee former owners were compensated with state bonds. The fate of the land in state farms had to await special legislation, but eventually state farms ceased to exist and their land was also distributed among all rural residents (or simply remained in an unclaimed reserve because of very poor quality).

The CIS countries did not recognize the rights of former land owners. In most of the former Soviet Union land had been nationalized more than 70 years before the beginning of transition, and the search for former owners was not a realistic proposition. Yet the concept of restitution was rejected (after some national debate) even in regions that were absorbed into the Soviet Union after World War II (Moldova, western Ukraine). In CIS countries that allow private ownership of land, the first step was to transfer land from exclusive state ownership to collective ownership of the peasants living and working in collective farms. State farms were generally transformed into collective farms, which then became part of this general "privatization" pattern. The entire process was conducted without requiring beneficiaries to make any payment: land and state-owned assets were transferred freely to the collective. This procedure resulted in large-scale "privatization" of land, but to collectives and not individual owners. It therefore had to be followed by a second stage, in which individuals received certificates of entitlement to land in collective ownership (in practice, the two stages often occurred simultaneously). These certificates are usually called "land shares", but they are basically "paper shares", and not physical plots of land.

Yet the distribution of land share certificates is a prerequisite for further adjustments in former socialist farms. It opens the way for internal restructuring of the large collectives by allowing the newly divided resources to be regrouped by shareholders in smaller autonomous and, hopefully, market-oriented functional units. It may also ultimately lead to allotment of physical plots of land to individual shareholders.

Initially, the individual shareholders prefer to keep their land shares in collective cultivation, because allocation of a physical land plot under existing legislation typically requires withdrawal from the collective, a drastic break with the past for which many rural residents are not yet ready. To avoid a situation in which all the privatized land remains locked in collectives, some CIS countries, in parallel with privatization of land to collective ownership, have created a reserve of state-owned land intended for privatization to individuals "by application". This reserve generally provides a pool of land for creation of family farms outside the collectivist framework. Given the potential importance of individual land share certificates as a starting point for further organizational changes in agriculture, it is encouraging to note that, according to World Bank surveys and official statistics, the process of distribution of land shares to individual beneficiaries is virtually complete in Russia, Ukraine, and Moldova, and the stage is now set for meaningful restructuring of large farms in these countries.

Two CIS countries — Armenia and Georgia — deviate from this general two-stage procedure. The land privatization mechanism in Armenia was formally similar to that in Albania. By special legislation of January 1991, the state directly transferred the ownership of land to individuals. In Georgia, the collective and state farms largely ceased functioning during the first years of independence, which were a time of civil war and social unrest, and much of their land was effectively given in use, although not in ownership, to the rural population. These use rights are now being converted into individual private ownership under the 1996 legislation.

Despite the heated debate in the west about the success or failure of land privatization in CIS, there can be no doubt that the process so far has achieved at least one major goal: in most countries, it has eliminated the monopoly of the state in land ownership and produced a dramatic reduction in the share of agricultural land directly owned or managed by the state. In Moldova, the share of the state in agricultural land ownership is down to 17%; in Russia and Ukraine, less than 40% of agricultural land remains in state ownership; in Armenia, the state owns about one-third of cultivable land (mountain pastures are still not privatized, and Armenia is just embarking on a unique program to sell land from state reserves to the rural population); in Georgia, about half the arable land is in state ownership (mainly due to the decision not to privatize mountain pastures and because of obstacles to privatization in areas with continuing civil unrest). The situation is radically different in Belarus and Kazakhstan, where only the small household plots may be privately owned. In Belarus, 16% of agricultural land is in potentially privatizable household plots, and less than half of it (7%) has been actually transferred to private ownership; the remaining 9% is expected to be privatized in the near future, when administrative bottlenecks are overcome, bringing the total stake of the state in land ownership down to 83%. In Kazakhstan, the potentially privatizable household plots account for about 0.5% of agricultural land (mainly arable land, without desert pastures). The share of state-owned land in Kazakhstan thus remains over 99%, even excluding pastures.

5. Individualization of agriculture

Everywhere in the world, but especially in the context of transition, there is a sharp distinction between ownership of land and use of land. Even in market economies, where private land ownership is the norm, many farmers prefer to rent land from others, instead of buying. To differentiate between the processes associated with these two distinct concepts in transition economies we use two terms, "privatization of land" to describe transfer of land into private (as opposed to state or collective) ownership, regardless of its use, and "individualization of farming" to describe transition to individual (as opposed to collective) cultivation, regardless of the ownership of cultivated land.

In CEE countries, privatization by restitution automatically involves allocation of physical plots of land to beneficiaries. Cooperative members who never gave up private ownership while their land was collectively cultivated may get their plots re-surveyed and re-marked and receive updated title documents. Yet whether or not the physical allocation of plots leads to individualization of farming depends on what the owners decide to do with their newly recovered land. Some land owners may indeed cultivate their holdings individually, in which case, they are captured by national statistics as individual land users. Other individuals may lease their land to large corporate farms

or invest it in the equity capital of various cooperatives and shareholder structures. This land, although privately owned, is statistically captured as part of non-individual, corporate or cooperative use. Different motivations are possible for the mutually exclusive decisions to cultivate privately owned land individually or "collectively". Individual risk preferences provide one explanation. Another explanation is that many former owners left farming long ago and now have jobs and property in urban areas. They have no immediate personal use for their restituted land, and yet they would like to keep this newly found asset in their ownership rather than sell it. Entrusting the land to a larger corporation or cooperative in return for lease payments makes good economic sense. These new land owners, of course, also have the option of leasing their land to other individuals who are actively engaged in farming and seek to increase their holdings. Leasing to private individuals, however, may look more risky than leasing to a large organization, which is regarded as a more reliable source of lease payments. To the extent that inactive land owners indeed prefer to lease out their land to corporations and cooperatives, restitution may actually encourage persistence of large-scale non-individual farming, instead of promoting individualization (Mathijs and Swinnen, 1998).

Distribution of land to workers in CIS does not necessarily result in individualization of farming either. Land distribution follows two distinct modes. One mode encompassing all of collectively controlled land involves distribution of individual entitlement rights to shares of collective land ("paper shares"). This is the second stage in the two-stage process of transfer of land ownership from the state to individuals described in Section 4. The share distribution mechanism does not involve allocation of physical plots: the privatized land remains in collective cultivation, until such time that the share owner decides to leave the collective and withdraw the share of land for the purpose of establishing an independent family farm. Land shares remaining in collective cultivation represent privatized land, but they are not classified as land in individual use. The second mode of land distribution has a direct impact on individualization of agriculture: it involves distribution of physical plots to households in collectives and to independent family farms outside collectives, unrelated to the land share privatization mechanism. These plots typically come from state reserve land created by expropriating part of the holdings of large collectives. The distributed plots may be privately owned or given in use rights (even in Russia and Ukraine, where private ownership of land is fully recognized), but they always constitute land in individual use.

Individually cultivated land has increased dramatically in all countries of the region since the beginning of transition (Table 3). In six countries — Albania,

Table 3
Share of land in individual use in CEE and CIS (percent of agricultural land) and share of individual production in CIS (percent of gross agricultural product), 1990 and 1997[a]

CEE countries	Individual land		CIS countries	Individual land		Individual production	
	1990	1997		1990	1997	1990	1997
Albania	4	100	Armenia	4	33	35	98
Slovenia	92	96	Georgia	7	24	48	76
Poland	77	82	Ukraine	7	17	27	53
Romania	12	67	Moldova	9	27	18	51
Hungary	6	54	Belarus	7	12	25	45
Bulgaria	13	52	Russia	2	11	24	55
Czech Republic	5	38	Kyrgyzstan	1	23	34	59
Slovakia	5	11	Kazakhstan	0.2	20	28	38
Latvia	5	95	Azerbaijan	3	9	35	63
Lithuania	9	67	Tajikistan	2	7	23	39
Estonia	6	63	Uzbekistan	2	4	28	52
			Turkmenistan	0.2	0.3	16	30
Average CEE	21	66	Average CIS	4	16	28	55

[a] Source: EC (1998) for CEE (except Albania); Albania (1998) for Albania; CIS (1999) for CIS (except Moldova); Lerman et al. (1998) for Moldova.

Slovenia, Poland, and Latvia in CEE; Armenia and Georgia in CIS — practically all cultivated land is in individual use, and no collective farms remain. The change has been particularly striking in Albania, Latvia, Armenia, and Georgia, where prior to 1990, less than 5% of agricultural land was in individual use (Slovenia and Poland never had a large collective farm sector). Overall, the available data show that the average share of land in individual use in 1997 is 66% of agricultural land across the CEE countries (including the Baltic states) and 16% across the CIS countries. The difference is statistically significant, although the magnitude of the gap between the two blocs may be exaggerated due to differences in specific definitions of land. Despite this qualification, it seems clear that today CEE has a substantially higher proportion of land in individual use than CIS.

The increase of land in individual use has been accompanied by an increase in the share of the individual sector in agricultural production between 1990 and 1997. In most of CIS (the European and Central Asian republics), the share of individual agricultural production doubled from about 30% in 1990 to almost 60% in 1997 (Table 3). In Armenia and Georgia, individual farms now account for virtually the entire agricultural output. Unfortunately, no similar data are available for CEE, but from the pattern of land individualization (Table 3), it is clear that in Albania and Latvia all agricultural production has shifted from the formerly dominant collectives to the individual sector. In Slovenia and Poland, the individual sector has always dominated agriculture, and it continues to be the main source of agricultural output today.

6. Changes in farm structure

Agriculture is now largely individualized in six countries in the region, four of which are CEE countries (Albania, Latvia, Poland, and Slovenia) and two are CIS countries (Armenia and Georgia). In the remaining 17 countries (seven in CEE and 10 in CIS) large-scale collective or corporate farms continue to play an important role in agriculture. In the seven CEE countries (Hungary, Bulgaria, Romania, Czech Republic, Slovakia, Estonia, and Lithuania), about 40% of agricultural land is in large-scale non-individual farms; in the 10 CIS countries, about 40% of agricultural production originates in large-scale collective farms (see Table 3), although Moldova and Kyrgyzstan appear to be moving in recent years toward individualization levels comparable with Armenia and Georgia.

However, the diversity of large farm structures today is much greater than prior to 1990, when the Soviet kolkhoz, or collective farm, was the universal template for farms. On the surface, the diversity is reflected in the new names under which restructured farms are registering: joint-stock societies, limited-liability partnerships, agricultural cooperatives, and of course collective enterprises. But the new market-sounding names often hide an internal structure which is basically unchanged since the Soviet times. Survey data for CIS (Russia, Ukraine, and Moldova) reveal persistence of traditional management and organization features: the restructured farms retain a strong central management apparatus, and the functional subdivisions have only token autonomy beyond general production planning. Specifically, finances and labor relations are handled by the central management, and not by the functional units. The majority of member-workers in large-scale farms in CIS report that nothing has really changed in their farm enterprise as a result of restructuring. Even farms restructured as part of international donor projects (USAID, IFC, UK Know-How Fund) in CIS often strikingly resemble their collective predecessors (Lerman and Csaki, 2000).

Interesting changes of farm organization are observed in Moldova and Azerbaijan, where large farms are beginning to break up into independent multi-family units that occupy an intermediate position between individual farms and former collectives. In Turkmenistan, large collective farms reorganize internally on the basis of individual lease contracts (similarly to what is often observed in Chinese state farms, as distinct from the Chinese collectives that broke up into household plots back in the 1980s). Unfortunately, the almost complete absence of a functioning market environment in Turkmenistan is a serious obstacle to any meaningful change in their outward-directed activities.

In CEE, there appears to be a more significant departure from the old collective-management pattern. As the share of traditional collective and state farms in land declined through restitution and restructur-

ing, new corporate farm structures began to emerge. Unfortunately, no comprehensive data are available on the operation and management of these new entities, but case studies suggest that in Hungary, the Czech Republic, Estonia, and Lithuania many of the large farms today are market-driven corporations. In Romania, at least some of the large farms are new associations or cooperatives created voluntarily by individual land owners after the completion of land privatization. The large corporate or cooperative farms in CEE are now often forced to operate under hard budget constraints, with a real threat of bankruptcy proceedings in case of default. In CIS, neither budget constraints nor bankruptcy laws are enforced.

Changes are also observed in the average farm size in CEE and CIS countries. We have noted previously that the socialized farms were substantially larger than farms in market economies. Although large non-individual farms continue to dominate the agriculture in many transition economies, a definite downsizing is observed since 1990. Large collectives, cooperatives, and state farms have been losing land through restitution in CEE and through distribution to household plots and individual farms in CIS. Internal restructuring of large farms in an attempt to achieve better market orientation has often led to division of the original enterprise into two or three smaller units. As a result of these processes, the new corporate farms created in the process of farm transformation in CEE are substantially smaller on average than the traditional cooperatives and state farms: a typical corporate farm in CEE countries today is between 500 and 1000 ha, compared with 2000–4000 ha for a typical collective or state farms before 1990 (EC, 1998). A similar, though much less pronounced, tendency is observed in the CIS, where the average collective in Russia, Ukraine, or Moldova has shrunk by more than 20% since 1991 (this is evident from official statistics in these countries). Among the first 72 farms participating in the USAID-directed farm restructuring project in Moldova, the proportion of farms larger than 1000 ha decreased from 70 to 30%, while the proportion of farms under 500 ha increased from 15 to 45% (Mitchell, 1998). Unfortunately, the available data still make it impossible to determine if the downsizing of large farms is a continuing dynamic phenomenon, or if it was a one-time adjustment. The evidence of farm sizes in market economies definitely suggests that further downsizing of large farm enterprises in CEE and CIS countries is desirable.

While the very large socialist farms in both CEE and CIS have become smaller, the average size of individual holdings, be it household plots or other family farms, has increased substantially across the region. Individual farms in CEE increased from about 0.5 to 5–20 ha on average (EC, 1998). There is some evidence that the individual farms in CEE are gradually differentiating into two distinct groups: very small units cultivated by part-time farmers (successors of the subsistence-oriented household plots from the pre-1990 era) and larger commercially oriented full-time individual farms, which may reach substantial sizes and are in fact responsible for the observed increase of the average farm size in the individual sector in CEE. Similarly to this polarization of individual farms in CEE, a new category of peasant farms has emerged in the CIS, cultivating on average 20–40 ha or more. The land holdings of these peasant farms are quite large compared with the 1 ha household plots, which themselves doubled in size since 1989 through generous land distribution programs. As a result of the opposing processes that reduce the size of collectives and augment the individual holdings, while creating a new intermediate layer of larger individual farms, the agriculture in transition economies may gradually lose the sharply dual structure that traditionally characterized the farms in the socialist era. This in itself will be a change in the direction of greater compatibility with farm structures observed in market economies.

To examine the extent of the adjustment in farm structures during transition, it is useful to compare the farm size distribution in CIS and CEE with that observed in market economies. In Fig. 1, panel (a) shows the land concentration curves for farms in the US, Canada, and the 15 countries of the European Union (EU15). The three curves are virtually identical, and the pattern of land concentration in panel (a) may therefore be accepted as representative of market economies. Land concentration is presented by a standard "Lorenz inequality curve" in which the vertical axis gives the cumulative percentage of land in farms and the horizontal axis gives the cumulative percentage of farms of all types, ranked by size. The straight diagonal line represents the situation of "ideal equality", when land is uniformly distributed over all farms so that 50% of farms, say, account for 50%

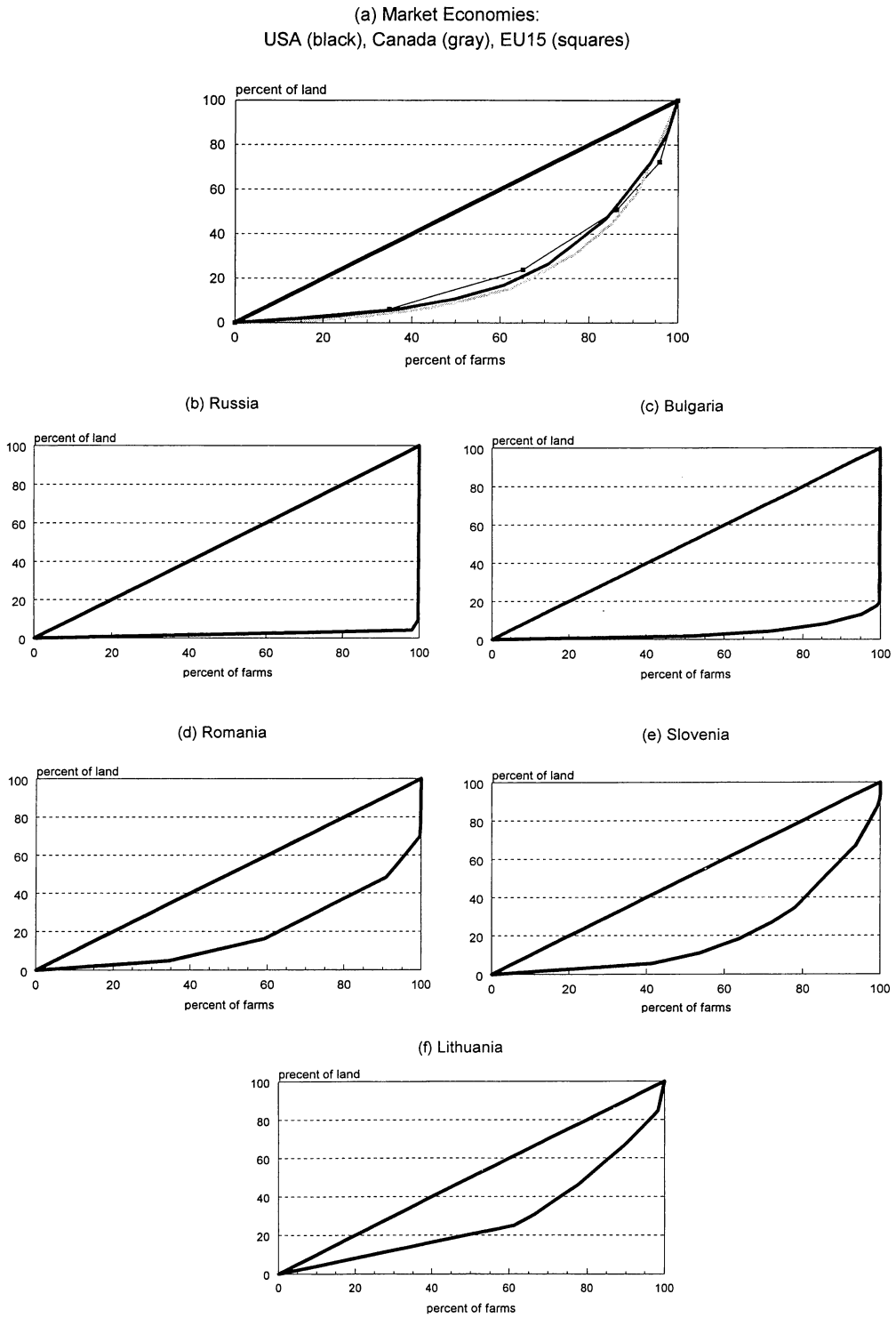

Fig. 1. Concentration of farmland in market economies (panel a) and in selected countries of CIS and CEE (panels b–f), 1996–1997. Source: USDA for US; Statistics Canada for Canada; Eurostat for EU15; official country statistics for Russia and CEE.

of land. The downward-bulging curves reflect the actual farm structure in market economies, with land distributed nonuniformly over small and large farms. From the curves in panel (a), the bottom 50% of farms in market economies (the smallest farms by size) account for about 10% of land, while the top 10% of farms in market economies (the largest farms by size) account for 40% of land.

Other panels in Fig. 1 present land concentration curves of some CIS and CEE countries, which were selected to demonstrate the three main farm structure patterns observed in the transition economies. The first two cases — Russia as a representative of the CIS and Bulgaria from CEE — sharply deviate from the market pattern. Here 90% of farming units — the household plots and the small family farms — control less than 10% of land, and the top 10% of farming units — the largest collective and corporate farms (and in Bulgaria also relatively large individual farms) — control about 90% of land. This pattern is a manifestation of a sharply dual farm structure, with millions or hundreds of thousands of very small farms at the bottom end of the size scale and thousands or merely hundreds of very large farms at the top end. The dual pattern is observed for most CIS countries (with the exception of Armenia, Georgia, and possibly Moldova) and four of the 11 CEE countries: Bulgaria, Slovakia, the Czech Republic, and Hungary. The sharply dual farm structure was a dominant feature of the Soviet model of agriculture in the pre-transition era, with an even more dramatic concentration of land than what we observe today: 98% of Soviet farms (the millions of small household plots in the individual sector) controlled less than 2% of land, while 2% of the largest farm enterprises controlled 98% of land. The changes in farm structures discussed in previous paragraphs have measurably shifted the land concentration curves for Russia, Ukraine, and possibly some other countries as well, but they have been insufficient so far to produce a significant change in the sharply dual structure of traditional socialist agriculture.

Among the CEE countries, Romania and Estonia have developed in the process of transition farm structures that are close to the market pattern of land concentration. Slovenia and Poland are also characterized by "normal" land concentration curves, although this probably is not a result of transition-related adjustment: the farm structure in these countries has always been characterized by predominance of small and medium-size farms and has not changed much since 1989. In Latvia and Lithuania, on the other hand, the farm structure today is over-fragmented compared with market economies (Armenia and Georgia fall in the same category).

Table 4 summarizes the differences in farm structures across CIS and CEE in terms of our land concentration measure — the percentage of agricultural land controlled by the top 10% of largest farms in each country. If we accept the market pattern in panel (a) of Fig. 1 as an efficiency-optimizing equilibrium farm structure, then countries with sharply dual farm structures — most CIS countries, Bulgaria, Hungary, Czech Republic, Slovakia — can be expected to undergo further downsizing of large farm enterprises and simultaneous consolidation of the very small farming units. Countries with over-fragmented farm structure — Armenia, Georgia, Latvia, Lithuania — can be expected to go through a phase of farm consolidation, as very small farms adjust their holdings to operationally more efficient sizes and a certain proportion of new large farms are re-created under suitable conditions.

Table 4
Concentration of land: percentage of agricultural land in top 10% of largest farms[a]

Country	Percentage of farmland	Characterization of farm structure
Armenia	~10	Over-fragmented
Georgia	~10	
Latvia	20	
Lithuania	30	
USA	35	Market pattern
Canada	38	
EU15	40	
Slovenia	40	"Normal"
Poland	40	
Romania	50	
Estonia	60	
Czech Republic	82	Sharply dual
Bulgaria	90	
Hungary	92	
Slovakia	97	
Russia	95	
Ukraine	90	
Kazakhstan	99	

[a] Source: official country statistics.

These processes, however, require elimination of restrictions on land transactions and existence of functioning land markets.

7. Divergence from common origins

In our overview of land reform processes in transition economies, we have highlighted several sharp differences between CEE and CIS countries that have emerged since 1990, when all 23 countries started on the path of reform from a common socialist heritage in agriculture. These differences form a sharp "east–west divide" (with east and west characterizing the relative geographical location within the region). They include differences in legal attitudes to private land ownership and transferability of land, dichotomy of land privatization through restitution and distribution, marked divergence in the extent of agricultural privatization and individualization, and emerging differences in farm structures.

We will now examine how these differences are reflected in standard measures of development, such as growth in GDP and in agricultural output and changes in agricultural productivity. We will then link the observed differences in development indicators to differences in the policy environment in CEE and CIS.

7.1. Growth in GDP and in agricultural product

Despite the impressive growth in the size of the individual sector in agriculture, the overall agricultural production in most countries remains below the pre-transition level. In CEE, the agricultural output today is less than 80% of the 1990 level, but there are definite signs that the sharp initial decline has been arrested and that some countries are registering gains in gross agricultural product since 1993–1994 (see the data in EC, 1998). In CIS, in contrast, the agricultural output today is between 50 and 80% of the 1990 level, and it continues to decline — except in Armenia and Georgia, the two countries where the traditional large-scale farms have disappeared (see the data in CIS, 1999).

It is sometimes argued that the decline in agricultural output in CIS and CEE countries is just one facet of adjustment during the transition from plan to market: the former socialist agriculture may have been required to contract from efficiency considerations after the elimination of the massively wasteful government interventions in the pre-reform era. Growth in agricultural product on its own may therefore be regarded as an inappropriate performance indicator for transition countries. Attaining a higher GDP, on the other hand, is an undisputed objective of all countries in a market environment, as it typically leads to a higher level of wealth per capita. Prompted by one of the stylized facts of agricultural development — the existence of a positive relationship between the growth in GDP and the growth in agricultural output (World Bank, 1982; Timmer, 1988) — we compared between CEE and CIS during transition by both measures of growth, namely the growth in agricultural output versus the growth in GDP. The underlying assumption of this approach is that GDP growth drives agricultural growth, rather than vice versa: positive changes in the overall economic environment lead, among other things, to creation of functioning market services, which were missing in the command economy and may now begin to stimulate agricultural production through improved supply of farm inputs, better access to financial facilities, and improvements in sales and marketing channels.

Fig. 2 plots the 23 transition economies in a plane where the vertical axis is the annual rate of growth in agricultural output and the horizontal axis is the annual rate of growth in GDP (we measure the growth since 1992, skipping the very first years of transition, when all countries experienced a dramatic downward shock). Fig. 2 overlays several layers of analysis that are discussed in what follows, and for the start the reader should concentrate on the 23 country points represented by black squares for CEE and white squares for CIS. The first conclusion from this diagram is that overall economic growth is indeed associated with agricultural growth (the correlation coefficient of 0.7 is statistically significant). A more detailed econometric analysis, allowing for possible simultaneity between the growth in agricultural product and GDP, indicates that GDP growth drives agricultural growth to a greater extent than the other way around. This justifies the general sequencing prescription, "get the economy in order, and agriculture will fix itself".

But there are also obvious differences between CEE and CIS by these two measures of growth. The CEE countries (black squares) generally fall to the

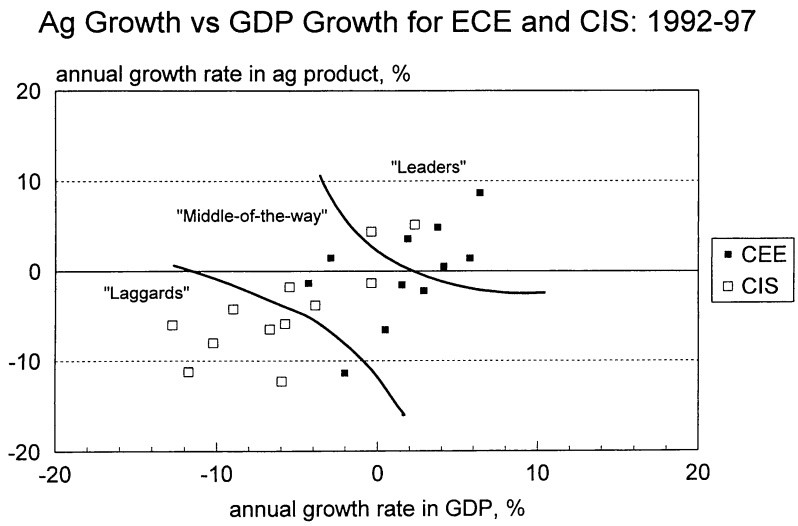

Fig. 2. Clustering of CEE and CIS countries by growth in agricultural product and GDP: 1992–1997.

"northeast" of the CIS countries (white squares), achieving higher growth rates in both GDP and agricultural product. The level of agricultural production in CIS declined at an average annual rate of −4.3% between 1992 and 1997, whereas the average rate of change for CEE in this period was zero. The difference in GDP growth between the two subregions is much more pronounced: in the CEE countries, the GDP grew at an annual rate of 1.6% since 1992, while in the CIS the GDP contracted by −5.8% per year in the same period.

The CEE countries as a group appear to have outperformed the CIS countries by the two measures of growth between 1992 and 1997. These performance differences between CEE and CIS are definitely not inherited from the Soviet period. A similar growth analysis conducted for the pre-reform period between 1980 and 1985 (this period is sufficiently far from the 1989–1990 breaking point to provide a reasonable picture of the stable pre-transition situation) produces a tight cluster of country points in the 1980–1985 growth plane, which sharply differs from the widely scattered cloud in the 1992–1997 plane. In the pre-transition period, all CEE and CIS countries registered positive growth by both measures, and the variability in annual growth rates among the countries and between the two subregions was much smaller than in 1992–1997 (Table 5). The growth rates decreased for both subregions during transition, but the decrease was much more drastic for CIS than for CEE. The CEE countries continued to maintain on average a positive growth rate in GDP during transition, while the CIS countries went from a fairly high positive growth in GDP in the pre-transition period to a deep negative rate during transition. The observed differences in growth in Fig. 2 are thus indeed a manifestation of dynamic divergence between CIS and CEE during transition.

Most CEE countries have enjoyed higher growth (by both measures) than most CIS countries between 1992 and 1997. Yet not every CEE country outperformed all CIS countries, and not every CIS country showed poorer performance than all CEE countries. A closer examination of CEE and CIS countries reveals

Table 5
Average annual growth rates for CEE and CIS in pre-transition period (1980–1985) and during transition (1992–1997)[a]

	1980–1985		1992–1997	
	CEE	CIS	CEE	CIS
Gross agricultural product	2.22	1.72	−0.21	−4.29
GDP	2.53	3.86	1.61	−5.82

[a] Source: for the period 1980–1985: CIS (1999) for CIS; Comecon (1989) for CEE (excluding Albania and the Baltics); national statistical yearbooks for Albania and the Baltics. For the period 1992–1997: see Table 3.

Table 6
Three-cluster grouping of CEE and CIS countries by growth in gross agricultural product and GDP: 1992–1997[a]

Cluster composition	Region	Annual rate of change 1992–1997 (%)	
		GDP	Agricultural product
"Leaders"	Cluster mean	3.42	4.10
Armenia	CIS	2.33	5.16
Georgia	CIS	−0.39	4.4
Albania	CEE	6.41	8.69
Poland	CEE	5.79	1.44
Romania	CEE	1.89	3.6
Slovakia	CEE	4.14	0.54
Slovenia	CEE	3.76	4.88
"Middle-of-the-way"	Cluster mean	−1.49	−2.12
Bulgaria	CEE	−2.89	1.49
Czech Republic	CEE	2.9	−2.19
Estonia	CEE	0.5	−6.52
Hungary	CEE	1.54	−1.53
Lithuania	CEE	−4.28	−1.33
Belarus	CIS	−3.86	−3.81
Kyrgyzstan	CIS	−5.46	−1.76
Uzbekistan	CIS	−0.36	−1.32
"Laggards"	Cluster mean	−8.01	−8.18
Latvia	CEE	−2.01	−11.34
Azerbaijan	CIS	−10.21	−8.01
Kazakhstan	CIS	−5.96	−12.26
Moldova	CIS	−8.96	−4.23
Russia	CIS	−5.76	−5.87
Tajikistan	CIS	−11.73	−11.21
Turkmenistan	CIS	−6.69	−6.5
Ukraine	CIS	−12.74	−6.01

[a] Source: Growth data from CIS (1999) for CIS; EC (1998) for CEE (except Albania); Kodderitzsch (1999) for Albania.

interesting features within each subregion. Cluster analysis based on the two growth measures divides the full set of 23 countries into three well-differentiated groups, as shown by the boundary curves superimposed on the country points in Fig. 2: "leaders", "laggards", and "middle-of-the-way" countries (the details of cluster composition are given in Table 6). On average, the "leaders" show respectable positive growth between 1992 and 1997 by gross agricultural product and by GDP (mean annual growth rate of about 4 and 3%, respectively), while the "laggards" show deep decline (negative growth of −8% per year by both measures). The "middle-of-the-way" countries as a group also show negative growth by both measures, but their decline is much less than among the "laggards" (−1.5% annual rate of change in GDP and −2% annual rate of change in agricultural product).

All three groups include a mixed representation of CEE and CIS countries. Yet the CEE countries clearly gravitate to the two top clusters ("leaders" and "middle-of-the-way" clusters), while most of the "laggards" are CIS countries. Of the 11 CEE countries, 10 are among the "leaders" and the "middle-of-the-way" performers. Of the 12 CIS countries, on the other hand, seven are among the "laggards." Despite the generally superior performance of the CEE countries, the "leaders" include two CIS "stars", Armenia and Georgia, which have done much better than the rest of CIS and most of CEE between 1992 and 1997. Albania, with its exceptionally high growth in GDP and agricultural product, is a "global star" among all CEE and CIS countries. Some of the "middle-of-the-way" countries are close to the "leaders" (see Fig. 2), and a relatively modest improvement of performance over the next 2–3 years will probably elevate them to the group of best performers. But these "leading edge" cases are mostly CEE countries (Hungary, the Czech Republic, and Bulgaria, with Uzbekistan quite unexpectedly the single representative from CIS), and the gap between most CIS countries and the "leaders" is very wide indeed. A major improvement in the performance of the CIS countries will be required to close this gap in the future.

7.2. *Changes in productivity of labor*

Efficiency improvement in agriculture is one of the declared objectives of the transition to the market. Efficiency is properly measured as the ratio of all outputs to all inputs used in the production of the outputs. At this stage, there is no comprehensive database that can be used to estimate the change of efficiency during transition for all 23 countries in the region, and preliminary findings are just beginning to be published for some of the countries (see, e.g., Mishev, 1999; Sarris et al., 1999; Mathijs and Swinnen, 2000; Lerman and Csaki, 2000). As a rough approximation to efficiency measures, we are forced to look at measures of partial productivity, such as output per hectare of agricultural land (partial productivity of land) or output per agricultural worker (partial productivity of labor). Since the total endowment of agricultural land

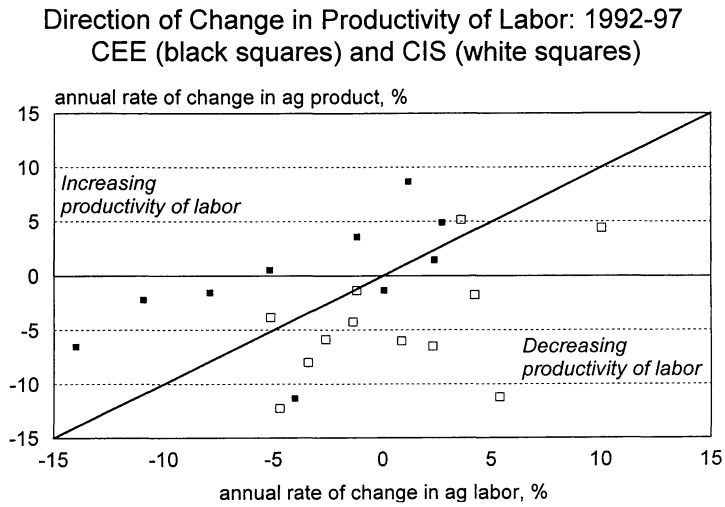

Fig. 3. Direction of change in productivity of labor in CEE and CIS: 1992–1997. Black squares for CEE, white squares for CIS.

remained fairly constant across the region, changes in agricultural output essentially reflect changes in partial productivity of land. Agricultural labor, however, did not remain constant in most countries, and it is relevant to examine more closely what happened to the partial productivity of labor since 1992.

Agricultural labor increased in about half the countries in the region and decreased in the other half (Fig. 3). The downward adjustment clearly outweighed the upward adjustment in CEE, where the average change in agricultural labor between 1992 and 1997 was negative (at an annual rate of about −3%). Estonia, Hungary, the Czech Republic, and Slovakia were among the countries that experienced a particularly sharp reduction in agricultural employment between 1992 and 1997. The decrease in agricultural labor in these CEE countries is associated with the development of alternative employment opportunities outside agriculture for the rural population. In CIS, on the other hand, agricultural labor increased in this period at an average rate of about 1% per year. It would be tempting to attribute the increase in agricultural employment in CIS to the attraction of the greater food security afforded by a plot of land in the village. In reality, however, the increase in average agricultural employment occurred primarily in Central Asia and Transcaucasia — countries with a relatively high natural population growth.

In CEE, the general decline in agricultural labor occurred in a period when the agricultural product stabilized. These two opposing trends translated into a clear increase in the partial productivity of labor in the CEE countries: roughly the same output was being produced by fewer workers in agriculture. In CIS, on the other hand, the overall increase in agricultural labor occurred in a time when the agricultural product continued to decline. This automatically led to a decrease in the agricultural productivity of labor in these countries: a shrinking output was being produced by an increasing number of workers in agriculture. Calculations based on the rates of change in agricultural labor and agricultural output between 1992 and 1997 show that the productivity of labor increased on average by 3% per year in CEE and decreased on average by −5% per year in CIS. There is, of course, considerable diversity among the countries within each region, but only one CEE country (Latvia) shows a significant decrease in agricultural labor productivity, while none of the CIS countries shows a significant increase in productivity of labor (Fig. 3).

8. Divergence and the policy environment

The results presented in Section 7 on growth and productivity support the view that CEE and CIS as

Table 7
Cluster means of selected characteristics for "leaders" and "laggards"

	"Leaders"	"Middle-of-the-way"	"Laggards"
Annual growth rate 1992–1997			
GDP	3.4%	−1.5%	−8.0%
Agricultural product	4.1%	−2.1%	−8.2%
Percentage of land in individual cultivation	62%	39%	20%
Policy reform indices[a]			
ECA	7.1	5.9	5.1
CPIA	6.3	5.9	4.9
Average of five policy-oriented indices	6.0	5.6	4.1

[a] The ECA index is from Csaki and Nash (1998); the CPIA index for individual countries is available only for internal World Bank use (the methodology of calculation is available from the author on request); the other three indices included in the 5-index average are from the journal Euromoney (September issue of each year), Freedom House publications (see, e.g., Karatnycky et al., 1997) and De Melo et al. (1996).

two groups are diverging in time. Given the agricultural focus of our discussion, it is only natural to ask how the clustering into "leaders" and "laggards" is related to the divergence of land reform paths discussed in the first part of this paper. A basic measure of land reform is the percentage of farmland in individual cultivation (see Table 3), which averages 62% for the "leaders" and 20% for the "laggards". These average percentages are given in Table 7, which also summarizes the average annual growth rate in GDP and in agricultural product between 1992 and 1997 (from Table 6), emphasizing the differences in economic performance between the different clusters. Overall, there is a fairly strong association between growth in agricultural product and individualization (compare Tables 3 and 6). Among countries showing agricultural growth, six out of seven have high levels of individual land use (except Bulgaria); among countries with high levels of individual use, six out of 10 show agricultural growth (except the Baltic states and Kyrgyzstan).

However, as noted previously (Lerman, 1999), the exceptions prove that individualization is not a sufficient condition of success. Land reform is just one dimension of agricultural transition. Many other factors may have influenced the observed divergence between "leaders" and "laggards". Agricultural performance may have been constrained by agriculture-related difficulties not directly associated with land reform, such as lack of access to functioning market services (competitive processors, marketers, and input suppliers), or by general obstacles to efficient operation, such as difficulties with legal enforcement of contracts, corruption in various levels of government, barriers to mobility in labor markets. Two indices developed at the World Bank attempt to capture the progress of reforms in additional dimensions. The so-called Europe and Central Asia (ECA) index is specifically geared to agricultural reforms in transition economies. In addition to land policies, it includes assessments (based on expert judgments) of the achieved progress in several areas, such as price and market liberalization for agricultural commodities, privatization of agro-processing and farm input supply, rural financial systems, and development of market-oriented institutional frameworks for agriculture (including land market institutions). The Country Policy and Institutional Assessment (CPIA) Index is based on four groups of policy variables that are not directly related to agriculture: macroeconomic management and sustainability reforms, policies for sustainable and equitable growth, policies for reducing inequalities, and public sector management. The 20 variables collected in these four groups are assessed by a mixture of expert judgments and quantitative techniques to arrive at a measure of progress in economic policy and institutional reforms. For both indices, higher values correspond to greater progress toward a market environment. We see from Table 7 that, on a scale of 1–10, the "leaders" have index values around 6–7, while the "laggards" have index values around 5.

A different set of policy dimensions is reflected by the Freedom House Freedom Index, which includes assessment of democratization and corruption, and by the Euromoney Creditworthiness Index, which assesses the development of financial institutions and the risk level associated with each country's transition policies. These special dimensions of transition, which are quite distant from agriculture and land reform, were incorporated in an aggregate index calculated as the average of five different policy-related indices — the ECA and CPIA indices, the Euromoney Creditworthiness Index, the Freedom House Freedom Index, and the World Bank Liberalization Index. The aggregate index reflecting a wide range of transition policies in and outside of agriculture also gives a substantially higher value for the cluster of "leaders" (6.0) than for the cluster of "laggards" (4.1).

The tangible differences in economic performance between the two groups of countries are thus clearly related to differences in land reform as well as differences in the policy environment. It is very likely that the political, social, and macroeconomic factors characterizing 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 patterns of divergent performance that we observe today. Countries that decisively implement market-oriented policies — in agriculture, in the whole economy, and in society in general — are outstripping the reluctant reformers. Market reforms in general, with land reform as part of the overall policy package, are not a failure in terms of agricultural and economic performance.

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