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Policy Reform and Agricultural Adjustment in Transition Countries

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After the fall of the Berlin Wall at the end of the 1980s, dramatic institutional and economic reforms took place in countries in Eastern Europe and the former Soviet Union. Agriculture was dramatically affected by these changes in policies. There are significant differences among reform policies in transition. However, most implemented substantial reforms in price and trade policies; privatization of property rights of land, farms, and agri-food businesses; and reforms of the institutions governing exchange. In this paper, we review key reforms and adjustments and discuss the causes of the differences between countries. In most cases changes in output, input use, and productivity were caused by a combination of initial conditions and reform policies. These interactions are particularly important in understanding the changes in productivity and labor adjustment patterns.

INTRODUCTION

After the fall of the Berlin Wall at the end of the 1980s, dramatic institutional and economic reforms took place in countries in Eastern Europe and the former Soviet Union. Agriculture was dramatically affected by these changes in policies. Compared to policy reforms in the West, the reform and adjustment process in transition countries is different in that many policies were changed simultaneously and, in several cases, more radically. There are significant differences among reform policies in transition. However, most implemented substantial reforms in price and trade policies; privatization of property rights of land, farms, and agri-food businesses; and reforms of the institutions governing exchange. The effects of these reforms have compounded each other, in some cases reinforcing and other cases mitigating effects on output, productivity, factor adjustments and incomes.

Whatever their differences, the reforms have had very pronounced effects in all transition countries. In this paper, we review key reforms and adjustments and discuss the causes of the differences between countries to the extent possible in a short paper. But first, I will start with a discussion of the pressure and need for reforms.

While the paper makes reference to the reforms in China and Vietnam, most of the focus of the paper is on the transition countries of Europe and the former Soviet Union. I refer to Rozelle and Swinnen (2004) for a broader analysis.

PRESSURE FOR REFORMS

In almost all studies of pre-reform agriculture collective and state farms were found to be inefficient (e.g. Brada and King 1993, Brooks 1983, Lin 1990). Searching for ways to make their economies more productive, reformers had several options for eliminating inefficiencies. First, they could try to provide better incentives to elicit more effort. Second, leaders could try to reduce the operational size of the farming unit to improve information about on-farm production needs. In this same spirit, it was thought that, if planning was reduced by giving more decision making authority to producers, they could produce more efficiently. Third, reformers could try to facilitate the reduction or better allocation of inputs, including labor, that were being wasted. Finally, the removal of price distortions and trade constraints could enhance efficiency. All countries, albeit with differing degrees of emphasis, tried to tap these sources of productivity gains.

In fact, the recognition of the shortcomings of the system and the launching of the wave of reforms in the 1980s in East Asian nations and in the 1990s in CEE and in the CIS nations was not new. Some CEE countries had attempted market-oriented reforms before 1989, mostly in the form of measures that increased enterprise autonomy (Brada and Wadekin 1988). For example, Poland introduced reforms in the management of their cooperatives and state-owned enterprises in the early 1980s.ⁱⁱ Gorbachev and the Soviet Union followed later in the 1980s. Hungary's leaders had gone considerably beyond this and abolished mandatory planning even earlier in 1968. Yugoslavia also had begun to introduce self-management in 1965. In contrast, Czechoslovakia and Romania had little or no history of significant reforms prior to 1988.

Most of the pre-1989 reforms in CEE and CIS nations did not achieve their objectives (Gray 1990, Wegren 2000). Communist leaders had hoped that if enterprise managers had been

given more autonomy in determining output and prices, they would show more profit awareness and increase enterprise performance. Instead, in many cases enterprises started distributing most of any rising value added to workers and managers in the form of wages. With soft budget constraints, enterprises started bargaining with the central authorities for more resources, contributing to macroeconomic imbalances (Roland 2000).

In the light of the earlier failures and in response to the mounting pressures caused by the poor performance of agriculture (among other sectors), reformers after 1989 in most CEE and CIS countries—and earlier in East Asia—decided to make fundamental changes in property rights, in the organization of exchange systems with agribusiness, and in prices and trade policies.

In hindsight, not only are the dramatic reforms after 1989 remarkable, but also that substantial and effective reforms ultimately only occurred after the fall of the Berlin Wall. Communist rule prevented the reforms necessary to yield significant improvements – unlike in China where such changes were introduced by the Chinese Communist leadership.

The reason – as always – for these differences is in the political economy of the reforms and how initial conditions (such as factor endowments, technology, existing policies, etc...) affect the incentives of policy-makers not to pursue reforms. The main difference between the East European and Soviet agricultural situation on the one hand and the East Asian situation on the other hand was the demand for reforms by those employed in agriculture. While in East Asia there existed strong grassroots pressure for radical reforms of land rights and farm organizations, this was much less the case in the European communist regimes.

Key factors behind the differences were (a) the subsidized nature of European Communist agriculture and (b) the vastly different technologies used in labor intensive China and the much more industrialized European agri-food systems. These differences strongly affected the reform-induced adjustments as well as the distribution of benefits of these reforms, both within society and over time. The likely and painful adjustment effects of the substantial reforms that were needed to increase efficiency in European agriculture were probably too dangerous for the Communist leadership in East Europe and the former Soviet Union. It would undermine their legitimacy further and, therefore, substantial and radical reforms did not emerge until a dramatic political change swept away the Communist leadership.

REFORMS

Reforms started throughout the region after 1998, but have varied substantially in scope and speed. The progress in policy reforms is summarized in Table 1. The indicators show several groups in terms of reform progress. The most advanced are Central European countries such as Hungary, Poland, and the Czech Republic, and in the Baltic countries. The CIS are considerably behind, and in particular Belarus, Turkmenistan and Uzbekistan, where reforms are still to commence in some key areas. In the rest of this section we review briefly key reforms affecting agriculture.

Macro-economic Reforms

An essential reform element for sustainable growth is *macro-economic stabilization*, including the reform of fiscal and monetary institutions. Sustained macroeconomic stabilization have laid the basis for institutional change in the more advanced transition countries, while stabilization was jeopardized by the persistence of soft budget constraints in the less advanced countries (EBRD 1999).

Price, Subsidy, and Trade Policy Reform

Agricultural production and food consumption in CEE and CIS were heavily subsidized under the communist system. Macro-economic reforms coincided with price liberalization and subsidy cuts in the early years of transition. The result was major reductions in the support to agriculture (see Figure 1), and food consumption subsidies and, as a consequence, a dramatic decline in terms of trade (see Figure 2) (Liefert and Swinnen 2002).

Since the start of their transitions, all countries have introduced new policies to support agricultural producers, including both domestic support and trade restrictions (OECD 2002, Hartell and Swinnen 1998). The importance of these policies differs considerably between commodities. However, support to farms is significant in some of the countries. In recent years, and before EU accession, agricultural support -- as measured by the PSEs calculated by the OECD -- in the Czech Republic, Slovakia and Romania is close to that of the US, and between one-third and half of the level of support given in the EU. However, for milk, an important commodity which is highly protected in both the EU and the US (PSE levels of 40 to 50%), PSEs were above 30% in several countries, including Hungary, Romania, Slovenia, and the Czech Republic. Agricultural support in Russia is considerably lower. The PSEs are around 10% on average, and 16% for the milk sector. However, this low average number hides important commodity variations. Beef, poultry, and sugar are highly supported. Wheat and other grains are taxed through government policies and domestic trade constraints (OECD 2002).ⁱⁱⁱ

In general, trade liberalization reinforced the domestic price liberalization and subsidy reform effects. International trade was strongly regulated in the centrally planned system. The FSU countries were fully integrated in the Council of Mutual Economic Assistance (CMEA) system, the planned inter-country trading regime, trading mainly with other communist countries. The Central European countries were less integrated, but still a large part of their trade volume went through the CMEA system. Liberalization of the macro-economy and of trade policies caused important changes in trade and financial flows. The changes led to the collapse of the CMEA trading system and a reduction of trade constraints.

Land Reform and Farm Restructuring

There is by now a large literature on land reform and restructuring (e.g. Lerman et al. 2004, Swinnen 1999). Here I just summaries some key aspects. First, in CEECs the process of land restitution to former owners caused major disruptions, but despite its complexity and implementation problems, resulted in stronger and better defined *land property rights* than land reforms in Russia and Ukraine where land was distributed as paper shares or certificates to

agricultural workers. This process caused weak land rights and constrained restructuring in Russia and Ukraine.

Farm restructuring and its effects yield a more complex picture than expected *ex ante*. In some countries a complete break up of the collective farms occurred and a dramatic shift to individual farming has taken place. In others the opposite has happened and large corporate farms have become the dominant institutions. The variation reflects differences in incentives and costs of restructuring, caused by policies and structural conditions (Mathijs and Swinnen 1998). In many countries a dual farm structure has emerged with some large-scale farms and many (very) small-scale individual farms (Sarris et al. 1999).

Privatization of Agribusiness and the Food Industry

Another important reform for agriculture is *privatization* of companies involved in supplying inputs (fertilizer, pesticides, etc.) and credits (banks) as well as food processing and distribution companies. The privatization procedures have differed significantly between countries. In a review of the successes and failures of privatization, Kornai (2000) concludes that privatization strategies directed at selling of state companies, preferably to majority ownership structures, such as in Hungary, has been more successful than privatization strategies based on some form of free distribution of property rights in state-owned companies among the country's citizens. The latter has mostly led to insider privatization in which managers collected a large share of the assets, as in the Czech Republic and more extremely in Russia, while the previous has stimulated the emergence of many small enterprises and the inflow of capital. This had a positive impact on the performance of the entire agri-food sector in e.g. Hungary, also because much of the capital inflow came from foreign investments.

EFFECTS AND ADJUSTMENTS

Change in Output and Input Use

The reform effects were dramatic. When looking at the transformation of the agri-food sectors and policies one observes both similar characteristics and diverging patterns. Figure 3 illustrates how all countries have gone through an initial output decline. However, after the initial decline, output evolutions diverge. The output fall has bottomed out in the mid 1990s in many CEECs, and started recovering in some, while agricultural output has continued to fall for much of the 1990s in Russia, Ukraine and some other Newly Independent States (NIS).

The 1998 financial crisis in Russia represented the worst moment. Since then recovery has set in Russia, as well as in Ukraine, and Kazakhstan. Agricultural production has grown continuously. While livestock production stabilized, crop production increased by 30% between 1998 and 2001 in Russia and by more than 20% between 1999 and 2001 in Ukraine.

The initial decline in agricultural output is primarily caused by a combination of institutional disruptions and subsidy cuts (Macours and Swinnen 2002). First, reduced domestic demand with falling incomes and subsidy cuts was reinforced by falling foreign demand due to trade liberalization and the shift to hard currency payments for imports. The impact of the terms

of trade effect was significant. Macours and Swinnen (2000) estimate, based on data from eight CEECs, that this factor caused 40-50 per cent of the decline of crop output over the 1989-1995 period. Second, the socialist system left a badly distorted system of input, output, and trade. The reorganization of this system, and the institutional changes associated with it, caused major disruptions and thereby declines in investment and output. Or, as Kornai (2000: 4) put it more simply: 'Correcting this structure called for creative destruction. Because destruction is rapid, whereas creation proceeds more slowly, the two processes led to a deep recession'. In agriculture, the negative effect of institutional disruption reinforced the declining terms of trade effect.

The impact on consumers was mixed: real food prices increased, but access to higher quality food products increased – directly through imports and indirectly through enhanced competition which forced domestic food companies to improve standards.

Trade liberalization also reinforced the reallocation of production activities caused by the abolition of central planning – in fact, one could think of the CMEA as the international version of the domestic central planner. Traditional international production allocations were no longer possible when trade had to be financed by hard currencies and when inputs were accounted for at real costs. The result was international production reorganization.

One effect is that trade between the CEECs and the EU has intensified very strongly over the past decade (see further). Growing exports to Western markets have contributed to the recovery in CEECs. Another important development was the shift from centrally imposed extreme specialization (e.g. dairy production in the Baltics and cotton production in Central Asia) to more diversified production systems, thereby increasing domestic production of staple foods and reducing dependency on single commodities.

Transition caused major changes in input use. Capital inputs declined strongly, in particular fertilizer. Fertilizer use, initially highly subsidized, declined by 80% on average in transition countries. In contrast, however, labor adjustments differ strongly between countries. During the first five years of transition, labor employment in agriculture declined dramatically (around 50%) in the Czech Republic, Slovakia, and Hungary (Figure 4). In contrast, agricultural employment increased in countries such as Russia and Ukraine. The most dramatic labor inflow occurred in Central Asia. For example in Kyrgyzstan agricultural employment increased by 60%. Before exploring the differences in labor adjustments, which are a crucial adjustment process, we first review some other factors.

Productivity Effects

In those countries which have implemented the necessary reforms, productivity has increased since the early to mid 1990s. After a few years, several CEE countries begin to experience rising productivity, measured either as labor productivity (ALP), yields, or total farm productivity (TFP). For example, Figure 5 illustrates how yields have increased dramatically in the CEEC agri-food sectors since 1993. This increase in yields has driven recovery. Productivity in Central Europe rises even as output falls, primarily because inputs fall even faster. Hence, when critics of the transition in CEE nations point to the collapse of output as an indicator of poor economic performance, it is not clear that they always have a valid point. According to the TFP measures, the efficiency of producers of a number of CEE transition nations improves significantly a few years after start of transition. Such a pattern not only characterizes Central

European countries but also several Baltic and some Balkan countries (Macours and Swinnen 2000, Macours and Swinnen 2002).

The record is less positive in the CIS where yields started recovering much later (Figure 6). Output and labor productivity fall sharply in almost all CIS countries during most of the first decade of reform. Hence, according to both partial and most full measures, productivity during the first ten years of reform fell in most CIS nations. Despite this, there is evidence that TFP increases in some Transcaucasian countries, such as Armenia and Georgia^{iv} (Rozelle and Swinnen 2004, Lerman et al. 2003).

In addition to productivity, product quality has increased strongly in CEECs. This is due to a combination of public regulations on hygiene and minimum quality standards and private sector investments throughout the agri-food chain.

Causes

The large efficiency differences between countries is mostly due to policies. First, where land rights were clearly defined and where farms were forced to restructure and budgets were hardened, productivity increased while elsewhere efficiency declined during transition.

Second, an essential ingredient in the recovery is the development of institutions for contract enforcement and access to capital. An important source of increased productivity in CEEC agriculture is the emergence of new institutions for information, product exchange and contract enforcement. Pre-transition systems were strongly vertically integrated. The central planner provided information and enforced contracts between various agents in the chain. The removal of the central planning and control system, in the absence of new institutions to enforce contracts and to distribute information and finance caused serious disruptions throughout the economy.

New enforcement institutions have come in a variety of forms. Frequently, the most successful ones have depended on private enforcement mechanisms within the framework of contracts or institutional arrangements. Contracts between private agents act as substitutes for missing or imperfect public enforcement institutions (McMillan 1997, Gow and Swinnen 2001).

Successful institutions have offered enough flexibility to allow producers, suppliers, and buyers to adjust to the continuously changing environment during transition. For example, while land lease contracts initially often took the form of short (one-season) informal contracts, gradually they have evolved into more formal and longer-term contracts, reflecting reduced uncertainty and improved understanding of the market environment by both the owner of the land and the tenant. Leasing of equipment is another example of an institutional innovation adapted to transition as it mitigates farms' collateral problems in financing new equipment.

Vertical integration, often following investment from outside the sector, has played an important role in the reemergence of the institutions of exchange and contract enforcement (see further). Preliminary evidence suggest that this process also plays a key role in the recovery in Russia and other NIS (Rylko 2001, Liefert and Osborne 2003).

Third, macro-economic stabilization and the general reform progress have improved access to foreign capital, technology and know-how, and also to domestic credit and capital

sources for the farms. Credit markets have worked notoriously imperfectly. Disruptions due to privatization and overall restructuring caused major problems for farms, not only for investment purposes but even for working capital. These resulted in reductions in output; and the success of the recovery in some CEECs is at least partially due to improvements in the general economic climate which improved the working capital situation for the farms.

Such reforms require a fundamental redefinition of the role of the state. However, in countries such as Russia the state initially did not take on a different role, but merely withered away in many important aspect. The state was unable to fulfill some key roles for the development of a market economy, such as establishing the rule of law, collecting taxes, and establishing the basic conditions for macro-economic stability (Schleifer 1997). For example, estimates put the share of transactions which are carried out as barter (mutual non-payment) or with money substitutes at 75-85 per cent in Russia in the 1990s (Bruszt 2000).

These general reforms have strongly affected the climate in which the agricultural transition has taken place. For example, the inflow of foreign investment and the associated inflow of technology, know-how and capital in the agri-food chain have been most important in CEECs where the progress of the general reforms, the macro-economic situation, and the prospect of EU accession have created an environment more conducive to investments.

Fourth, capital inflows from the West, in combination with integration in WTO and regional trade agreements have contributed to macro-economic stability and policy credibility in *those countries where basic reforms had been implemented*. This factor, in the framework of the Association Agreements with the EU and the expectations – and conditions – of future accession to the EU has played an important role in Central and Eastern Europe. These factors also had an important, and reinforcing, positive impact on growth indirectly through their stimulating impact on foreign direct investment.

Obviously, liberalized capital flows and trade can also reinforce domestic instability when the fundamentals and policy credibility are not there. This is illustrated by the 1998 Russian financial crisis. (Interestingly, the associated devaluation -and the simultaneous rise on world oil and mineral markets- is credited for providing the initial stimulus for the turnaround of the Russian agricultural and food economy.)

Fifth, foreign direct investment (FDI) has played a key role in stimulating strong and sustainable productivity growth in the CEEC agri-food economies since 1993. For example, with the exception of Poland where the government has stalled the sugar sector privatization program, the entire sugar processing sector in Eastern Europe is now in Western hands. Investments in other sectors are equally impressive. FDI in Russia and Ukraine started later, but picked up in recent years.

Foreign investments in the food industry and agricultural input supply industries have created important and lasting productivity gains and institutional innovations throughout the food chain, with important spill-over effects on domestic companies and on farms, and thereby rural households. This has happened through a process of growing vertical integration.^v

In search for guaranteed and high quality raw materials (or product markets), agribusiness firms and food processing companies have offered farms a number of arrangements to encourage greater production and marketing and to overcome constraints that have limited economic activity since the onset of transition (Gow and Swinnen 2001). For example, food processors have negotiated contracts with banks and input suppliers to provide farms with inputs

that enable them to deliver high quality products to their company. Similar, input supply firms have been involved with assisting farms to find guaranteed outlets for their products in order to stimulate farms' demand for the company's products.

In a study of the impact of vertical integration following FDI in the Polish dairy sector, Dries and Swinnen (2003) find strong evidence of strong spillover effects, both vertically and horizontally. Foreign investors played an important role as initiators of institutional innovations in contracting and farm assistance programs. Important spillover effects have occurred and major innovations have spread through the agri-food system due to replications by domestic companies. These programs resulted in significant increases in investment, access to finance, yields and product quality for the dairy companies supplying to the dairy processing companies. Importantly, these programs also benefited very small farms. The dairy companies assist their small suppliers in improving milk quality, through advice and investment support, and in upgrading their equipment and cattle stock, through leasing and credit assistance.

Finally, labor migration has contributed to growth in several transition countries. Workers from Central European countries have migrated to the EU, and are increasingly taking up important segments of the labor force. Examples are construction work, service jobs and seasonal agricultural work (both formal and informal). These developments are most prominent in places close to the CEEC, such as Germany, Austria, Italy, and Greece. At the same time, workers from further East, such as Ukraine, have migrated to Central Europe. The most extreme migration effect is in Albania, where one-third of the workforce emigrated to neighboring European countries, in particular Greece and Italy, contributing strongly to growth and food security in Albania – the poorest country in Europe – mostly through remittance payments.

LABOR ADJUSTMENTS AND CAUSES

As I explained above, labor adjustments have varied strongly between countries (Figure 4). I first review important causal factors and then identify some “patterns of labor adjustments”.

Price liberalization and subsidy cuts had an important negative effect on demand for labor in agriculture in all CEECs. This reduction in demand was offset by an increase in labor demand as price liberalization also caused changes in the relative factor costs. In particular, prices for other inputs (especially capital inputs) increased relative to wages. The latter caused a substitution of labor for other inputs and contributed to the increase in agricultural employment during transition.

Employment opportunities in other sectors are obviously important. When there is large unemployment, people are unlikely to leave agriculture, even when farm incomes are low. However, empirical evidence shows that the relationship between off-farm employment and rural labor mobility is weak. For example, in Poland the reallocation of agricultural labor to the rest of the economy reacted only slowly, at best, to improvements in the general economy.^{vi} The weak relationship between agricultural employment and general unemployment is confirmed by looking at regional developments (Dries and Swinnen 2002). What is constraining this reallocation of rural labor, important for rural development, and for labor productivity growth and restructuring of agriculture? There are several reasons for this. One has to do with the farm restructuring process; another with characteristics of the rural labor force, and yet another with mobility costs between jobs.

Gardner (2000) shows how the integration of the rural economy in the general economy, in particular concerning the integration of labor and capital markets is a key factor contributing to income growth in agriculture. Integration of rural factor markets in the general economy and reduction of factor market imperfections has several effects on employment.

On the one hand it increases incomes in agriculture, and therefore demand for labor. A key factor is access to capital. *Rural credit and access to finance* is an important constraint, both for farm restructuring and the creation of non-farm rural employment. Rural financial services are underdeveloped. Rural firms face severe obstacles in obtaining finance as a result of collateral requirements, high interest rates and shortage of bank funds (EBRD 2002). Similarly, farm surveys conducted in Central Eastern Europe identify shortages of capital and unavailability of rural credit as major constraints on farm development.

Integration of rural factor markets in the economy also facilitates the outflow of labor by the stimulation of off-farm rural activities, and by reducing *labor market constraints*, and hence mobility costs for people to move to other sectors and regions. In transition countries, we find that general reforms and liberalization which reduced intersectoral mobility costs had an important impact on labor adjustments in transition countries (Swinnen et al. 2004)

Spatial considerations are important here. In countries where the rural areas were mainly organized around collective and state farms and where non-farm employment opportunities are concentrated in cities, finding off-farm employment may imply moving geographically for households. In other countries where off-farm employment is closer to farms and available in rural areas, job reallocation may be possible without moving houses. These differences affect mobility costs, and hence, household decisions. Studies show that lack of housing in urban areas or other factors, such as barter on farms, are important constraints on rural labor mobility.

Important constraints on labor reallocation are the structural characteristics of the labor force. As much as 43% of agricultural employees in Poland have only elementary and lower education (compared to 16% in construction, 13% in industry and 8% in services) and 33% basic vocational education. Leiprecht (1999), using labor survey data, finds a strong relationship between the level of education and the likelihood of finding another job in the service sector or in industry. In particular those with the lowest level of education are handicapped in their attempts to find alternative jobs. We find the same unfavorable labor characteristics in other countries, such as Slovenia. Interestingly, in some of the countries where major labour outflows took place, the agricultural labour force seems less disadvantaged. For example, only 19% of agricultural employment in Estonia is 55 years or older, compared to 13% of the workforce in construction. Also, with respect to the level of education, the intersectoral differences are small in Estonia. (see Figures 7 and 8).

Inadequate human capital is a very important constraint, not only for agricultural labor restructuring, but more generally for business development and economic activities in rural areas. Empirical studies confirm that in transition countries education is positively correlated with enterprise development, both farming and non-farming. Better education increases the probability of a business start-up and the efficiency of the enterprise. Studies find a non-linear relationship between human capital and farming activities. For example, the impact of education on the development of new farming enterprises is non-linear because beyond a certain level of education individuals tend to leave agriculture and choose for non-agricultural employment (Rizov and Swinnen 2004).

The reorganization of the farms strongly affected labor adjustments. The outflow of labor is strongest in countries such as the Czech Republic, Slovakia, Estonia and Hungary where large-

scale farms have remained important in agriculture. The shift to individual farms is much stronger in transition countries such as Romania, countries which experienced an inflow or preservation of the labor force in agriculture. The break-up of the collective and state farms in labor-intensive agricultural production systems in these countries induced strong gains in labor efficiency. These efficiency gains have reduced the outflow of labor from agriculture.

In contrast, reformed collective and state farms with independent company management have laid off a large amount of workers, beyond those that voluntarily left the farms for other employment.^{vii} Moreover, the difference between the Czech Republic, Slovakia and Hungary versus Poland and Slovenia can be attributed to this factor. Both Poland and Slovenia are characterized by a domination of small family farms, even pre-reform. These structures have reduced the outflow of labor.

The importance of this factor is illustrated by Figure 9 which shows for Poland that there is a strong correlation between the regional outflow of labor from agriculture and the importance of state farms in the region at the outset of the reforms. In other words, family labor on small private farms has mostly stayed in agriculture, while many workers employed on the large state farms have been laid-off in the process of privatization and transformation of these state farms. The increase of agricultural employment in some regions (such as the South-East) is due to workers being laid-off in other sectors, such as heavy industry, returning to small farms with which they have a family-connection.

What is remarkable is that, as a consequence of this process, labor intensity in farming is not converging across different regions in Poland – and probably different farming regions across Eastern Europe, but instead diverging. Labor use has reduced significantly in those regions where labor intensity was lower already at the start of transition. Many of the farm workers which were laid-off were not able to find alternative employment in the first years of transition. The importance of the "push factor" (former state farm worker lay-offs) in determining labor adjustments in Polish rural areas is consistent with the fact that, with the exception of the South, most labor outflow occurred in regions where unemployment rates are higher than in the regions with less outflow.^{viii}

Food security or, more generally, social security considerations played an important role in household strategies regarding labor allocation to farming. In low income transition countries, household farming provides food and social security. This household security strategy limits the outflow of labor from agriculture in the poorer countries and coincides with the growth of individual and household farms. This is in contrast to higher income countries such as the Czech Republic, Slovakia, and Hungary where the state provides more extensive social security and unemployment benefits, pensions etc. For example in the Czech Republic and Slovakia, about half of the farm workers retired (OECD 1999), and in Estonia a large share were laid off and became unemployed (see Figure 10).

Patterns of Labor Adjustment

The combination of these factors has contributed to different patterns of transition in the labor market. To illustrate the dynamics of the labor adjustments and the differences among countries, Figure 11 presents the various countries positioned in a two-dimensional labor-farm restructuring framework. Among the countries that all start from a similar initial conditions (*i.e.*

less than 10% of land used by individual farms at the outset of the reforms (this excludes Poland and Slovenia)), we can identify clearly distinct patterns.

One pattern includes the Czech Republic, Estonia, and Hungary (CEH). In these countries transition has first induced massive agricultural labor shedding while many of the large-scale corporate farms continued to dominate agriculture. At the start of transition (year 0) the CEH countries had an average of 10% of land used by individual farms. After four years of transition, on average, agricultural employment had fallen by almost 50% while corporate farms continued to use 75% of land. Only in the second transition phase (year 4-8) there is a significant shift to individual farms: more than 50% of the land is now used by individual farms while labor shedding continues, but at a reduced rate.

A different path was followed by countries such as Romania, Lithuania, and Latvia (RLL). In these countries, which start from the same position as the CEH group, there is an immediate and dramatic shift to individual farms, while labor use increases on average in agriculture. After 4 years individual farms use 65% of the land and labor use has increased by 8% on average. In the second transition phase, the shift to individual farming continues to increase, albeit slower, and there is a turnaround in labor use: employment in agriculture falls in all countries (on average by 10%).^{ix}

These differences in adjustment paths are due to a combination of initial conditions and reform policies. In terms of initial conditions, CEH has a higher level of development than RLL (reflected in higher income and lower share of agriculture in employment). The lower level of development and income makes it more likely that farm workers will shift to individual farms for food and social security reasons. This process is reinforced by the higher labor intensity in RLL, which stimulates a shift to individual farms because it both reduces the disruption costs and potential scale diseconomies of farm restructuring and increases the benefits of shifting to an organization with better labor management. Furthermore, government regulations have been more conducive to the move to individual farms in RLL than in CEH. For example, in Latvia there was a strong government policy directed at breaking up the collective farms which were seen as bastions of communism (Rabinowicz 1997), while in Romania the shift to individual farming occurred partly spontaneously with collective farm members breaking up the collective farms and forcing governments to follow with regulation. In combination these factors that caused a shift to individual farming have also contributed to a slower reduction of agricultural employment in RLL compared to CEH. In the latter group reformed corporate farms have laid off many workers.

These differential adjustment procedures have been reinforced by two other differences. First, the relative decline in labor costs vis-à-vis other inputs was - 65% in RLL compared to only - 26% in CEH, providing much stronger incentives for input substitution through labor in RLL. Second, the considerably stronger progress in liberalization of the overall economy in CEH reduced mobility costs to other sectors more than in RLL.

CONCLUDING COMMENTS

The transition countries have gone through dramatic changes of their agricultural systems with major reforms of policies and institutions. Because many of the changes occurred more or less simultaneously it is difficult to relate cause and effects. The analysis here indicates that some of the impacts were rather straightforward, but many effects were complex and interacted with other changes.

In most cases changes in output, input use, and productivity were caused by a combination of initial conditions and reform policies. These interactions are particularly important in understanding the changes in productivity and labor adjustment patterns.

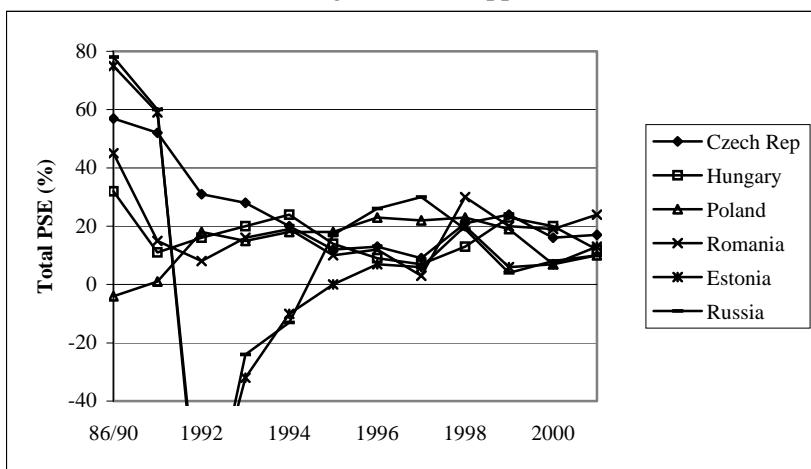
Finally, an important issue which I started off with but which was not further developed is the political economy of the reforms. I discussed why the reforms did not take place earlier despite major and obvious inefficiencies. However the important questions on why particular reform choices were made for various specific reforms is not addressed, partly due to reasons of space^x, and partly because our understanding is still weak in this field.

TABLE 1: Reform progress in 2001

	Agric. reform index (2001)		Agric. reform index (2001)
Czech Republic	9.2	Belarus	1.8
Hungary	9.2	Moldova	6.0
Poland	8.0	Russia	5.8
Slovakia	8.2	Ukraine	6.0
Central Europe	8.7	European CIS	4.9
Albania*	6.8	Kazakhstan	5.8
Bulgaria	8.0	Kyrgyzstan	6.2
Romania*	6.6	Tajikistan	4.8
Slovenia	9.2	Turkmenistan	2.0
Balkan	7.7	Uzbekistán	3.4
Estonia	9.0	Centr Asian CIS	4.4
Latvia	9.0		
Lithuania	8.0		
Baltics	8.7		

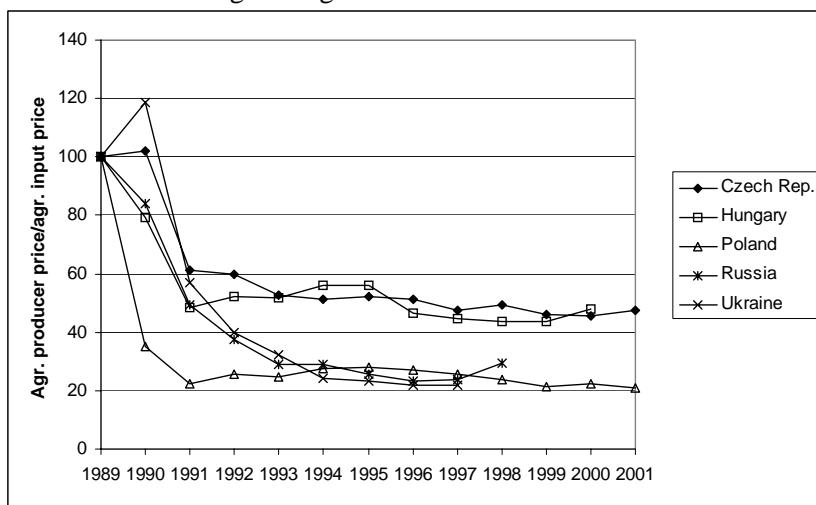
Notes : * Data are for 1999

FIGURE 1: Evolution of agricultural support (PSEs 1986 – 2001)



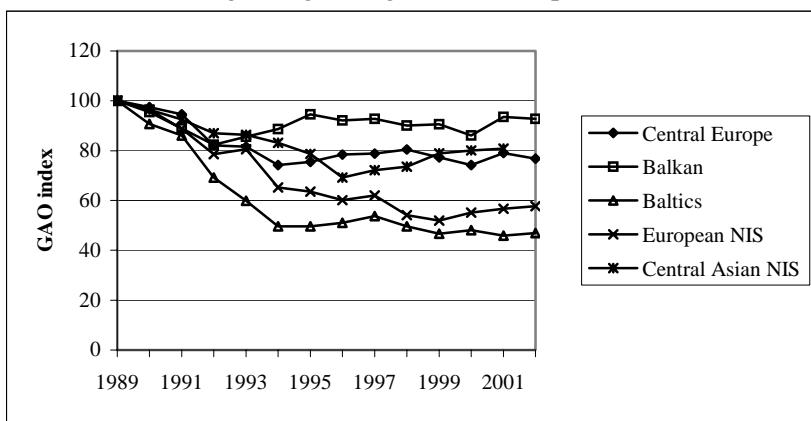
Source: OECD

FIGURE 2: Changes in agricultural terms of trade since 1989



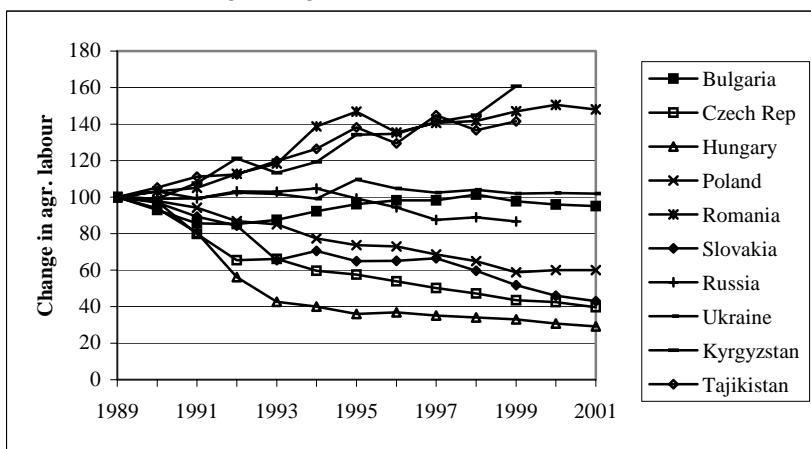
Source: Own calculations based on OECD

FIGURE 3: Changes in gross agricultural output (GAO)



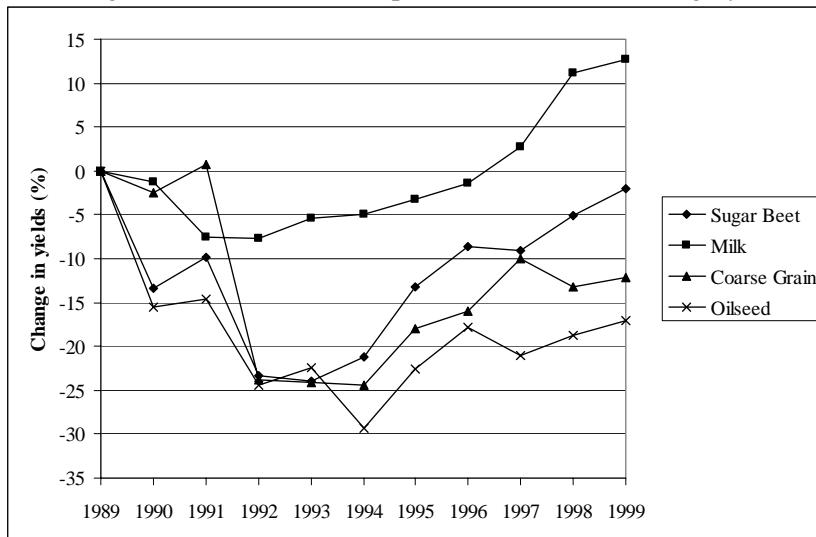
Source: Indices based on FAO and OECD data

FIGURE 4: Change in agricultural labor use



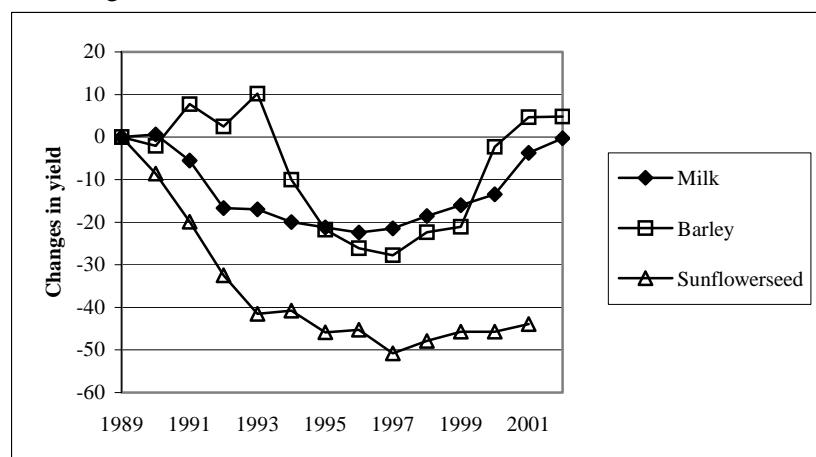
Source: Own calculations based on ILO and Lerman (2003)

FIGURE 5: Changes in yields since 1989 in Central Europe
(Average for Poland, Czech Republic, Slovakia and Hungary)



Source: Own calculations based on data from FAO

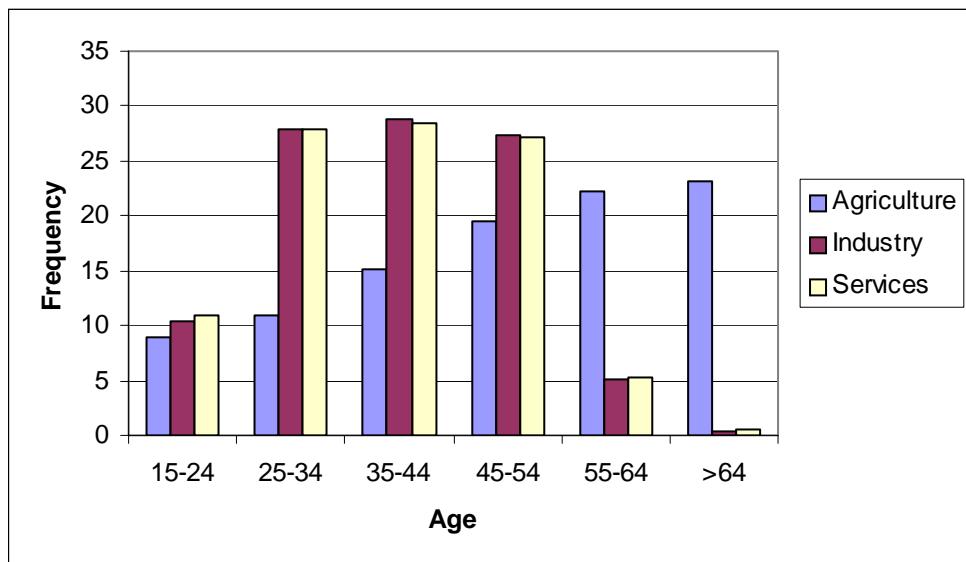
FIGURE 6: Changes in yields since 1989 in CIS-3*
(Average for Russia, Ukraine and Kazakhstan)



Notes: Milk data exclude Kazakhstan; Moving average for Barley and Sunflower seed yield
Source: USDA

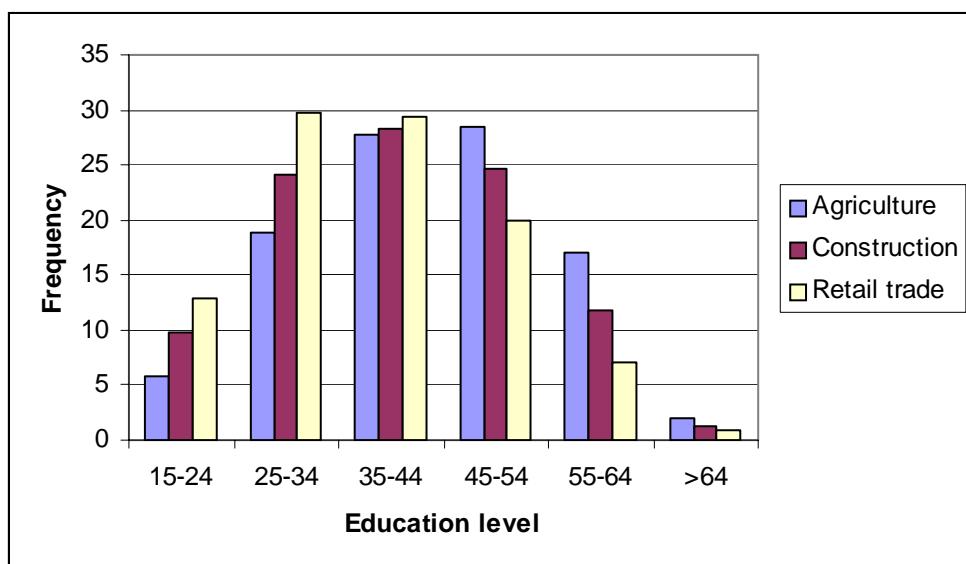
FIGURE 7. Age Distribution by Sector in Slovenia (1999) and Estonia (2000)

7a Slovenia



Source: Slovenian Labor Force Surveys.

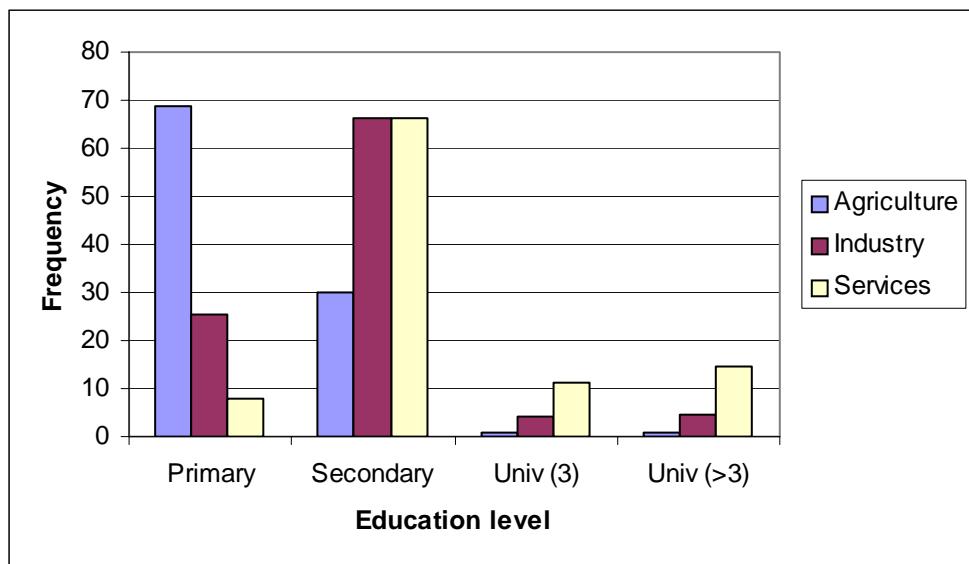
7b Estonia



Source: National Statistics of Estonia.

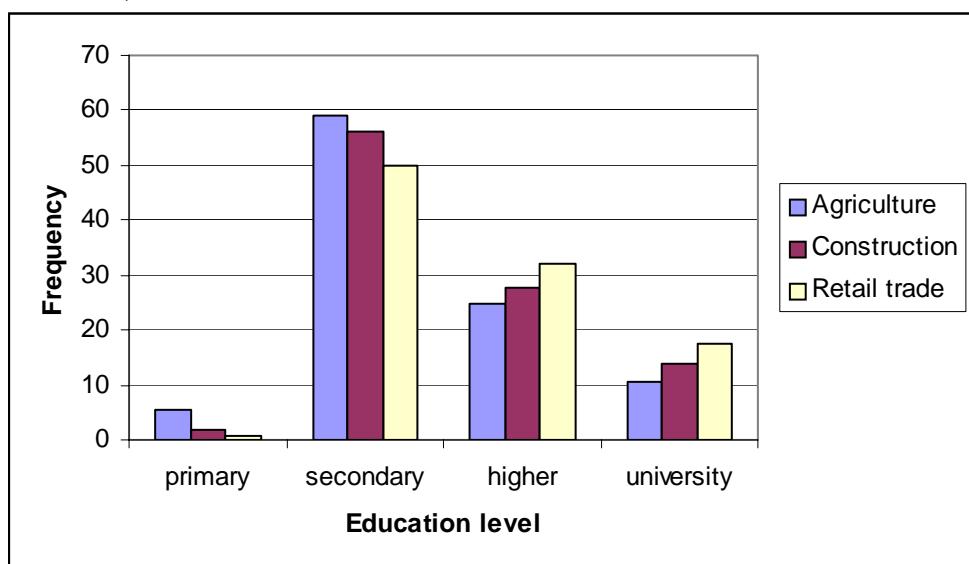
FIGURE 8. Sectoral education levels in Slovenia (1999) and Estonia (2000)

8a Slovenia



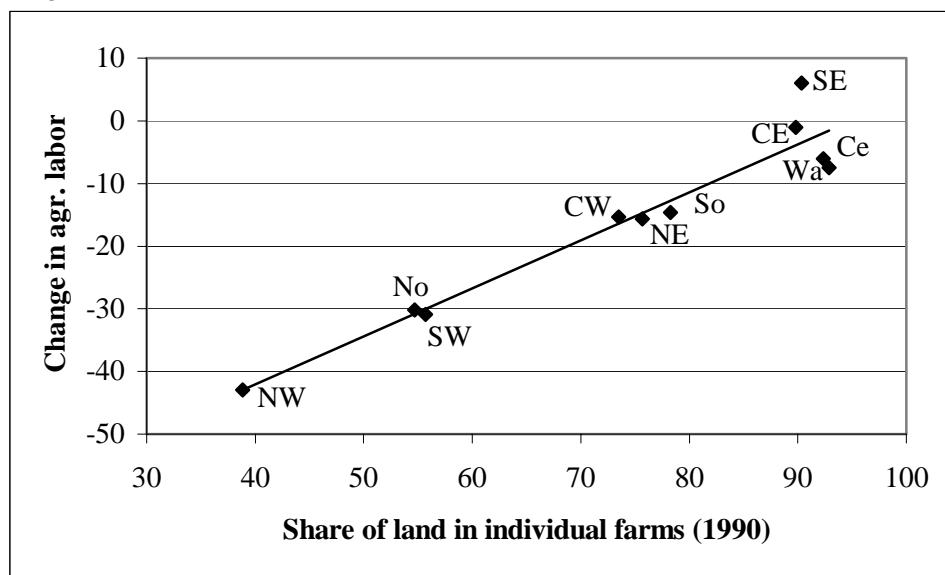
Source: Slovenian Labor Force Surveys.

8b Estonia, 2000



Source: National Statistics of Estonia

FIGURE 9. Initial farm structure and change in agricultural employment (1990-1997) at the regional level in Poland



Source: Dries and Swinnen 2002.

FIGURE 10: Change in agricultural employment and rural unemployment in Estonia

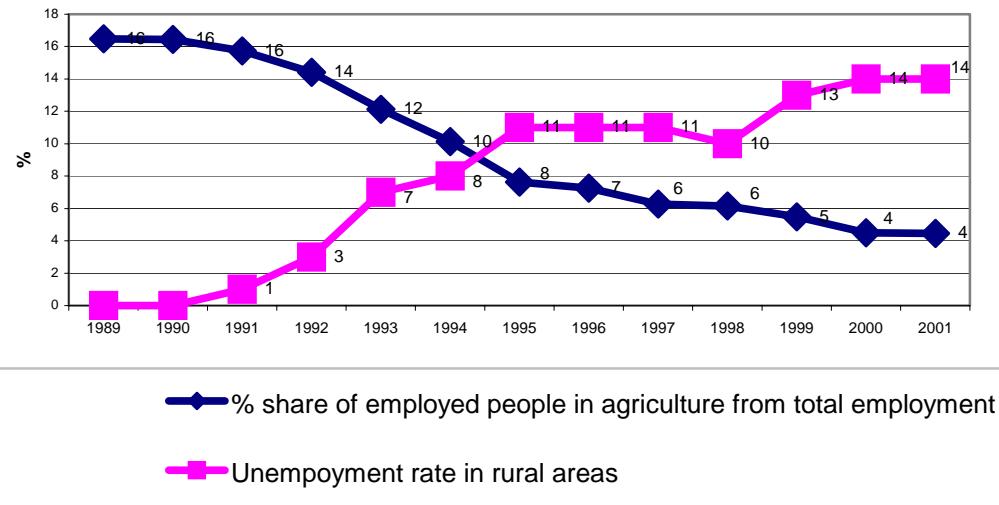
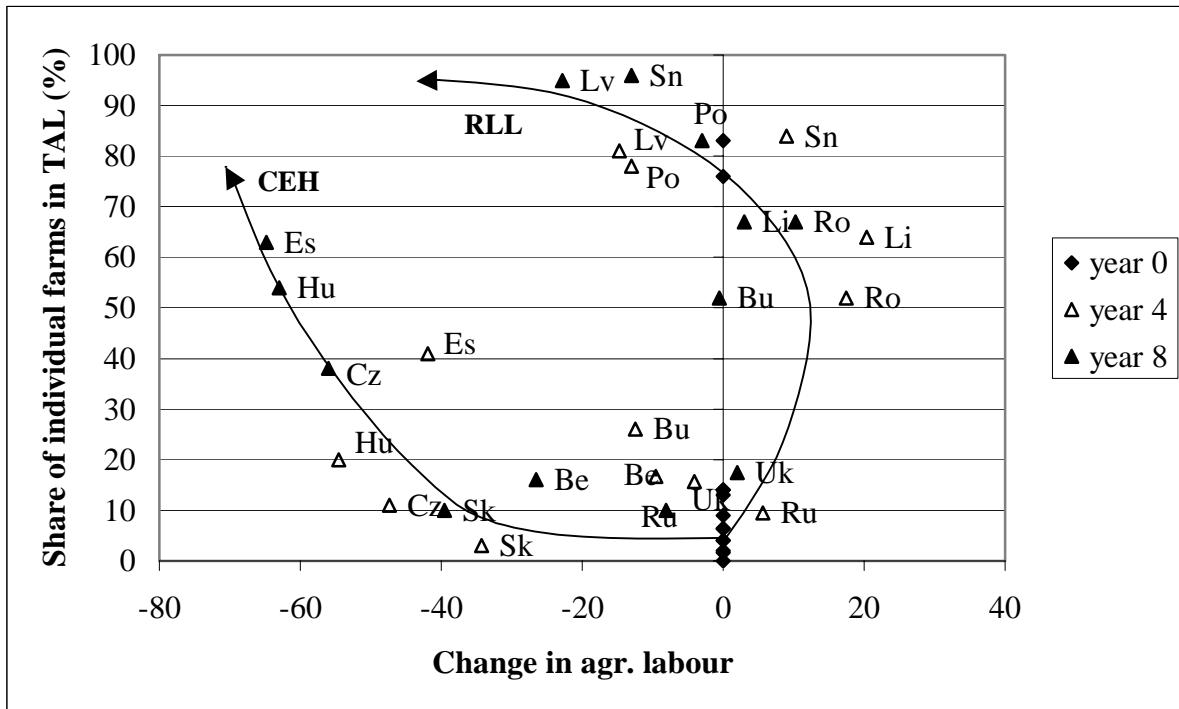


FIGURE 11. The Dynamics of Labor Reallocation and Farm Restructuring in Transition



Source: Swinnen *et al.* 2004.

^a start of the reforms in CEEC = 1989, in FSU = 1990; 8 years after reforms is 1997 for CEEC, except Slovenia (1996), and 1998 for FSU.

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NOTES

ⁱ J. Swinnen is Lead Economist, The World Bank, and Professor, Department of Economics, Katholieke Universiteit Leuven. The analysis in this paper relies on work I have done with various co-authors over the past years and I refer to publications (see www.prgleuven.be) for details on some of the issues and arguments which I will forward here somewhat (too) briefly to do justice to their complexity of the issues. Assistance from Mark Ludwick, Liesbeth Dries and Eleni Kaditi in the preparation of this paper and many discussions with Karen Macours, Hanish Gow, and Scott Rozelle are gratefully acknowledged. This paper has been prepared for presentation at the IATRC Summer Symposium, Philadelphia, June 6-7, 2004.

ⁱⁱ In Poland and Yugoslavia the farm sector remained dominated by private family farms throughout the Communist regime. Hence reforms targeted other parts of the agri-food system.

ⁱⁱⁱ Instruments of support vary importantly as well. In countries such as Russia, Bulgaria, Romania, Slovenia, Latvia and Poland, 60% or more of total pre-accession support is market price support. In contrast, in Hungary and Slovakia market price support only accounts for 10% of total support. Most support in Hungary is under the form of input subsidies. Liefert et al (2003) point out that three types of policies are important in Russia: restrictions on imports, production subsidies, and controls by regional governments. The latter is a peculiar problem because of the size of Russia, and which is especially important for grain exports.

^{iv} TFP studies on Russia and Ukraine provide a mixed picture for the second half of the 1990s.

^v What is remarkable about the policy debate on enlargement and the CAP over the past years is the limited attention that has been paid to agribusiness and the food industry. While policies such as SAPARD have attracted major attention of policy-makers and officials, private investments in the food industry by domestic companies and multinationals have been vastly more important drivers of change and growth in the agri-food chains, including farm-level restructuring and productivity and quality improvements.

^{vi} Since 1992 the general economy was characterised by strong growth (average of 5.2 % annually between 1992 and 1998), and, with two years delay, by an impressive decline in unemployment: from 14.4% in 1994 to 10.6% in 1998. Yet there was little effect on agricultural labour, despite low or negative growth in agriculture. After 1998, unemployment has been rising again in Poland (16.1% in 2000), although GDP continued to grow strong.

^{vii}This development is also related to the privatisation process and the land and asset ownership distribution. In transformed collective farms where workers were also members owning land (or other assets) it was more complicated laying surplus workers off than in transformed state farms where workers did not own assets and managers could lay them off more easily.

^{viii} There is an interesting question then why workers formerly employed on state farms stayed unemployed rather than taking up self-employment as individual farmers, as was the case with workers laid-off in industries who returned to farming in the south-eastern regions, or with labour who stayed "under-employed" on the family farms. The reason has probably to do with capital in various forms: human capital, social capital, and access to financial and physical capital. Former state farm workers may lack both the practical and managerial experience (specialised tasks in state farms) to start up individual farming. Furthermore, physical capital (land and machinery), needed for the exploitation of a farm needs either to be leased or bought. The uncertainty of

future returns due to the relative price shocks and the investments necessary for the start-up of a farm may make the difference between unemployment benefits and expected agricultural earnings smaller than in the case where you already have a farm and thus no supplemental investments are needed. Having a farm in the family thus substantially reduces costs for taking up or continuing farming and decrease the probability of agricultural labour outflow to unemployment. Social capital plays a role as industrial labour returning to agriculture was mostly family-connected with the family farms and therefore had easier access to capital and land needed for farming.

This is consistent with observations from Romania, where more new farms were started up in regions that already had a tradition of private farming before 1989, that is, where institutions and a culture conducive to private farming were already in place. Further, better access to physical infrastructure, such as roads, transportation facilities, etc. is correlated with more enterprise start ups in Romanian agriculture (Rizov *et al.*, 2001).

^{ix}Russia and Ukraine form a third path, one of relatively little adjustment (see Swinnen, Dries and Macours, 2004) for a discussion.

^x See Swinnen (1999) and Swinnen and Heinegg (2001) for analyses of the political economy of land reforms; and Roland (2003) for a broader discussion of political economy of transition reforms.