Johan F.M. SWINNEN, Pavel CIAIAN

LICOS Centre for Institutions and Economic Performance University of Leuven & Centre for European Policy Studies (CEPS)

GROWTH, COMPETITIVENESS AND CONVERGENCE IN ROMANIAN AGRICULTURE[1]

INTRODUCTION

EU integration is widely seen as a driver of income convergence between Romania and the other Member States. It is assumed that by catalyzing structural reforms and injecting significant capital the EU would unleash Romania's growth potential and would foster its catching-up. The prevalence of rural areas that still derive their main income from agriculture is currently one of the main deterrents to growth that need to be overcome.

The income gap between Romania and the other EU countries is large. Romania's GDP per capita is only 34% of the EU–25 average or 32% of the EU–15 average. Disparities are even wider in the agricultural sector, where the per capita income in Romania is 13% of the EU–25 average and 9% of the EU–15 average.

However, Romanian agriculture remains a very important sector, not just for Romania itself but also for the EU. Poland and Romania are the two largest agricultural economies of the twelve new EU member states (NMS), after Poland, both in size and population.

Agriculture in Romania accounts for around 9% of GDP, and a startling 32% of employment. The latter is much more than in other NMS where the average is around 9% and a huge difference with the EU–15 where the average is 4%.

It has by far the most people employed in agriculture: around 2.8 million people.[2] In fact the Romanian agricultural labour force is equivalent to 46% of that of the entire NMS and contributes a huge 23% of the total agricultural employment in the enlarged EU of 27 countries.

The agricultural growth is affected by the bipolar farm structure. Some 40% of the agricultural land is concentrated with a highly effective and competitive farm segment. These 15,000 holdings are expected to capture the chunk of the accession

[1] Paper prepared for the World Bank and presented at the Conference on "Growth, Competitiveness and Real Income Convergence", Bucharest, April 21–22, 2008, Version: 30 May 2008

[2] As always, one should be careful with interpretation of statistics, and in particular labor statistics.

Agricultural Economics and Rural Development, New Series, Year V, nos. 3–4, p. 143–160, 2008

benefits but also to achieve significant efficiency and productivity gains. In pair, an equal share of land is utilized by no less than 4 million individual holdings, *i.e.* 90% of the total number of farms. Averaging 1.4 hectares, these smaller units deter full-speed economic take-off in agriculture. In turn, they provide livelihood to 90% of the over 8 million Romanians involved full-time or part-time in agricultural activities.

Moreover, the structural problems are strongly correlated with income and poverty problems. Almost sixty percent of peasant incomes come from in-kind incomes, and many of them live in poverty. Hence, it is clear that important restructuring needs to take place to fully integrate the agricultural sector of Romania into the growth process and can be competitive.

An important issue is to what extent and how the significant funds flowing now to agriculture under the Common Agricultural Policy (CAP) will affect the Romanian farm sector and its restructuring and development process. The expected transfers from the EU budget go as high as 2 billion euro annually over 2007–13. But, as we will argue in this paper, domestic policy remains important for Romanian agriculture; and also the choices which the Romanian government makes in allocating the EU subsidies.

This paper will review the progress in convergence of Romanian agriculture and what are key issues in achieving such convergence. This paper complements the paper by Cristina Cionga and Lucian Luca and the paper by Daniela Giurca, both of which focus strongly on the Romanian farm sector. In addition there are several recent reports on the state of the Romanian agricultural and rural economy. These reports are important contributions to the debate.

We will not repeat the arguments and analysis in these papers and reports. Instead, our paper presents a broader and more comparative framework. We interpret the agricultural developments in Romania in the perspective of the entire economy and in an international perspective. For example, we compare the convergence indicators in Romania with those of in other NMS, in particular in Poland, Hungary, Czech Republic, Slovakia, Latvia, Lithuania and Estonia (which we refer to as the NMS–7). We also interpret some other.

The paper is organized as follows. We will first describe the recent evolution of the Romanian agriculture and how it compares with the other NMS and with the EU as a whole, and as such analyzing the dynamics of the growth and convergence process. Then we analyze a series of key factors affecting this process and draw conclusions on how the public sector can maximize the growth potential of the bipolar Romanian agriculture.

CONVERGENCE?

To start we review evidence on convergence of Romanian agriculture with the EU. We present a series of indicators and compare the developments in

Romania with those in other NMS, in particular in Poland, Hungary, Czech Republic, Slovakia, Latvia, Lithuania and Estonia (which we refer to as the NMS–7).[3] For consistency we used data from Eurostat.

Figures 1–13 present the evolution of a series of convergence indicators over the past decade. The indicators measure the gaps between Romania and the NMS7 and the EU–15. The convergence indicators include general indicators (such as GDP per capita and unemployment), the share of agriculture in the economy and in employment, agricultural output indicators, and several indicators of agricultural productivity. Productivity indicators include labor productivity, measured as gross value added in agriculture per agricultural worker, land productivity (grain yields) and livestock productivity (milk yield).

Convergence in the NMS7

Regarding the evolution in the NMS7 we can conclude from the figures that there has been major growth in incomes and agricultural productivity in the NMS7. Yields and labour productivity increased strongly over the past years in NMS7 agriculture. Productivity, incomes and profits in NMS7 agriculture are considerably higher now than they were five years ago, before accession.

The rise in agricultural productivity and incomes is due to a combination of factors, such as improved factor markets, improved institutions, investment in the food chain, spillover effects of growth of the general economy, etc.

The gap between NMS7 and the EU15 in terms of income and productivity has also declined significantly over the past years. Various socio-economic indicators, such as agricultural productivity, unemployment, overall GDP, the share of agriculture in GDP and employment, show that the differences between the NMS7 and the EU15 are diminishing over time, and, for some of these, rapidly so.

The reduction in the gap between NMS7 and EU15 has been strongest in yields. For some commodities, such as grains in Central Europe and in dairy throughout the NMS7, the average NMS7 yields are close to the EU15 average.

In contrast, despite a marked increase, there still remains a significant gap in terms of income per capita and labour productivity in agriculture (value added per worker) between NMS7 and the EU15.

Convergence in Romania

The indicators in the figures present a mixed picture in terms of convergence of Romania compared to convergence in the NMS7. In terms of general economic development (GDP per capita Romania is doing well) and convergence is clearly occurring, albeit that Romania starts from a lower level.

[3] We did not include Slovenia since it already had a much higher level of income and a highly subsidized agriculture prior to accession. We also did not include Bulgaria in the NMS7 since it joined the EU at a different time.

In terms of the importance of agriculture in the economy, there is also a converging trend occurring, just as in the NMS7; but again the level of Romania is still quite different (Figure 3).

In terms of the evolution of agricultural output, Romania is doing better than the other countries – at least over the past years. However, in itself agricultural output is not a good indicator if growing output is not based on increased productivity. And in terms of the productivity indicators, there is mixed evidence. Indicators of labour productivity (GVA/employee) indicate convergence between Romania and the EU–15. However, indicators of land and livestock productivity do not show convergence (Figures 4–8).

A BI-POLAR FARM STRUCTURE

It is well-known that Romania has a bi-polar farm structure. Even under the communist system household farming was important in some regions of Romania, in particular in the less favoured and less fertile areas. For example, around 30% of land was used by household farms in some areas of Transylvania.

The initial transition was characterized by a rapid break-up of the collective farms and a radical shift towards household farming in much of the country. On average, the share of total agricultural land used by household farms increased from less than 10% before the transition to 61% by 1993. In no other Central or East European country, with the exception of Albania, was there such a radical and rapid break-up of the collective farms. This radical restructuring process caused many disruptions, both in access to inputs and output markets and in technology, such as irrigation infrastructure. In most plain areas however, large-scale farming remained very important.

Large-scale corporate farms still use a large share of agricultural land, most of it in the best agricultural regions. They have reduced labor use in the past years and have invested importantly.

In contrast, many household farms are poor, have little access to outside finance and face major difficulties selling their commodities on the market. Many are subsistence farms, producing mainly for home consumption. The farms use mostly land owned by the household although some of the better ones rent in some land. The land operated by the farms is often split in small, fragmented plots. The farmers are old, on average, and a considerable amount combines pensions with in-kind income from farming.

FARM REORGANIZATION AND AGRICULTURAL LABOR

In order to solve the problems associated with the bipolar structure of Romanian agriculture, we need to understand its causes; otherwise we may be addressing symptoms, rather than fundamental factors.

While land restitution is routinely blamed for the land and farm fragmentation problems in Romania, this simple assertion does not survive a more critical analysis when looking at international evidence. Land was restituted to (highly dispersed) land owners in very fragmented plots in e.g. the Czech Republic and Slovakia. However, in both countries there is very little farm fragmentation. Instead farm land is operated in very large, consolidated farms. The share of land used by household farms was less than 10% in Slovakia and less than 20% in the Czech Republic after 5 years of transition, and has grown only slowly since.[4]

The main differences between Romania and those countries is not in the land reform, but rather has to do with other economic and institutional factors, including changes in agricultural employment, general economic developments, social security systems, the development of rural factor markets, and the restructuring of the agri-food chain.

Probably the most striking phenomenon of Romanian agriculture is the sheer size of the farm population. The share of agriculture in total Romanian employment is around 32%. This share is extremely high. In Europe, only Albania and Moldova are close to the Romanian share. In all other countries, even relatively poor countries such as Bulgaria and the Baltics, the share is considerably lower (see Figure 9).

Moreover, what is remarkable about agricultural employment in Romania is that, in contrast to the other CEE accession countries, agricultural employment continued to increase in Romania until 2001. In countries like Hungary and the Czech Republic agricultural employment declined strongly already in the early to mid 1990s, in early transition, evolving towards levels of employment more consistent with long-run equilibria. In other countries, such as Slovenia, Latvia, Lithuania and Poland – also countries with many small farms – there was much less outflow of labour in early transition. In fact in several of these countries agriculture acted as a "buffer" during early transition[5]. However even in these countries agricultural employment gradually started declining in the second half of the 1990s as institutional reforms reduced labour constraints, and alternative employment developed.

In fact as figure 10 illustrates, Romania is the *only* country where employment increased in the 1996–2001 period. The increase in the latter period is mainly caused by the strong economic decline in the 1996–1999 period, when the decline in industrial employment caused people to fall back on farming as a survival strategy.

---

[4] In fact, restitution of land has generally caused a consolidation of land rather than fragmentation due to asymmetric transaction costs between former collective farm managers and potential individual farmers; see: Mathijs, E., and J.F.M. Swinnen. 1998. "The Economics of Agricultural Decollectivization in East Central Europe and the Former Soviet Union." *Economic Development and Cultural Change* 47:1–26.

[5] For an explanation of the various "patterns" of labor adjustments in the CEE countries, and how these relate to the restructuring of the farms, see: Swinnen, J., Dries, L., and K. Macours. 2005. "Transition and Agricultural Labour." *Agricultural Economics* 32(1): 15–34.

However, since 2001 agricultural employment has started declining, and consistently so. The pattern of Romania is similar to the pattern of Poland, but with a delay of about four years, as agriculture also absorbed labor in Poland during early transition, and started shedding labor after 1997 – four years before the similar change in trend occurred in Romania.

What has this labour story to do with the convergence, growth, and farm competitiveness issues which are the focus of this paper? The answer is that it will not be possible to stimulate consolidation and sustainable growth of the small farms to become part of a competitive agricultural sector in the medium run if one does not address the problem of overemployment in agriculture. In other words, it is not the fragmentation which causes overemployment, but it is the inflow of labour which is an important cause of the fragmentation. And if fragmentation prevents growth and convergence, one should address the basic problems, which is the labor market problems.

STRUCTURE OF THE LABOUR FORCE AND EMPLOYMENT IN OTHER SECTORS

The creation of off-farm employment, both urban and rural, is obviously an important task. This requires investments in rural infrastructure, rural finance, and human capital (see also the Romanian Rural Development Strategy).

Human capital is low in rural areas. A 2003 survey showed that the average age of rural household heads, most of whom are active in farming, was around 55 years. About 60% of them only had primary or secondary school education. Only very few (less than 2%) had higher education.

Inadequate human capital is a very important constraint, not only for agricultural labour 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, 2002).[6]

Migration has been a very important element in Romanian rural areas. Initially there was a strong inflow of labor into rural areas. The crisis in industry in the second half of the 1990s had an important impact on the rural labour force.[7]

[6] Rizov, M., and J. Swinnen. 2004. "Human Capital, Market Imperfections, and Labor Reallocation in Transition." *Journal of Comparative Economics* 32:745–774.

[7] Economic development during transition can be separated in four periods: strong output decline in 1989–1992; a rebound in 1993–1996 and a new decline (around 15% GDP decline) in 1997–1999 following reforms and restructuring imposed on industry and mining in Romania. Since then output accelerated from a decline or small increase at the beginning of 2000s to a yearly growth of more than 5% in 2003–2007.

There was a substantial inflow of young, better educated (mainly high school), workers in the rural areas: the rural group of 15–30 year old increased by 15% between 1996 and 2000. In recent years there has been a strong migration abroad from rural areas. This concerns mostly younger people, while older people continue to in-migrate, according to official data. I refer to the papers on migration at the Bucharest conference for more details.

PENSIONS AND THE AGE STRUCTURE

In itself there is nothing unusual about Romania in that average employment in farming is of old age – and lowly educated. This is also the case in some much richer NMS. For example, in Slovenia about 45% of agricultural labour is over 55 years old and almost 70% of the agricultural labour force has at best finished primary school. Even in the EU–15 more than half the farmers are older than 55 years (see Box 1).

Box 1. Some Characteristics of Farms in the EU–15

- More than half of farmers are older than 55 years.
- Three quarters are part-time farmers.
- 96% are family farms.
- 59% of all farms cultivate 5 hectare or less.
- 75% of all Mediterranean farms cultivate 5 hectare or less.
- 3% of all farms cultivate more than 100 hectares.
- The average herd size in Austria is 10 cows per farm.
- Three quarters of Portuguese cattle herds have less than 5 cows.

Source: Eurostat

However, what is remarkable in Romania is the strong difference in terms of employment dynamics. On aggregate, 45% of the total Romanian population lives in rural areas. However, according to the 2003 data, for the population over 55 years, this share was 57%, and for the population over 65 it was 59%. These population groups make up an important share of rural employment. Household labour force survey results indicate that the group of 50–64 years accounted for 25% of total rural employment in 2001. More importantly, the group of over 65 years accounted for 19% in 2001, and had increased from 17% in 1996. As Figure 13 illustrates, the employment rate is close to 25% for the rural population over 65 years, while it is very low for the urban population.

The age structure issue is reinforced when looking at *agricultural* employment. For the rural population as a whole, 70% is employed (at least partially) in agriculture in, 2003. The share grows significantly with age. For the group of 50–64 years, the share of agriculture in employment is 84%; and for the group above 65 years the share is 100% – they only work in agriculture.

An important reason for this high agricultural employment among old people is the pension system – or lack of it. While pensions have been increased in the past years, since they started from such a low base, the pension levels are still very low.

Since 2001 there was a continuous outflow of labour at approximately 4% per year. In this way Romania is closest to Poland which also has a lot of small farmers and where the outflow started four years earlier (Figure 11). The delay in Romania was caused by a strong labour inflow into agriculture in the early to mid transition. In Poland the agricultural labour never exceeded the 1989 level (Figure 12).

External Factors

Growth of the non-agricultural economy is crucial for absorbing surplus labor in agriculture. This can contribute to poverty reduction as agricultural labour outflow improves access to land and expands the farm size. Small farms are expected to benefit from growth of the non-agricultural economy. However, low human capital of rural households is a constraining factor and limits their benefits from growth.

The growth and investments of the food industry and agribusiness is probably more important than agriculture itself for convergence and competitiveness in agriculture. The development of modern supply chains improves farmers' access to markets, particularly farmers who get better opportunities to market their outputs as well improved access to inputs.

Major advances have been made in Romania as well as in other transition countries over the past decade, especially through foreign investment in the food industry – and agribusiness more generally. Food companies have introduced contracts with farms, which, in regions and sectors where farms face major market imperfections, assist farms both in accessing inputs and in bringing their supplies to the processing or marketing companies.

Improving competitiveness also requires a focus on the quality of agro-food production. This is particularly important in the 21st century and especially after EU accession. Such quality strategy is mostly outside the traditional CAP, although some support can be obtained under de second pillar.

Impact of CAP subsidies

Romania will spend around 2 billion euro per year until 2013 in CAP payments, which is approximately a 50–50% distribution between Pillar I and Pillar II subsidies.

From early results (see Cionga and Luca, 2008)[8] it appears that the smallest farms (and the poorest rural households) will get only a small share of the

[8] Cionga, C and L. Luca. 2008. "Farm Income and Investments – Underlying Factors in Agricultural Sector's Economic Convergence." Paper presented at the Conference on "Growth, Competitiveness and Real Income Convergence", Bucharest, April 21–22, 2008.

subsidies. They are too small (less than one hectare) to get SAPS, and they do not know how to apply for Pillar II. According to Table 4 in Cionga and Luca (2008) only 1.2 million out of an estimated 4.1 million farms in Romania will get Single Area Payment Scheme (SAPS). Almost all of the 2.9 million farms who do not get SAPS are smaller than 5 hectares (1.8 are less than 1 ha and another 0.9 million are between 1 and 5 hectares). In contrast, all the big farms get SAPS. I and II) (or alternative policies) inequality in general and in rural areas in particular is likely to become worse. Subsidies will lead to divergence rather than to convergence.

Inequality will be affected through direct and indirect effects. Directly, poor farmers are excluded from benefiting from subsidies, while big farms will benefit from both Pillar I (SAPS) and Pillar II subsidies.

There are two indirect effects. First, due to the credit enhancing effect of subsidies, inequality will grow as SAPS will reduce credit constraints and hence allow more investments for those who get it. Second, SAPS and credit constraint reductions will increase land prices. Evidence from NMS–7 shows a sharp increase in land prices after accession (Figure 14). This may increase or reduce poverty depending on the land assets of the poorest households/smallest farms.

CONCLUSIONS AND POLICY IMPLICATIONS

Farm fragmentation, and the need for consolidation and investment remains a major problem for Romanian agriculture, as documented in this paper. The problem has several fundamental causes and, hence, there is no miracle solution. Several of the underlying problems will have to be addressed.

One of the key structural problems is overemployment in agriculture, which puts a strong pressure on the land and constrains the supply of land for farm consolidation. This will remain an important constraint on farm consolidation unless the problem of old people requiring farming to complement their low pensions remains. Increases of farmers' pensions in combination with constraints on land use may reduce this problem. With high food prices and low pensions, there are few incentives for poor and old rural households to leave the land.

Another important constraint is that the rural infrastructure is weak, as well as the educational level (both general and professional) of the vast majority of the rural population. None of these can be changed in the short run and require important public investments.

Investment in education would contribute to several objectives, consistent with the overall objective of rural development, such as the improvement of productivity of existing enterprises, the growth of new enterprises, reduction of unemployment, and a shift of underemployed farm labour to other activities, thereby increasing labour productivity of the remaining farms. Investments to improve rural education could also reduce the incentives for young people to leave the rural areas.

The development of rural infrastructure and of institutions for facilitating access to finance in rural areas, both for farms and non-farming activities, and for access to output markets is important to encourage rural growth and employment opportunities. Access to capital and finance remains a major problem in rural areas, not just for farms but also for non-farm enterprises which are crucial for rural development. It should be an important focus for a rural development strategy. Access to output markets may come from private initiatives, but policies to support and facilitate these developments are needed.

Equal access to subsidies is important in preventing further growth in inequality between small and big farms. This would require addressing administrative burdens in accessing subsidies. Important boost to development of rural infrastructure and education or vocational training may come from CAP subsidies under Pillar II. For the period 2007–2013 around 10 billion Euros will be allocated from Pillar II in Romania: around 40% will be allocated to investments in agricultural sector, agricultural education, and restructuring and modernisation of processing and marketing of agricultural products; 23% will be allocated to environmental programmes; 25% to diversification of the rural economy and rural infrastructure; and the rest (12%) covers other assistance.

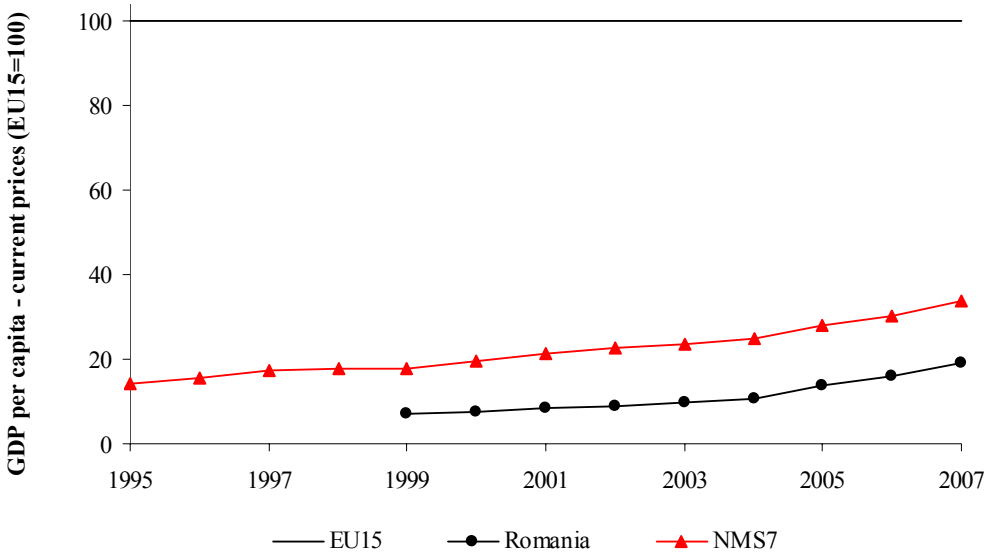
Despite the magnitude of the problems, there are many encouraging signs.

First, significant investment and consolidation is taking place in about half of the farm sector. There, large scale private farms are developing, consolidating, and investing following the privatization of the state farms and increased foreign investment in recent years.

Second, economic growth is robust in other sectors. While one should be modest in the expectations for this to solve the problem of overemployment in agriculture, one should expect that at least some of the recent influx of workers may find new employment if growth continues in the next years. This should reduce some of the pressure on farm fragmentation caused by over-employment.

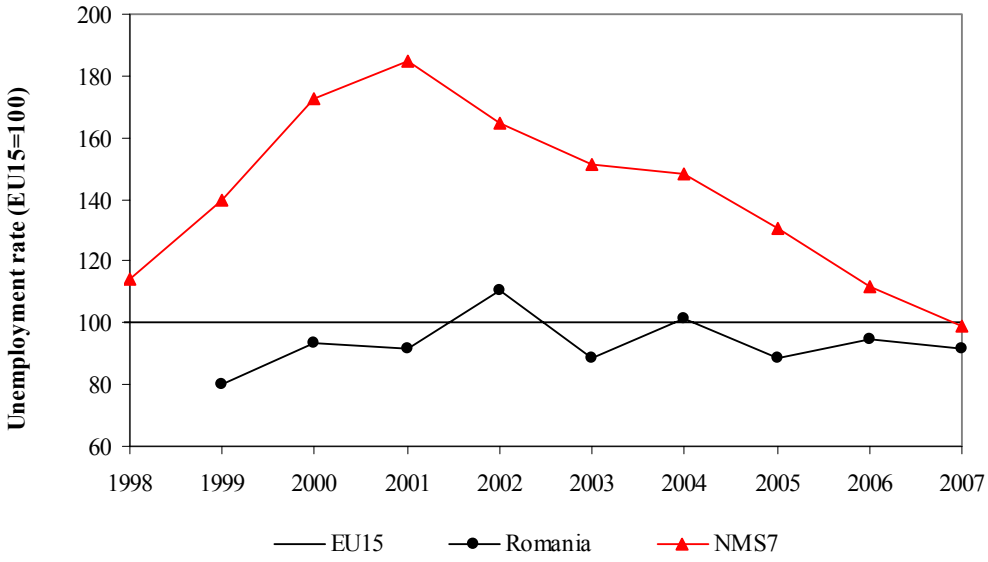
Third, the inflow of foreign investment in the food industry and the agribusiness sector, and the associated pressure on domestic agri-food companies to restructure, has induced important changes in the food chain. Experience from other transition countries suggests that these investments may lead to improved access to output markets, and to inputs and credit, for farms, both small and large. While these effects are likely to differ significantly among products, they will further induce increases in profitability. Consolidation will result because the farms accessing such supply chains will increase their demand for land, and thus the (rental or sales) price of land. This in turn may cause older farmers to retire and live of rents.

Fourth, signs already indicated that the land market, in particular the land rental market, is growing and this could contribute importantly to farm consolidation and a more competitive structure.



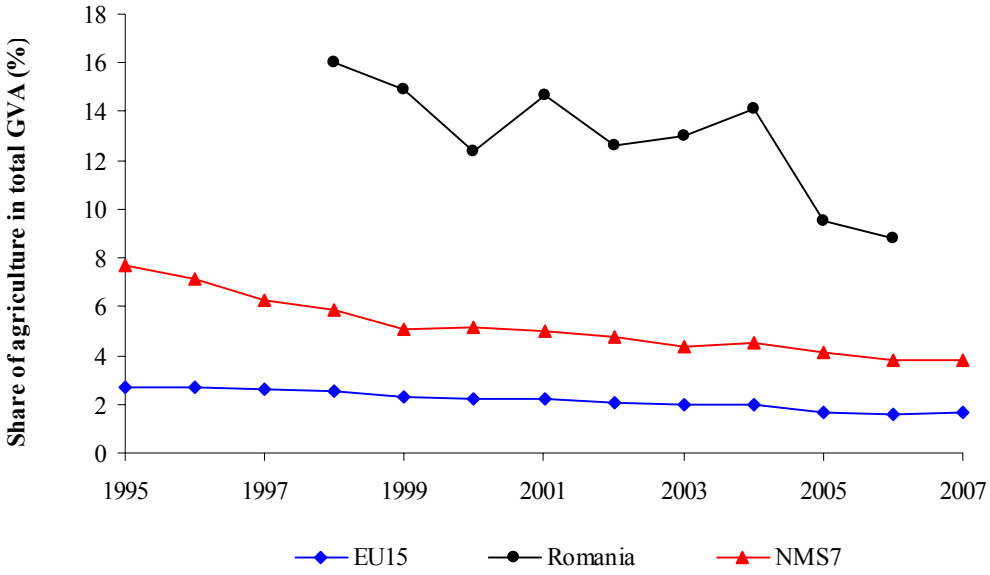
Source: Eurostat

Figure 1. GDP per capita in Romania and NMS7 (EU15=100).



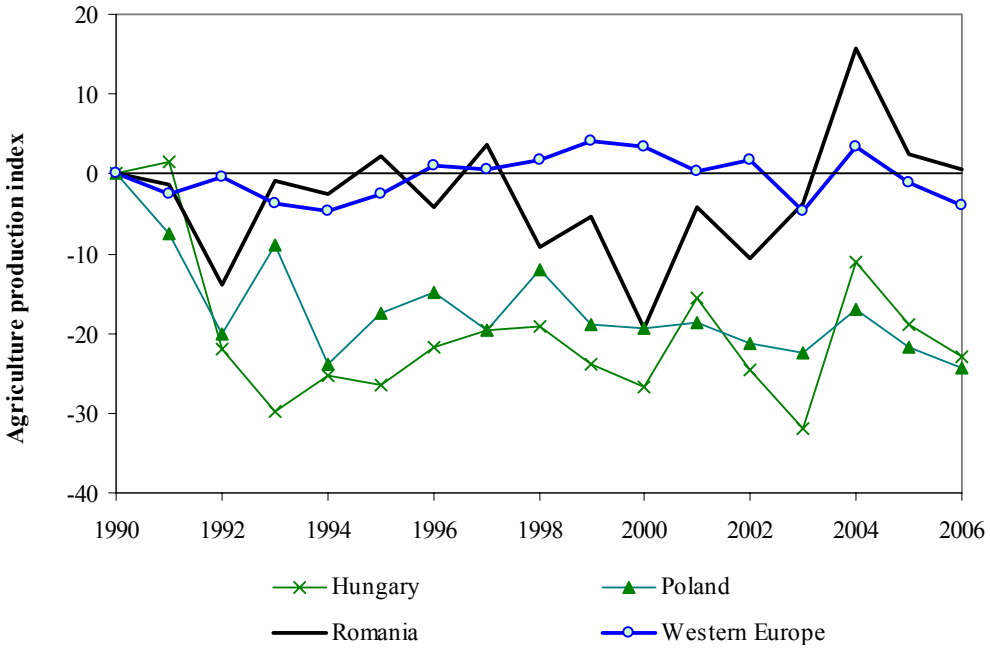
Source: Eurostat

Figure 2. Unemployment in Romania and NMS7 (EU15=100).



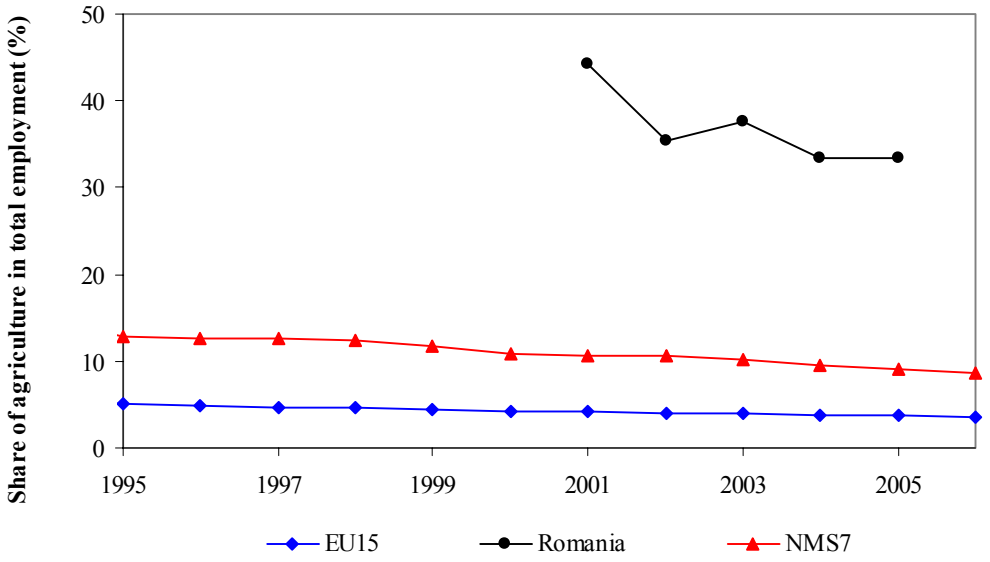
Source: Eurostat

Figure 3. Share of agriculture on gross value added in Romania, NMS7 and EU–15 (%).



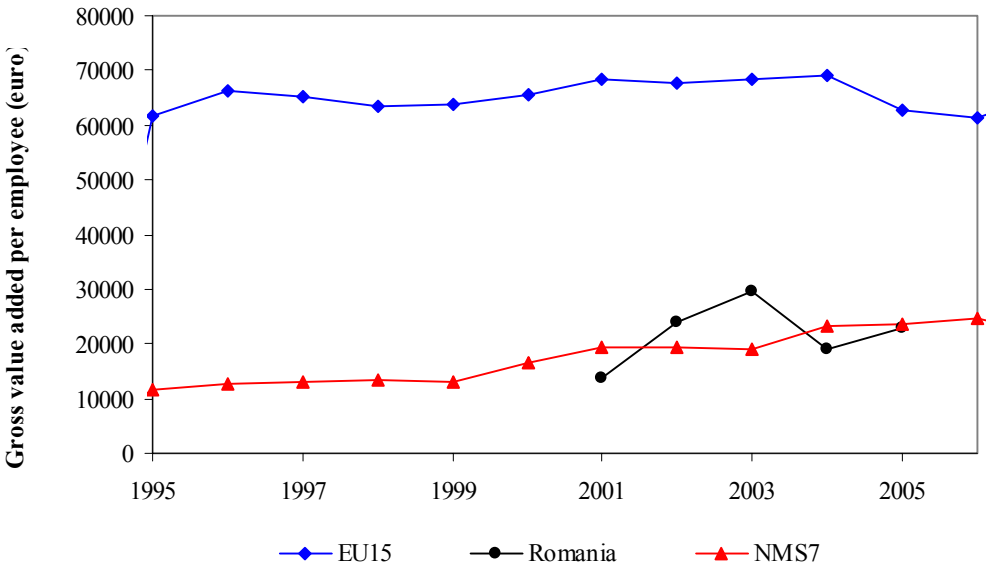
Source: FAO

Figure 4. Agriculture production index in Romania, Hungary, Poland, and Western Europe (1990=100).



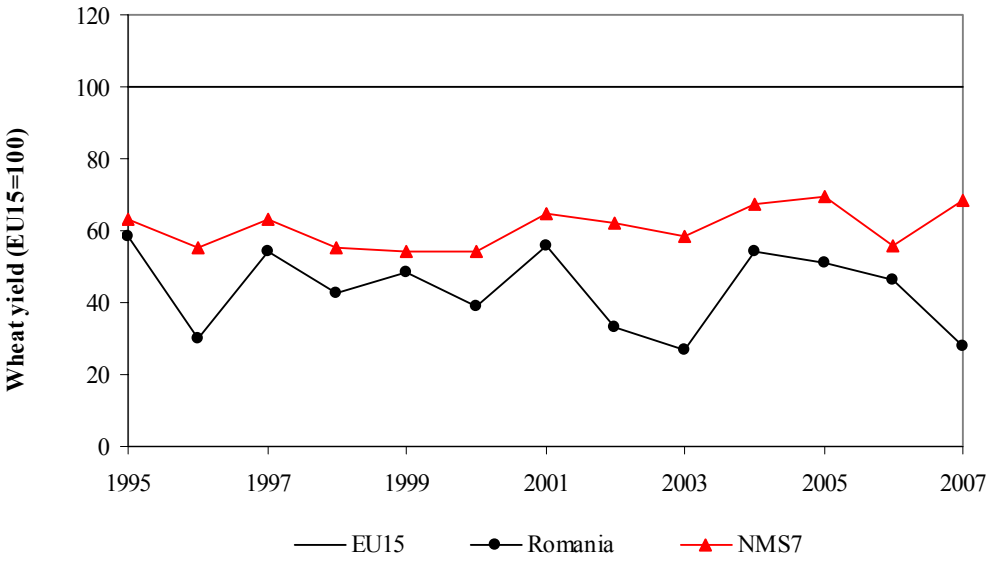
Source: Eurostat

Figure 5. Share of agriculture in total employment in Romania, NMS7 and EU–15 (%).



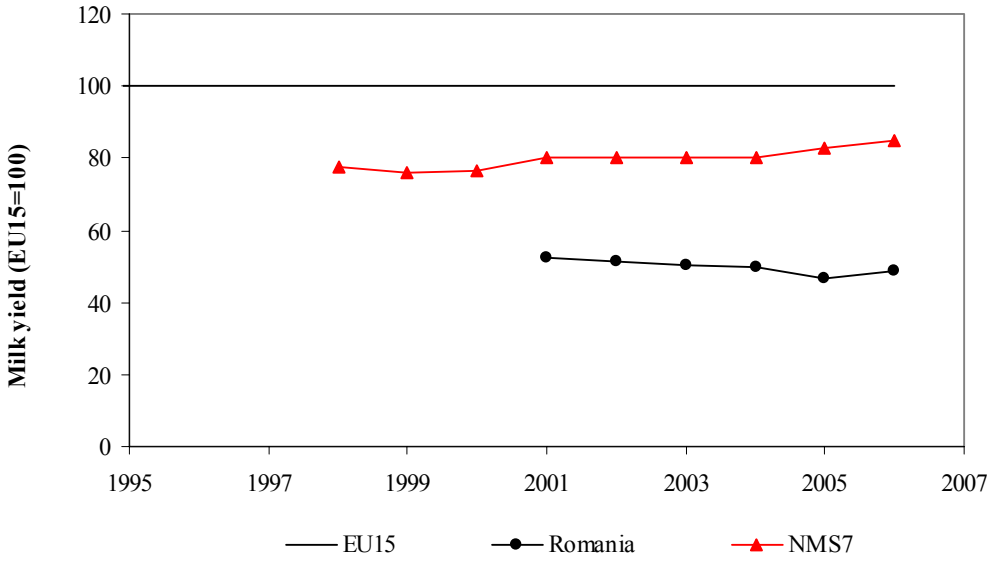
Source: Eurostat

Figure 6. Agricultural gross value added pre employee in Romania, NMS7 and EU–15 (Euro).



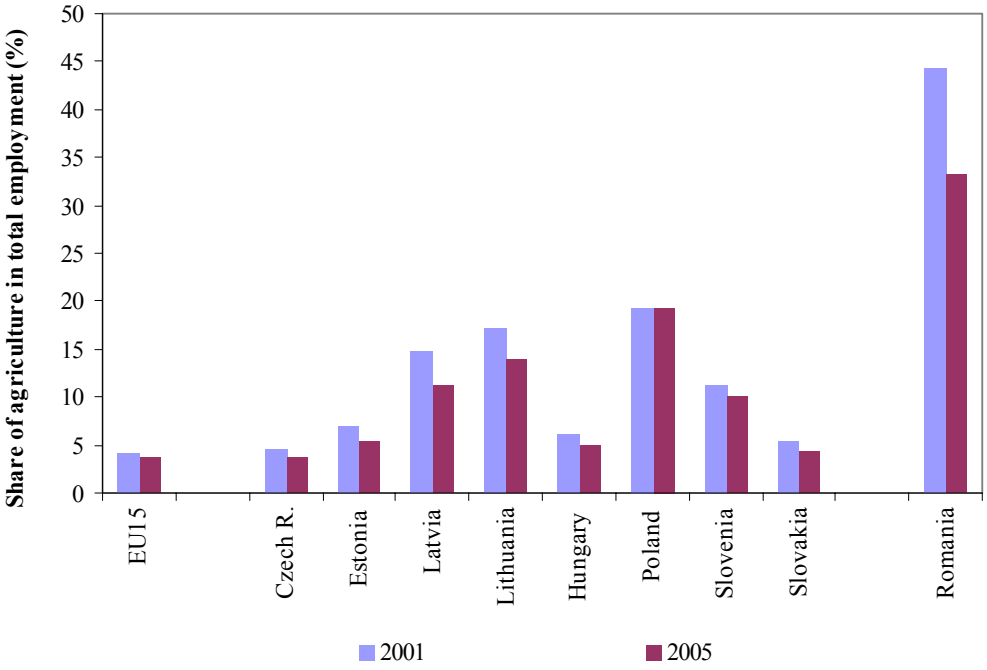
Source: Eurostat

Figure 7. Wheat yield in Romania and NMS7 (EU15=100).



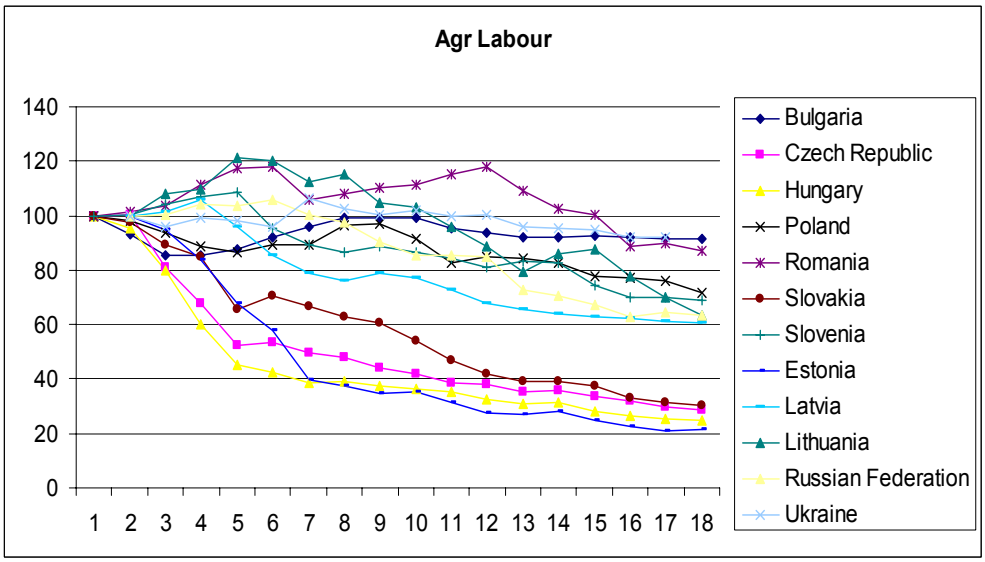
Source: Eurostat

Figure 8. Milk yield in Romania and NMS7 (EU15=100).



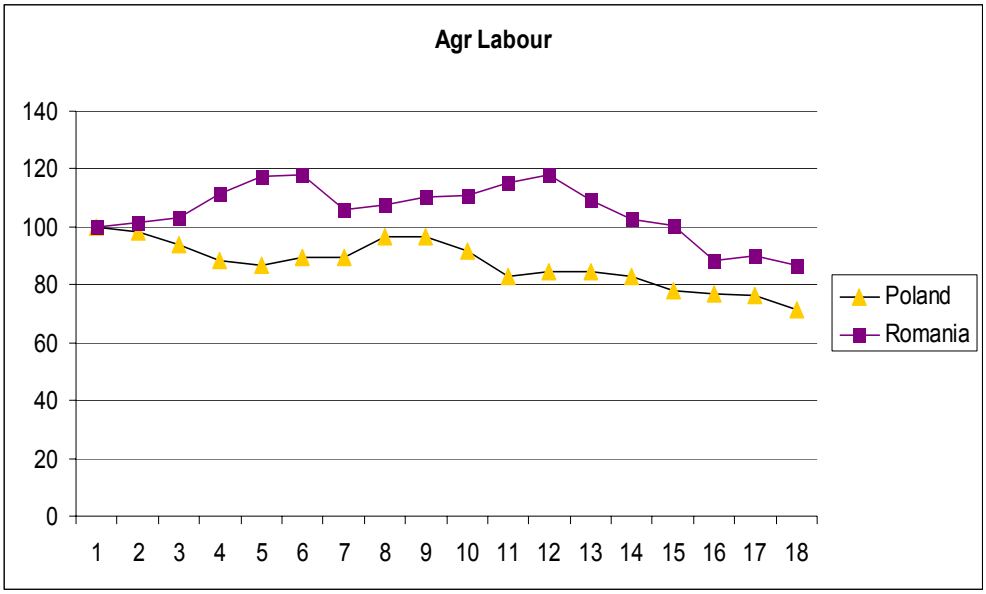
Source: Eurostat

Figure 9. Share of agricultural employment in total employment in Romania, NMS7 and EU–15 (%).



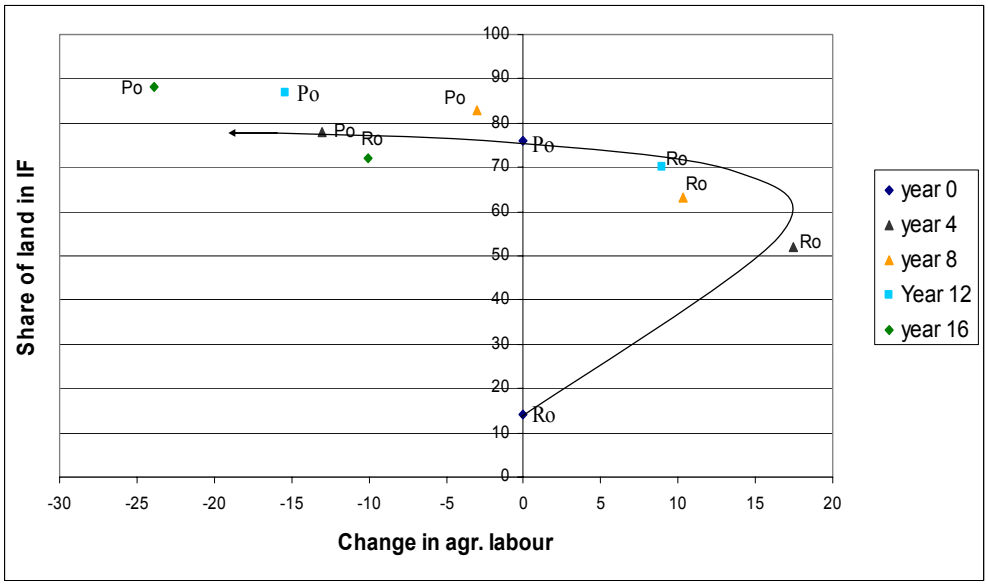
Source: Eurostat

Figure 10. Labour adjustment in transition.



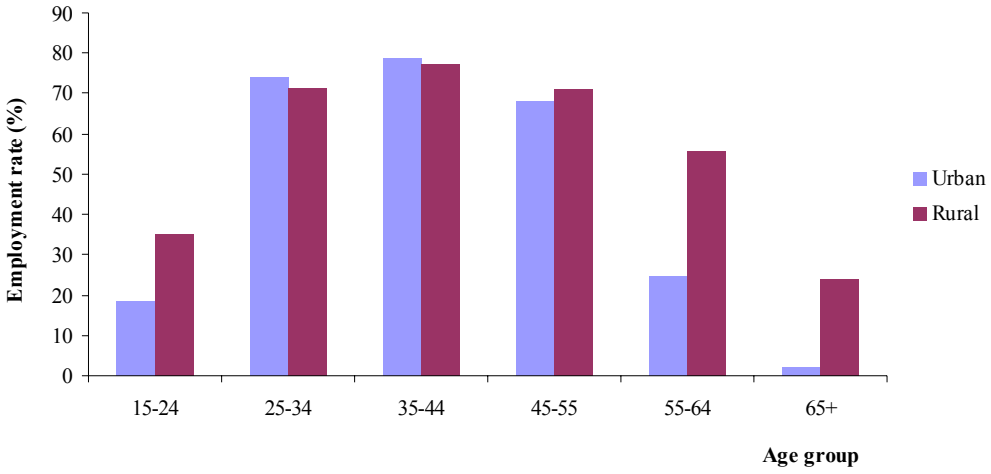
Source: Eurostat

Figure 11. Evolution of agricultural labour in Romania and Poland.



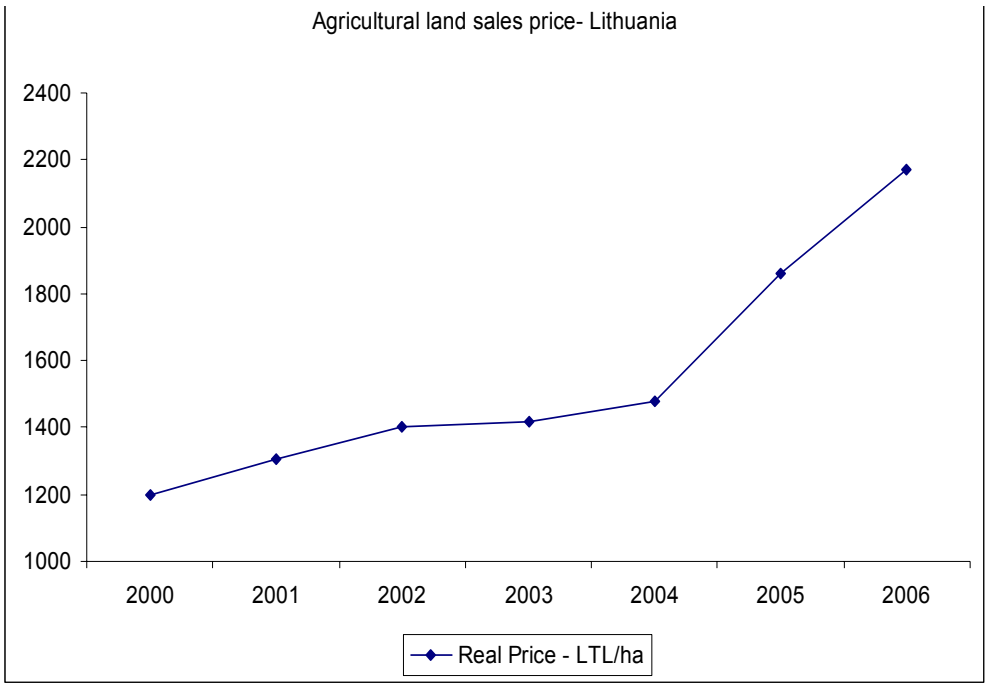
Source: Eurostat and National Statistics

Figure 12. Pattern of labour development in transition.



Source: Romanian National Institute of Statistics

Figure 13. Employment rate by age group in rural and urban areas (%) in Romania in 2005.



Source: National Statistics

Figure 14. Development of land prices in Lithuania.

Table 1
Average annual change in employment in CEEC agriculture (%)

	1989–1993	*1993–1997*	*1997–2001*	*2001–2007*
Bulgaria	–3.2	3.0	–0.8	–5.8
Czech Republic	–9.4	–6.7	–5.6	–1.8
Estonia	–10.4	–14.6	–6.9	–7.2
Hungary	–18.7	–4.6	–4.5	–4.2
Latvia	2.5	–2.1	–8.0	–1.9
Lithuania	2.9	–2.3	–10.0	–6.0
Slovakia	–9.7	0.6	–10.3	–6.8
Slovenia	–2.5	5.2	–4.1	–2.2
CEEC–8	–6.1	–2.7	–6.3	–4.7
Poland	–3.9	–5.2	–3.2	–1.1
Romania	4.4	4.8	1.3	–5.1
CEEC–10	–4.8	–2.2	–5.2	–3.8

Source: Own calculations based on ILO, OECD, Eurostat, and national statistics