

**Agricultural employment trends in an enlarged European Union:  
does the CAP reform / introduction matter?**

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## Abstract

In the course of economic development there is a general downward trend of agricultural employment, although structural change in agriculture is often delayed. In the EU-15, agricultural employment decreased by -2.3% p.a. (measured in regular persons) and -3.0% p.a. (measured in annual working units) between 1995 and 2000. In some of the new EU Member States, employment in agriculture plummeted in the early 1990s, whereas in others it increased during the first years of transition and has served as a social buffer in times of economic hardship. The most important determinants of agricultural employment changes are labor saving technical progress, the macroeconomic environment, the farm structure, socio-economic characteristics of the farmer and agricultural support policies. Currently, farmers in the enlarged EU are facing significant policy changes, both in the EU-15 (2003 CAP reform) and in the new Member States (CAP introduction). The results of 15 case studies assessing the future development of agricultural employment and the impact of CAP reform/introduction confirm the general downward trend which overall will not be much affected by these policy changes. However, the case studies also reveal significant differences between regions and enterprises.

Key words: Agricultural labor market, agricultural policy, European Union, transition countries, case studies.

JEL classification: J43, Q18, Q19

## 1 Introduction<sup>1</sup>

Farmers in the enlarged EU are facing significant agricultural policy changes; in the EU-15 due to the implementation of the 2003 Common Agricultural Policy (CAP) reform and in the new Member States (NMS) due to the introduction of the CAP regime. Does this considerably affect agricultural employment? Or are other determinants of agricultural employment trends – which are generally downward in the course of economic development – more decisive for future employment in this sector? This paper aims to analyze these questions. CAP impact studies have mainly focused on production and income effects, but there is little information available on employment effects. Therefore, in this paper, employment effects of CAP change are assessed based on qualitative interviews with farmers and stakeholders conducted in summer 2005 in 15 NUTS-3 regions of the EU-27<sup>2</sup>.

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<sup>2</sup> EU-25 + Bulgaria and Romania which will likely accede the EU in 2007.

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The paper is organized as follows. Section 2 describes the past development of agricultural employment in the EU-27 at the national level. Based on a literature review section 3 discusses the main driving forces of agricultural employment. Section 4 presents the empirical results of the 15 case studies, which assess the future development of agricultural employment and the impact of CAP reform/introduction. Section 5 concludes the paper.

## **2 Past development of agricultural employment**

The importance of agriculture for employment is diverse in the EU-27 with the share of primary sector employment ranging from below 3 % in Luxembourg, the United Kingdom, Malta, Belgium, Germany and Sweden to above 15 % in Romania, Bulgaria, Poland, Greece and Lithuania in 2001.<sup>3</sup>

In the EU-15 countries, agricultural employment has generally shown a continuous decline (cf. Figure 1). Between 1995 and 2000, this decrease averaged  $-2.3\%$  p.a. (measured in regular persons) and  $-3.0\%$  p.a. (measured in annual working units (AWU)). An extrapolation of the past development to 2014 using linear regression analysis shows the potential future reduction of employment in agriculture, if current trends continue (i.e., around 4 million persons or rather 2 million AWU may leave the sector between 2003 and 2014 in the EU-15).

In the Central and Eastern European countries (CEECs) – and in the German new *Bundesländer* – the development of the agricultural workforce since 1990 has been much more pronounced due to the restructuring processes during transition (cf. Figure 2). In Hungary, the Czech Republic, Slovakia and Estonia, there was a significant slump in agricultural employment in the early 1990s with annual average change rates of  $-10\%$  to  $-30\%$ , coinciding with a consolidation of large scale farm structures and the release of non-family labor. This was followed by a more stable period, but with an annual decrease still

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<sup>3</sup> At the NUTS-3 level, this share is up to 50-60 % in some regions e.g. in Romania, Poland, Bulgaria and Greece.

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exceeding that in the EU-15, until about 2000. In Poland, where in comparison with the other CEECs no important farm restructuring took place, the agricultural labor force was much less reduced. In Bulgaria, Romania and Slovenia until about 1998-2000 and in the first years of transition in Latvia and Lithuania, there was an observable increase in agricultural employment. This reflects the emergence of small family farms through the land privatization process, migration from urban to rural areas and subsistence agriculture acting as a social buffer during the development of a more market orientated economy.

### **3 Determinants of agricultural employment trends**

A literature review shows the following general factors which have influenced agricultural employment change and intergenerational farm transfers:

1. labor saving technical progress,
2. macroeconomic environment,
3. farm structure,
4. socio-economic characteristics of the farmer,
5. agricultural support policies.

It is commonly agreed that *technological change* leads to labor saving processes, which are adopted more quickly by larger farms (Glauben et al., 2005). In Western Germany, for example, between around 1950 and 2000, the calculated labor requirements per year for cereal production fell from 150 to 7 hours/ha and in milk production from 145 to 45 hours/cow. Although labor saving technical progress was most pronounced during the 1950s and 1960s, the ongoing reduction is still remarkable (Henkel, 2004). For the CEECs – where agricultural production is generally more labor intensive than in the EU-15 – it is expected that farm modernization and the reduction in labor will be accelerated by EU accession (Swinnen and Dries, 2003).

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Regarding the *macroeconomic environment* it is frequently argued that particularly economic growth, and its associated increase in non-farm employment opportunities, facilitate labor outflow (Glauben et al., 2005; Swinnen and Dries, 2003). Empirical results of Andermann and Schmitt (1996) for Western Germany support this view. They identified sector income, farm input and output prices as well as the industry wage rate and general labor market conditions as explaining factors for changes in total farm labor. However, in the short term (up to three years), the OECD (1994a) found no significant influence of unemployment rates, industrial employment, real interest rates, agricultural prices and non-farm wage on labor change in eight Western economies. These empirical differences can be explained by non-economic determinants of individual and household decisions, the characteristics of the agricultural labor force (see below), and the long-term planning perspectives of family farms. It is not to be expected that family farmers react in the short-term to better general economic conditions with irreversible farm exits. This time dimension should be kept in mind when arguing that overall economic growth will lead in future to a stronger outflow of labor in the CEECs. This is particularly important for those working on semi-subsistence farms in low income countries, whose development will also depend on changes in the social security systems (Macours and Swinnen, 2005; Swinnen and Dries, 2003; Pouliquen, 2001).

Furthermore, there are significant differences in the labor force adjustment during transition in the CEECs depending on *farm structures*. Regions with an already relatively low labor intensity at the beginning of transition have reduced labor significantly, while regions with a high labor intensity have kept labor (see section 2 and Swinnen and Dries 2003; Swinnen et al., 2005). Concerning the influence of farm structures in the EU-15 countries, Breustedt and Glauben (under review) revealed higher farm exit rates in regions with small, less specialized farms. Part-time farming turned out to be a stabilizing factor in this survey, a result which is contradictory to findings of other studies (e.g. Stiglbauer and Weiss, 2000; Tietje, 2004; Bojnec et al., 2003).

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Labor mobility out of agriculture is also influenced by the *age and education of farmers*. A better education facilitates enhanced farm management but is also crucial for finding work outside agriculture. Middle-aged farmers without vocational education and off-farm work experience have limited possibilities (low opportunity costs) and are likely to continue farming until retirement. Therefore, labor mobility in agriculture is mainly restricted to young, well educated people. One of the main ways that adjustment occurs is by “non entry” into the sector by farm children, especially on small farms (Andermann and Schmitt, 1996; Hennessy, 2002; Swinnen and Dries, 2003). In many CEECs, the low educational level and the rather old age structure of agricultural labor hampers the necessary restructuring process (cf. Rizov and Swinnen, 2004; Bojnec et al., 2003).

Finally, farm workforce development in the EU is also influenced by the *Common Agricultural Policy (CAP)* which affects agricultural prices and farm income. In general, agricultural assistance policies influence the functioning of markets and attract more resources into agriculture than it would be the case in their absence. Therefore, the reform of such policies could exert adjustment pressures, whose nature depends on the pace, range and scope of the assistance reductions (OECD 1994b). In the EU, the steady shift from price support towards direct payments in the CAP since 1992 is assumed to have softened the “driving out” forces. Differing rural development measures can have positive or negative labor impacts. Generally, they are assumed to keep employment in agriculture but do not create jobs (Tamme, 2004). Findings by Breustedt and Glauben (under review) show that the higher the subsidy payments and output prices the lower the farm exit rates in European countries.

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#### **4 Impact of CAP reform (EU-15) and CAP introduction (NMS-12) on agricultural employment – results of 15 case studies<sup>4</sup>**

The most important element of the 2003 CAP reform is the decoupling of direct payments (DP) from production (with some flexibility for the member states regarding the extent of decoupling and its timing). In the NMS the CAP was introduced with their accession in 2004. DP will be increased in steps, reaching the EU-15 level in 2013 at the latest. Except for Slovenia and Malta, all NMS opted for the “simplified area payment scheme” (fully decoupled DP paid as a flat rate per hectare of agricultural land)<sup>5</sup>.

To assess the future developments in agricultural employment and the impact of CAP reform/introduction 15 case studies were conducted in summer 2005. Case regions were selected to represent differences in remoteness, employment prospects, agricultural dependence, geography/agro-climatic conditions and CAP regime in the EU-27 (see Table 1). In total, 163 interviews were conducted among farmers, farm managers and experts from agribusiness, agricultural administration and extension.

##### **4.1 EU-15 CASE RESULTS**

Key expectations of interviewees on the future level of employment in their region are a major reduction in full time workers across all regions, a less uniform change in part time workers, and some increase across many regions in non regular labor to cope with less full time/part time workers (see Table 2). The number of family workers is expected to fall faster than the number of employees. *Valencia* is the only region where the interviewees expect an increase in total employment. This is caused by the expected increase in seasonal workers. In *Valencia*, around 75% of the UAA is cultivated with fruit and olive trees as well as vineyards.

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<sup>4</sup> As the coordinators (and authors of three) of these case studies we thank the authors of the other case studies.

<sup>5</sup> The national top-ups are partially coupled to production.

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Succession is a complex issue across the EU. In some regions there is a fear of a severe lack of successors for the existing farm structure even to the point of land abandonment (e.g. *Karditsa*), while in others this is not seen as a problem at all.

Overall, CAP reform is expected to have only a minor effect on future agricultural employment. The impact of CAP reform is greatest for full time workers (see Table 3). By hastening change in some enterprises such as beef production, which is particularly important in *SW Ireland* and *Orkney*, it may lead to an acceleration of existing trends, but this is far less important than the attraction of the non-farm economy. Similarly Pillar 2 schemes might have some moderating effect, in that they provide another income stream which to some extent maintains the existing farming structure. However, the interviewees do not expect these to halt trends or to push labor use in new directions.

The strongest impact of the CAP is expected to be in *SW Ireland* and *Karditsa*. In an area like *SW Ireland* with small to medium scale farms, a booming economy and heavy reliance on the beef sector and to a lesser extent on the sheep sector – which are both strongly affected by the CAP reform – the complete decoupling of subsidies removes a major barrier to agricultural employment change. Farmers no longer need to maintain a high level of activity in farming to receive substantial subsidies – time can be released to pursue other income earning opportunities, of which there are many. In *Karditsa* it is the unusual reliance on one previously heavily protected crop (cotton) whose support will be partially decoupled which leads to the forecast of major movements of labor out of the sector, despite a lack of alternative income earning opportunities. In other regions the rating of CAP impact varied from minor to none, especially in *South Ostrobothnia*, *Allier*, *Noord-Drenthe* and *Pinzgau-Pongau*, where the high level of agri-environment and Less Favored Area support makes the removal of direct production subsidies less important to individual farmers. In *Wittenberg* the assessment is that CAP reform only has a minor impact, if any, on the long term employment trend. As pointed out in the Finnish case, the dual impact of on the one hand substitution of



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capital for expensive labor to reduce unit costs, and on the other the attraction of the non-farming economy, combine to drive the downward trend in agricultural labor.

The above would suggest that the impact of CAP reform on employment is highly variable, and region and enterprise specific. It reflects the different implementation regimes applied by member states and the relative importance of CAP direct payments in comparison to other farm supports. It also reflects the importance of farming as a share of household income – areas with less part time farming, larger farms and more employees may see more and faster change. In many regions the expected extensification of production, e.g. lower stocking rates, and an increase in set aside, might induce a decreasing employment in the sectors serving agriculture.

## 4.2 NMS-12 CASE RESULTS

In comparison with the EU-15, the peculiarities of agriculture in the NMS are the dualistic farm structure (a huge number of (semi) subsistence farms and at the same time a high share of large farms, often with more than 1,000 ha, in total land use), the low level of labor and land productivity as well as the importance of non-family farms and non-family labor (cf. Table 1).

The latter holds for the Czech and Slovak (and the German) case and could contribute to a faster adjustment of agricultural labor input to changing economic conditions. However, the maintenance of jobs on farms is often an important business objective besides profit maximization. Non-family labor often will not be replaced on retiral. For *Jihomoravsky*, a need for qualified paid labor on the large farm holdings is reported, but incentives for young people to work in agriculture are low mainly due to wages significantly below those in other sectors.

(Semi) subsistence farms, which function as a "social buffer" absorbing workforce which has no other way to make a living, are particularly important in *Cluj* and *Latgale*. The future of these farms and their role for agricultural employment depends much more on the

development of other income opportunities (non-agricultural jobs, social security benefits) than on agricultural policy itself (cf. Pouliquen 2001). In these regions as well as in *Szczecinski*, all with a large share of family labor force, succession plays a major role for the long-term development of agricultural employment. However, many of the small farms have no successor.

In summary, the case results indicate a small decrease or stagnation in overall agricultural employment (cf. Table 2). Regional differences are expected in the strength of the decrease as well as in the nature of change. The strongest decline is anticipated in *Cluj*. In regions characterized by large-scale farms and wage labor, such as the Czech, Slovakian and Hungarian case regions, the expected decline is less pronounced, since a radical outflow of labor has already taken place during transition.

Since the CAP was only introduced in 2004 (and not yet in Romania), the experience of interviewees with this policy is limited which makes it more difficult for them to assess the impact of the CAP introduction. They expect, that EU accession and introduction of the CAP will lead to slightly more investment in machinery and buildings. These investments are mainly in labor-saving technologies which is most important in a region like *Cluj*, where much harvesting is done manually by seasonal workers. It is likely that the replacement of labor by capital will be more pronounced than the effect of expanding production, resulting in a decline in total labor input.

Although the CAP introduction on average increases farm income (which might stabilize employment), this does not hold for all regions – as exemplified by *Szczecinski* – and farm types. CAP induced adjustments of the balance of enterprises are expected to have only limited employment effects in the case regions, except for *Latgale* where an increase in milk and crop production is expected. In the other case regions a growing importance of agri-environmental schemes is anticipated. At the same time, the liquidity effect of the direct payments could lead to an intensification, particularly in *Cluj*.

In summary, the impact of CAP introduction on employment changes varies greatly across the regions (see Table 3). Little or no impact is assumed in *Szczecinski*, *Jihomoravsky*, *Kosicky*, and *Hajdú-Bihar*, whereas a major impact is expected in *Latgale* and *Cluj*.

## **5 Concluding remarks**

Against the background of the continuous decline in agricultural employment in the enlarged EU and its already low employment share in many regions, the significance of agriculture for rural labor markets in these regions proves to be rather limited. However, this does not hold for many regions in Greece and the NMS where (semi) subsistence farming plays an important role. Moreover, agricultural employment trends are influenced much more by technical progress, the macroeconomic environment (and its associated policies), farm structures and socio-economic characteristics of farmers than directly by CAP reform/introduction. The results of the case studies suggest that the CAP reform/introduction is (at best) adjusting trend rates, but cannot (and should not try to) fundamentally alter trends. However, depending on the implementation regime of the CAP, the relative importance of CAP direct payments in comparison to other farm supports and the predominant farm and production structures, the impact of the CAP reform/introduction on employment is highly variable, and thus region and enterprise specific. Regarding the NMS, the issue of semi-subsistence farming and the huge potential for people leaving this sector over the next 10 years in many countries needs to be addressed beyond the EU agricultural and rural development policies.

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## 7 Tables

Table 1: The agricultural sector in the 15 case regions

Case Region Country	Share of agriculture <sup>1)</sup> in employment in % (2002)	Share of agriculture <sup>1)</sup> in GVA in % (2001)	Labor input in AWU/100 ha UAA (2003)	Share of family labor force in total labor force in % (2003)	1. row: % of holdings < X ha and their share in UAA 2. row: % of holdings > Y ha and their share in UAA (2003)	Farming system
<b>EU-15 cases</b>						
<b>Pinzgau Pongau (Austria)</b>	5.3	2.3	3.5 <sup>2)</sup>	94.7 <sup>2)</sup>	46.5<10 ha: 10.5 9.1>100 ha: 31.3	Alpine grassland – mostly cattle breeding
<b>Wittenberg (Germany)</b>	6.5	3.3	1.9	19.2	35.9<10 ha: 0.5 31.6>100 ha: 95.0	Heterogonous soils, field cropping and dairying
<b>Valencia (Spain)</b>	3.5	2.2	8.1	95.7	93.1<10 ha: 44.3 0.4>40 ha: 24.8 <sup>2)</sup>	Mediterran. coastal, citri-, fruit and olive trees, vineyards together > 75% of UAA
<b>South Ostrobothnia (Finland)</b>	6.5	9.8	4.0	92.6	18.8<10 ha: 3.6 22.0>40 ha: 50.3	Nordic climate, lowland, heterogeneous soils and farming systems, much livestock
<b>Allier (France)</b>	6.6	5.1	2.4 <sup>2)</sup>	65.0	21.8 <10 ha: 1.6 <sup>2)</sup> 15.7 >100 ha: 42.5 <sup>2)</sup>	Mixed mountain and valley farming; dairy,beef,sheep,40% of arable land under cereals
<b>Karditsa (Greece)</b>	52.9	22.2	15.0	99.7	85.7<10 ha: 53.1 3.0>20 ha: 16.8	Lowland with intensive irriga- ted agriculture (cotton 74% of arable land), mountainous areas
<b>South West Ireland (Ireland)</b>	7.7	2.8	3.2	94.7	16.2<10 ha: 2.3 5.4>100 ha: 21.8	Grassland farming system, dairying, beef cattle and sheep
<b>Noord-Drenthe (Netherlands)</b>	5.9	3,6	2.0	88.0	21.8 <10 ha: 20.8 <sup>2)</sup> 5.5 > 100 ha: 5.5	Lowland area dominated by root crops (50% of arable land) and specialist dairy sector.
<b>Orkney Islands (UK)</b>	16.7	15.7	2.2 <sup>3)</sup>	77.8 <sup>2)</sup>	41.8<10 ha: 3.1 10.3>100 ha: 60.3	Grassland farming system, mainly intensive beef cattle
<b>NMS-12 cases</b>						
<b>Jihomoravsky (Czech Republic)</b>	4.8	3.6	6.3	45.7	80.3<10 ha: 2.2 5.5>100 ha: 89.2	Low mountain range and lowlands, intensive arable farming, some horti-/viticulture
<b>Latgale (Latvia)</b>	22.3	8.6	10.8	93.5	73.8<10 ha: 38.0 0.4>100 ha: 9.5	Lowlands, much grassland and uncultivated area, arable farming
<b>Hajdú-Bihar (Hungary)</b>	9.2	7.2	7.8	91.6	93.3<10 ha: 18.1 0.6>100 ha: 51.7	Heterogeneous soils, mainly arable farming and vegetables
<b>Szczeciński (Poland)</b>	13.0	3.2	13.3 <sup>3)4)</sup>	97.2 <sup>3)</sup>	66.2<10 ha: 14.1 <sup>2)</sup> 1.9>100 ha: 37.1	Lowland, mostly arable farming
<b>Kosický Kraj (Slovakia)</b>	4.6	4.2	4.6	77.9	94.2<10 ha: 2.0 2.9>100 ha: 94.3	Mountainous, mixed arable farming and livestock
<b>Cluj (Romania)</b>	28.8 <sup>a)</sup>	11.4 <sup>a)</sup>	76.8 <sup>2)5)b)</sup>	93.2	92.4<10 ha: 49.5 0.1>100 ha: 44.3	Upland and river plains, mixed arable farming and extensive livestock

Note: <sup>1)</sup> Agriculture, hunting, forestry and fishing <sup>2)</sup> Administrative unit NUTS 2 <sup>3)</sup> Only individual holdings

<sup>4)</sup> Poland <sup>5)</sup> Persons.

Source: Eurostat Regio Database (2005), <sup>a)</sup> Yearly Statistic Breviary of Cluj County (2004) <sup>b)</sup> Romanian Statistical Yearbook (2004).

**Table 2: Interviewees forecast of employment change in their case region (next five years)**

Employment category	Full time	Part time	Seasonal/ Casual	Total family workers	Total employees
<b>EU-15 cases</b>					
Pinzgau-Pongau (A)	4	2	3	4	4
Wittenberg (D)	4.5	3	2	4.5	3
Valencia (E)	4	4	2	5	2
South Ostrobothnia (FIN)	4.3	3.2	2.2	4.3	3
Allier (FR)	2	2	1	2	2
Noord-Drenthe (NL)	2	2	3	2	2
Karditsa (GR)	4	3	2	4	4
SW Ireland (IRL)	5	2	3.3	4.5	3.9
Orkney (UK)	4.2	2.9	3.1	3.3	3.8
<b>NMS-12 cases</b>					
Jihomoravsky (CZ)	4	3-4	3-4	4	4
Hajdú-Bihar (H)	3.9	2.8	2.7	3.8	3.3
Latgale (LV)	3-4	2-3	2	3	3-4
Szczecinski (PL)	3	3	4	3	3
Kosicky (SK)	3-4	2-3	2-3	3	3-4
Cluj (RO)	2-3 <sup>a)</sup> 4-5 <sup>b)</sup>	3	4-5	4-5	4-5

Note: <sup>a)</sup> commercial companies <sup>b)</sup> agricultural associations.

1=large increase, 2= small increase, 3= no change, 4= small decrease, 5= large decrease.

Source: Copus et al., 2006.

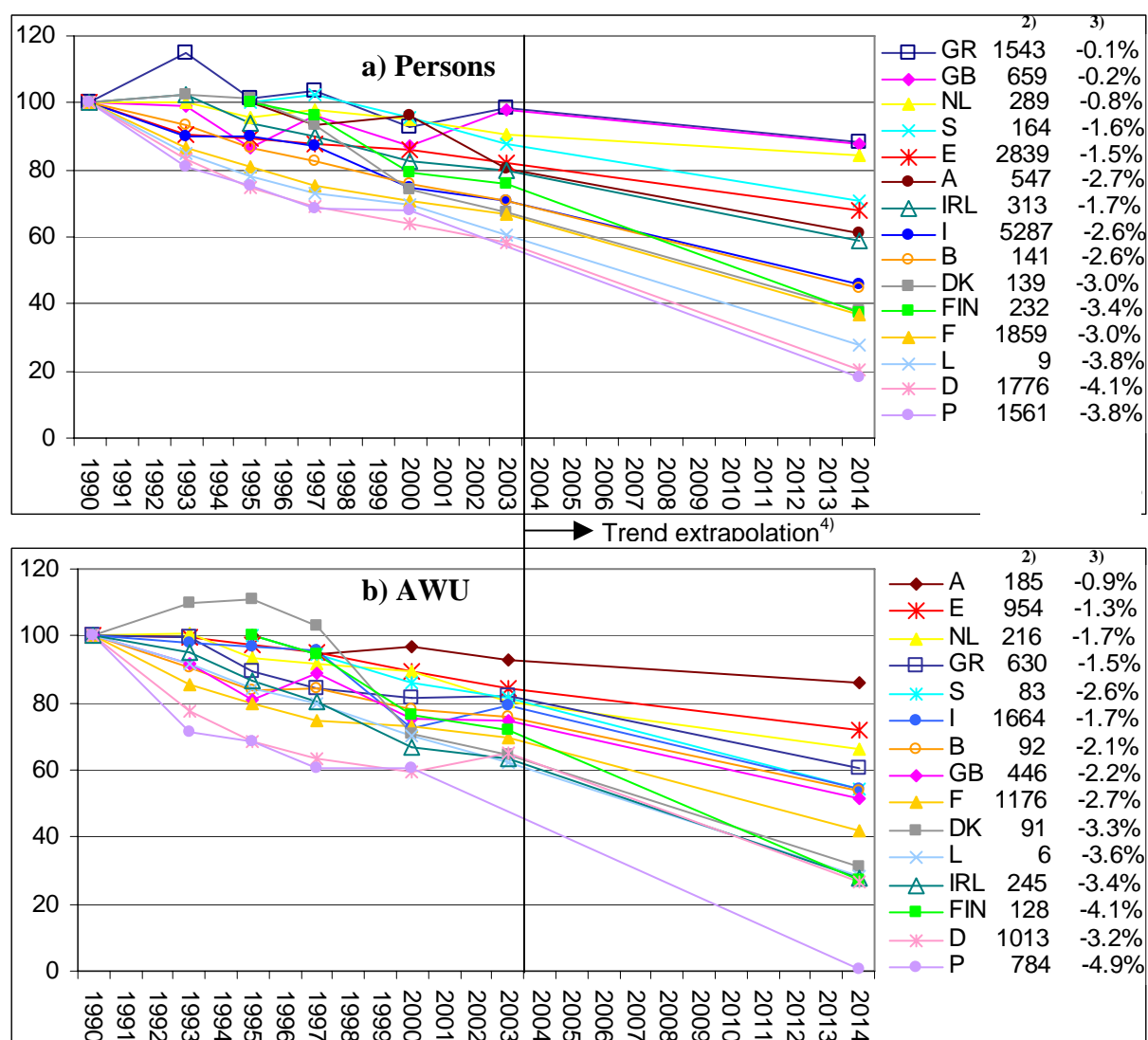
**Table 3: Experts view of impact of CAP reform on agricultural employment in the 15 case regions**

	Full time	Part time	Seasonal/ Casual	Total family workers	Total employees
<b>EU-15 cases</b>					
Pinzgau Pongau (AT)	2	2	-	2	2-3
Wittenberg (D)	2-(3)	2-3	2	3	2
Valencia (ES)	2	2	2	2	2
South Ostrobothnia (FIN)	(2)-3	(2)-3	(2)-3	(2)-3	(2)-3
Allier (FR)	2	2	3	2	2
Karditsa (GR)	1	1-2	1	2	1
SW Ireland (IE)	1	1	3	1	2
Noord-Drenthe (NL)	2	2	3	2	2
Orkney (UK)	1	2	3	2	2
<b>NMS-12 cases</b>					
Jihomoravsky (CZ)	2	2.5	2-	2.5	2
Hajdú-Bihar (H)	1.7	2.2	2.3	2.2	2.1
Latgale (LV)	1	1	2-	1	1
Szczecinski (PL)	3	3	3	3	3
Kosicky (SK)	2	2.5	2.5	3	2
Cluj (RO)	1	2	2	1	1

Note: Rating of CAP impact: 1= major, 2= minor, 3= none.

Source: Copus et al., 2006.

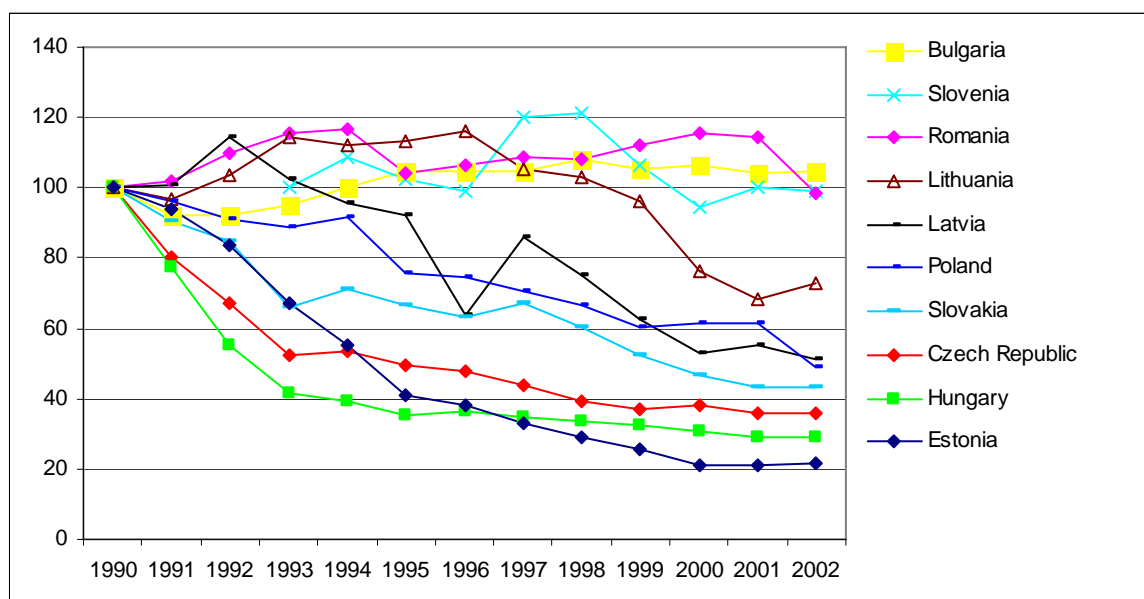
**Figure 1: Development of a) persons and b) annual working units in agriculture in the EU-15 countries 1990-2003 with trend extrapolation until 2014 (1990=100)<sup>1)</sup>**



Note: <sup>1)</sup> Austria, Finland and Sweden: 1995=100. <sup>2)</sup> Agricultural employment 1990 in 1000 persons and AWU resp. <sup>3)</sup> Annual average change rate 1990-2003. <sup>4)</sup> These linear regression results have to be interpreted with caution due to their dependence on the considered (short) time period and the neglect of (possible) structural breaks (e.g. in Portugal).

Source: Authors calculations based on Eurostat Farm Structure Survey.

**Figure 2: Development of employed persons in agriculture<sup>1)</sup> in the CEECs, 1990-2002**  
**(1990=100)<sup>2)</sup>**



Note: <sup>1)</sup> Including hunting and forestry in Slovakia, Lithuania and the Czech Republic; including hunting in Latvia; including hunting, forestry and fishery in Poland and Hungary. <sup>2)</sup> Slovenia: 1993=100.

Source: Authors calculations based on Statistical Yearbooks of the respective countries (2003 and earlier), Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft (2004).