importowego w tej grupie krajów na 2016 rok została obniżona o 0,8 pkt. proc. w porównaniu z prognozą z kwietnia br.

2 Wzrost handlu w ramach międzynarodowych łańcuchów wartości dodanej przyczynił się do zwiększenia znaczenia w eksporcie strefy euro Europy Środkowo-Wschodniej (EŚW) oraz krajów rozwijających się, przede wszystkim z Azji. Zjawisko to związane było przede wszystkim ze zwiększeniem eksportu dóbr pośred-

nich. W efekcie produkcja, a więc i eksport, części towarów zostały przeniesione do krajów EŚW oraz Azji. Z drugiej strony względnie wysoki wzrost popytu finalnego w tych krajach także wpłynął na ograniczenie znaczenia pozostałych regionów w eksporcie strefy euro.

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AGRI-FOOD SECTOR: THE SPEED OF DEVELOPMENT IN THE NEW EU MEMBER STATES

Miklós Somai, Zsuzsanna Hegedüs*

Approximately a decade has passed since the first waves of the so-called Eastern enlargement of the EU took place (in 2004 and 2007), which seems to be a long enough time for us to make the first comparative analysis on its results. It is so, even if Romania and Bulgaria, having joined the EU in the second wave, are still in the phasing-in period for their direct payments, thereby for them the agricultural integration cannot be regarded as complete. In this paper, we try to measure the speed of changes in the agri-food sector both in absolute and relative terms. As for the latter, we take into account the initial (i.e. pre-integration) development level for each new member state, in order to ascertain whether, in international comparison, they could make good use of their potential and follow the development path according to their relative development status.

Short literature review

The literature trying to measure the impacts of EU accession on agri-food sector in NMS[1] is as old as these countries' ambition to become members. As for the writings before enlargement, most famous are those made for the European Commission's different Directorate Generals. The so-called Nallet-Van Stolk Report (1994)[2] denounced prejudices against NMS' alleged production potential and emphasised that agricultural development could not be separated from the growth of general welfare. Others, like Tangermann and Josling (1994)[3], Tarditi (1994)[4], Buckwell et al. (1994)[5], or Mahé (1995)[6], put emphasis on problems stemming from Eastern enlargement and argued for denying CAP direct payments to NMS (especially Tarditi, but also Mahé), or at least their re-nationalisation (Tangermann). A last minute contribution to the Commission's so-called "Issues Paper" designing the main features of agricultural enlargement was made by Alain Pouliquen (2001)[7], who pointed out how much difficulties NMS farmers would

have to face following the accession, especially in animal sectors.

As for the studies born since 2004, we would like to mention just a couple of them. In the first place that of Bojnec and Fertő (2008)[8] analysing NMS agri-food trade competitiveness and highlighting increased export performances despite some catching-up difficulties with the old member states in terms of price and quality competition, especially in higher value-added products. A policy-oriented analysis was presented by Möllers et al. (2011)[9], who investigated changes in agri-food structures and rural patterns. Finally, a paper came out from Csáki and Jámbor (2013)[10] analysing the impacts of the EU accession on NMS and reasoning that EU membership has had positive consequences as a rule, albeit there were differences in how the new members could take advantage of their chances. While there is a huge amount of literature dedicated to assessment of changes in NMS agri-food sector since EU accession, much less attention has so far been paid to create rankings of these countries in terms of absolute and relative development.

Methodology

As the agricultural integration (i.e. remarkable market opening) having been speeded up through agreements on trade facilitation between the EU and the then still candidate countries since the year 2000, in our analysis, we decided to go as far back in time as to 1999, much further than the enlargement took place. Of course, we could not obtain full data sets for all parameters, but we tried, in most cases, to gather statistics for the period of 1999 to 2012 or 2013, and even to 2014. According to the available database, we would work with 15 to 22 indicators (see later) and measured the speed of development using different methods: by comparing the starting value to the end value of the timeframe; by establishing a trend line through the data; by calculating the average deviation from the trend; and by examining Beta-convergence across all new member states and the group of EU15, with 1999 as the base year. For data evaluation we used the so-called agricultural performance index (API) worked out by Attila Jámbor. When computing this index we would assign scores ranging from 0 to 100 to each performance, and then by

summing up the scores we would rank the countries[11]. Naturally, there are differences among the rankings produced by different methods. But, on the one hand, these differences can easily be explained; and, on the other hand, they are not so significant as to make it virtually impossible for us to draw general conclusions.

Production levels and development rates

In this section, we provide an overview of the trends in production levels in agriculture and food industry of the EU10, and a very simple calculation of rates of development. For the chosen production, efficiency and trade indicators, we split the period of 1999-2013 into three 5-year sub-periods and calculated arithmetic means to be displayed in column charts for some of them. In order to grasp the dynamism of development, we compared the last sub-period to the first one, i.e. the average of 2009-2013 to that of 1999-2003, and summarised the result in Table 1.

Production indicators

Our first production type indicator is about gross value added – GVA (Figure 1). As for the size of their agricultural sector, Poland and Romania stand out from the group of EU10, although, due to opposite trends in their time series, they have practically changed places during the investi-

gated period. The two big countries are followed by Hungary as a middle-size player. Bulgaria, a formerly significant supplier of agri-food products of the region, has fallen back to a lower rank. When it comes to per capita production, Lithuania's performance also deserves attention. As for the dynamic of the indicator between the first and last 5-year period, in only three countries we can see any growth: in Lithuania (+40%), Poland (+38%) and Estonia (+11%). In the rest, there was a decline of 14 to 46 per cent, the worst scores belonging to Romania (-31%), Slovakia (-40%) and Bulgaria (-46%).

Our second chart demonstrates cereals output (Figure 2). As for the level of production, we have the same situation as for the GVA: Poland and Romania standing out, followed by Hungary, and then comes the trio of Bulgaria, the Czech Republic and Lithuania. In dynamism, the Baltics take the lead (+78-106%), followed by the trio of Hungary, Bulgaria and Poland (+34-42%). A decline was only observed in Slovenia (-7%) and Romania (-16%). As a matter of fact, EU10 cereal production has undoubtedly benefited from EU accession, though we need to add at once that the same holds true for industrial crops, too. As for the latter, Poland is by far the biggest producer, followed by a quartet showing an almost equal level of production: Hungary, Romania, Bulgaria, and the Czech Republic. As for the magnitude of development, it exceeds 100 percent in five out of the ten countries.

The third chart is about meat production (Figure 3). In this field, Poland greatly outpaces the others, while Hun-

Figure 1

Gross value added in agriculture at real prices (million EUR)
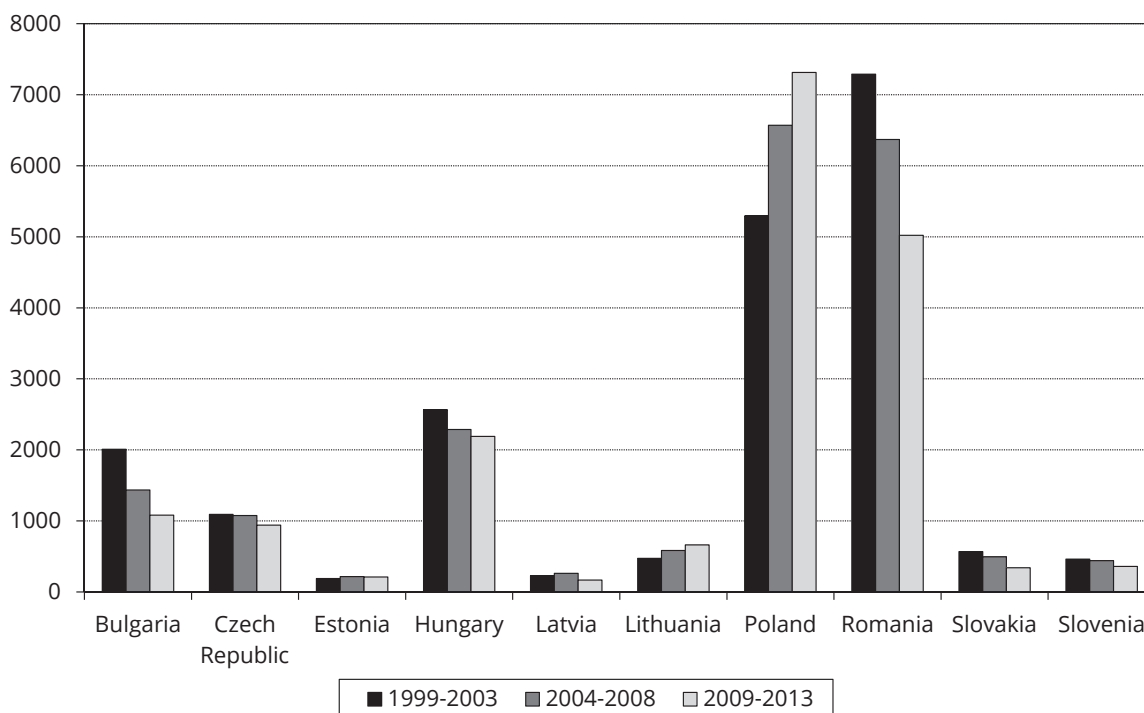
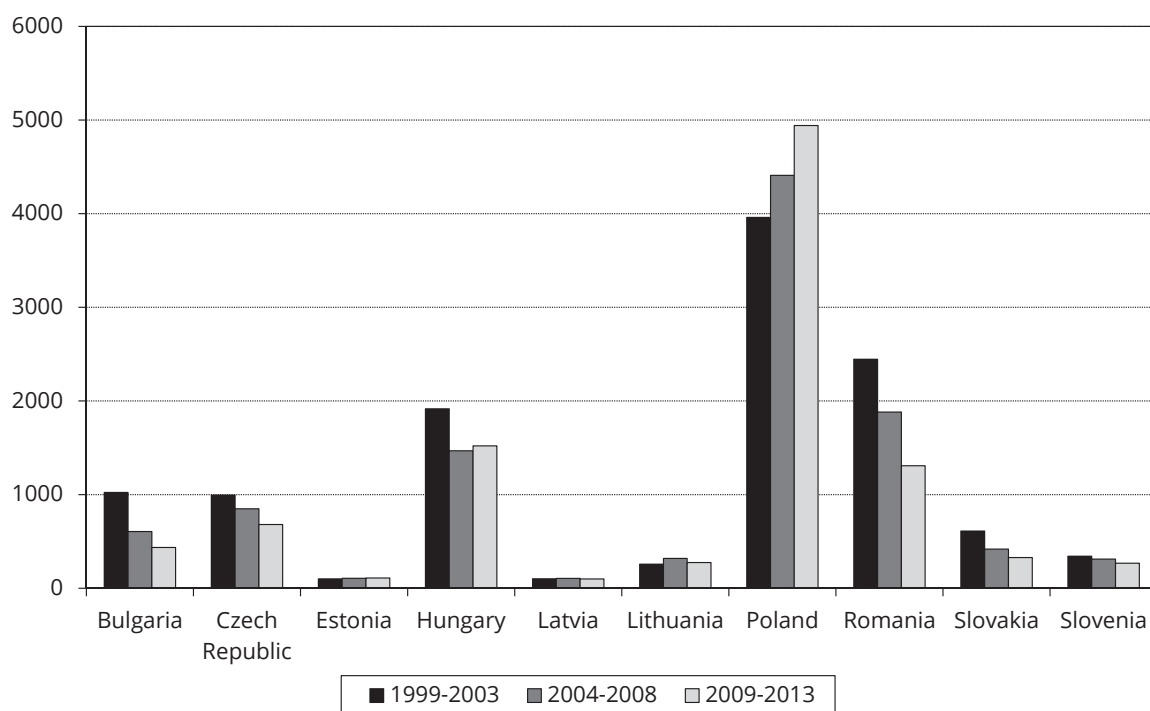*Source: Own composition based on Eurostat (2015), http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes [31.7.2015].*

Figure 2

Cereals output at real prices (million EUR)
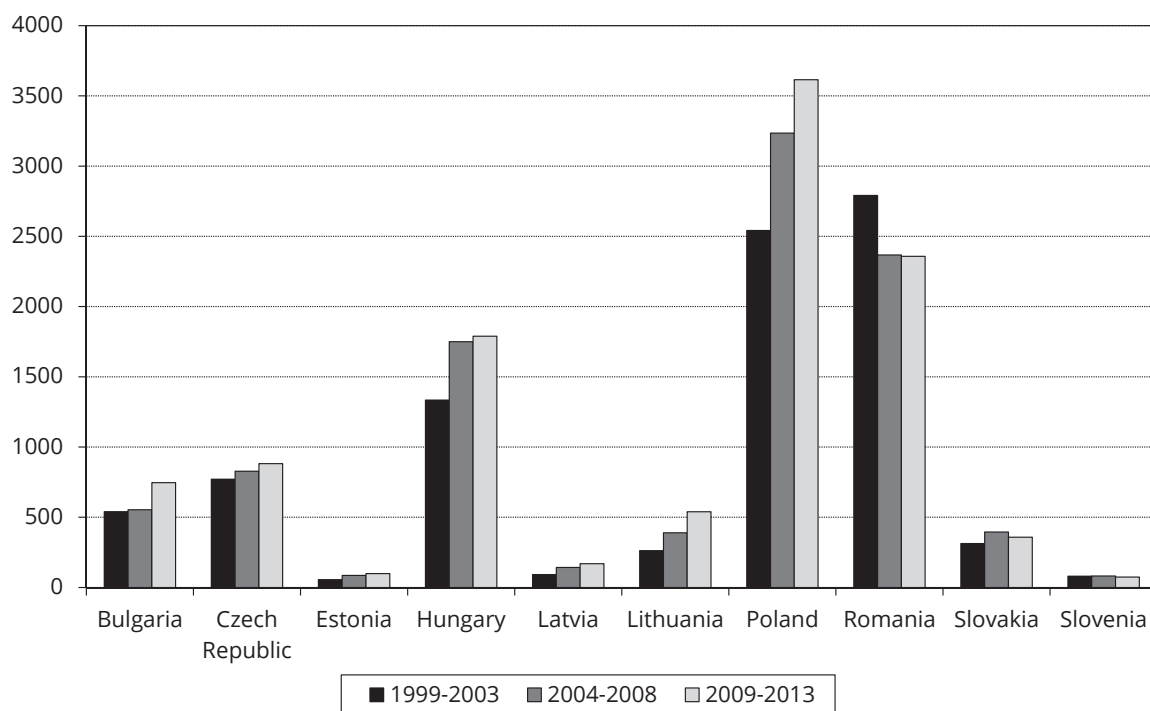
Figure 3

**Meat output at real prices (million EUR)**

gary secures the second place ahead of Romania. A substantial growth can only be seen in Poland, the Baltics stagnating this time, and all the other countries lagging not only behind them, but also behind the EU15. The situation is partly similar for fruits and vegetables with only Poland and Slovenia having achieved growth in both sectors. As for the other countries, they show a significant decline in at least one of the two sectors, but Hungary, Bulgaria and Slovakia do so in both. In both sectors, the two big producers (Poland and Romania) are followed by Hungary as a sole representative of the middle scale. The once flourishing Bulgarian fruit and vegetable sector is now a mere shadow of its former self.

Our fourth chart demonstrates the milk sector (Figure 4), with Poland experiencing a much faster growth rate than any other country: over the investigated period, its share in EU10 production moved from 30 to 47 percent. Also, an increase in the milk output has only been reported in Poland (+34%) and the Baltics (16-21%); everywhere else, there was a decline.

Figure 4

Milk total output at real prices (million EUR)
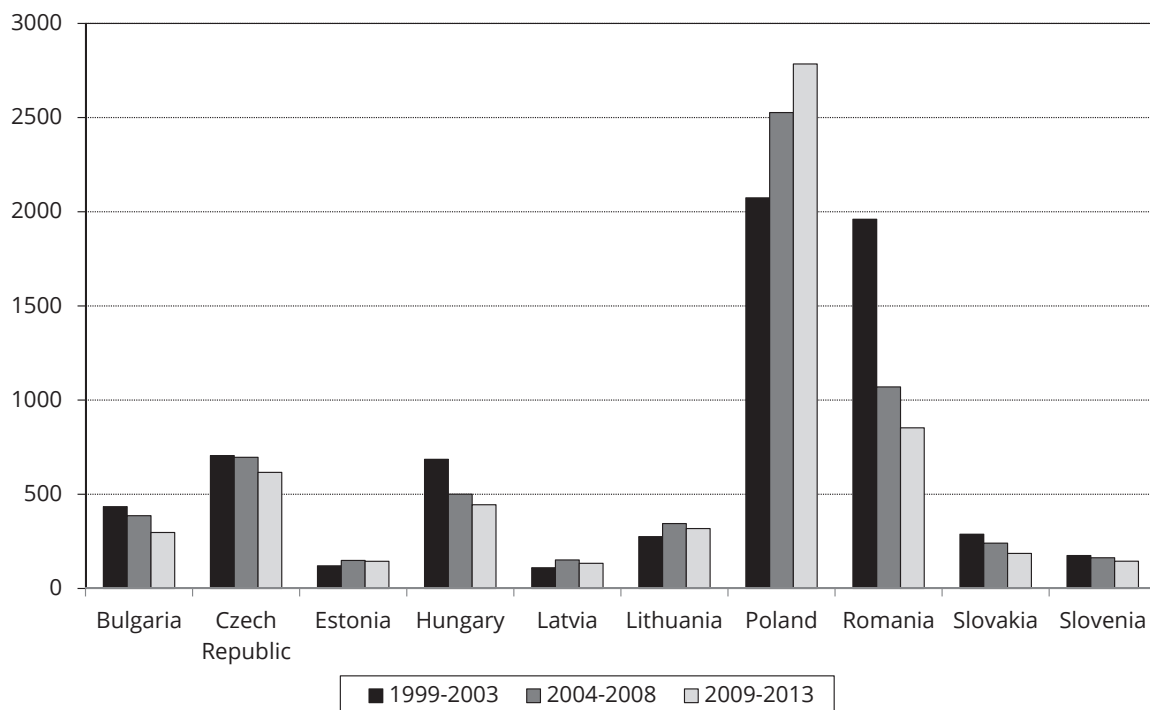
Source: Like in Figure 1.

Efficiency indicators

The first chart on efficiency indicators to be displayed here is about gross value added per hectare (Figure 5). Obviously, in EU10 only the Slovene agriculture is able to produce nearly the same gross value per unit of land as its EU15 counterparts. An increase in the indicator has only been observed in Lithuania (+52%) and Poland (+64%), while in other countries it has either stagnated (in Hungary, Estonia and the Czech Republic) or declined (by 17 to 41 percent). All this indicates that extensive farming has been gaining ground in EU10 as a consequence of both CAP support and EU membership in general.

As far as the second efficiency indicator, that of the GVA per annual work unit (AWU), is concerned, relatively concentrated land structures (e.g. in the Czech Republic, but also in Slovakia) seem to be beneficial (Figure 6). In Estonia, an important part of the agricultural production comes from a robust segment of middle-sized farms, whose economic power is already comparable to those of their counterparts in Italy or Ireland. For this indicator all countries performed relatively well, three of them even better: Poland (+70%), Lithuania (+89%) and Estonia (+151%). Nevertheless, EU15 average (euro >20 000) is still out of rich for any of the EU10 countries.

Our third main efficiency indicator is about cereal yields (Figure 7)[12]. Yields in this staple food have increased faster than in the EU15 in each country of the EU10 and, typically, the faster they did so, the bigger the initial gap in yields' levels between EU10 and EU15 was. For example, yields have improved by 54 percent in Estonia and by 45 percent in Latvia over the investigated period. Although the EU15
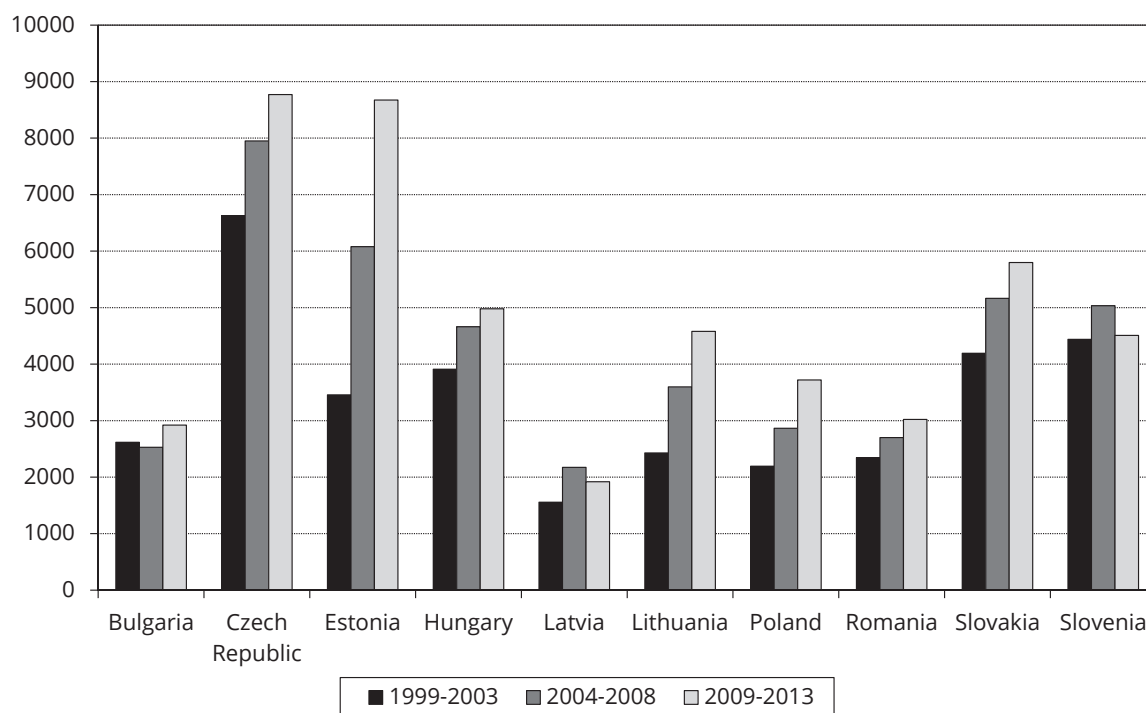
Figure 5

Gross value added per hectare (EUR/hectare)
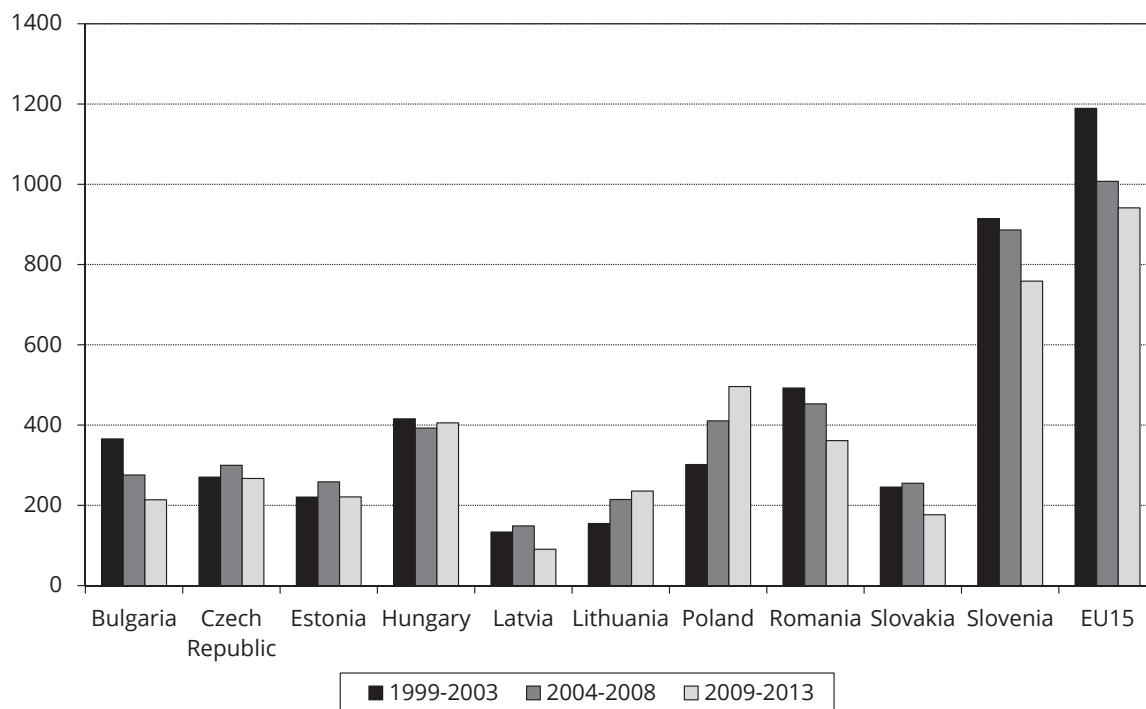
Source: Like in Figure 1.

Figure 6

**Gross value added per annual work unit (EUR/AWU)**

Source: Like in Figure 1.

yields' levels remained out of reach for the EU10 (with the partial exception of Slovenia), the Czech Republic, too, is on the right track. In some other important sub-sectors we found that EU10 yields in oilseeds, fruits and vegetables are still remarkably below EU15 average (except for fruits in Slovenia and for vegetables in Poland); but EU10 yields in milk and poultry are already comparable to those in EU15.

Figure 7

Cereal yields (tonnes/hectare)
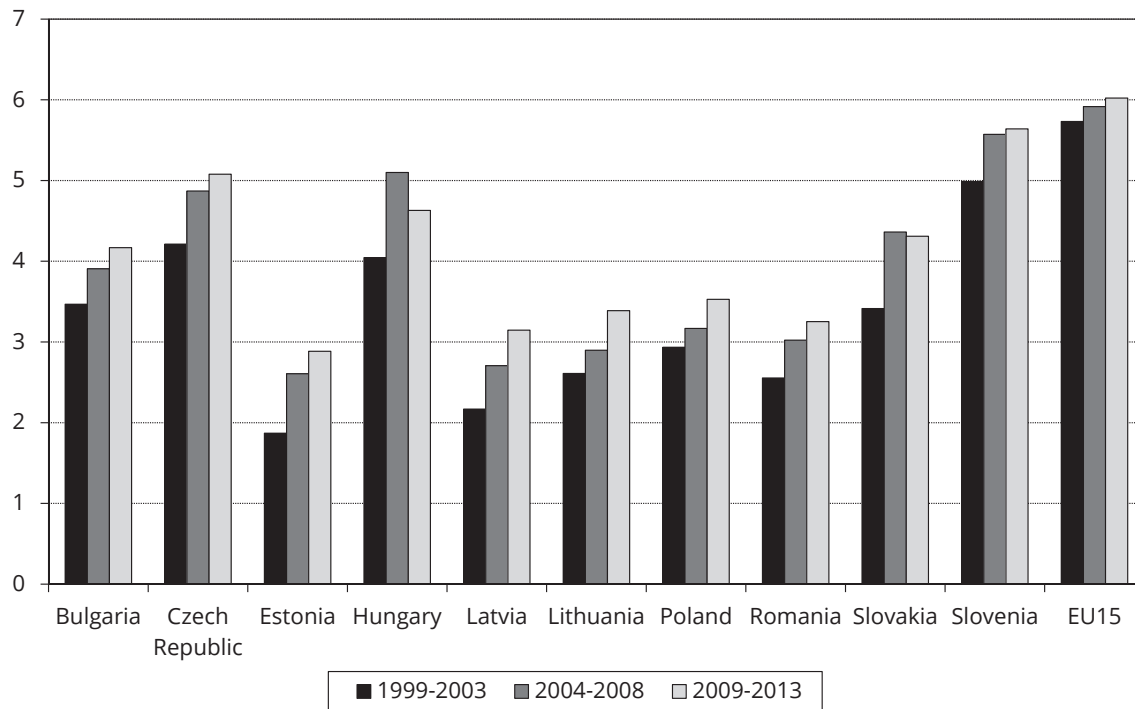
Source: Like in Figure 1.

Trade indicators

Out of the trade indicators, first we treat that of the balance (Figure 8). A measurable improvement in this field could only be identified in four countries: Poland, Hungary, Bulgaria, and Lithuania. Estonia and Romania are in roughly the same situation as the decade ago, while Slovakia, Slovenia, and the Czech Republic have to face constantly deteriorating trade balances. If we examine the balances of intra- and extra-EU trade separately, we shall find that, while in extra-EU trade all of the EU10 but Slovenia show improvement in their balance (and even a surplus at the end of period), in intra-EU trade only Poland and Hungary are able to run a sustained surplus, Bulgaria being more or less balanced, and the rest of the group producing an ever increasing deficit. Note that EU accession has caused serious problems through competitive challenges in some countries (e.g. in Hungary, Bulgaria or Romania) with good agricultural potential (abundant and fertile lands, cheap and skilled labour) but poor preparation for membership; their intra-EU trade balance significantly deteriorated in the year of accession and the following two years.

Our second trade indicator reflects the share of final products[13] in intra-EU agri-food exports (Figure 9). The share of high value-added products in exports going to developed regions says much about the state of development, profitability and competitiveness in a given sector. In this respect, the best result is that of Poland (with a share of over 80%). The share is also above EU15 average for all three of Estonia, Lithuania, and the Czech Republic, even if the indicator for Lithuania is getting worse in time. As for the rest of the EU10 countries, the share of final products in agri-food exports to the EU27 has either decreased tremendously since EU membership (e.g. in Bulgaria, Hungary, and Slovenia), or got stuck at its initial very low level (e.g. in Latvia and Romania).

Lastly, let's put all the indicators together and classify both by sector and country (Table 1).

The results presented in Table 1 only confirm what has already been asserted: best performances are associated with arable crops (mainly cereals and oil seeds) among agri-food products and with Poland and the Baltic States among the EU10 countries.

Per capita incomes grew rapidly due to first steadily decreasing then (since the outbreak of the global crisis)

Figure 8

Agri-food trade balance (HS 01-24, million EUR)
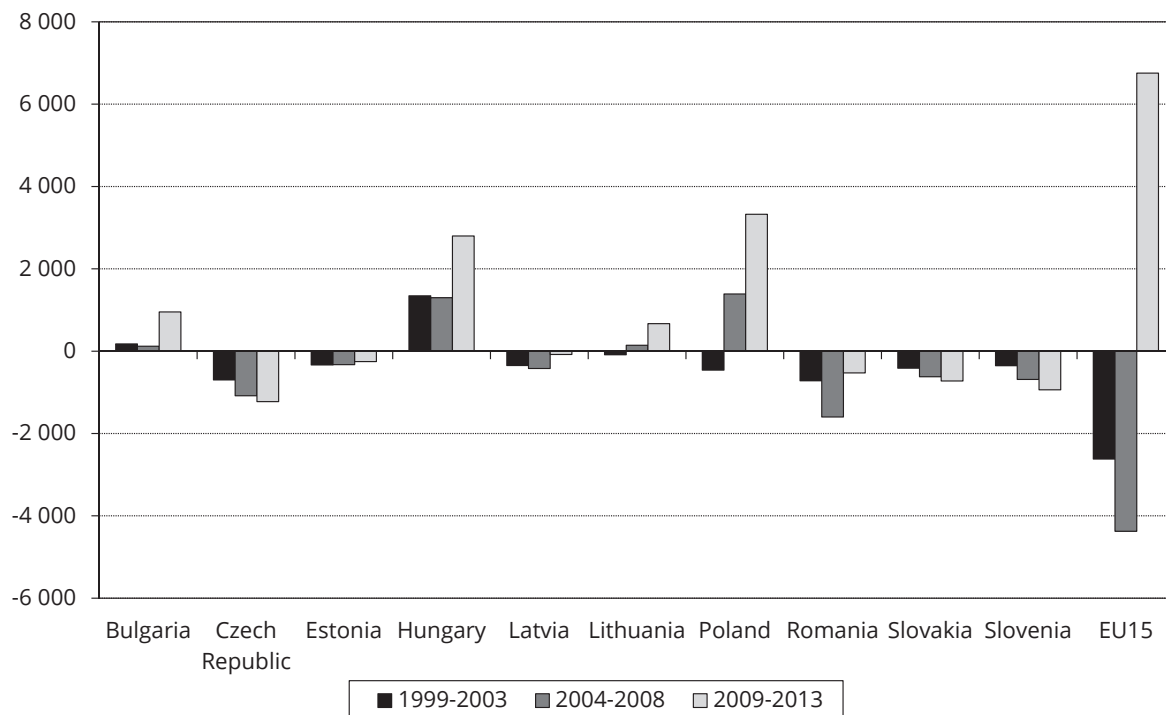
Source: Own composition based on WITS (2015), http://wits.worldbank.org/ and OZFOREX Foreign Exchange Services , http://www.ozforex.com.au/
forex-tools/historical-rate-tools/yearly-average-rates for converting US dollar to euro.

Figure 9

Share of final products in agri-food exports to the EU27 (%)
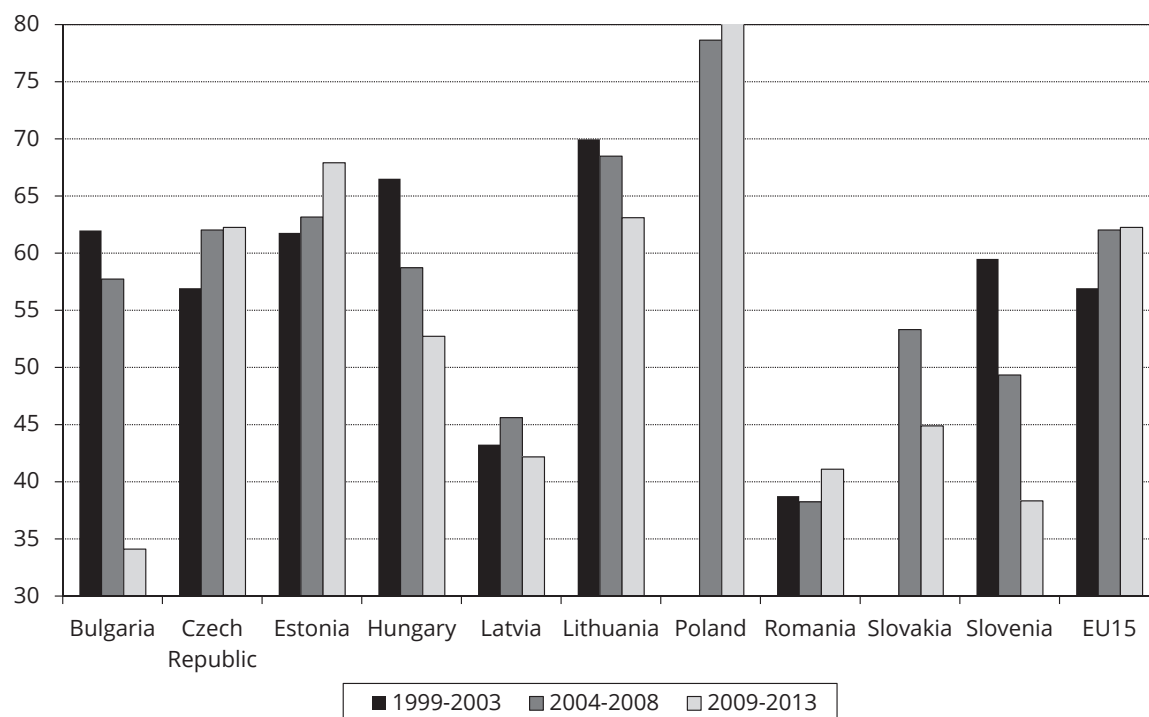
Source: Like in Figure 1.

stagnating labour input, slowly increasing products yields (except for fruits), and growing prices and CAP subsides. The main losers seem to be the animal sectors (with the exception of those in Poland and the Baltics) which had to face huge competitive challenges of imports coming from the EU15.

Table 1

Changes in performances – average performances of the period of 2009-2013 compared to that of 1999-2003, the latter being 100 (except for the last two rows)

	BG	CZ	EE	HU	LV	LT	PL	RO	SK	SI	EU15
GVA at r.p.	54	86	111	85	73	140	138	69	60	77	76
Cereals o.r.p.	138	114	178	134	184	206	142	84	114	93	87
Ind. crops o.r.p.	242	133	303	156	241	232	195	148	131	74	75
Fruits o.r.p.	42	59	40	68	38	100	118	77	56	108	94
Vegetables o.r.p.	19	154	121	72	106	58	159	101	80	108	93
Meat o.r.p.	43	68	110	79	98	107	125	53	54	78	96
Milk o.r.p.	68	87	120	65	121	116	134	44	65	83	95
Indicator A	144	243	371	205	262	254	282	130	213	141	107
GVA/hectare	59	99	100	98	68	152	164	73	72	83	79
GVA/AWU	112	132	251	127	123	189	170	129	138	102	95
Cereal yields	120	121	154	114	145	130	120	127	126	113	105
Fruit yields	77	75	57	95	64	90	114	119	95	92	108
Vegetable yields	152	120	213	108	157	142	123	105	84	88	115
Milk yields	132	121	148	100	128	135	120	84	101	117	110
Poultry yields	112	104	106	109	107	105	119	121	124	96	105
AF trade bal. (bn USD)	1.10	-0.96	-0.01	2.42	0.23	0.98	4.88	-0.00	-0.57	-0.91	11.50
Fin. prod. X (% point)	-27.9	5.3	6.1	-13.8	-1.1	-6.9	1.5	2.4	-8.4	-21.2	5.3

GVA = gross value added; r.p. = real prices; o.r.p. = output at real prices; Ind. crops = industrial crops; Indicator "A" = real net value added at factor cost of agriculture per annual work unit (AWU); AWU = annual working unit; AF trade bal. (bn USD) = change in agri-food trade balance in billion USD; Fin. prod. X (% point) = percentage point change in the share of final products in agricultural exports to the EU27.

Source: Own calculations based on Eurostat (2015), http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes, FAO (2015), http://faostat.fao.org/site/339/default.aspx); WITS (2015), http://wits.worldbank.org/ and OECD (2015), http://stats.oecd.org/Index.aspx?DatasetCode=FDI_FLOW_INDUSTRY# [31.7.2015].

Absolute speed of development

In this section, we are concentrating on the absolute speed of development. Here, we have three types of indicators: 10 for production, 10 for efficiency and 2 for trade patterns, to be analysed by several ways. The results have been quantified by the use of API, the so-called agricultural performance index (as a reminder, see section: Methodology). For most of the indicators, data were available for the entire period of 1999-2013. However, in some cases, they were missing either at the beginning or at the end of the scrutinised period. And even, in rare occasions, there were no statistical data available for some years or countries. We used three different methods: first, we compared the arithmetic mean of the last three years of the period with that of the first three ones; then, we did the same thing with the last and first five years; finally, we investigated the slope of the linear trend in the data. As the latter method displays the dynamic of development for the entire period (with most datasets covering at least 14-15 years), we decided to present its results (the APIs) in detail in Table 2.

Based on the results shown in Table 2, the following statements can be formulated:
☞ Regarding the production indicators, Poland is outstanding, and also Estonia is a bit of a cut above the others; then comes the bulk of countries (including Hungary) with medium performances; and the ranking is closed by Romania, lagging far behind. If out of the production indicators we only pick those referring directly to product output, we shall find that the above statements remain true, except for Estonia whose performance is rather intermediate.
☞ As for the efficiency indicators, the little bit outstanding Estonia is followed by the two other Baltic states and Poland; Hungary is again in the middle, together with Romania; at the end of the ranking we have Slovenia

and Slovakia. If we take efficiency in the narrower sense by only investigating the yields, our statements remain valid, except for Hungary and Slovakia switching places.

☞ Concerning the trade indicators, the countries form three groups: Poland playing the lead, the bulk of countries making up a strong middle, and Bulgaria, Slovakia and Slovenia closing the ranking.

Table 2

Agricultural performance indexes (APIs) created from the slope of the linear trend on 1999-2013 data (with units in round brackets)

	BG	CZ	EE	HU	LV	LT	PL	RO	SK	SI
Gross value added (million EUR)	35	54	56	51	53	59	100	0	50	53
Cereals output (million EUR)	42	36	29	64	31	46	100	0	30	25
Industrial crops output (million EUR)	52	26	6	45	6	18	100	38	7	0
Fruits output (million EUR)	32	56	61	33	61	62	100	0	57	63
Vegetables output (million EUR)	0	47	42	25	42	39	100	37	39	42
Meat output (million EUR)	22	36	50	36	50	50	100	0	37	46
Milk output (million EUR)	47	52	55	45	55	56	100	0	50	53
Inward FDI (million USD)	19	15	100	0	19	19	36	19	29	20
Market related exp./direct aid (million EUR)	22	23	1	41	2	8	100	51	9	0
Indicator "A" (1999 = 100)	4	37	100	18	38	24	36	0	22	0
Total production indicators	*274*	*383*	*500*	*358*	*357*	*381*	*871*	*144*	*330*	*303*
• *of which total product output*	*195*	*253*	*243*	*248*	*245*	*271*	*600*	*75*	*220*	*229*
Average farm capital (EUR)	82	100	87	80	81	83	78	77	0	79
Total assets (EUR)	84	100	84	77	78	80	82	74	0	74
GVA/hectare	9	50	52	47	38	71	100	13	33	0
GVA/AWU	8	44	100	23	9	41	28	14	36	0
Cereal yields (tonnes/hectare)	24	59	100	0	94	70	33	25	70	17
Oilseed yields (tonnes/hectare)	68	19	0	45	100	44	3	12	14	48
Fruit yields (tonnes/hectare)	35	0	37	40	29	58	100	95	53	24
Vegetables yields (tonnes/hectare)	59	42	100	33	61	66	58	28	12	0
Milk total yields (tonnes/head)	11	50	100	4	47	62	35	0	7	38
Poultry yields (kg/head)	62	32	35	68	48	30	79	81	100	0
Total efficiency indicators	*442*	*496*	*695*	*417*	*585*	*604*	*596*	*418*	*326*	*280*
• *of which total yields*	*191*	*170*	*337*	*122*	*331*	*300*	*229*	*160*	*156*	*127*
Agri-food trade balance (thous. USD)	34	0	15	59	19	32	100	15	6	0
Share of final products in agri-food exports to the EU27 (%)	0	99	100	41	83	64	92	94	40	22
Total trade indicators	*34*	*99*	*115*	*100*	*102*	*96*	*192*	*109*	*46*	*22*

Remember: 0 means that the country has the lowest value, while 100 mean that it has the highest value.

GVA = Gross value added; AWU = Annual work unit.

Source: Own calculations based on Eurostat (2015), http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes, and FAO (2015): http://faostat.fao.org/site/339/default.aspx), and OECD, http://stats.oecd.org/Index.aspx?DatasetCode=FDI_FLOW_INDUSTRY# (2015).

It is noteworthy to mention that when we examined the 22 indicators through 3 different methods and obtained 66 rankings of the EU10, in none of them did Hungary take the first place. Apart from Hungary only Slovenia achieved such a poor performance. When looking at the average ranking position of each individual country, we can find that there are three clearly distinguishable groups: to the first three positions arrives (by any methods) the trio of Estonia, Poland, and Lithuania; then comes the quartet of Hungary, Latvia, Bulgaria, and the Czech Republic; and the last three places are occupied by the trio of Romania, Slovakia, and Slovenia.

Table 3

Summarising table of the agricultural performance index (API) based on three different methods (1999-2013)

	Integrated results							
rank	**country**	**score**	**rank**	**country**	**score**	**rank**	**country**	**score**
1.	Lithuania	1467	1.	Estonia	1484	1.	Poland	1660
2.	Poland	1431	2.	Lithuania	1312	2.	Estonia	1310
3.	Estonia	1347	3.	Poland	1285	3.	Lithuania	1082
4.	Latvia	1027	4.	Latvia	1101	4.	Latvia	1044
5.	Czech Rep.	925	5.	Bulgaria	875	5.	Czech Rep.	977
6.	Hungary	919	6.	Czech Rep.	874	6.	Hungary	875
7.	Bulgaria	889	7.	Hungary	783	7.	Bulgaria	750
8.	Slovakia	651	8.	Romania	777	8.	Slovakia	702
9.	Romania	598	9.	Slovakia	651	9.	Romania	672
10.	Slovenia	551	10.	Slovenia	632	10.	Slovenia	606
	3 years			**5 years**			**trend**	

3 years = the last three years of the period compared to the first three years; 5 years = the last five years of the period compared to the first five years; trend = the slope of the linear trend during the whole period.

The same results hold if, instead of the average ranking position, we consider the countries total scores (Table 3). The only difference being that Latvia climbs from the middle to the top of the group by holding a stable 4th position. Hungary's performance is average across all comparison, and for its scores it is much nearer to the bottom than the top of the rankings.
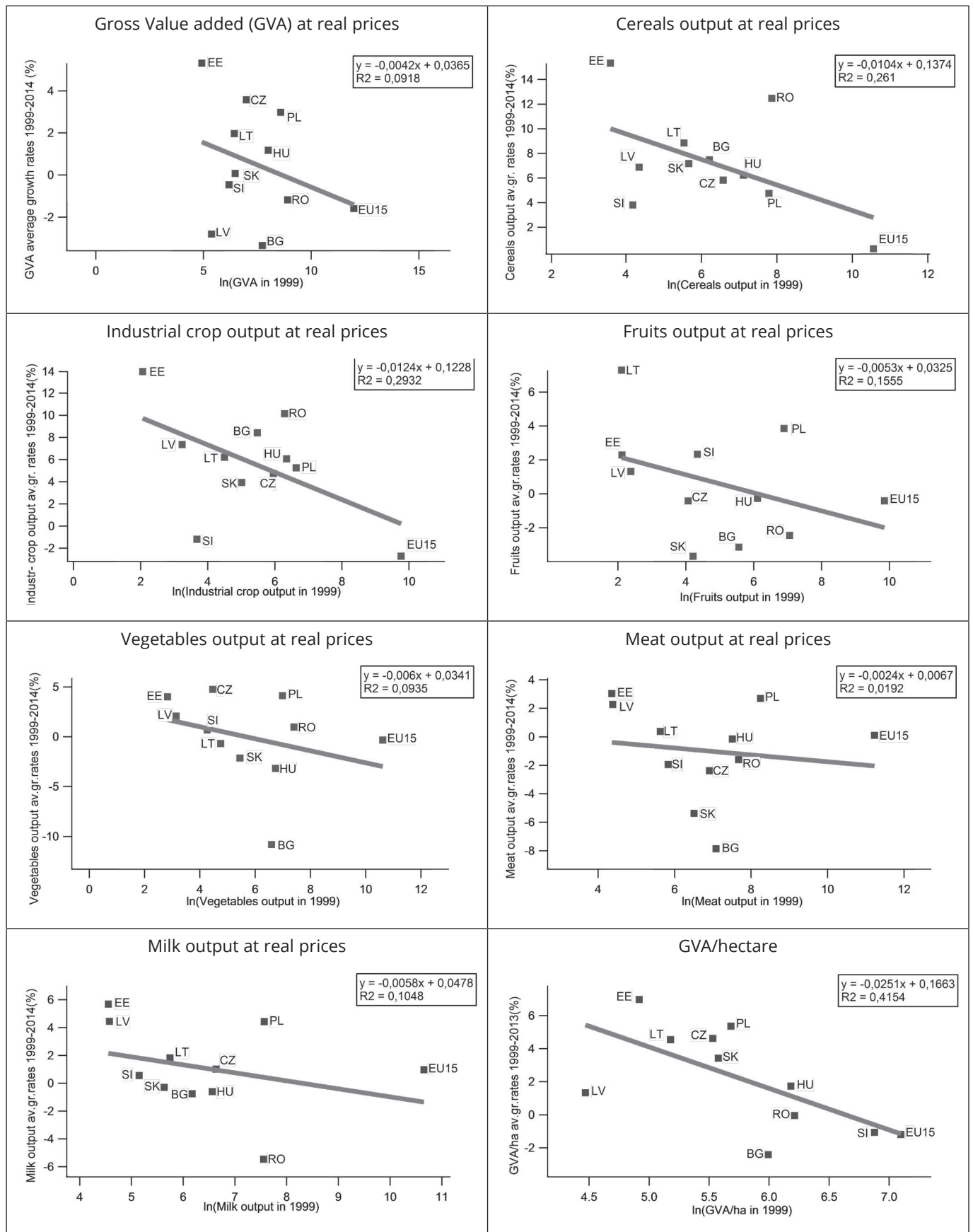
Relative speed of development

In the previous chapter, we analysed the dynamics of development exclusively and, as we could see, the best results were shown by Poland and the Baltics. At the same time, it needs to be borne in mind that the new member states entered the EU with totally different level of development for their agri-food sector. And, obviously, it is easier to make faster progress from a low base than from a high one. These differences in the level of development were also reflected by differences in the per hectare amounts of CAP direct payments determined for the Central and Eastern European countries at the time of their accession. As for the latter differences, Slovenia (325 euro/ha) had always been, and by far, the leader of the EU10, with even higher support than France (296 euro/ha) or Germany (319 euro/ha)[14]. Slovenia was followed by Hungary (260 euro/ha), the Czech Republic (257 euro/ha), and Bulgaria (233 euro/ha). Already, the per hectare amount of the Polish direct aids (215 euro/ha) was set nearer to that of Slovakia (206 euro/ha) or Romania (183 euro/ha), representing the "low middle" category, than to the Hungarian one. At the bottom of the ranking, lagging far behind, appeared Lithuania (144 euro/ha), Estonia (117 euro/ha) and Latvia (95 euro/ha). As per hectare subventions were calculated from regionally attainable yields, and as the latter may be
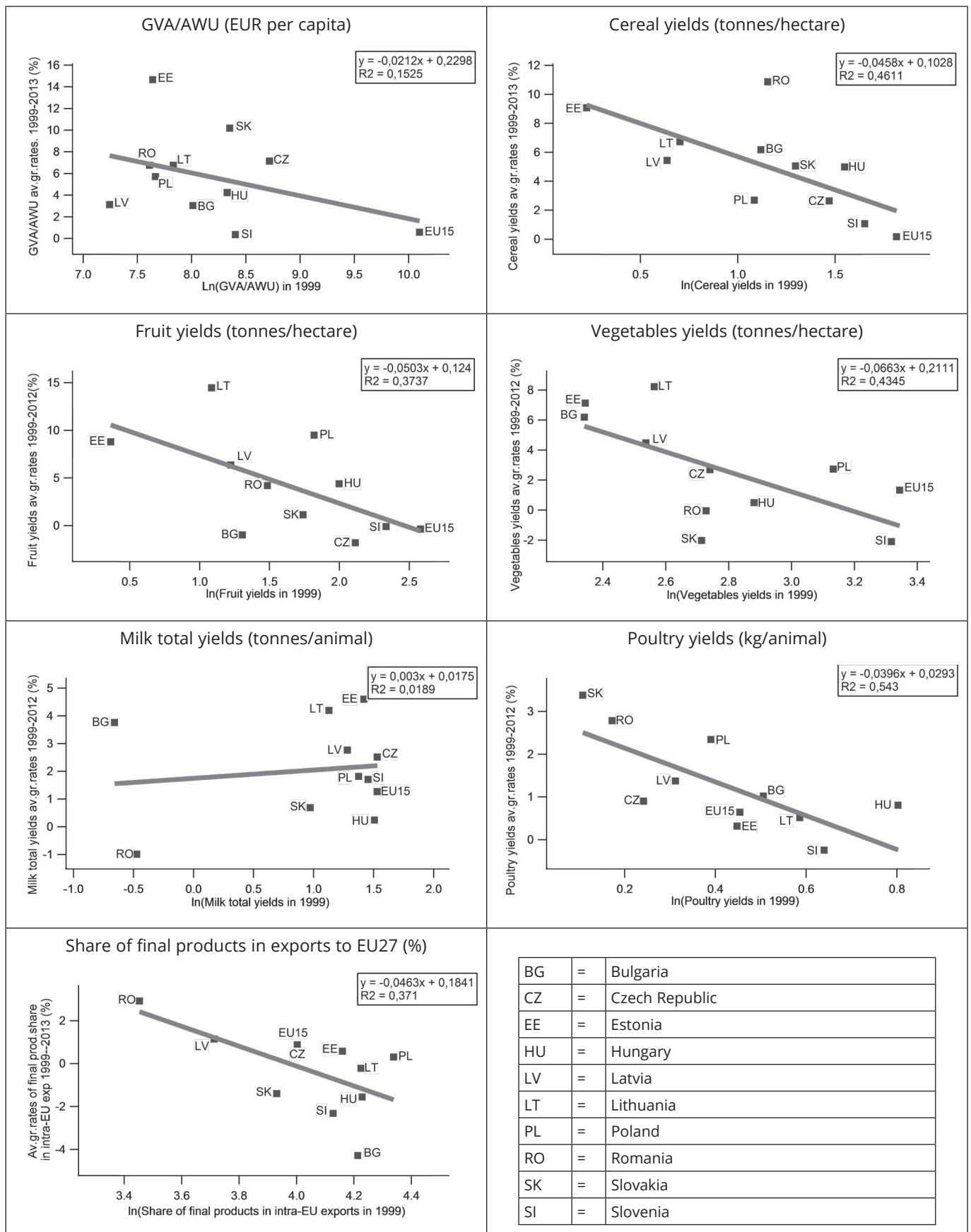
considered as a measure of quality/development of the agri-food production, one can conclude that – surely for the Baltic States, but also for Poland – there was quite a lot of room for development. On the other end of the ranking, Slovenia, the one and only country within the group of EU10 with an agricultural efficiency comparable to that of the old member states, was only able to progress much slower. The same was broadly true, even if to a lesser extent, for both Hungary and the Czech Republic.

When examining the EU10 agri-food industries, it is possible to improve our estimations on their development, ,if we also include the starting positions among the variables. So, besides analysing the speed of development in absolute terms, the initial level of development of each country's agri-food sector also needs to be taken into account. In economic growth literature it is called "Beta-convergence" when poor countries grow faster than rich ones. Departing from this principle, for those indicators, for which a relatively long series of data (from 1999 to 2012/2013 or 2014) were available, we plotted the annual average growth rates for each series against their level of the year 1999 (as shown in Figures 10-24). For providing a better illustration, abscissa is always the natural logarithm of the indicators' 1999 value. In each Figure, besides the values for the EU10, the average value for the old member states (EU15) – to be caught up by the new ones – is also featured. The linear trend line shows the average performance. In this way, it becomes evident, whether or not a given country could make sufficient progress with respect to its own initial state of development: a dot on or close to the trend line means average performance; a dot above the line means better than average performance; finally, a dot under the line means the opposite, so that the given country could not capitalise on its opportunities.

Figures 10-24

Average annual real growth rates for several indicators of the agri-food industry in the EU10 countries and the group of the EU15 from 1999 to 2012/14, with respect to the 1999 levels

GVA/AWU (EUR per capita)

y = -0,0212x + 0,2298
R2 = 0,1525

Y-axis: GVA/AWU av.gr.rates. 1999-2013 (%)
X-axis: Ln(GVA/AWU) in 1999

Data points: EE, SK, RO, LT, CZ, PL, LV, BG, HU, SI, EU15

Cereal yields (tonnes/hectare)

y = -0,0458x + 0,1028
R2 = 0,4611

Y-axis: Cereal yields av.gr.rates 1999-2013 (%)
X-axis: ln(Cereal yields in 1999)

Data points: EE, RO, LT, LV, BG, SK, HU, PL, CZ, SI, EU15

Fruit yields (tonnes/hectare)

y = -0,0503x + 0,124
R2 = 0,3737

Y-axis: Fruit yields av.gr.rates 1999-2012(%)
X-axis: ln(Fruit yields in 1999)

Data points: LT, EE, PL, LV, RO, HU, SK, BG, CZ, SI, EU15

Vegetables yields (tonnes/hectare)

y = -0,0663x + 0,2111
R2 = 0,4345

Y-axis: Vegetables yields av.gr.rates 1999-2012 (%)
X-axis: ln(Vegetables yields in 1999)

Data points: EE, BG, LT, LV, CZ, PL, EU15, RO, HU, SK, SI

Milk total yields (tonnes/animal)

y = 0,003x + 0,0175
R2 = 0,0189

Y-axis: Milk total yields av.gr.rates 1999-2012 (%)
X-axis: ln(Milk total yields in 1999)

Data points: EE, LT, BG, CZ, LV, PL, SI, EU15, SK, HU, RO

Poultry yields (kg/animal)

y = -0,0396x + 0,0293
R2 = 0,543

Y-axis: Poultry yields av.gr.rates 1999-2012 (%)
X-axis: ln(Poultry yields in 1999)

Data points: SK, RO, PL, LV, CZ, BG, EU15, EE, LT, HU, SI

Share of final products in exports to EU27 (%)

y = -0,0463x + 0,1841
R2 = 0,371

Y-axis: Av.gr.rates of final prod.share in intra-EU exp 1999--2013 (%)
X-axis: ln(Share of final products in intra-EU exports in 1999)

Data points: RO, LV, EU15, CZ, EE, LT, SK, SI, HU, PL, BG

BG	=	Bulgaria
CZ	=	Czech Republic
EE	=	Estonia
HU	=	Hungary
LV	=	Latvia
LT	=	Lithuania
PL	=	Poland
RO	=	Romania
SK	=	Slovakia
SI	=	Slovenia

AWU = Annual work unit.

Source: Own composition based on Eurostat (2015), http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themesand; FAO (2015), http://faostat.fao.org/site/339/default.aspx

When analysing the graphs above, we have to evaluate the results by considering the distance between each dot, representing a country's performance, and the trend line (i.e. the average performance). Accordingly, we used two methods: first, we measured the average absolute deviation of each country's performance from the trend line; next, we applied the API to the deviations (Table 4).

If we compare the two rankings of Table 4, they are identical in the first three places, the fifth one, and the last four ones. Where there is a difference is that Hungary and Romania changed places. Why? Because when calculating the different APIs, unlike Hungary, Romania ranked several times last. And the zero scores associated with these last positions biased somewhat downward its results[15].

Table 4

Average absolute deviations from the trend line and agricultural performance indexes (APIs) for deviations (1999 – 2012/13/14)

Integrated results					
Agricultural performance index (API)			Average distance from the trend line		
rank	country	score	rank	country	score
1.	Estonia	1131	1.	Estonia	2.39
2.	Poland	1130	2.	Poland	2.07
3.	Lithuania	1028	3.	Lithuania	1.49
4.	Hungary	807	4.	Romania	0.31
5.	Czech Rep.	799	5.	Czech Rep.	0.19
6.	Romania	799	6.	Hungary	-0.03
7.	Latvia	639	7.	Latvia	-0.84
8.	Slovakia	605	8.	Slovakia	-1.35
9.	Slovenia	501	9.	Slovenia	-1.92
10.	Bulgaria	456	10.	Bulgaria	-2.41

Note: EU15's average distance from the trend line is 0.16 %-points, which means that the EU15 would be ranked between the Czech Republic and Hungary on the right side of the table.

Now, it is interesting to compare the rankings reported in Tables 3 and 4. As we can see, the first three positions are held by the same countries: Estonia, Poland, and Lithuania. Further similarities are that both Hungary and the Czech Republic rank in the middle, and both Slovakia and Slovenia are in the bottom three places. The remaining three countries, however, experienced major changes in their rankings: first, Romania and Bulgaria changed places, the former having climbed from the bottom to the middle, the latter having fallen from the middle to the very bottom of the ranking; second, in vain did Latvia progress faster than average, it would have never been enough in respect to its initial level of development: in fact, it slipped down from the bottom of the "top four" to the top of the "bottom four" – or, more simply: from the fourth to the seventh position.

Some possible reasons behind

We are in a difficult situation when trying to set out reasons behind differences in performance of the EU10 countries, for there are too many factors which may have an impact on them. Moreover, these impacts may be of different strength, hence may be felt differently from one member state to another. Therefore, we rather confine ourselves to put forward some factors we esteem to be important and see in which countries they had a real impact on agri-food performance or could at least a clear correlation be found between the given factor and the performance.

As for the farm structure of the EU10, a significant share of large and larger-than-average farms has not proved to be an advantage so far (e.g. in Slovakia, Hungary or the Czech Republic)[16]. Development is the fastest in those countries where farm structure is resemblant to the one in the EU15, i.e. composed mostly of small and medium-sized family enterprises (like in Poland or the Baltics). However, this similarity alone does not necessarily guarantee rapid development (take e.g. Slovenia), because of the already mentioned large number of factors (like the unfavourable macro environment), which may affect the sector. Anyway, closest to the EU15 average farm structure is the Estonian one.

A further factor to be considered would be the skills and knowledge of farm managers for which three categories can be distinguished: farmers with full or basic agricultural training and with only practical experience[17]. The best performer is the Czech Republic, followed by a large group of countries all falling in the middle range of scores, including Poland, the Baltic States, Slovenia, and Slovakia. Immediately next to them comes Hungary, and the list ends with Romania and Bulgaria, both lagging far behind the others[18]. Some remarks, however, need to be made here. First, the latest data cover 2010 and data could have changed to some extent since then. Second, the farm structure alone may have a significant effect on these data. In some of the EU10, like for example in Slovakia or the Czech Republic, where there are relatively few holdings, they are most probably run by highly qualified people. On the other hand, in countries where smaller entities (e.g. small family farms of a subsistence or semi-subsistence nature) are also regarded as agricultural holdings, people of a lower level of education may account for a relatively higher share of farm managers. But, even in these countries, the big and medium-sized farms, from which the bulk of the marketed production comes, are surely run by highly qualified staffs.

Another factor, closely related to the former one, is the age structure of farm managers, i.e. the distribution of farmers by age, as younger farmers are more likely than the elderly ones to have completed a relatively higher level of education. Out of the EU10, Poland has got the most well-balanced distribution, i.e. the age pyramid with the middle aged (45-54 years old) farmers representing the most populous group. The age pyramids in Slovakia and the Czech Republic are similar to the one in Poland, except that their most populous age groups are made up by "pre-senior" (55-64 years old) farmers. Then come a lot of countries (Slovenia, Hungary, and the Baltics) with average "performance" and sharing a common feature of having senior (i.e. above 65 years old) farmers as the biggest age group. Finally, in the case of Romania and Bulgaria, the age pyramids are far from being balanced; instead, there is a linear correlation between the number and the age of their farmers.

There is one more factor that we have to mention here and which, being sort of internal to the agri-food sector, can be influenced by farmers: the ratio of livestock and crop output in total agricultural output. Of course, it cannot be stated that the above ratio would not be adversely affected by imports coming from the highly developed animal sector of the old member states, so by fierce market competition. It is, however, important to know and to understand what EU10 farmers spend their money on, especially the subsidies they get from the EU budget: whether they take the harder path of focusing on animal breeding with all the investments both in labour and technology it involves, or they choose the simpler option of dealing with field crops. For this ratio, treated as an indicator, Estonia is an absolute leader among the EU10 with a ratio of over 50 per cent, in the three-year average.

Poland and Slovenia (with a ratio of over 45 per cent) also display a relatively good performance compared to the rest of the group. Following the bulk of the EU10 countries, with middle-low values, comes Romania and Bulgaria with the ratio of only 32 and 25 per cent respectively, for the period of 2010-2013. Undoubtedly, the clear winner of the Eastern enlargement is the livestock sector of the old member states: in the EU15 the share of animal output within the total output has been constantly growing, while in the EU10 it has been more or less steadily declining since the period of 2002-2004, so just before the first wave of the enlargement took place[19].

Out of those factors, being sort of external to the agri-food sector, on which producers have limited or no influence, there are two of general effect we would like to emphasise: economic growth and corruption. While the importance of the first factor goes without saying, the second one needs some explanations. When we investigated corruption, for which we found good and internationally comparable data, we did so instead of investigating black economy, for which we did not. Fortunately for us, shadow economy increases corruption in low income countries, especially combined with relatively strict regulations[20]. In Spain for example, a correlation factor of 80 per cent was found between the size of the black economy and corruption[21]. As a matter of fact, the agri-food sector, by its widely dispersed structure and the homogenous nature of its output – which hinders the traceability of both products and producers – presents ideal ground for illegal activities: its large proportion remains undeclared, and therefore not registered for taxing purposes. And the high degree of impregnation of the agri-food sector with the black economy hinders integration of producers, concentration of production, hence development[22].

Overall macroeconomic conditions have been mostly favourable for the Polish agri-food sector: despite the global financial and economic crisis, the GDP has always been continuously increasing in Poland. These were the Baltic States who suffered the most during the crisis, with the highest decline in their GDP in 2009, but these countries were able to recover their fast growth trajectory afterwards. In the rest of the EU10, the recession of 2009 was not as deep as in the Baltics, but the potential growth has since then observably slowed down – except for Slovakia. If we track EU10 cumulative real GDP growth since 2001, we can see that for three member states there was an inflection point (for Hungary in 2007, for Slovenia in 2009/10 and for the Czech Republic in 2011/12) at which their economies were set onto a much slower growth path than before and, in this sense, they were broken away from the main body of the group (Figure 25). The separation of the three countries from the rest of EU10, in other words, the weakness of their internal demand, may partly explain the mediocre performance of their agro-food sectors.

As for measuring how corrupt a country's public sector is, or more precisely, how corrupt it is perceived to be, we rely on the Corruption Perception Index (CPI), a composite
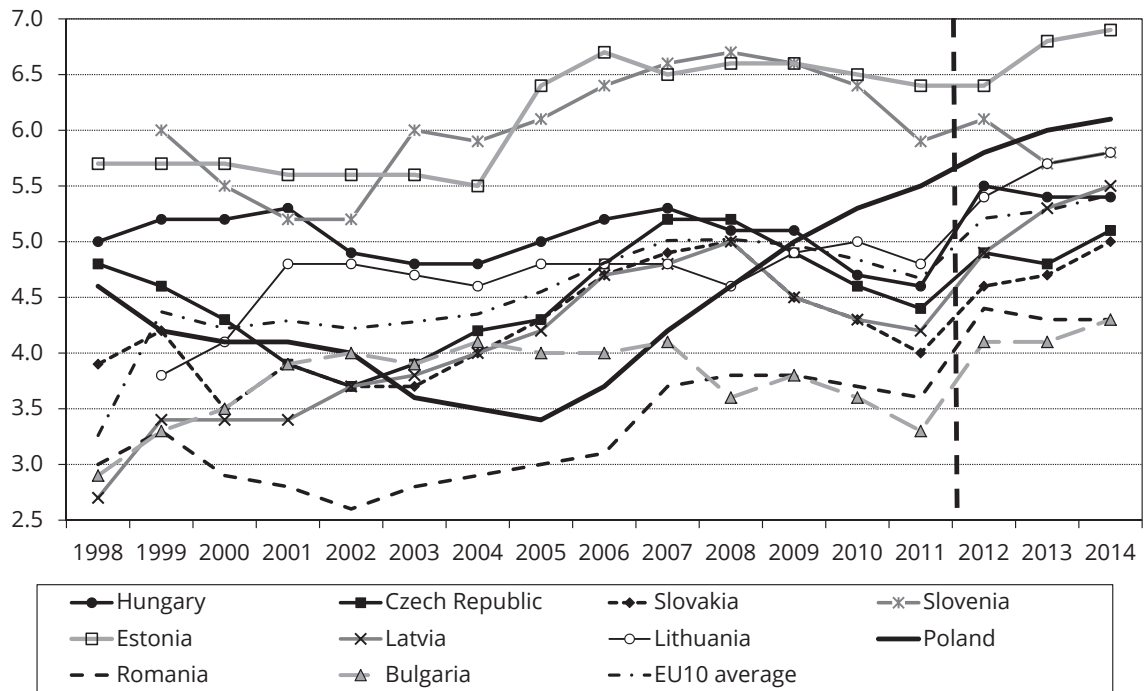
Figure 25

Cumulative real GDP growth since 2001 (in volume)
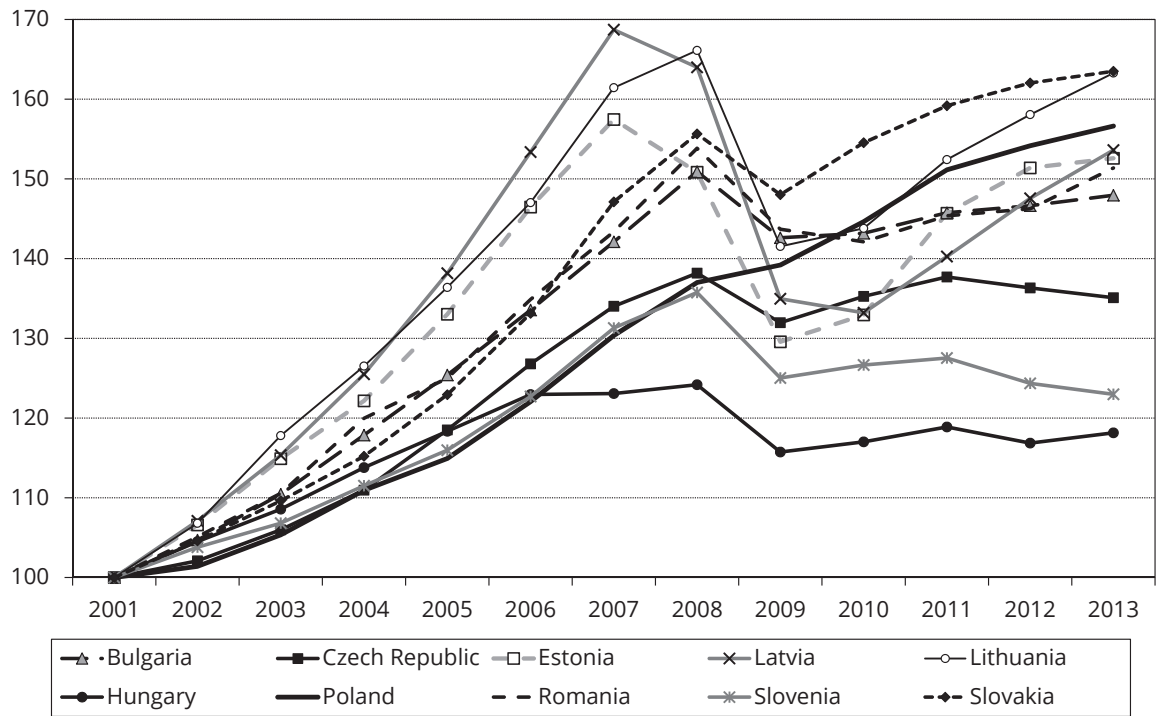
Source: Eurostat.

Figure 26

Corruption perception index (CPI) in the new member states

Note that until 2011, the absolute values of the CPIs are not comparable between years as they were computed from the rank position of each country in each data sources. So, they only serve the purpose of comparing the individual countries among themselves. Since 2012, thanks to an update to the methodology consisting of establishing a new scale of 0-100, we can compare the CPIs from one year to the next.

Source: Transparency International, http://www.transparency.org/cpi2014/results [31.7.2015].

index computed and published annually by Transparency International on the basis of surveys and assessments of reputable institutions worldwide. As Figure 26 makes it clear, once again in the field of fighting corruption and creating an ever more transparent market economy, Poland and the Baltics (whose scores, together with those of Slovenia, were above the EU10 average in 2014) lead the ranking and could improve their performances in the last couple of years, too. Within this "winners' club", Estonia has always been among the best performers, while the two other Baltic states and Poland exhibit a significant improvement in their relative position. Poland, in particular, did an excellent job and gave an example by climbing from the second last position in the year of enlargement to the second best position in 2014. The relative positions of both Hungary and Slovenia have worsened over the investigated period, while performances for Slovakia and the Czech Republic have been fluctuating. Romania and Bulgaria, here too, are at the lower end of the ranking.

Conclusions

In this article we tried to measure and analyse the EU10 agri-food performance during the last *circa* one and a half decades. We have focused our research onto the speed of development both in absolute and relative terms. We found that, by using any method, Poland and the Baltics (especially Estonia and Lithuania) were the best performers, developing clearly faster than the other countries. Finally, we tried to put forward some possible reasons behind the differences in performances and found that age, qualification and risk-taking propensity of the farmers, as well as macro conditions prevailing in their homeland (internal demand, business environment) may correlate with these differences.

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[1] NMS (or EU10) are those Central and Eastern European countries that joined the EU in 2004 and 2007.

[2] H. Nallet, A. Van Stolk, *Report on relations between the European Union and the Central and Eastern European countries in matters concerning agriculture and food-production*, IP/94/535, 15/06/1994, Report commissioned by R. Steichen the then commissioner responsible for agricultural and rural development (DG-VI).

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[5] A. Buckwell, S. Haynes, S. Davidova, A. Kwiecynski, *Feasability of an agricultural strategy to prepare the countries of Central and Eastern Europe for EU accession,* Study commissioned by Directorate-General I. of the Commission, 1994.

[6] L. Mahé, *L'agriculture et l'élargissement de l'Union Européenne aux pays d'Europe Centrale et Orientale: transition en vue de l'intégration ou l'intégration pour la transition*", 5 January 1995, Study commissioned by Directorate-General I. of the Commission.

[7] A. Pouliquen, *Competitiveness and Farm Incomes in the CEEC Agri-food Sectors,* 2001, http://ec.europa.eu/agriculture/publi/reports/ceeccomp/index_en.htm [1.8.2015].

[8] S. Bojnec, I. Fertő, *European enlargement and agri-food trade*, "Canadian Journal of Agricultural Economics", 2008, Vol. 56(4): s. 563-579.

[9] J. Möllers, G. Buchenrieder, Cs. Csáki (eds.), *Structural change in agriculture and rural livelihoods: policy implications for the new member states of the European Union,* "IAMO Studies on the Agricultural and Food Sector in Central and Eastern Europe", 2011, Vol. 61, Halle (Saale), Germany.

[10] Cs. Csáki, A. Jámbor, *The impact of EU accession: lessons from the agriculture of the new member states*, "Post-Communist Economies", 2013, Vol. 25(3), s. 325-342.

[11] When evaluating the changes in the indicators, we proceed as follows. In order to eliminate negative values (resulting from negative changes in specific indicators in time), first we subtract the smallest element from each of the elements. By doing so, the smallest value will be zero. Then, we convert the values to a scale from 0 to 100 by dividing all the elements with the biggest one. So, the smallest value will remain 0 or 0 per cent, and the biggest value will be 1 or 100 per cent. Finally, we replace the percentage values with scores (points). So, we give 100 points to the best performing country and 0 point to the worst performing one, with the rest of the countries being in between (A. Jámbor, *10 years of EU accession: Winners in the agriculture of the New Member States,* 2014, http://napok.georgikon.hu/cikkadatbazis/cikkek-2012/cat_view/3-cikkadatbazis/24-2014/34-ii-szekcio-az-agrargazdasag-10-eve-az-europai-unioban [31.7.2015]).

[12] Cereals in value account for *circa* one quarter of the EU's crop production, one-eighth of total production and occupy one-third of the agricultural area (Source: European Commission, 2014).

[13] For definition, see: *Agricultural trade statistics 2004-2013 Annex 4: Definitions of Agricultural Commodities, Intermediate, Final and Other products as defined in the Combined Nomenclature*, http://ec.europa.eu/agriculture/statistics/trade/2013/annex4_en.pdf.

[14] Data in round brackets refer to support levels in force from accession to 2014, the most recent CAP reform having been introduced some changes in them as of 2015. Source for data: European Council (2011), http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%2012734%202011%20INIT

[15] In the second phase of the index construction – so after having eliminated the negative values – when we rescale, or rather "pull out" the non-negative values in order to obtain scores between 0 and 100, the only country whose score cannot be improved like this is the one with zero point.

[16] Regarding the farm structure, and in order to assess the economic size of the agricultural holdings, we took into account the annual amount of CAP direct payments they receive, rather than their pure physical size (Source: http://ec.europa.eu/agriculture/cap-funding/beneficiaries/direct-aid/pdf/annex1-2013_en.pdf)

[17] For definition, please consult Commission Regulation (EC) No. 1200/2009 of 30 November 2009, OJ EU, L 329/18, 15.12.2009.

[18] *Agricultural training of farm managers: number of farms, agricultural area, labour force and standard output (SO) by age and sex of the manager*, https://datamarket.com/data/set/1wtz/agricultural-training-of-farm-managers-number-of-farms-agricultural-area-labour-force-and-standard-output-so-by-age-and-sex-of-the-manager#!ds=1wtz!1z6g:4:1z6h:1z6i:3:1z6j:4:1z6k&display=choropleth&map=europe&classifier=natural&numclasses=5&s=9v4

[19] Eurostat, *Crop output at basic and producer prices*, http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tag00054 and *Animal output at basic and producer prices*, http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tag00055[31.7.2015].

[20] See: A. Dreher, F. Schneider, *Corruption and the Shadow Economy: An Empirical Analysis – IZA*, "Discussion Paper", 2006, No. 1936, http://ftp.iza.org/dp1936.pdf [31.7.2015].

[21] See: A.J. Fernández, R. Martínez-Pardo del Valle, *La economía sumergida en Espana – FEF*, "Documentos de Trabajo", 2013, No. 4, p. 29, http://www.fef.es/new/images/IEAF/pdf/DOCUMENTO%20DE%20TRABAJO%20N%C2%BA%204%202as.pdf [31.7.2015].

[22] See: N. Potori, *Implementation of the CAP and its impacts in Hungary,* Paper presented at the conference *Experiences of the first 10 years of our membership in the EU: Agriculture and rural development* held in Budapest on 10 April 2014 in AKI, http://www.gazdalkodas.hu/files/Konferencia_pdf/Potori_Norbert.pdf [31.7.2015].

■

MAKROOSTROŻNOŚCIOWY NADZÓR NAD RYNKIEM FINANSOWYM UNII EUROPEJSKIEJ

Michał Kruszka*

Kryzys, który w 2007 r. rozpoczął się w USA, by w 2008 r. nabrać globalnego wymiaru, wykazał jak dalekosiężne skutki może mieć upadłość instytucji finansowych lub też naruszenie stabilności ich funkcjonowania. Skorzystanie z istniejących wówczas rozwiązań nadzorczych i restrukturyzacyjnych okazało się niewystarczające, a chęć utrzymania ciągłości działania rynku finansowego wymusiła podjęcie działań interwencyjnych ze strony władz publicznych.

Jednym z najszybciej wyciągniętych wniosków była konstatacja, iż transgranicznej integracji rynku finansowego UE nie towarzyszy adekwatne zacieśnienie współpracy nadzorczej. W związku z tym już w 2008 r. ówczesny przewodniczący Komisji Europejskiej, J. Barroso powołał grupę wysokiego szczebla, którą upoważniono do przedstawienia propozycji modyfikacji istniejących ram nadzorczych[1]. Konkluzje zostały zawarte w dokumencie, który od nazwiska przewodniczącego jest powszechnie nazywany raportem de Larosiere'a[2]. Za najważniejsze rekomendacje tego raportu należy uznać postulaty powołania systemu europejskich organów nadzoru nad rynkiem finansowym, które powinny mieć odpowiednie umocowanie prawne oraz zróżnicowaną właściwość.

Novum propozycji grupy de Larosiere'a stanowił wniosek w sprawie ustanowienia ciała odpowiedzialnego za działania zapobiegające systemowym kryzysom na rynku finansowym UE. W tym przypadku nacisk miał być przesunięty z nadzorowania poszczególnych instytucji na całościowe postrzeganie relacji rynek finansowy – sfera realna gospodarki.

Sugestie grupy de Larosiere'a relatywnie szybko znalazły odbicie w aktach prawnych. Na ich podstawie od 2011 r. zaczął działać europejski system nadzoru finansowego (ESNF). Jednym z jego składników jest Europejska Rada ds. Ryzyka Systemowego (ERRS). Z uwagi na jej rolę w procesie zapobiegania destabilizacji rynku finansowego zasadne jest zrozumienie istoty jej powołania oraz zasad funkcjonowania. Temu zadaniu poświęcono niniejszy artykuł.

Europejski system nadzoru finansowego

Europejski system nadzoru finansowego formalnie rozpoczął swoją działalność 1 stycznia 2011 roku[3]. Tworzą go:
☞ Europejska Rada ds. Ryzyka Systemowego (*European Systemic Risk Board* – ESRB);
☞ Europejskie Urzędy Nadzoru (*European Supervisory Authorities*):
  – Europejski Urząd Nadzoru Bankowego (*European Banking Authority*);
  – Europejski Urząd Nadzoru Ubezpieczeń i Pracowniczych Programów Emerytalnych (*European Insurance and Occupational Pensions Authority*);
  – Europejski Urząd Nadzoru Giełd i Papierów Wartościowych (*European Securities and Markets Authority*);
☞ Wspólny Komitet Europejskich Urzędów Nadzoru (*Joint Committee*);
☞ właściwe organy nadzoru państw członkowskich.

Cele postawione przed tym konglomeratem instytucji to: zapewnienie właściwego wdrażania europejskich przepisów dotyczących sektora finansowego, tak aby zachować stabilność finansową, a także wzrost zaufania do całego systemu finansowego oraz odpowiednia ochrona konsumentów usług finansowych. Tym samym, w ślad za integrującym się transgranicznie rynkiem finansowym, ma nastąpić (przynajmniej funkcjonalnie) integracja organów nadzoru, które powinny wykorzystywać zharmonizowane normy prawne.

Powyższa konstrukcja miała wskazywać na swoistą macierz instytucji nadzorczych, w której krzyżują się dwa kryteria wyodrębnienia. Pierwszym wymiarem jest właściwość rzeczowa, drugim właściwość miejscowa. Tego rodzaju układ przedstawia rysunek 1.

W tym miejscu warto poruszyć istotę nadzoru mikroostrożnościowego. Lastra[4] identyfikuje trzy podstawowe obszary, które przynależą do tej kategorii:
☞ licencjonowanie, z badaniem struktury właścicielskiej, pozycji kapitałowej i płynnościowej włącznie, oraz