

Foreign trade trends in the EU10 countries

Andrea Éltető

Introduction

The international crisis had serious effects on the economy of the European Union. The Central and Eastern European members (EU10) experienced the crisis effects to a different extent, but most of them were coping with high debt and decreasing GDP. Domestic consumption and investment activity fell, thus export remained the major possible source of growth. Although in 2009, exports shrank drastically (this was the year of the general international trade collapse) but in the next year, it already gained momentum. In this paper the characteristics of the export patterns in the EU10 member states are analysed.³⁷

In the first part, the foreign trade dynamics of the two regions are described. The second part analyses the product structure of exports and its changes. The third part deals with the inclusion of the observed countries into global value chains. The last part forms groups within EU10 and concludes.

General trends in foreign trade

EU10 countries differ regarding the economic role of the tradable sector and its development. As we can see in Table 1, already as early as 1995, the share of export of goods and services compared to GDP was higher than the EU average in almost all EU10 countries but this increased to extremely high levels in 2013, reaching almost 100% in Slovakia and Hungary. Estonia, Latvia, Slovenia and the Czech Republic also had rather high levels of “openness”³⁸. The values of Poland are similar to the EU-average and those of Romania are slightly below. Trade per capita data also show the importance of trade in a given country. All economies have higher figures than the EU-average. In this respect again Bulgaria and Romania have the lowest figure. Thus, in general the vast majority of EU10 countries are heavily dependent on exports.

During the past decade the share of EU10-trade increased not only in their GDP but in world trade too. Table 2 shows that their share in world exports is similar to their share in world imports. The table also demonstrates that since accession to the EU (and even before), the share of exports in world total exports has grown significantly and continuously for almost all countries. Even in 2009 when trade generally collapsed, these countries maintained (or even increased) their share in world trade. However, after the crisis, in 2012-2013, their share decreased, but in general still to a somewhat lesser extent than the market share of the whole EU. Certain countries have lost competitiveness after the crisis. The decrease of world export market share was most pronounced for Hungary with almost 20% loss³⁹. Slovenia has also shown a considerable decrease, while Lithuania, Latvia and Romania a high increase.

³⁷ Poland, Czech Republic, Slovakia, Hungary, Slovenia, Estonia, Lithuania, Latvia, Bulgaria, Romania

³⁸ Of course if we take the total trade into consideration – including imports – then figures compared to GDP are approximately double.

³⁹ Data from Eurostat, Macroeconomic Imbalance Procedure (MIP)

Table 1: Export of goods and services compared to GDP, percent

	1995	2000	2004	2009	2013	Trade per capita (USD)
European Union (27 countries)	29.49	35.79	35.71	36.87	44.83	11341
Czech Republic	48.08	60.93	62.98	58.95	78.60	22608
Poland	23.20	27.12	37.49	39.44	47.80	27600
Hungary	45.21	74.60	63.35	77.58	96.05	29572
Slovenia	49.59	53.70	57.81	59.35	78.15	11594
Slovakia	57.76	70.45	74.54	70.59	97.64	32570
Estonia	68.07	84.60	73.07	63.86	87.99	29022
Lithuania	41.78	41.95	44.04	43.93	59.67	20216
Latvia	47.46	44.51	51.85	54.23	86.90	15123
Bulgaria	51.92	50.46	51.93	47.51	70.22	8845
Romania	25.50	32.83	35.84	30.60	42.15	6653

Note: Trade per capita is estimated as an economy's total trade of goods and commercial services (exports + imports, balance of payments basis) divided by the population. It is calculated on the basis of data for 2010-2012 (WTO).

Source: Eurostat, WTO

Table 2: Market shares of the EU10 countries

	Share in world total Exports				Change 5 years* 2009-2013	Share in world total Imports			
	2005	2007	2009	2012		2005	2007	2009	2012
EU27 countries	17.50	16.44	16.20	14.67	na	18.58	18.38	17.39	15.37
Czech Republic	0.75	0.88	0.91	0.85	-7.4	0.71	0.83	0.83	0.76
Poland	0.86	1.0	1.08	1.01	-0.4	0.94	1.14	1.16	1.07
Hungary	0.60	0.68	0.67	0.56	-19.0	0.61	0.67	0.62	0.51
Slovenia	0.18	0.22	0.21	0.17	-16.6	0.19	0.22	0.21	0.17
Slovakia	0.31	0.42	0.45	0.44	-2.2	0.33	0.42	0.44	0.42
Estonia	0.07	0.08	0.07	0.09	7.3	0.09	0.11	0.08	0.09
Lithuania	0.11	0.12	0.13	0.16	20.8	0.14	0.17	0.14	0.17
Latvia	0.09	0.06	0.06	0.08	11.4	0.07	0.11	0.08	0.09
Bulgaria	0.11	0.13	0.13	0.15	5.7	0.17	0.21	0.18	0.18
Romania	0.27	0.29	0.33	0.31	10.5	0.38	0.49	0.43	0.38
EU10 countries	3.35	3.88	4.04	3.82	na	3.63	4.06	3.84	3.53

* Eurostat data (MIP)

Source: WTO Trade Profiles, (merchandise trade)

When analysing world market shares we should not forget that data include cross-border movements of parts and components, thus are influenced by the activity of global value chains (that are important in EU10 trade, see later). Exports of final goods are often composed of imports of intermediate goods (Beltramello et al. 2012), therefore export market shares and competitiveness largely depend on imports.

Poland, as the largest country is also the largest trader within the examined country-group. This has already been shown by its share in world exports and imports and also by the largest value numbers (Table 3). The second largest trade value belongs to the Czech Republic. Hungary, Slovakia and Romania have rather similar figures at the middle level and the trade of other countries is lower.

Table 3: Trade with and outside the European Union
2013

	Extra-EU export.	Intra-EU export		Extra-EU Import	Intra-EU import	
	mn euro	mn euro	share in total	mn euro	mn euro	Share in total
Hungary	19163	62206	76.45	21747	53602	71.14
Czech Republic	23380	98209	80.77	25381	82640	76.50
Slovakia	11264	53491	82.61	15912	45764	74.20
Poland	38677	113457	74.58	48595	105842	68.53
Slovenia	7998	17696	68.87	8722	16489	65.40
Estonia	3564	8705	70.95	2500	11169	81.71
Lithuania	10940	13604	55.43	10404	15804	60.30
Latvia	3661	7231	66.39	2694	10760	79.97
Bulgaria	8923	13306	59.86	10465	15381	59.51
Romania	15181	34392	69.38	13498	41781	75.58

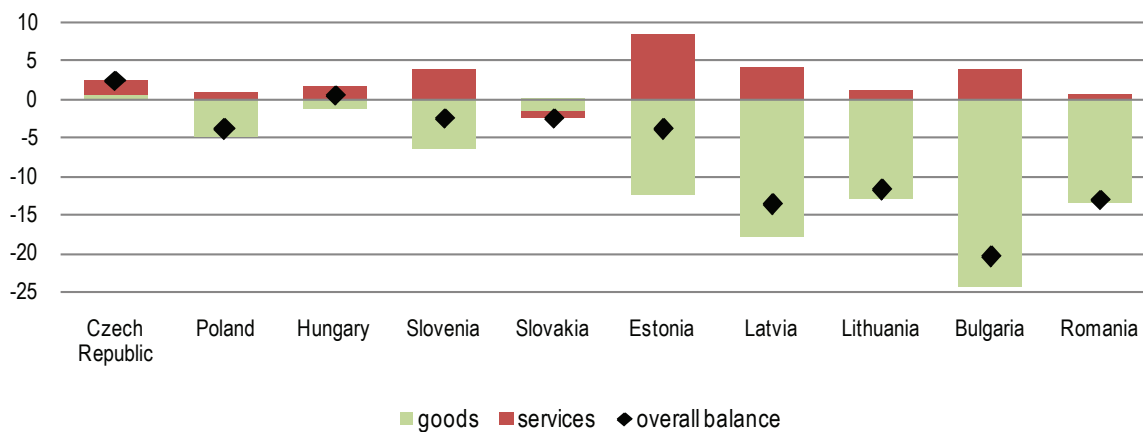
Source: Eurostat Comext

Table 3 also provides the share of the EU in exports and imports. The EU is the least “important” in Lithuanian and Bulgarian trade, with 55-60% share. However, more than 80% of Slovakian and Czech exports is directed to and around 80% of Estonian and Latvian imports come from the EU. An important feature of Baltic foreign trade is the significant trade with each other, which was promoted by EU accession. In the exports of Latvia, the two other Baltic States have a 28% share, in Estonian exports this is 16.2% and in Lithuanian exports 15.6%. In imports, the respective figures are 27.7%, 17.8% and 9%. Thus, Latvia is the most “Baltic-oriented” trader.

Trading with the EU shows a surplus for the Central-European economies and a deficit for the Baltic and Bulgaria, Romania. Regarding the past decade, trade balance in general deteriorated considerably as a consequence of the international crisis. Figure 1 shows that with the small exception of Hungary and the Czech Republic, all observed countries had negative balances in 2008. For 2013, significant adjustment took place in all countries. Adjustment was especially large in the Baltic countries, Bulgaria, Romania and Hungary (this latter had the highest trade surplus in the group surpassing 8% of GDP in 2013.)⁴⁰ Trade balance improvement in several cases was due to the decline and slowdown of imports and to the positive role of the service sector.

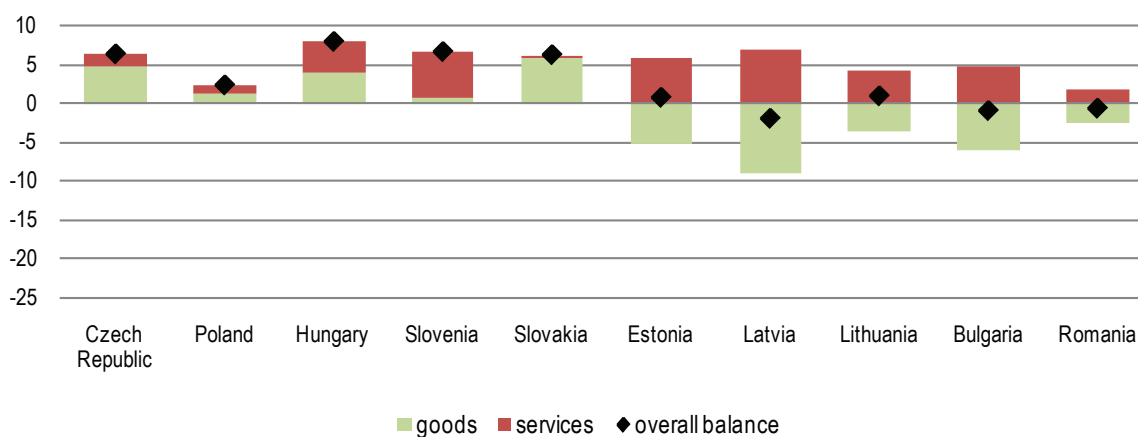
⁴⁰ The Hungarian trade surplus is mainly due to the marked decline in imports as a consequence of the crisis. Import growth remained moderate even afterwards due to low domestic demand (Bodnár et al., 2013). Halpern-Oblath (2014) also emphasize the poor performance of the economy (strong decrease of private investments, consumption) - partly explained by deleveraging in the private sector – underlying low import necessity and export surplus. Apart from goods, trade balance in services has always been positive since 2000.

Figure 1a: Trade balance in percentage of GDP, 2008



Source: Eurostat

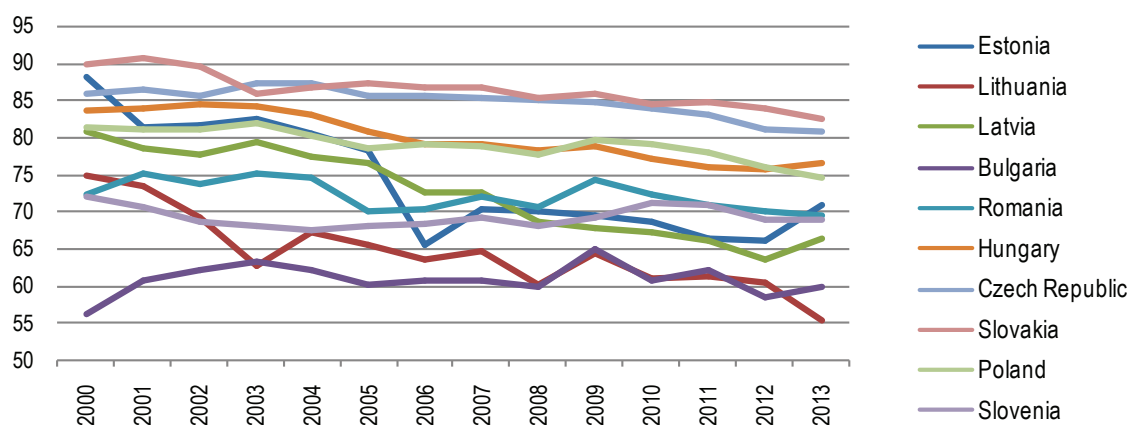
Figure 1b: Trade balance in percentage of GDP, 2013



Source: Eurostat

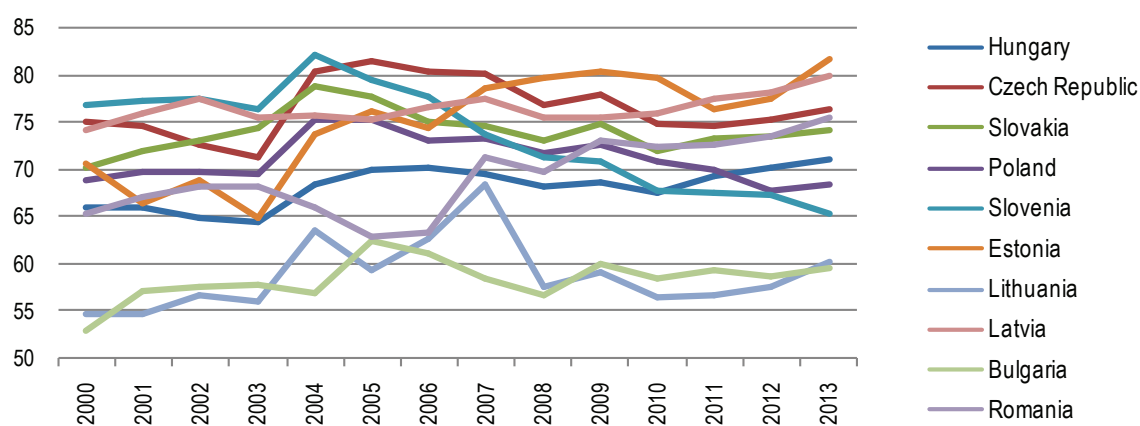
The role of the European Union as the most important trade partner for the EU10 area is unquestionable. The share of imports coming from the EU remained relatively constant, mainly between 60-80% for the EU10 during the observed period. In the case of exports it is perhaps surprising that we can observe a general constant decrease of the weight of EU in exports (see Figure 2a and b).

Figure 2a.: Development of intra-EU export shares



Source: Eurostat

Figure 2b: Development of intra-EU import shares



Source: Eurostat

Regarding the export dynamics, they also reflect the above described trend: in the past decade exports to non-EU areas have increased at a much higher rate than exports to the EU (Figure 3a and b). The outward increase has been the strongest in the case of the Baltic countries and Slovakia throughout the period.

Figure 3a.: Increase of Extra-EU exports

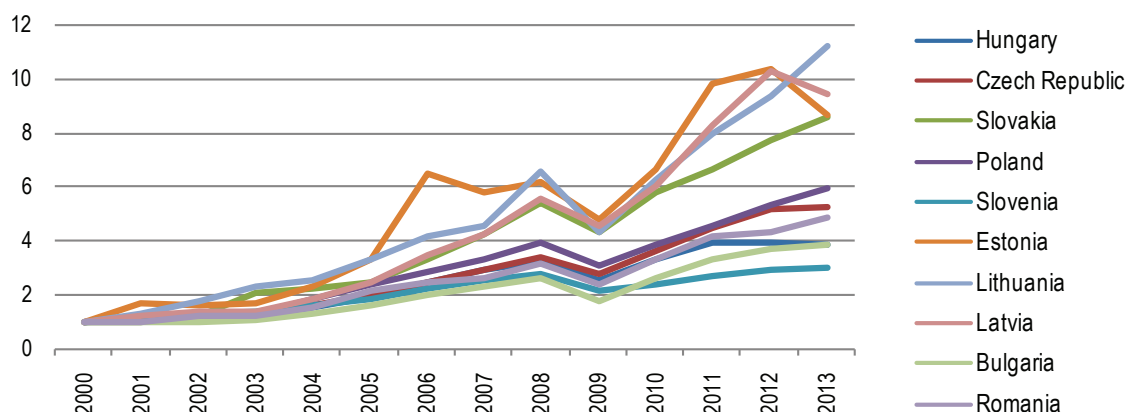
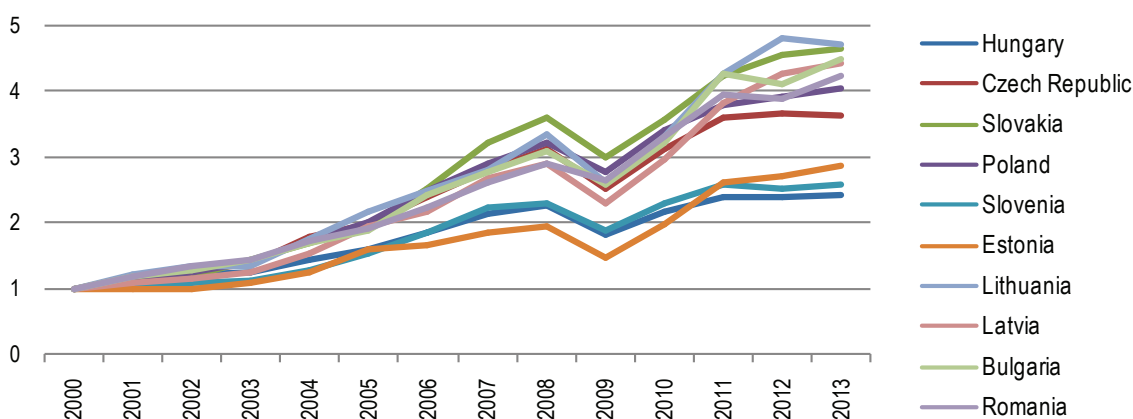


Figure 3b.: Increase of Intra-EU exports



Source: own calculations based on Eurostat data

Figure 3a shows that this dynamic increase of extra-EU exports is not only a consequence of the crisis, it has begun long before, since around 2004-2005. Regarding Estonia, the most important non-EU market is Russia with a 11.4% share of total exports in 2013 (in 2004 this share was 5.6%) and Norway and USA have around 3-4% share constantly. In the case of Lithuania, the share of Russia was 19.8% in total exports, being the most important export market (in 2004 this share was 9.3%). Belarus (5.2%), Ukraine (3.4%) and Norway (2.8%) are important non-EU markets too. In the exports of Latvia, Russia is also the leading market since 2010, it had a share of 16.1% in 2013 (in 2004 this figure was 6.4%).

Slovakia mainly exports to Germany and to neighbouring countries but the share of Russia (4%), China (2.5%) and Turkey (1.5%)⁴¹ increased between 2009 and 2013. Similar process has been going on regarding Czech exports, Russia increased its share (to 3.7%) and to a lesser extent China (1.2%) and Turkey (1.4%). Germany is

⁴¹ Data for 2013.

also the main market for Hungary just like neighbouring EU countries, but here too the share of Russia (3.1%), Ukraine (2.4), China (1.76%) and Turkey (1.65%) increased after the crisis. Slovenia's main export markets are also EU members but Russia increased its share – even before the crisis - and became the 6th most important destination with 4.6% share in 2013. The share of Serbia also increased. In Polish exports, Germany's weight was still 25% in 2013, but Russia ranked fifth with 5.3% share and Ukraine and Turkey also increased their weight (to 2.8 and 1.5% respectively). For Bulgaria and for Romania, Turkey is the most important non-EU partner with 9% and 5% shares of total exports.

In sum, data show on one hand that regarding foreign trade, the ten new member countries are integrated in the European Union. Trade has been intensive with the EU, because it increased already after the systemic changes during the nineties and because after the adhesion, mutual trade among the new members intensified. On the other hand, the share of the EU in exports has decreased constantly, or stagnated even after adhesion, because exports to non-EU regions have increased more dynamically than to the EU. The markets of Russia, China and Turkey (to different degrees) are more and more important for EU10 countries.

Export structure and changes

The export of a given country consists of export of goods and export of services. In certain cases for developing countries, service export can be very significant. As Brenton et al (2009) remark, articles on trade usually focus on merchandises and do not involve services, which can be difficult to quantify. Table 4 shows the development of the export share of services in the EU10 countries. The most important exported services are from the travel and commercial services sector. Developments in EU10 countries show a decreasing share of services in export, which is opposite to general EU trends. While in 1995, the Czech Republic, Slovakia and Hungary had more than 20% share of services in exports (above EU average then), by 2013 this weight decreased radically. However, this is only a relative decrease: service export of EU10 in absolute numbers increased to a larger extent between 2000 and 2013 than the EU-average (see last column). The reason is that service exports of EU10 increased to a lesser extent (around three times more) than the export of goods (6-9 times more) during the observed period.

Table 4: Share of services export in total export
percent

	1995	2000	2004	2009	2013	Export ratio 2013/2000
European Union (27 countries)	21.10	22.49	23.65	26.79	25.16	2.0
Poland	14.41	22.62	14.13	17.06	16.25	2.7
Czech Republic	24.82	18.93	13.48	16.41	14.50	2.3
Hungary	28.53	17.93	14.34	19.08	17.50	2.4
Slovenia	19.86	17.72	17.89	21.10	19.90	2.7
Slovakia	22.12	15.88	11.52	10.07	8.39	2.4
Estonia	34.09	31.17	32.69	36.43	27.05	2.7
Lithuania	15.28	20.88	20.96	18.38	17.89	4.7
Latvia	34.16	36.24	30.29	35.42	27.55	3.0
Bulgaria	21.05	33.50	30.93	29.50	20.75	2.5
Romania	16.88	14.85	13.37	19.57	17.30	5.2

Source: Eurostat

Kandilov – Grennes (2010) indicate that Central and Eastern European countries have different advantages over other low-cost Asian and South American rivals for different types of service exports. For those service exports that greatly benefit from geographical proximity or office hour synchronization, it is the smaller distance that gives CEE exporters a competitive edge. For other types of service exports that benefit from better law enforcement, it is the relatively good quality of legal institutions that provides an advantage for these countries.

Service export is the most important for Baltic countries. Based on the available maritime ports, transport is the most significant service sector. In the case of Estonia, “other services” (mostly business services) have also high share in service export (see Table 5).

The share of “other business services” is the highest in Hungary, Romania, Poland and the Czech Republic. Hungary has by far the highest export of “personal, recreational, cultural” services and royalties, licence fees. Romania had in 2013 the highest share of computer, information service exports (in 2004 this share was rather low). The business and informatics service export is due to the increased activity of multinational outsourcing, shared service centres. Romania is among the top ten global outsourcing locations,⁴² has information technology clusters and keeps attracting large telecommunication and informatics companies.⁴³

Table 5: Distribution of exported services
percent

	BG	RO	CZ	HU	PL	SK	SI	EE	LV	LT
Transport	20.15	34.98	23.53	23.39	30.50	28.13	25.48	37.72	45.18	61.16
Travel	53.42	10.04	32.46	23.80	28.44	33.65	38.75	23.43	17.63	20.59
Other services	26.42	54.98	44.01	52.81	41.06	37.65	35.77	38.85	37.20	18.24
<i>Communications</i>	1.25	4.82	2.47	1.37	1.36	1.90	5.94	4.03	2.88	1.52
<i>Construction</i>	1.00	3.87	2.78	1.81	3.80	4.25	5.15	5.01	3.29	2.63
<i>Insurance</i>	2.29	0.87	1.27	0.18	0.51	0.66	1.28	0.11	0.54	0.00
<i>Financial services</i>	0.69	2.03	0.15	0.89	1.25	0.75	0.46	1.63	6.99	0.92
<i>Computer, information</i>	8.83	13.75	9.54	6.49	7.36	7.47	2.52	5.67	5.20	1.71
<i>Royalties, licence fees</i>	0.35	0.86	1.14	5.61	0.79	0.06	0.79	0.19	0.39	0.34
<i>Other business services</i>	11.16	27.67	25.39	28.48	25.04	21.84	18.58	20.68	16.59	9.78
<i>Personal, cultural, recreational services</i>	0.79	0.29	1.11	7.43	0.94	0.61	0.95	0.71	0.52	0.50
<i>Government services n.i.e.</i>	0.06	0.82	0.16	0.55	0.00	0.10	0.12	0.81	0.80	0.85

Source: UNCTAD: Data on Trade in Services⁴⁴

⁴² <http://www.outsourcing-journal.org/cee-2/915-romania-among-top-10-outsourcing-locations-globally>

⁴³ <http://business-review.eu/featured/vodafone-opens-new-shared-services-center-in-romania-receives-state-aid-66715>

⁴⁴“Personal, cultural, recreational services”: Audio-visual and related services cover the production of motion pictures, video and radio programmes, musical recordings, (and similar) including fees paid to personnel involved. Related limited distribution rights are also covered. Fees paid for sporting, theatrical and similar events belong to this category as well. Services associated with museums, libraries, archives, and other cultural and sporting activities and education and health services are also covered under this category.

“Computer and information” services consist of hardware and software-related services and data-processing. New agency services include the provision of news, photographs and feature articles to the media. Other information services cover database services: database conception, data storage and dissemination of data. Direct non-bulk subscriptions to periodicals regardless of means of information transmission also belong to this service category.

“Other business services” include merchanting and other trade-related services; operational leasing services; and miscellaneous business, professional and technical services (legal, advertising, consulting, accounting, R&D, etc.)

Merchandise export concentration

Focusing on the export of goods, an important structural feature can be concentration or diversification. According to one viewpoint, concentration increases vulnerability, while diversified trade can mitigate crisis effects. However this statement should be refined: a lot depends on the type of products the country is concentrated on (primary and homogeneous products or not). Bacchetta et al. (2009) show that export diversification (both product and geographic type) increases with the level of development of a country. Cadot et al. (2011) show that this increase of export diversification lasts to a certain point and for highly developed countries concentration is increasing again. Across countries and time, there is a hump-shaped relationship between export diversification and level of income, with a turning point for reconcentration around 25 000 dollars per capita GDP (PPP). The reason is that richer countries close old export lines far from their endowments (Cadot et al., 2011).

The level of export concentration varies among EU10 countries. Gurgul-Lach (2013) examine the economic growth effects of export diversification in the case of CEE countries using data from 1995-2011. According to their results, export concentration correlated with economic growth before the crisis but afterwards the situation changed. Countries with more concentrated export structures (like Slovakia, Lithuania) experienced stronger growth decrease than those with more diversified exports (like Poland and the Czech Republic). These latter economies experienced smaller shocks.

Let us examine the recent characteristics of EU10 export concentration. Based on SITC 3 digit data⁴⁵ the Herfindahl-Hirschman concentration index (Hirschman, 1945) was calculated for the exports of countries towards the EU and non-EU areas.

$$HHI = (\sum_i s_i)^2$$

where „i” is the given product group, „s_i” is its share in total exports. If HHI is 100 we speak about total concentration, the smaller the index the more diversified the export structure is.

Table 6: Concentration indices, 2004-2013

	Extra-EU export.			Intra-EU export		
	2004	2008	2013	2004	2008	2013
Hungary	22.98	29.34	19.31	19.77	17.04	15.31
Czech Republic	13.76	14.65	17.52	14.87	15.02	15.94
Slovakia	44.58	33.56	38.95	17.87	20.70	20.36
Poland	14.17	13.17	13.65	14.81	14.18	12.76
Slovenia	18.50	17.00	19.81	17.51	18.69	16.13
Estonia	15.75	25.00	17.09	22.47	14.16	18.21
Lithuania	29.24	22.87	19.95	23.53	27.53	28.36
Latvia	17.16	15.26	19.15	21.80	13.75	14.09
Bulgaria	20.45	29.97	30.28	17.97	16.89	14.96
Romania	22.82	22.70	18.97	19.74	15.33	15.90

Source: author's calculation from Eurostat data

⁴⁵ The 3 digit product list is here: http://unctadstat.unctad.org/UnctadStatMetadata/Classifications/UnctadStat.SitcRev3Products.Official.Classification_En.pdf

As Table 6 shows, the values of concentration indices are quite similar for the ten economies, except for Slovakian export, Bulgarian extra-EU and Lithuanian intra-EU export, these are much more concentrated than the other flows.

In general terms, extra-EU exports are more concentrated than intra-EU ones. However, regarding a longer period, we observe increases and decreases in export concentration. Concentration towards extra-EU markets increased somewhat in the case of Bulgaria, Latvia, Slovenia and the Czech Republic. Hungary and Poland has diversified their exports a little to both areas. Slovakia and Lithuania have decreased concentration to the extra-EU region but increased it to EU areas.

What are the main exported products from these countries? Table 7 enumerates the most important five product groups (in order of importance, among 280 items in the SITC 3 digit list) in extra-EU and intra-EU exports. Their aggregate share in total exports is given in brackets.

Table 7: Main export products and structural similarity between intra- and extra-EU relations

	Extra-EU	Intra- EU	Similarity index 2004	Similarity index 2013
Hungary	Telecom. equipments, medicaments, motor cars and parts, autom. data processing machines, electrical app. (35%)	Piston engines, motor cars and parts, telecom.equipments, electrical app.(27%)	64.8	71.5
Czech Republic	Motor cars and parts, autom. data processing machines,telecom.equipments, electrical app.(31%)	Motor cars and parts, autom. data processing machines,telecom.equipments, manuf.of base metal (28%)	70.1	73.3
Slovakia	Motor cars, their parts telecom equipments, monitors, pumps and compressors (59%)	Motor cars, monitors, telecom equipments,petroleum + oils (40%)	53.9	62.3
Poland	Ships, boats, telecom equipments, furniture, motor vehicle parts, petroleum oils (19%)	Furniture and parts, motor cars and parts, monitors, engines (20%)	68.0	69.0
Slovenia	Medicaments, motor cars, wood, paper, household electrical equipm.(32%)	Motor cars, medicaments, electr.machinery, petroleum oils, furniture (27%)	66.2	63.7
Estonia	Petroleum oils, civil engine.plants,telecom.equipm.,alcoholic beverages,paints (30.0)	Telecom.equipments,petroleum oils, furniture,electric current,manuf.of base metal (29.2)	38.7	58.5
Lithuania	Petroleum oils, motor cars,vegetables,wheats, fruits,nuts (31.6)	Petroleum oils, furniture,fertilisers, polyacetals, articles of plastic (42.8)	48.3	57.2
Latvia	Alcoholic beverages,wheat, medicaments,wood,ferrous waste (31.1)	Petroleum oils, wood, telecom.equipm., wood products (23.3)	60.4	50.4
Bulgaria	Petroleum oils, copper and ores, medicaments,wheat (47.5)	Copper, oil seeds, petroleum oils,electrical app.for switching,wheat (24.9)	57.60	56.9
Romania	Petroleum oils,motor vehicles and parts, wheat, ships,boats (34.9)	Equipm.for distrib.electricity, motor cars and parts, furniture, footwear (27.8)	58.4	52.1

Hungary, the Czech Republic and Slovakia export mainly automotive and telecommunication, electrical products. These are mainly produced by affiliates of multinational companies. In Polish exports ships and furniture and in Slovenia medicaments are rather significant. The percentage numbers in brackets reinforce the above described concentration patterns: Slovakian extra-EU exports are strongly concentrated, the first five product groups represent more than half of all exports. Slovak export is concentrated on personal cars.

Regarding Baltic countries and Bulgaria, Romania, the pattern is different. They export more raw and base material, agricultural and wood products. Petroleum oil products lead the exports in most cases. In Estonia, it is Russian oil exported to other countries through Estonia's ports. Transit volumes of oil products are large, but added value in this sector is small.⁴⁶ Transit of Russian cargo and oil is important in other Baltic ports too. In Lithuania oil refinery is also important, PKN Orlen Lietuva is the most significant supplier of petrol and diesel fuel in the Baltic countries, its products are also exported to Western Europe, USA, Ukraine, and other countries⁴⁷. In Bulgaria (Burgas) and in Romania (Ploiesti) there are two big refineries of Lukoil that export around half of their products abroad.⁴⁸

In order to measure to what extent the export structures are similar to EU and to non-EU areas, the Finger-Kreinin similarity index was calculated (Finger-Kreinin, 1979):

$$S(ab,c) = \{ \text{SUM_min}[X_i(ac), X_i(bc)] \} * 100$$

where $X_i(ac)$ is the share of „i” product in total exports to the EU (country “a”), $X_i(bc)$ is the share of „i” product in total extra-EU exports (country “b”).

Table 7 shows the values of the index for 2004 and 2013. The Czech Republic and Hungary export in the most similar structure to the EU and to non-EU regions. In the majority of countries, intra-extra-EU similarity increased between 2004 and 2013, except for Slovenia, Bulgaria and Romania. In general, Central-European export to EU and non-EU markets are more similar and the export of Baltic countries and Bulgaria, Romania differs more in the case of EU and non-EU markets.

Technology intensity

Based on the above shown pattern of main products, it is no wonder that the share of high-tech products in exports is by far the highest in Hungary, Czech Republic, Estonia and Slovakia (see table 8, the list of high-technology products is given by the Eurostat⁴⁹ based on the OECD definition.).

⁴⁶ <http://www.swedbank.lt/lt/previews/get/4259/rss>

⁴⁷ <http://www.ornenlietuva.lt/EN/Company/Pages/default.aspx>

⁴⁸ http://www.lukoil.com/static_6_5id_257_.html

⁴⁹ http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an5.pdf.

Table 8: Share of high-tech products in exports
percent

	Extra-EU export.			Intra-EU export		
	2004	2008	2013	2004	2008	2013
Hungary	23.9	31.1	19.5	17.9	14.5	12.8
Czech Republic	18.1	16.9	18.3	12.4	12.2	12.4
Slovakia	3.9	5.2	10.1	2.5	4.9	9.3
Poland	3.9	5.0	8.4	2	3.9	5.9
Slovenia	8.5	8.1	8.6	3.2	3.7	3.9
Estonia	6.6	4.5	10.5	10.7	8.7	16.6
Lithuania	3.1	6.8	4.6	2.0	6.1	6.5
Latvia	6.5	6.0	6.8	1.9	3.7	8.4
Bulgaria	3.0	3.4	3.8	2.1	3.6	3.8
Romania	2.8	4.4	3.1	3.1	5.6	6.6

Source: author's calculations from Eurostat Comext database

Table 5: Share of high-tech products in imports
percent

	Extra-EU export.			Intra-EU export		
	2004	2008	2013	2004	2008	2013
Hungary	33.1	26.2	26.4	12.5	11.4	11.1
Czech Republic	23.6	21.3	24.9	12.2	10.9	11.6
Slovakia	12.3	8.7	19.8	8.5	9.8	14.9
Poland	10.7	8.9	10.4	8.5	9.5	10.2
Slovenia	8.4	5.8	5.9	7.3	7.2	6.4
Estonia	18.4	8.2	16.4	10.2	7.6	12.8
Lithuania	4.8	2.8	2.2	8.3	6.3	7.1
Latvia	6.1	5.7	13.3	6.6	6.9	6.7
Bulgaria	7.0	3.4	3.9	5.9	8.1	8.7
Romania	12.3	7.8	8.8	6.8	8.6	10.1

Source: author's calculations from Eurostat Comext database

In Estonia, the massive high-tech export of telecommunication equipment is due to the Swedish Ericsson affiliate⁵⁰ (that bought the local Elcoteq affiliate in 2009). Like other EU10 countries, Estonia does not possess a highly R&D intensive ICT and electronics industry. Foreign investment enterprises have located only relatively less demanding production functions here (Tiits-Kalvet, 2012).

The share of high-tech products in imports is also high and even higher in several cases than in exports. Generally, in 2013, there were three EU10 countries that had more or less equal weight of high tech products in export and import: Czech Republic, Hungary and Slovakia. They import several high tech products from non-EU countries as well, for example from Asia. The Central Europe-Asia trade is especially high-tech intensive (Éltető-Toporowski, 2013).

⁵⁰ <http://www.balticbusinessnews.com/article/2012/8/21/ericsson-eesti-becomes-estonia-s-largest-manufacturing-corporation>

Certainly, as Damijan et al. (2013) states, an increased share of high-technology products in exports is not per se an indicator of higher export competitiveness. They explain that traditional export items have been substantially upgraded or differentiated in the CE countries. Secondly, export restructuring has been accompanied by quality upgrading as indicated by increased value added per employee, increased unit values and more engagement in medium and high quality segments of industries. Thirdly, the share of vertical and horizontal intra-industry trade with the EU has increased as a consequence of multinational production networks. Of course, structural change in itself does not necessarily lead to increase of competitiveness, quality of changes matter. Benkovskis and Wörz (2012), analysing export competitiveness of EU10 in 2004-2007, show that these economies experienced a loss in price competitiveness and a larger increase of unit values of their exports than their competitors. Furthermore, the average quality of their goods increased more than their export prices, indicating improvements in non-price competitiveness.

Bulgaria, Romania, Latvia and Lithuania have relatively low share of high-technology exports to both EU and non-EU areas. The majority of Lithuanian manufacturing value-added is produced in low-tech industries (Laskiene-Venckuviene, 2014) and Lithuanian export is specialised on food, drinks, tobacco and chemical products (Bernatonyte et al., 2013). Bulgaria's low share of high-tech-intensive export is attributed among other factors to the limited and constantly decreasing R&D expenditures. As Zhelev-Tzanov (2012) concludes EU integration of Bulgaria has not yet accelerated structural transformation and technological upgrading as in other EU10 countries, the process has already started but it is rather slow. In Romania, the automotive multinational affiliates induce certain high-tech export (Platis-Hagiu 2012) but the general level is low.

Concerning the high-tech-intensity of trade, the heavy weight of high-tech import beside export and the identity of the trading companies lead us to conclude that the traded high tech products are mainly those automotive and electronic ones that are produced in the networks of global value chains.

Global value chains and EU10 countries

The increasing role of global value chains (GVCs) was already apparent in the beginning of the 2000s⁵¹. Fragmentation of production increased to a considerable extent in the last decade, especially in the electronic, clothing and automotive industry (Lall et al. 2004, Kimura et al. 2005, Srholec 2006). Regarding trading companies, export activity in general is quite concentrated in Europe. This means that in most countries, the top five percent of the companies account for 70% or more of the total manufacturing exports (Mayer-Ottaviano, 2007). In developing countries large exporters are in several cases foreign owned multinationals.

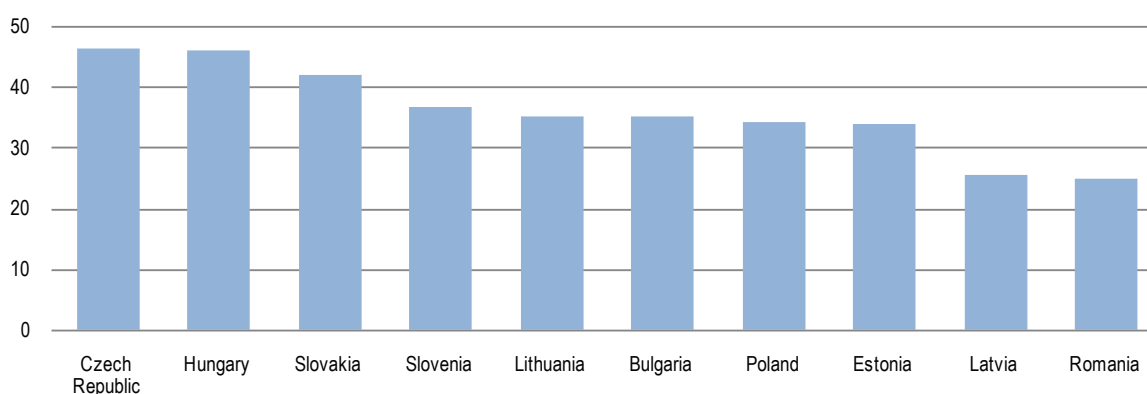
Having perceived the decisive role of multinational networks, several developing countries seek to join GVCs to assemble goods or make specialised inputs. This is easier and faster than building own supply chains but "less meaningful" (Gereffi 2013). Simply participating in GVCs does not necessarily develop domestic innovation, institutions, linkages and labour conditions. The challenge for companies in developing countries is how to upgrade in a beneficial way within the supply chains.

⁵¹ Baldwin (2012) analyses the development and role of GVCs in world trade in detail. The development of ICT technologies from the second half of the 80 years made it possible to coordinate production from a long distance and wage differences between developed and developing countries made outsourcing of production profitable for companies. Thus the second global unbundling of production took place. (The first unbundling took place after industrial revolution and railway network creation in the late 1800s.)

International trade in global production networks increased much faster than “normal” trade. According to the report of UNCTAD (2013) 80 per cent of global trade (gross exports) is linked to the production network of multinational companies. Because of international fragmentation, countries rely also on foreign resources to produce and export goods. Exports not only reflect the embodied technology and relative domestic endowments, but also the technology and factor endowments of countries from which the country imports intermediate goods (Beltramello et al., 2012). Thus, imports of intermediates increasingly determine the export competitiveness of countries and simply looking at the evolution of exports may be misleading for defining the competitive position of a country (see Box 1).

The foreign value added content of exports is a kind of measure of vertical specialisation and GVC inclusion. Foster-Stehrer (2013) analysed countries in this respect, based on world input-output table data. Between 1995-2011 this foreign value added increased in almost all countries and within the EU, Central European countries have very high levels (Figure 4)

Figure 4: Share of foreign value added in exports, 2011
percent



Source: compilation from Foster-McGregor and Stehrer, 2013, p.356.

Among the EU10, Hungary, the Czech Republic and Slovakia are especially strongly linked to GVCs, and Latvia, Romania are linked the least. As we have seen, the effect of foreign multinational companies on export is the highest in the first three countries. The old EU member states, mainly Germany involved these economies into their production networks already before legal accession to the EU. There had been different stages of this kind of integration process, as the example of automotive industry shows: first the regional market was attractive, than the Central European countries became hosts of export-oriented assembly and component parts factories. Foreign suppliers themselves relocated their production to the CE region (Fortwengel, 2011) and some R&D intensive functions were also relocated to this region.

Non-EU multinationals “discovered” the advantages of the CE region too. Ando and Kimura (2013) even argue that Central Europe connects Asia and Europe together within the global production networks. Due to the dominance of East Asia in electronics industry, European multinationals have been importing electronic parts and components from their affiliates and other Asian firms to use them for their production in CE. The automotive industry agglomerations in CE import machinery parts and components from Asia. Furthermore, certain Asian

firms themselves have invested in the CE countries and intensified sourcing from Asia. These all have resulted in tight production links between East Asia and CE to serve the European market. The strong inclusion into multinational networks shaped the revealed comparative advantages and export competitiveness of CE countries in the past decade (see Box 1).

Box 1. Competitiveness and comparative advantages in Central Europe

Export performance of countries is often bound to their competitiveness. Competitiveness is usually also a highly debated concept. There are several ways to measure and define the competitiveness of a country. However, according to well-known authors (Porter, 1990, Krugman, 1996) it does not make sense to talk about competitiveness of countries. Porter (1990) in his book enumerates several concepts of competitiveness and their factors but argues against generalisation. He argues that instead of competitiveness of nations, productivity is more important and even productivity is difficult to interpret on national level. Productivity makes sense only at the level of industrial branches. Krugman (1996) does not favour the concept of national competitiveness either. He states that countries are not like two competing factories; international trade is not a “zero sum game”. Living standard in a given country depends on its own domestic economic achievements and not on the comparison with other countries.

An often used measure concerning competitiveness is the index of revealed comparative advantage (RCA), or rather various types of RCAs. RCA measures for final export goods indicate if a country has a comparative advantage in the production in an industry, while RCA measures for imported intermediates show whether a country has a comparative advantage in the assembly in a given industry. However, the role of GVCs questions this; countries can import intermediates for the production of other intermediates. Cross-border movement of parts and products within the same production network increases the trade of developing countries, “artificially” generating international trade with each crossing (Athukorala et al, 2006 - Mani, 2000).

As a consequence, the competitiveness of countries can be overestimated based on gross export data and on indices (such as revealed comparative advantage) calculated from gross exports. This is especially true for open countries that rely heavily on imported intermediates. Based on world input-output table data, Timmer et al (2012) show that the use of imported intermediate inputs and the inclusion in global value chains have increased radically between 1995 and 2008 in the case of CE countries. Similarly, using world input-output tables, Grodzicki (2014) calculates RCAs based on GVC income. The results show that between 1995 and 2011, Central European economies lost their previous comparative advantages in traditional industries and formed new RCAs in different types of industries. The Czech Republic and Slovakia managed to maintain some of their previous advantages in resource-based manufacturing and Hungary in chemicals but at the same time they developed new, strong industries in modern types of activities like transport equipment, machinery and electrical products. Poland, on the contrary, did not undergo such a structural change – its RCAs are still mainly in resource-based industries (Grodzicki, 2014).

The international crisis in 2008 and its effects had negative effects on GVCs too. The trade collapse in 2009 was deep and was worsened by the general credit crisis. According to literature, global value chains can be a channel for the rapid transmission of both real and financial shocks. Demand drop for final goods and credit problems can immediately affect flows of intermediates, especially when supplier contracts are short-term. (Milberg & Winkler,

2010). As a kind of opposite opinion others (eg. Altomonte & Ottaviano, 2009) point out that supply chains could also have been a factor of resilience in the crisis, as existing supply chains are difficult and undesirable to abolish because of contractual arrangements and high initial sunk costs. This drop and quick recovery can be caused by the effect of crisis on GVC trade that is mentioned by several authors as the “bullwhip effect” (Escaith et al. 2010, Altomonte et al. 2012, Zavacka 2012). This means that low demand expectations force lead firms to adjust by their inventories. After the crisis, if demand for the product is recovered, sold out inventories can be accumulated again, so trade increase can also be magnified by GVCs. Sass – Szalavetz (2014) review and sum up the empirical literature on the role of GVCs in the crisis and conclude that the results depend on different approaches and different methodologies, datasets and time period. They also reinforce the twofold effects of GVCs: on the one hand transmitting and amplifying the crisis contributing to the decrease of international trade; on the other hand producing a stabilizing effect. This latter took place in a slightly longer run, attributed to the bullwhip effect and to the fact that companies inside the value chain helped each other by financing or network rebuilding.

In the EU10 and worldwide, the crisis resulted in reorganisations, relocations of firms. Trade flows largely controlled by multinational companies have also been affected by these relocation decisions. Companies relocated mostly for improving their competitiveness and this had both negative and positive effects on the trading of EU10 countries. Hunya – Sass (2014) found increasing relocation activity to Hungary in the post-crisis years until 2011 and found evidence of re-shoring or back-shoring as well. Relocation took place also from Hungary, decreasing the Hungarian export capacity significantly in 2012-14⁵². On the other hand, some additional investments have been relocated from Western Europe to the EU10 (like Poland) due to low cost seeking of multinationals (Éltető-Toporowski, 2013).

Besides relocation, the crisis probably could induce other positive effects on GVCs in the CE and Southern countries. Sass – Szalavetz (2013) analysed the effects of crisis on GVC integrated Hungarian automotive and electronic industry based on interviews. According to their results, firms had functional upgrading effects induced by the crisis and reorganisation of multinationals.

Conclusion

The recent international crisis accentuated the importance of exports for several EU member countries. The EU10 group is not an exception in this respect, most of them are strongly foreign trade – dependent economies. The crisis had significant effects on the foreign trade of the EU10 countries, partly in volume (drop and increase), partly geographically (increase of non-EU areas). These effects can largely be bound to the international activity of multinational companies.

The foreign trade of the EU10 had been directed towards the European Union already well before the official accession. The EU-integration had a major enhancing impact on mutual trade among these countries. Despite this trade intensification the share of the EU in exports shows a decrease. Based on the trade performance of EU10 described in this study we can conclude that the foreign trade patterns have not been similar for these economies. We can form two broad country-groups in this respect.

⁵² In 2012 Nokia downgraded its affiliate in Hungary, switched assembly to Nokia’s plants in South Korea and in Beijing. Therefore, in 2012 the before huge export of cellular phones from Hungary decreased. In 2014 Microsoft (the owner of Nokia Komárom company announced the closure of the firm.

The first group consists of the Czech Republic, Hungary, Slovakia and Estonia. The role of export in these small countries is very important for growth, these are extremely open economies, the share of exports in GDP and trade per capita are very high. These economies became strongly integrated in the global value chains that shape their trade structure, dynamics and volume. Their exports are relatively high-tech intensive. The most vulnerable among these economies is Slovakia, because its trade pattern is extremely concentrated on motor vehicle exports.

The rest of EU10 countries consist a second group, where integration into multinational networks, high-tech export is lower, and mainly lower-technology products are exported. This group is even more heterogeneous than the previous one, there are larger and smaller countries within.

The inclusion of the EU10 region into the global value chain activity is a fact. The future of these economies depends on how they can use this integration, on what level their firms can participate in the worldwide production tasks. Fruitful participation in the global value chains depends largely on the local capacities to absorb foreign technology, thus on the quality of human capital. In the Baltic countries (but to lesser extent also in other EU10 economies) emigration of well qualified people is a severe problem, because it reduces human resources, the level of education and has become a long-term mass-phenomenon (Kirch et al. 2011, Staehr, 2013). In all EU10 economies the efficient development of human capital and education system would be essential to provide a long-term base for good export performance and growth.

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