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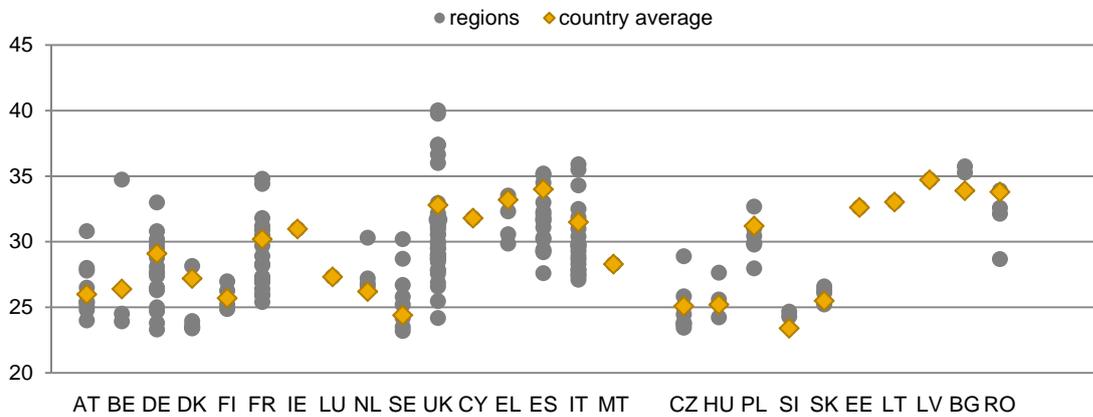
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## INCOME INEQUALITY IN EU REGIONS

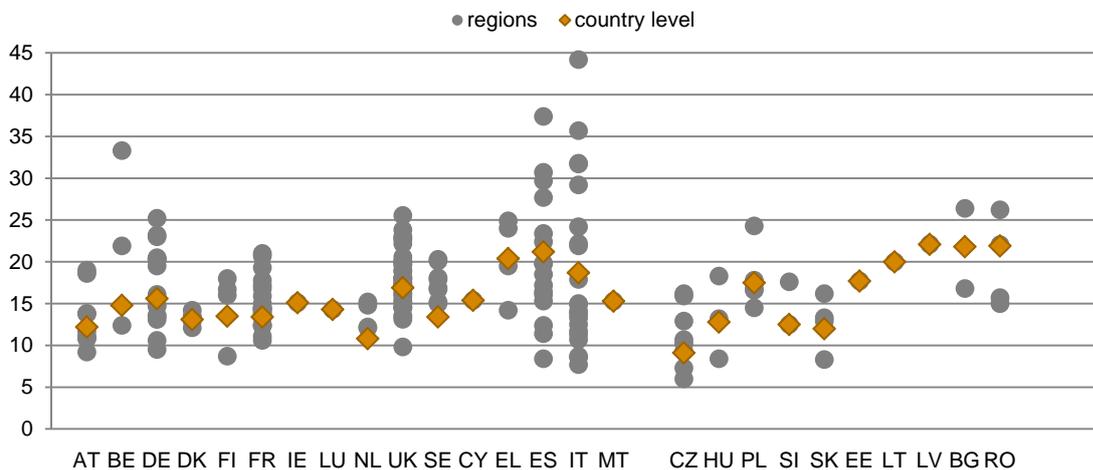
### Inequality of disposable income at the regional level – Gini index, 2010



Note: The Gini index describes the inequality of income in a population, ranging from 0 to 100. 0 would depict perfect equality, 100 perfect inequality.

Source: OECD regional well-being dataset, EU SILC.

### Inequality of disposable income at the regional level – Poverty rate, 2010



Note: Poverty rate is the share of persons in the population in %, with disposable income below 60% of the median income.

Source: OECD regional well-being dataset, EU SILC.

## Opinion corner: New president elected in Poland: what are the consequences?

ANSWERED BY LEON PODKAMINER

*After a poor showing in the first ballot (coming second with 33.8% of the vote) Mr Bronisław Komorowski, the incumbent President, lost the runoff with 48.5%. The winner is Andrzej Duda, aged 43. Mr Duda is member of the European Parliament for Poland's chief opposition party 'Law & Justice' which previously ruled the country from 2005 to 2007.*

*The outcome of the Presidential contest seemed obvious, initially. According to the polls, the incumbent President's popularity was overwhelming (over 60%). None of the candidates (11 in total) – including Mr Duda - seemed to represent a real threat. That dulled the vigilance of Mr Komorowski's election committee (and of the ruling Civic Platform, the incumbent's 'native' party). The general expectation was that Mr Komorowski would win in the first ballot.*

*However though, two competitors showed their teeth during the campaign. Mr Kukiz, a middle-aged rock vocalist did not have anything coherent to say. Instead his repeated shows consisted of howled abuse and hatred of 'them' – the ruling elites. That proved sufficient to win him over 20% of the vote.*

*Mr Duda's condemnation of Mr Komorowski's (and the government's) performance was – in essence - not much different from that of Mr Kukiz. But that condemnation was expressed in a less vehement (but perhaps more effective) language. Moreover, Mr Duda did not shy away from promising, lavishly, various 'nice' things to almost everyone. (That the delivery of those 'things' was not the President's prerogative did not matter.)*

*Mr Duda's campaign, actively supported by the bulk of the Catholic clergy and all sorts of 'patriotic elements', was surprisingly well organised, showing its youngish-looking, eloquent (lawyer by profession) contender easily communicating with the crowds.*

*In contrast, Mr Komorowski's campaign lacked organisation and vigour. For a long time his main message, delivered in dull language, was that 'we have every reason to be proud of Poland's democracy and economic achievements and that we must not change our ways – perhaps only modify this or that'. That message fell on the deaf ears of the losers in the current 'prosperity'. The younger generation in particular has every reason to resent such a message. The unemployment rate among the young is over 20%. At least 25% of the employees (mostly the young) are on 'flexible' working arrangements. These arrangements – called 'trash contracts' in Polish – do not provide any social benefits and usually offer ridiculously low wages.*

*Beaten in the first ballot, Mr Komorowski responded quite nervously, trying to address some issues which he must have believed had been essential to the success of Messrs Kukiz and Duda. But these desperate attempts may have only alienated a part of his own electorate.*

*Mr Duda's victory may be a sign of a victory for 'Law & Justice' in the forthcoming parliamentary elections (due this coming autumn). Much will depend on what happens to the Civic Platform in the meantime. Without Mr Tusk (now presiding the European Council in Brussels), the Civic Platform lacks a strong leader. PM Ewa Kopacz has not yet shown the fighting qualities necessary. Assuming the Civic Platform stays in power (of course in coalition with minor parties: Farmers and/or Leftists if these manage to get into the Parliament), the economic policy may not change radically – though one could expect some 'socially minded' modifications (e.g. as concerns the Labour Code provisions). Poland's foreign policy would also not change much. Still, President Duda could make some impact (e.g. by vetoing the governmental legislation). In any case it is his prerogative to propose (in 2016) the next Chairman of the National Bank (plus three new members of the Monetary Policy Council). It is very unlikely that Mr Belka will retain his post. Under the new Chair of the NBP, Poland's monetary policy is likely to become less (obstinately) restrictive.*

*Should the 'Law & Justice' party of the former PM Jarosław Kaczyński eventually return to power, a lot could change rather radically. In economic policy, Poland could well follow the example of Mr Orbán's Hungary (e.g. by imposing additional taxes on banks and large retail chains – both dominated by foreign capital). It is too early to judge though how the policy of 'Law & Justice' will look in practice at this time. In the 2005 elections 'Law & Justice' promised 'economics based on solidarity instead of liberalism' – but its actual policy (2005-2007) was clearly liberal. Foreign policy might also change. One could expect less friendliness towards Germany (and the EU) – and even more hostility towards Russia.*

# Job-skill mismatch patterns in EU labour markets: migrants versus natives<sup>1</sup>

MICHAEL LANDESMANN, SANDRA M. LEITNER, STEFAN JESTL

## INTRODUCTION

In this short paper we measure differences in the incidence and extent of 'job-skill mismatch' between migrant and native workers in the European Union. We shall distinguish the pre-crisis and post-crisis periods, look at one sector in particular (manufacturing; results for other sectors can be obtained upon request) and also look at differences in job-skill mismatches in the EU-15 countries and in the NMS. We also check on whether the job-skill mismatch problem is more severe in relation to migrants from developing countries as compared to migrants from other European countries.

While the literature on job-skill mismatch among migrant workers is still limited, it has been growing steadily, particularly over the last two decades.<sup>2</sup> In this particular strand of literature, **over-education** has received much attention due to its prevalence, extent and persistence, and perhaps more importantly, due to the important issues it raises. In particular, over-education is a serious form of '**brain waste**', namely the underutilisation of migrant education and skills in the host country, and has detrimental wage effects for those that are affected since their returns to education are lower than for workers that are correctly matched.

In general, most studies have pointed to a higher incidence of job-skill mismatch among migrants than among natives. Relative to under-education, the incidence of over-education is a more prevalent phenomenon and tends to be higher among migrants than natives. This is generally explained with imperfect transferability of human capital (Chiswick and Miller, 2009), lack of innate ability (Sicherman and Galor, 1990), lower quality of foreign schooling or systematic labour market discrimination. Furthermore, the literature highlights that the scale of mismatch strongly depends on additional factors like migrants' countries of origin, host country labour markets or migrants' characteristics and background.

## METHODOLOGICAL APPROACH

Generally, job-skill mismatch is defined as the mismatch between the required level of education for a particular job, on the one hand, and the worker's educational attainment level, on the other. More specifically, there is 'over-education' if workers' skills exceed their job qualification requirements, while

<sup>1</sup> A more extensive version of this article including information on job-skill mismatches in the services sectors can be obtained upon request: landesmann@wiiw.ac.at

<sup>2</sup> See, e.g., Battu and Sloane (2004), Campell (2013) and Lindley and Lenton (2006) for the UK, Green et al. (2007), Kler (2007), Messinis (2007) or Wen and Maani (2014) for Australia, Fernandez and Ortega (2006) or Sanroma et al. (2008) for Spain, Poot and Stillman (2010) for New Zealand, Nielsen (2011) for Denmark, Joona et al. (2007) for Sweden or Nieto et al. (2013) and Tijdens and van Klaveren (2011) for a set of EU countries.

there is 'under-education' if workers' skills fall short of their job qualification requirements and finally, there is 'correct qualification' if workers' skills match their job qualification requirements.

$$\text{Skill mismatch} = \begin{cases} \text{Over - educated} & \text{if job qualification requirements} < \text{skills} \\ \text{Correctly matched} & \text{if job qualification requirements} = \text{skills} \\ \text{Under - educated} & \text{if job qualification requirements} > \text{skills} \end{cases}$$

For the ensuing analysis, information on occupations as contained in the EU-LFS (Labour Force Survey) is used to identify *job qualification requirements*. More specifically, the LFS provides information on the occupation, in which a person is employed, by ISCO categories (International Standard Classification of Occupations). These occupations range from 0 to 9, but for the purpose of the analysis, following Huber et al. (2009), they were grouped together into three different job types: (i) occupations 1 to 3 were grouped into a 'high-occupation job type' (OccHigh), (ii) occupations 4 to 8 into a 'medium-occupation job type' (OccMedium) while (iii) occupation 9 is referred to as 'low-occupation job type' (OccLow) (see Table 1). Given the difficulties in distinguishing between various skill positions in occupation group 0 (i.e. armed forces), it was dropped from the analysis.

**Table 1 / Correspondence between major job groups (ISCO) and required skill levels (ISCED)**

Major ISCO groups	Job types	Educational attainment levels
	(ISCO-based)	(Skills)
1. Legislators, senior officials and managers	OccHigh	SkHigh (ISCED 5,6)
2. Professionals	OccHigh	SkHigh (ISCED 5,6)
3. Technicians and associate professionals	OccHigh	SkHigh (ISCED 5,6)
4. Clerks	OccMedium	SkMedium (ISCED 3,4)
5. Service workers and shop and market sales workers	OccMedium	SkMedium (ISCED 3,4)
6. Skilled agricultural and fishery workers	OccMedium	SkMedium (ISCED 3,4)
7. Craft and related trade workers	OccMedium	SkMedium (ISCED 3,4)
8. Plant and machine operators and assemblers	OccMedium	SkMedium (ISCED 3,4)
9. Elementary Occupations	OccLow	SkLow (ISCED 0,1,2)
0. Armed forces	No assignment	

Source: Huber et al. (2009)

Furthermore, *skills* are identified by workers' educational attainment levels, based on the ISCED classification (International Standard Classification of Education), which ranges between 0 and 6. To ensure comparability and compatibility with job types, ISCED categories were grouped into three different skill groups: (i) 'high-skilled' (SkHigh) for ISCED levels 5 and 6, (ii) 'medium-skilled' (SkMedium) for ISCED levels 3 and 4, and (iii) 'low-skilled' (SkLow) for ISCED levels 0, 1 and 2 (see Table 1 for the correspondence between job types and skill levels). One shortcoming of this skill indicator is, however, that it only encompasses formal training activities and neglects informal education (like learning-by-doing, on the job training, etc.). Furthermore, we have the well-known problem that the classification by formal educational (ISCED) levels cannot account for any differences in the 'quality' of education or training received at these levels in different economies and, furthermore, whether education received in different countries is more or less easily transferable across countries. Indeed, these differences could account for some of the 'over-education' or 'under-education' of migrants vs. natives measured below.

Methodologically, the analysis follows Landesmann et al. (2010) to identify differences in the prevalence and extent of job-skill mismatch across sectors between migrant and native workers. In particular, the following step-wise approach is taken: first, the three different job types (OccLow, OccMed and OccHigh) are identified by sector and country; second, for each job type, the shares of high, medium and low-skilled workers in the employed labour force are calculated, separately for migrant and native workers. Hence, the shares of correctly qualified, over- and underqualified migrant and native workers are identified for each job type separately. Hence e.g. the over-qualified share of migrants with the highest educational attainment levels (SkHigh) in a particular job would be the share of migrant employees who have such an educational level beyond that of all employees (migrants and natives) in this particular job. An incidence of ‘under-qualification’ would then be if the migrant work-force shows a lower share of higher-educational attainment levels than would be the case for the entire work-force in a particular job.

Coming to notation,  $ShareMig_{ijkt}^s$  refers to the share of migrants of skill-type  $s$  in job type  $k$  in sector  $i$ , in country  $j$  at time  $t$  in the total migrant labor force in job type  $k$  in sector  $i$ , in country  $j$  at time  $t$  (see equation (1)). Similarly,  $ShareDom_{ijkt}^s$  refers to the share of natives of skill-type  $s$  in job type  $k$  in sector  $i$ , in country  $j$  at time  $t$  in the total native labor force in job type  $k$  in sector  $i$ , in country  $j$  at time  $t$  (see equation (2)).

$$ShareMig_{ijkt}^s = \frac{\# \text{ of migrants}_{ijkt}^s}{\text{total \# of migrants}_{ijkt}} * 100 \quad (1)$$

$$ShareDom_{ijkt}^s = \frac{\# \text{ of natives}_{ijkt}^s}{\text{total \# of natives}_{ijkt}} * 100 \quad (2)$$

Then, the relative job-skill mismatch indicator between migrant and native workers would be derived by skill type, and defined as follows:

$$\frac{ShareMig_{ijkt}^s}{ShareDom_{ijkt}^s} - 1 \quad (3)$$

which is the ratio between the share of migrants of skill-group  $s$  in job type  $k$  in sector  $i$ , in country  $j$  at time  $t$  and the share of natives of skill-group  $s$  in job type  $k$  in sector  $i$ , in country  $j$  at time  $t$ . As such, it captures whether, in a particular job type, correctly qualified, over- or under-qualified migrant workers are equally represented, over- or under-represented relative to native workers. Furthermore, one is deducted from the ratio to centre the relative mismatch indicator around zero. In this respect, a positive mismatch indicator refers to a situation where, relative to their native counterparts, migrants of a particular skill-type in a particular job type are over-represented while a negative mismatch indicator describes the opposite, i.e. an under-representation of migrant workers of a particular skill-type in a particular job type relative to native workers.

Furthermore, based on previous empirical findings on job-skill mismatch which stress that the incidence of over-education is strongly related to a migrant worker's country of origin (see, e.g., Battu and Sloane, 2004; Nieto et al., 2013; Tijdens and van Klaveren, 2011), the analysis will also shed light on relative job-skill mismatch patterns of migrants by country of origin. In particular, it will differentiate between migrants from (i) other European economies and from (ii) developing economies.

The analysis focuses on the period between 2000 and 2011 and differentiates between the pre-crisis period (2000-2008) and the post-crisis period (2009-2011) to account for the effects of the global financial crisis on job-skill mismatch patterns in the EU. Generally, migrants are identified in terms of their reported country of origin. However, for Germany, due to insufficient information on country of origin, nationality had to be used instead.

## FINDINGS

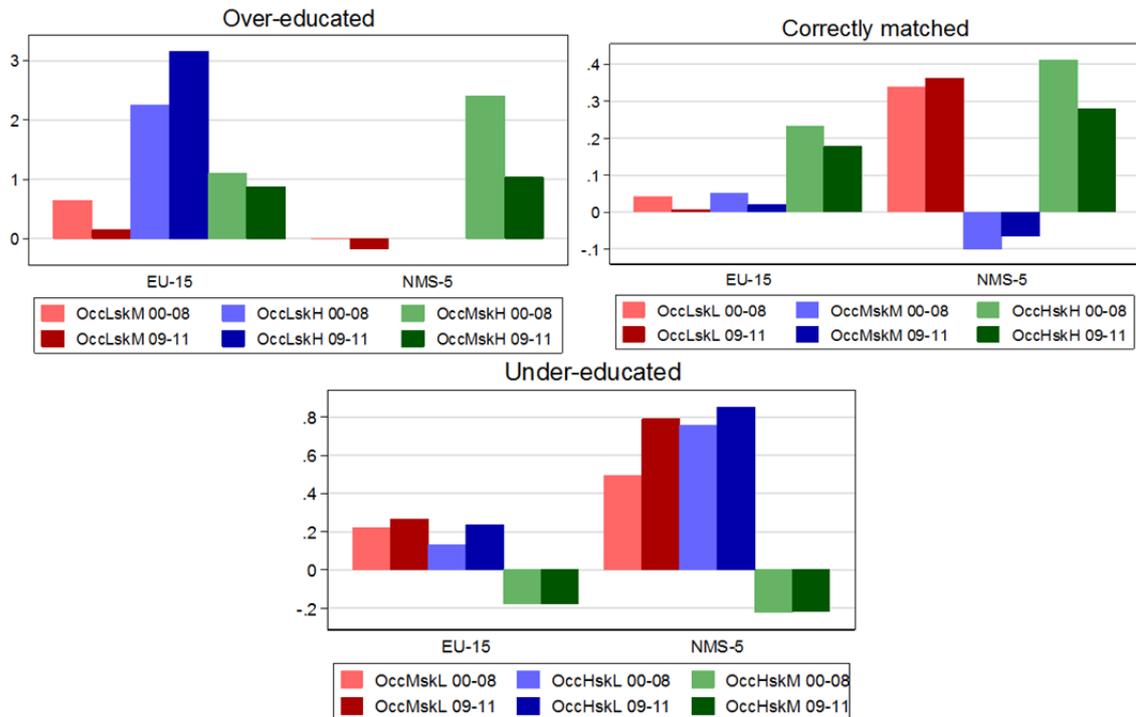
### *Job-skill mismatch of migrant and native workers*

Let us now discuss some detailed results: countries are clustered into two groups, namely the EU-15 and NMS-5 countries. From the EU-15 country group, Luxembourg (LU) is excluded as an outlier, due to its special migration and commuting situation which leads to a particularly high presence of migrants, particularly of high-skilled migrants from Europe and other developed countries. The country group NMS-5 comprises the Czech Republic (CZ), Hungary (HU), Poland (PL), Slovenia (SI) and Slovakia (SK) which all joined the EU in 2004. Moreover, since differences may also exist across individual countries, patterns are also analysed in more detail across a number of selected countries separately: i.e. Austria (AT), Germany (DE), Denmark (DK), Sweden (SE), Italy (IT) and the UK (UK). These countries can be seen as representing specific features which might affect the position of migrants in the labour market, such as particular wage-bargaining and welfare systems (see e.g. Hall and Soskice, 2001; Iversen, 2005): Central Europe (comprising AT and DE), Scandinavian countries (comprising DK and SE), the South European country IT and the Anglo-Saxon country UK.

The following set of graphs depict whether migrant workers are over-, under- or equally represented relative to native workers for the three different types of job-skill (mis)matches (i.e. over-educated, correctly matched, under-educated), using formula (3) above.

Figure 1 shows the relative over- and under-representation of migrant vs native workers in the EU-15 and NMS-5 countries in the manufacturing sector. Generally, the overall patterns (migrants vs. natives) in the 'over-educated' and 'under-educated' groups are relatively similar across the two country groups. Among the 'over-educated' group, highly-educated migrants show a higher over-representation (OccLskH and OccMskH). This over-representation of highly-educated migrants in job types that require lower qualifications will be interpreted as a 'brain waste' (see, however, our *caveat* above that we cannot adjust for differences in the quality of the same formal levels of education). Remarkably, the over-representation (compared to natives) of highly-educated migrants in job types with low qualification requirements (OccLskH) increased from nearly 220 percent in the pre-crisis period to over 300 percent in the post-crisis period. This may indicate that economic distress increased the willingness of highly-educated migrants to accept job types that required lower qualifications, resulting in an under-utilisation of their skills. Furthermore, with respect to highly-educated migrants in job types with medium qualification requirements (OccMskH), a decrease in the over-representation of migrants can be observed in both the EU-15 and the NMS-5 countries, albeit with a more pronounced decline in the NMS-5 (from 250 to 100 percent). This noticeable decline may be the result of an increase in unemployment of highly-educated migrants due to the economic crisis.

**Figure 1 / Over-/under-representation of migrant relative to native workers in EU-15 and NMS-5: Manufacturing<sup>3</sup>**



Source: LFS, own calculations.

Note: Luxembourg (LU) is excluded from the group of EU-15 countries.

#### *Job-skill mismatch of migrants, by country of origin*

Next, we want to examine the role of a migrant worker's country of origin for the incidence of under- or over-education. For this purpose, the ensuing analysis differentiates between migrants from (i) European economies and from (ii) developing economies<sup>4</sup>. However, due to limited data availability, the time spans used are 2004-2008 in the pre-crisis period and 2009-2011 in the post-crisis period. Furthermore, due to the low number of observations, results for NMS-5 countries are not displayed.

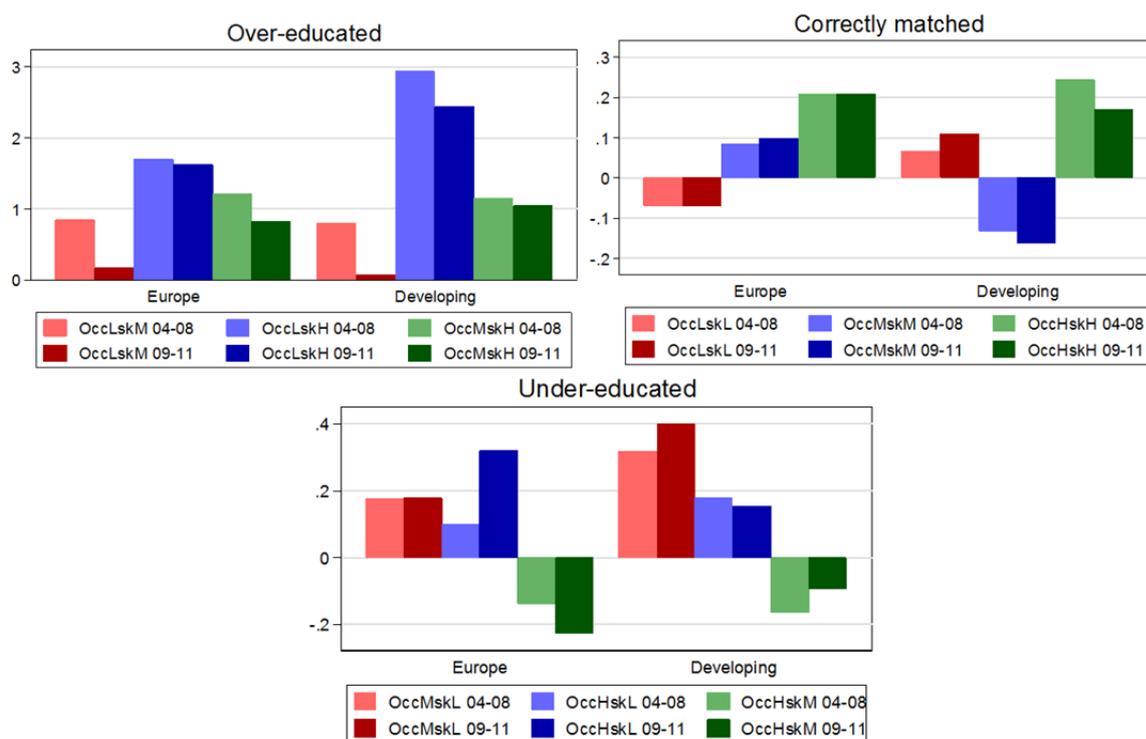
Figure 2 depicts the extent of over- and under-representation of migrants in the EU-15 countries for the manufacturing sector, by country of origin. Generally, the patterns look quite similar across country of origin groups. In the 'under-educated' group, there are no significant differences between migrant and native workers in both country of origin groups. However, the mismatch of highly-educated migrants in the 'over-educated' group is striking, particularly among migrants from developing countries, in both the pre- and post-crisis periods. This may be the result of the relatively lower quality of schooling/training in

<sup>3</sup> We adopted an outlier correction procedure which removed observations when the ratios calculated exceeded plus/minus two times the standard deviation from the mean.

<sup>4</sup> More precisely 'Europe' comprises all EU-27 and EFTA countries as well as other European countries like Albania, Andorra, Belarus, Bosnia Herzegovina, Croatia, Faroe Islands, FYR Macedonia, Kosovo, Monaco, Montenegro, Republic of Moldova, Russian Federation, San Marino, Serbia, Turkey, Ukraine, Vatican City. Developing countries comprise all countries in Africa, Near and Middle East, Central America (and the Caribbean), South America as well as South and South East Asia.

developing countries, the more limited transferability of skills or the relatively restricted access of migrants from developing countries to better jobs in the host countries.

**Figure 2 / Over-/under-representation of migrant relative to native workers in EU-15, by country of origin: Manufacturing**



Source: LFS, own calculations.  
 Note: Luxembourg (LU) is excluded from the group of EU-15 countries.

## SUMMARY

This article analysed the issue of ‘job-skill (mis)matches’ and focused on the differences of incidences of ‘over-education’ (i.e. a person having higher educational attainment levels compared to the job requirement) and ‘under-education’ (the opposite) between migrants and natives. We distinguished patterns between the EU-15 and NMS countries and between the pre-crisis and post-crisis periods. The general result is that migrants show a much higher degree of ‘over-education’ than natives, particularly in ‘low occupation’ activities. During the crisis we see an even stronger incidence of migrants with high educational attainment levels taking jobs in ‘low occupation’ activities. There is also much more ‘job-skill mismatch’ or ‘brain waste’ in the case of migrants from developing countries as against migrants from other European countries.

The study thus found substantive evidence of ‘job-skill mismatch’ in the EU, particularly with respect to migrants from developing countries. As this leads to ‘brain waste’, policies focussing on this issue should be welcomed in order to increase both the welfare of the migrants and enhance the contributions of migrants to productivity and growth in the host economies by enabling their access to better jobs.

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# Occupations wanted: the role of migrants and the potential of foreign students in the EU

ISILDA MARA

## INTRODUCTION

The map of job opportunities in the EU-28 is changing rapidly and is expected to look significantly different in the near future. The change in job demand requires an adequate labour supply in terms of skills which can match the needs of the market. The EU-28 countries are aware of this and a number of policy decisions have been taken to meet the changing and future demand for jobs.

The most recent forecasts from the European Centre for the Development of Vocational Training (CEDEFOP)<sup>1</sup> on future labour market trends in the EU, and in particular about the demand for skills, point out that the EU-28 countries are facing a growing demand for jobs with competences coming from both ends of skill distribution. However, the demand growth is expected to be relatively more pronounced for high-skilled occupations such as 'Professionals'<sup>2</sup> (by nearly 7 million), followed by 'Technicians, Associate Professionals' (by around 4 million) and 'Managers' (by more than 2 million new jobs). Demand for 'Elementary jobs'<sup>3</sup> is forecast to expand by only 1.7 million. In contrast, job opportunities that fall into the category of skilled manual or non-manual jobs<sup>4</sup> (medium-skilled jobs) such as 'Clerks', 'Service workers' and 'Plant machine operators' are expected to shrink by more than 5.5 million.

## UNEVEN EXPANSION OF JOB DEMAND ACROSS THE EU-28 COUNTRIES

Table 1 shows that most of the newly created jobs will belong to the category of high-skilled occupations, ISCO 1 digit level, group 1-3 for countries such as the UK, Italy, France, Germany and Spain. In contrast, most job opportunities in Bulgaria will be in the category of 'Elementary' while in Ireland they will mainly be in 'Craft and related trade workers'<sup>5</sup> and 'Elementary'. In addition, while the demand for high-skilled jobs such as 'Professionals' will expand in all EU-28 countries, the demand for 'Managers' will shrink for quite a large number of countries such as Germany, Sweden, Romania, Portugal, Latvia, Lithuania, Greece and Estonia. Technicians will continue to be among the most wanted

<sup>1</sup> <http://www.cedefop.europa.eu/en/publications-and-resources/data-visualisations/job-opportunities>

<sup>2</sup> Under this category, at ISCO-2 to 4 digit level, we find occupations such as science and engineering professionals (e.g. mechanical engineers, electrical engineers), health professionals (e.g. specialist medical practitioners, nursing professionals), information and communication professionals (e.g. software developers, system analysts).

<sup>3</sup> Under this category, at ISCO-2 to 4 digit level, we find occupations such as cleaners and helpers, refuse workers and other elementary workers (e.g. garbage and recycling collectors), agricultural, forestry and fishery labourers.

<sup>4</sup> Skilled non-manual occupations include ISCO 1 digit level, group 6-8; skilled manual occupations include ISCO 1 digit level, group 4-5. Usually medium-skilled occupations include ISCO 4-8 groups.

<sup>5</sup> e.g. metal working machine tool setters and operators

in the UK, Spain, Germany, Italy, and France but they will be in less demand in the Netherlands, Hungary, Poland and Romania.

**Table 1 / Net change in the number of jobs in EU-28 countries, in thousands, 2013-2025**

UK		IT		FR		DE	
01. Managers	1024.6	01. Managers	1022.1	02. Professionals	909.2	02. Professionals	777.2
02. Professionals	655.8	02. Professionals	829.4	03. Technicians and associate professionals	859.3	03. Technicians and associate professionals	527.1
03. Technicians and associate professionals	559.4	03. Technicians and associate professionals	732.1	09. Elementary occupations	789.7	05. Service workers and shop and market sales workers	124.4
05. Service workers and shop and market sales workers	526.4	09. Elementary occupations	184.1	01. Managers	455.3	06. Skilled agricultural and fishery workers	-15.8
09. Elementary occupations	312.6	10. Armed forces	32.9	06. Skilled agricultural and fishery workers	135.4	10. Armed forces	-42.9
06. Skilled agricultural and fishery workers	40.1	04. Clerks	-47.7	08. Plant and machine operators and assemblers	88	09. Elementary occupations	-75.3
10. Armed forces	13	08. Plant and machine operators and assemblers	-99.9	05. Service workers and shop and market sales workers	84.6	01. Managers	-181
08. Plant and machine operators and assemblers	-35.7	06. Skilled agricultural and fishery workers	-182.2	07. Craft and related trades workers	33.7	08. Plant and machine operators and assemblers	-281.4
07. Craft and related trades workers	-311.4	05. Service workers and shop and market sales workers	-331.1	10. Armed forces	4.9	07. Craft and related trades workers	-623.7
04. Clerks	-1133.6	07. Craft and related trades workers	-396.6	04. Clerks	-574.8	04. Clerks	-950.9
SE		DK		HU		PL	
02. Professionals	200.7	02. Professionals	194.9	02. Professionals	191.7	02. Professionals	889.2
05. Service workers and shop and market sales workers	187.6	03. Technicians and associate professionals	112.5	09. Elementary occupations	74.1	05. Service workers and shop and market sales workers	287.2
03. Technicians and associate professionals	4	05. Service workers and shop and market sales workers	45	01. Managers	46.2	08. Plant and machine operators and assemblers	210.9
07. Craft and related trades workers	-0.8	01. Managers	14.3	05. Service workers and shop and market sales workers	7.9	10. Armed forces	21.5
10. Armed forces	-1.4	10. Armed forces	-1	08. Plant and machine operators and assemblers	2.2	01. Managers	6.5
08. Plant and machine operators and assemblers	-8.7	08. Plant and machine operators and assemblers	-2.1	03. Technicians and associate professionals	-7.1	04. Clerks	-9.3
01. Managers	-11.6	07. Craft and related trades workers	-18.1	10. Armed forces	-9.1	03. Technicians and associate professionals	-82.3
06. Skilled agricultural and fishery workers	-17.9	06. Skilled agricultural and fishery workers	-19.8	04. Clerks	-53.4	09. Elementary occupations	-163.4
09. Elementary occupations	-24.7	09. Elementary occupations	-35.9	06. Skilled agricultural and fishery workers	-72.3	07. Craft and related trades workers	-383.3
04. Clerks	-88	04. Clerks	-80.4	07. Craft and related trades workers	-149.6	06. Skilled agricultural and fishery workers	-596.7

(Table ctd.)

Table 1 / ctd.

PT		HR		LV		LT	
02. Professionals	104.2	02. Professionals	85	02. Professionals	56.9	02. Professionals	52.7
09. Elementary occupations	45.5	05. Service workers and shop and market sales workers	36.4	03. Technicians and associate professionals	23.4	03. Technicians and associate professionals	14.6
03. Technicians and associate professionals	29.2	03. Technicians and associate professionals	19.3	05. Service workers and shop and market sales workers	5.1	06. Skilled agricultural and fishery workers	8.3
06. Skilled agricultural and fishery workers	26.2	04. Clerks	17.7	10. Armed forces	0.9	05. Service workers and shop and market sales workers	5.5
05. Service workers and shop and market sales workers	9.2	09. Elementary occupations	13.7	01. Managers	-2.9	10. Armed forces	1.1
08. Plant and machine operators and assemblers	-5.4	07. Craft and related trades workers	3.6	07. Craft and related trades workers	-3.6	07. Craft and related trades workers	-0.6
10. Armed forces	-6.4	01. Managers	1.7	08. Plant and machine operators and assemblers	-6	08. Plant and machine operators and assemblers	-6
01. Managers	-23.3	10. Armed forces	-2.3	04. Clerks	-9.3	01. Managers	-8.8
04. Clerks	-73.2	06. Skilled agricultural and fishery workers	-10.6	06. Skilled agricultural and fishery workers	-13.1	09. Elementary occupations	-11.1
07. Craft and related trades workers	-73.4	08. Plant and machine operators and assemblers	-11.4	09. Elementary occupations	-40.6	04. Clerks	-12
EE		MT		AT		EL	
02. Professionals	6.6	02. Professionals	8	05. Service workers and shop and market sales workers	118.3	05. Service workers and shop and market sales workers	104
03. Technicians and associate professionals	3.1	03. Technicians and associate professionals	2.6	03. Technicians and associate professionals	104.8	03. Technicians and associate professionals	82.1
04. Clerks	2.9	01. Managers	1.2	02. Professionals	80.9	02. Professionals	80
05. Service workers and shop and market sales workers	0.1	05. Service workers and shop and market sales workers	0.5	09. Elementary occupations	43.7	09. Elementary occupations	68.3
10. Armed forces	0	10. Armed forces	-0.3	01. Managers	14.7	04. Clerks	30.3
06. Skilled agricultural and fishery workers	-1.2	06. Skilled agricultural and fishery workers	-0.4	06. Skilled agricultural and fishery workers	-0.8	08. Plant and machine operators and assemblers	5.8
07. Craft and related trades workers	-1.9	08. Plant and machine operators and assemblers	-1.2	10. Armed forces	-1.1	10. Armed forces	2.3
08. Plant and machine operators and assemblers	-4.4	04. Clerks	-2.1	08. Plant and machine operators and assemblers	-14.3	01. Managers	-17.4
09. Elementary occupations	-8.4	07. Craft and related trades workers	-2.6	07. Craft and related trades workers	-61.5	07. Craft and related trades workers	-17.4
01. Managers	-12.6	09. Elementary occupations	-3.3	04. Clerks	-123.2	06. Skilled agricultural and fishery workers	-84.2
ES		BE		NL		FL	
03. Technicians and associate professionals	644.5	02. Professionals	251.4	02. Professionals	343	02. Professionals	127.6
05. Service workers and shop and market sales workers	530.5	03. Technicians and associate professionals	123.9	05. Service workers and shop and market sales workers	89.1	09. Elementary occupations	46.1
02. Professionals	62.5	05. Service workers and shop and market sales workers	86.4	09. Elementary occupations	42.5	03. Technicians and associate professionals	42.4
01. Managers	59.2	09. Elementary occupations	74.2	04. Clerks	20.5	07. Craft and related trades workers	13.9
09. Elementary occupations	55.7	01. Managers	33.5	01. Managers	12	01. Managers	6.7
10. Armed forces	-2	10. Armed forces	-1.2	03. Technicians and associate professionals	-0.4	08. Plant and machine operators and assemblers	3.8
04. Clerks	-7.7	06. Skilled agricultural and fishery workers	-4.9	10. Armed forces	-2.8	10. Armed forces	-3
08. Plant and machine operators and assemblers	-70.8	04. Clerks	-14.7	08. Plant and machine operators and assemblers	-17.1	06. Skilled agricultural and fishery workers	-7.2
06. Skilled agricultural and fishery workers	-155.8	07. Craft and related trades workers	-43.7	06. Skilled agricultural and fishery workers	-29.4	05. Service workers and shop and market sales workers	-34.4
07. Craft and related trades workers	-235.1	08. Plant and machine operators and assemblers	-44.2	07. Craft and related trades workers	-93	04. Clerks	-50.2

(Table ctd.)

Table 1 / ctd.

RO		CZ		CY		IE	
02. Professionals	553.5	02. Professionals	144.6	02. Professionals	17.1	07. Craft and related trades workers	82.9
05. Service workers and shop and market sales workers	115.6	03. Technicians and associate professionals	96.7	09. Elementary occupations	8.4	09. Elementary occupations	82.8
08. Plant and machine operators and assemblers	102.2	05. Service workers and shop and market sales workers	11.6	03. Technicians and associate professionals	5.5	02. Professionals	77.6
09. Elementary occupations	89.7	08. Plant and machine operators and assemblers	1.7	05. Service workers and shop and market sales workers	3.6	03. Technicians and associate professionals	59.7
04. Clerks	42.8	01. Managers	0.8	10. Armed forces	0	01. Managers	33.5
10. Armed forces	-4.4	10. Armed forces	-0.3	08. Plant and machine operators and assemblers	-0.1	05. Service workers and shop and market sales workers	29.8
03. Technicians and associate professionals	-39.8	09. Elementary occupations	-6.8	06. Skilled agricultural and fishery workers	-0.5	08. Plant and machine operators and assemblers	9
01. Managers	-52.5	06. Skilled agricultural and fishery workers	-12.8	01. Managers	-1.2	10. Armed forces	-1.3
06. Skilled agricultural and fishery workers	-136.8	04. Clerks	-46.2	04. Clerks	-1.4	06. Skilled agricultural and fishery workers	-6.5
07. Craft and related trades workers	-421	07. Craft and related trades workers	-104.1	07. Craft and related trades workers	-2.2	04. Clerks	-35.3
LU		SL		SK		BG	
02. Professionals	43.8	02. Professionals	37.6	05. Service workers and shop and market sales workers	62.7	09. Elementary occupations	142.3
04. Clerks	14.3	09. Elementary occupations	24.8	03. Technicians and associate professionals	55.1	02. Professionals	24.8
03. Technicians and associate professionals	3.2	01. Managers	20.3	02. Professionals	53.8	05. Service workers and shop and market sales workers	5.9
01. Managers	2.5	03. Technicians and associate professionals	15.1	01. Managers	27.6	03. Technicians and associate professionals	0
10. Armed forces	0	10. Armed forces	0.9	10. Armed forces	11	04. Clerks	-3.5
08. Plant and machine operators and assemblers	-0.9	08. Plant and machine operators and assemblers	-9.2	09. Elementary occupations	9.4	10. Armed forces	-6.1
06. Skilled agricultural and fishery workers	-1.5	05. Service workers and shop and market sales workers	-10	08. Plant and machine operators and assemblers	5.1	08. Plant and machine operators and assemblers	-27.2
05. Service workers and shop and market sales workers	-2.3	07. Craft and related trades workers	-10.8	07. Craft and related trades workers	1.7	01. Managers	-45.1
09. Elementary occupations	-4	04. Clerks	-34.8	06. Skilled agricultural and fishery workers	-3.6	07. Craft and related trades workers	-69.1
07. Craft and related trades workers	-7.4	06. Skilled agricultural and fishery workers	-36.7	04. Clerks	-14.1	06. Skilled agricultural and fishery workers	-71.7
ISCO 1-3		ISCO 4-5		ISCO 6-8		ISCO 9	

Source: own elaboration using CEDEFOP Skills Forecast

<http://www.cedefop.europa.eu/en>

Overall the number of job opportunities related to skilled manual or non-manual labour is forecast to decline. However, the number of occupations in the category of 'Service workers and shop and market sales workers' is expected to grow the most for countries such as Austria, Greece and Slovakia. Further, the demand for 'Clerks', e.g. in the UK, France, Germany and Austria, will decline by more than the expected increase of demand in 'Services'. Italy is the country that is expected to have the most drastic decline in 'Services'.

Thus the overall mapping of trends in job opportunities suggests that the expanding demand for high and low skills might be a challenge for the EU-28 by 2025, and the heterogeneity of demand expansion for certain groups of occupations across EU countries may complicate this challenge still further. So the question would be: are the EU countries prepared to meet the labour market needs, particularly for high-

skilled workers, and also able to satisfy the growing demand stemming from expansion of certain categories of occupations and high replacement rates due to retirement?

At the current stage, while there is no evidence of quantitative skill shortages (mainly related to aging and low activity or participation rates), qualitative skill shortages (mainly related to difficulties in recruiting people with the adequate skill level required for the job) are a phenomenon which has become more common in the EU-28 countries (EU 2014)<sup>6</sup>. Bottleneck occupations are already emerging and these are strongly related to skill shortages. Moreover, this is particularly the case for occupations that are high skill dependent. The study (EU 2014) points out that bottleneck occupations mainly fall into the category of 'Professionals', in particular 'Science and engineering', 'Information and communications technology', 'Health' and 'Business and administration'. The second largest group of bottleneck vacancies is found among occupations in 'Metal, machinery' and 'Building and related trades workers', 'Food processing, wood working, garment and other craft and related trades workers' and 'Electrical and electronic', which are all non-routine jobs where medium skills are needed. A third important group of bottleneck occupations belongs to 'Personal service and care, sales workers'. Some of the countries that are expected to have the largest expansion of high-skilled occupations are already facing important bottlenecks in occupations such as 'Information and communications technology professionals' (e.g. Italy, Belgium and Sweden), or 'Health professionals' (e.g. France and Finland)<sup>7</sup>.

## MITIGATION STRATEGIES

The EU-28 countries have already adopted mitigation strategies to address the issue of bottleneck vacancies. Such strategies differ across occupations, regions and countries. Nevertheless, a common approach used by employers to tackle high-skilled bottleneck occupations such as 'Health professionals', 'Information and Communications Technology', 'Science and engineering associate', as well as less skilled bottleneck occupations such as 'Craft and related trades workers', is recruitment from other EU countries or from outside the EU (EU 2015). Accordingly, companies are adopting strategies in line with the EU agenda on migration which sees not only intra EU-28 mobility but also immigration from non-EU countries among the principal solutions in addressing the labour market needs in the EU-28.<sup>8</sup>

Nevertheless, attracting immigrants from abroad, especially high-skilled ones, is often considered a temporary solution.<sup>9</sup> Intra-EU mobility remains below its potential and has not been successful in mitigating skill or labour shortages so far. Meanwhile immigration from countries outside the EU-28 has intensified significantly, especially in 2012 and 2013 (Eurostat Statistics 2015), but mainly for family related reasons rather than job-search related reasons.

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<sup>6</sup> EC (2014), 'Mapping and Analysing Bottleneck Vacancies in EU Labour Markets', Final Overview Report (1/09/2014)

<sup>7</sup> *ibid*

<sup>8</sup> [http://ec.europa.eu/priorities/docs/pg\\_en.pdf](http://ec.europa.eu/priorities/docs/pg_en.pdf), page 9-10

<sup>9</sup> Expert Group on Economic migration (2015), 'Better managing labour migration at EU level', Discussion paper Nr.1, page 5.

## MIGRANTS AND SKILLS – A SNAPSHOT

In 2014, the stock of migrants in the EU-28 amounted to almost 34 million, which represents only 7% of the total EU-28 population. Intra-EU 28 migrants represent only 42% of the total stock while the remaining 58% originate from outside the EU. The main receiving countries (in absolute terms) are Germany (20% of total migrant stocks in the EU-28), the UK (12%), Italy (18%), Spain (14%), and France (14%) - see Table 2.

**Table 2 / Stock of migrants in EU-28 countries, by origin, 1 January 2014**

	Migrants from outside EU	Migrants from EU-28	Total migrants	Total population
Germany	3,924,475	3,087,336	7,011,811	80,767,463
United Kingdom	2,424,286	2,623,367	5,047,653	64,308,261
Italy	3,480,379	1,441,706	4,922,085	60,782,668
Spain	2,685,966	1,991,093	4,677,059	46,512,199
France	2,705,659	1,451,819	4,157,478	65,835,579
Belgium	434,999	829,428	1,264,427	11,203,992
Austria	541,866	514,916	1,056,782	8,506,889
Greece	648,609	188,292	836,901	10,903,704
Netherlands	332,326	403,028	735,354	16,829,289
Sweden	397,967	289,225	687,192	9,644,864
Ireland	172,262	373,250	545,512	4,605,501
Czech Republic	261,302	173,279	434,581	10,512,419
Portugal	300,725	100,595	401,320	10,427,301
Denmark	237,207	160,014	397,221	5,627,235
Latvia	298,800	6,035	304,835	2,001,468
Luxembourg	34,524	214,390	248,914	549,680
Finland	122,661	83,990	206,651	5,451,270
Estonia	187,087	7,830	194,917	1,315,819
Cyprus	48,465	110,871	159,336	858,000
Hungary	59,484	80,817	140,301	9,877,365
Poland	73,494	27,710	101,204	38,017,856
Slovenia	80,290	16,318	96,608	2,061,085
Romania	52,816	20,618	73,434	19,947,311
Slovakia	13,977	45,174	59,151	5,415,949
Bulgaria	42,283	12,139	54,422	7,245,677
Croatia	21,888	9,816	31,704	4,246,809
Malta	11,319	13,661	24,980	425,384
Lithuania	17,866	3,711	21,577	2,943,472
<b>Total</b>	<b>19,612,982</b>	<b>14,280,428</b>	<b>33,893,410</b>	<b>506,824,509</b>

Source: own elaboration using Eurostat Statistics(2015).

The share of migrants in low skilled jobs is higher than the share of total workers in these occupations. The opposite is true for high-skilled occupations where migrants are underrepresented. In particular, the main occupations of migrants appear to fall into the category of 'Elementary occupations', with shares of the total ranging between 47% (Italy) and 16% (France), and 'Service and sales workers', with shares ranging between 24% (Spain) and 15% (the UK). More skill intensive occupations such as 'Professionals' and 'Technicians and associate professionals' are held by 19% of migrants in the UK while only by 2.9% of the migrants in Italy.

Another weakness of the EU-28 countries is the underutilisation of skilled immigrants which is a loss in terms of human capital. In the UK, for example, the share of high-skilled migrants stands at around 49% of the total migrant population, while the share of migrants that have high-skilled jobs is only around 39%. Such occupational distribution is unjustified and inefficient when the education level of migrants and type of jobs they perform are considered. Nevertheless, attracting migrants with appropriate skills into an appropriate region and at an appropriate time cannot be straightforward as long as there are barriers to mobility. It is often argued that migrants are not perfect substitutes within the same industry, occupation or skill level (IOM, 2012).<sup>10</sup> Besides, migrants from countries outside the EU often have to struggle to get their qualifications from outside the host country recognised by the host country.

## THE ROLE OF FOREIGN STUDENTS

What about the potential of foreign students for satisfying the demand for high-skilled labour in the EU-28? The stock of foreign students in tertiary education in the EU-28 was around 1.8 million in 2012, of which 60% originated from outside the EU. The most attractive EU countries for non-EU students appear to be the UK, absorbing 36% of total foreign students in the EU-28, followed by France (20%), Germany (16%), Spain (6%) and Italy (4%).

So far, this potential has remained largely unexploited as the number of students who have switched from studies-related to work-related migration is almost negligible. The share of foreign students who converted their education related permit of stay to a permit for remunerated activities related stay was only 3% in 2013. In previous years, the respective numbers varied significantly.

These findings point out that an important source of human capital that is: (i) available from outside the EU (immigrants) and (ii) within the EU (foreign students), remains untapped or underutilised in spite of a desperate demand for high-skilled workers for both now and in the near future.

## CONCLUSION

In conclusion, the CEDEFOP forecasts suggest that during the next decade, new jobs opportunities will arise mostly for high-skilled workers and will not be fully met by labour supplied domestically and from other EU countries, given the low level of intra-EU mobility. Not by chance, the EU-28 countries foresee attracting immigration as a solution to the problem. Nonetheless, the general lack of targeted programs to attract not only high-skilled migrants but also to retain highly educated foreign students, and the barriers to labour mobility, particularly with regard to the entry and permanence of third country nationals, hamper the future adequate labour supply and thus the future of the EU labour market in general.

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<sup>10</sup> IOM(2012), 'Labour shortages and migration policy', 2012 IOM (International Organization for Migration)

# Income inequality, health and social outcomes in the EU regions\*

BY SEBASTIAN LEITNER

## INTRODUCTION

There is a controversial discussion in the literature as to whether income inequality is, in addition to income levels, an important determinant of population health and further social outcomes like crime level or non-participation of young persons in education or employment. In this article we take a look at these effects of income inequality at the regional level of the EU and highlight differences between the Central and East European New EU Member States (CEE-NMS)<sup>1</sup> and regions in Non-NMS EU countries.

About twenty years ago, epidemiologists in particular started to analyse the so called 'income inequality-health hypothesis', which states that income inequality has a negative influence on population health. The hypothesis was also tested for other social outcomes, like crime level, levels of social trust and others. In their 2009 book 'The Spirit Level: Why More Equal Societies Almost Always Do Better' Wilkinson and Pickett popularised the hypothesis that higher levels of income inequality lead to social harm in various aspects, particularly in high income countries. However, the hypothesis did not remain unchallenged in the literature. Without going into details of the discussion in the literature, in this article we would like to present some of the results of recent research performed at the wiiw on some of the effects of income inequality at the regional level.

## INEQUALITY AND POVERTY LEVELS IN THE CEE-NMS IN COMPARISON

Inequality of disposable incomes started to increase in the 1980s in almost all European and furthermore OECD countries (OECD, 2011). In the Central and East European New EU Member States (CEE-NMS), the transitional crisis at the beginning of the 1990s raised inequality levels strongly in countries like Bulgaria, Romania and the Baltic States, and then later on in Poland too, while inequality remained at relatively low levels in e.g. the Czech Republic and Slovenia. Inequality is highest nowadays (as of 2010 data) in Bulgaria, Romania and the Baltic States within the European Union, however it is comparable to most South European countries and Great Britain. The Central European EU Member States and Scandinavian countries feature much lower levels of inequality (see Graph of the month on p.1).

The picture looks similar if we measure income inequality by the poverty rate, focusing on the dispersion between low and medium income earners (see Graph of the month on p.1). Within-country variance of

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\* This article is based on a study carried out within the project 'Growth-Innovation-Competitiveness – Fostering Cohesion in Central and Eastern Europe' (GRINCOH) that has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 290657. See also the forthcoming wiiw Working Paper No. 113, Leitner, S.: Effects of Income Inequality on Population Health and Social Outcomes at the Regional Level in the EU – Differences and Similarities between CEE and Non-CEE Regions.

<sup>1</sup> Czech Republic, Hungary, Poland, Slovak Republic, Slovenia, Estonia, Latvia, Lithuania, Bulgaria and Romania.

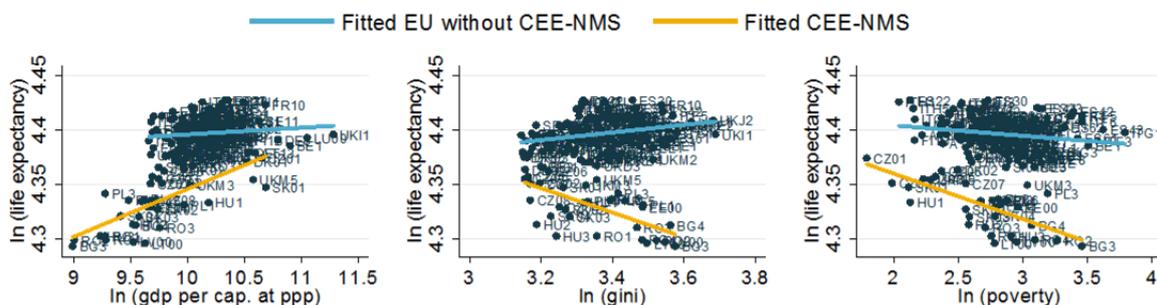
income inequality, and also poverty between regions (NUTS 2 regions for most countries)<sup>2</sup>, are obviously higher on average in countries with larger populations, however, inequality levels also differ considerably in countries like Belgium, Sweden and Austria, particularly between the capital regions and other parts of the country.

## CORRELATIONS FOR SELECTED HEALTH AND SOCIAL OUTCOME VARIABLES

A first hint at possible effects of income levels and income inequality on health and social outcomes can be given by analysing simple correlations figures. In this section we present graphs for only three selected indicators: life expectancy, homicide rate and the share of young persons not in employment, education or training; while the results of the detailed regression analysis performed in a recent wiiw research project<sup>3</sup> are presented in Table 1.

Average life expectancy at birth ranges at the regional level between 73.2 years for Northern and Eastern Bulgaria (BG3) and 83.7 years for Madrid (ES30). Annual GDP per capita ranges (as of 2010 data) from a minimum of only about EUR 8 thsd. per capita (at PPP) for Northern and Eastern Bulgaria (BG3) to the tenfold of EUR 80 thsd. (at PPP) for Inner London (UKI1). Most of the regions situated in the Central and East European New EU Member States (CEE-NMS) feature not only a lower GDP p.c. level but also lower life expectancy at birth. Since the relationship between income levels and life expectancy is described to be concave in the literature, we transformed the data into natural logs (see Figure 1). Moreover, we split our sample into two subgroups, the CEE-NMS regions and the Non-NMS regions, and drew two separate linear prediction plots.

**Figure 1 / Life expectancy versus GDP per capita at PPP and inequality indicators (logs), 2010**



Source: Eurostat, OECD regional well-being dataset, EU SILC, wiiw calculations.

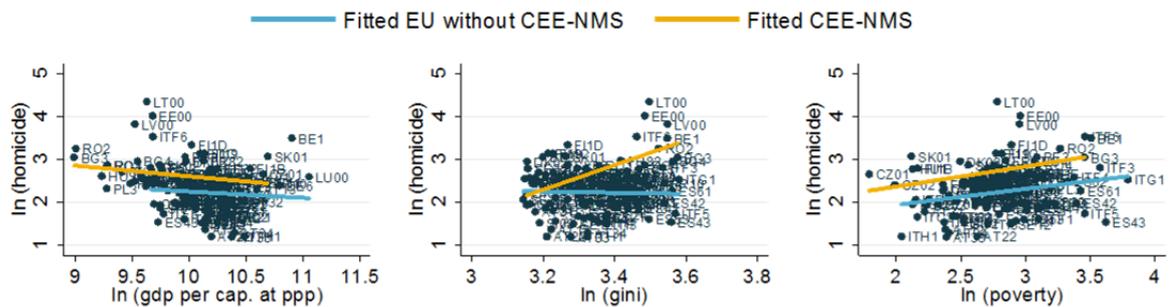
From graphical inspection we suppose that most probably the level of GDP per capita and the Gini coefficient might not be useful explanatory variables for life expectancy in the case of the Non-NMS EU group, while for the CEE-NMS group, correlations between life expectancy and all three explanatory variables might be indicative. One of the reasons why the relationships are different in the two country groups may be the lower levels of health expenditures in the NMS countries - not only per capita at PPP but also as a share of GDP. Drawing on national data provided by Eurostat, one can observe that 7% of the GDP on average is spent on health care in the CEE-NMS countries, while in the Non-NMS countries this share amounts to 9.4%. In addition, in the Non-NMS countries about 25% of total health care

<sup>2</sup> Only NUTS 1 data was available for Belgium, Germany, Greece, Hungary, Poland, the Netherlands, Bulgaria, Romania and Ireland. Cyprus, Estonia, Latvia, Lithuania, Luxembourg and Malta comprise of just one NUTS 2 region.

<sup>3</sup> see footnote \* on the first page of this article.

expenditure is financed by the private sector, while this amounts to almost 30% in the NMS countries. These figures imply that being poor in the CEE-NMS often means not being able to afford adequate health care - more so than in the rest of the EU where public funding of health care plays a greater role.

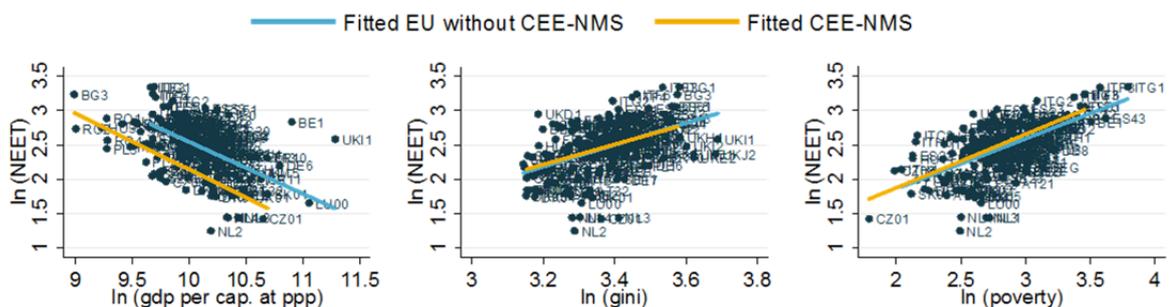
**Figure 2 / Homicide rates versus GDP per capita at PPP and inequality indicators (logs), 2010**



Source: Eurostat, OECD regional well-being dataset, EU SILC, wiiw calculations.

Homicide rates (cases per 100 thousand inhabitants per year) range from 33 for the Austrian region of Tyrol (AT33) to 773 for Lithuania. All three Baltic States report particularly high homicide rates. The highest homicide rate among the EU regions, apart from the Baltics, is reported by the Italian region of Calabria (ITF6) with 342 cases. A first hint on the relationship between homicide rates and our explanatory variables for income levels and inequality is presented by the scatter plots in Figure 2 (data in logs). We would expect that homicide rates generally fall with an increase of GDP p.c. and rise with an increase of poverty rates both in the Non-NMS and CEE-NMS regions of the EU. In the case of the Gini index, however, we found no correlation for the Non-NMS regions and a positive relation for the CEE-NMS regions.

**Figure 3 / NEET (age 19-24) versus GDP per capita at PPP and inequality indicators (logs), 2010**



Note: NEET: Young persons not in employment, education or training.

Source: Eurostat, OECD regional well-being dataset, EU SILC, wiiw calculations.

Shares of young persons not in employment, education or training (NEET - age 19-24) range from 3.5% for the Eastern Netherlands (NL2) to 28.5% for the Italian region of Sicily (ITG1). From the scatter plots presented in Figure 3, we expect that the relationship between NEET rates and our explanatory variables would be quite similar in the Non-NMS and CEE-NMS regions. A negative correlation can be observed between GDP p.c. levels and NEET rates. Higher NEET rates tend to appear in regions with higher inequality and poverty levels.

## RESULTS OF REGRESSION ANALYSIS

Due to the limited time span for which inequality indicators at the regional EU level were available, we performed cross-region regression analyses based on data for up to 183 regions for the year 2010. In order to control for unobserved country characteristics, we applied fixed and random (country) effects regression models. Thus, when analysing the effect of inequality and poverty on health and social outcomes, we not only accounted for the effect of regional GDP p.c. levels but also for country differences like public expenditures on health, life styles (e.g. alcohol consumption) and other characteristics that may influence health and social outcomes. Separate regressions were performed for all EU regions, the group of regions of the Central and East European New EU Member States (CEE-NMS) and for the group of EU regions excluding the CEE-NMS (Non-NMS regions). In Table 1 we present the results of our regression analysis not only for the three health and social indicators described above but for all the indicators at the regional level that were analysed in our study.

**Table 1 / Conditional correlations between inequality, health and social outcomes (in logs)**

Dependent variables	EU regions		EU regions excl. CEE-NMS		CEE-NMS regions	
	Gini	Poverty	Gini	Poverty	Gini	Poverty
<b>Population health</b>						
Life expectancy	+	-	+	-	-	-
Infant mortality	+	+	+	+	+	+
Standardised death rates						
Assault	+	+	+	+	+	+
Drug dependence	-	-	-	-	-	-
Circulatory system	+	+	+	+	+	+
Mental diseases	-	-	-	-	+	+
<b>Social outcome: Crime</b>						
Homicide	+	+	+	+	+	+
Robbery	+	+	+	+	+	+
Domestic burglary	+	+	+	+	+	-
Theft of motor vehicles	+	+	+	+	-	-
<b>Social outcome: Non-participation of young persons in the labour market or education</b>						
NEET rates	+	+	+	+	+	+
Early leavers from education	+	+	+	+	+	+

+/- sign of coefficient of explanatory variable

significant coefficient, expected sign, high explanatory power (R<sup>2</sup>) of regression model

significant coefficient, expected sign, low explanatory power (R<sup>2</sup>) of regression model

significant coefficient, non-expected sign, high explanatory power (R<sup>2</sup>) of regression model

significant coefficient, non-expected sign, low explanatory power (R<sup>2</sup>) of regression model

no significant results

Source: wiiw calculations.

Our analysis reveals that indices of income inequality and poverty (controlled for differences in regional GDP p.c. and country characteristics) show significant correlations with a number of health and social indicators. For life expectancy at birth, infant mortality rates, two standardised death rates (assault, diseases of the circulatory system – heart attack), homicide rates, robbery rates, rates of domestic burglary, rates of young persons (age 15-24) not in employment, education or training (NEET) and rates of early leavers (age 18-24) from education, we found significant results for the hypothesis that higher inequality levels tend to lead to a worsening of social outcome variables. This variation is, however, low for standardised death rates, robbery and domestic burglary rates in the case of CEE-NMS regions and, for the Non-NMS regions, only high for non-participation of young persons in the labour market or education. This does not mean that the relation between income inequality and the latter social indicators is non-existent in these cases. Yet, clearly the phenomena that influence those variables at the regional level are rather complex and inequality explains only a small part of the inter-regional

differences. The coefficients often differ in magnitude for the CEE-NMS regions and Non-NMS regions; however, the direction of the relationship between inequality and social outcomes is almost always the same. No statistically significant results could be found for infant mortality rates and age specific death rates for the specific causes drug dependence and mental diseases in the case of the NMS regions. The coefficients for the latter two rates show significant negative signs in the case of the Non-NMS regions, which is counter-intuitive, i.e. implying death rates tend to be higher in regions with more equally distributed income. One of the problems in using death rates for the analysis may be that cases of co-morbidity (e.g. heart attack due to drug abuse) are dealt with differently in various countries. For the CEE-NMS regions, we obtained one counter-intuitive result for theft rates of motor vehicles, which were lower in regions with higher poverty rates.

Significant correlations with satisfactorily high explanatory power were found for the CEE-NMS regions for life expectancy, homicide rates, NEET rates and early leavers from education (the latter two indicators were only significant in the case of income inequality measured by the Gini index). For the Non-NMS regions, this is the case for NEET rates and the rate of early leavers from education. However, as mentioned above, we also found significant coefficients for the inequality measures for most of the other social indicators which we applied.

## POLICY CONCLUSIONS

Our analysis suggests that redistributive policies aimed at reducing income inequality might lead not only to improved population health but also to general positive spillover effects in the form of lower crime rates and increased activity and participation rates of young persons in education and employment. The split of the sample into CEE-NMS and Non-NMS regions reveals that not only the effect of GDP p.c. but also the effect of income inequality on social outcomes is mostly stronger for the NMS regions. This suggests that not only economic growth on its own is important to lead to better outcomes in population health and other social phenomena for the NMS countries. More redistributive policies would lead to improvements, particularly in those countries. This is no surprise with regard to population health since total health expenditures as a share of GDP are lower on average in the CEE-NMS regions than in the Non-NMS group.

In the case of crime rates, we found positive correlations with income inequality both for violent and property crime (except for theft of motor vehicles in the CEE-NMS). We obviously cannot identify if the reasons for that are higher expected relative gains from crime or if the income dispersion leads to lower inhibitions to commit crime. However, higher crime rates are per se a fact of widening rifts in the social fabric. A low commitment to redistribution and social and health expenditures may thus result in higher costs for internal security in a society. In both CEE-NMS and Non-NMS regions, non-activity rates of young persons and early leave from education are strongly correlated with income inequality. Those highlighted relationships not only show that the danger of transmission of difficult material living conditions to the young generation is higher in more unequal societies but also the loss of growth potential induced by higher income inequality.

## REFERENCES

OECD (2011), 'Divided We Stand: Why Inequality Keeps Rising', OECD Publishing, Paris.

Wilkinson R.G. and K.E. Pickett (2009), 'The Spirit Level: Why More Equal Societies Almost Always Do Better', London, Allen Lane.

## The editors recommend for further reading\*

### *Economic growth*

Benabou et al. on religion, science and growth: <http://www.voxeu.org/sites/default/files/file/DP10548.pdf>

Acemoglu et al.'s paper on democracy contributing to growth: <http://economics.mit.edu/files/10554>

Charles Jones on the facts of growth: <http://www.nber.org/papers/w21142#fromrss>

Paul Romer summarises his new paper on 'mathiness' in theory of growth: <http://paulromer.net/mathiness-and-academic-identity/>

More on 'mathiness': <http://equitablegrowth.org/2015/05/16/noah-smith-paul-romer-mathiness-baking-politics-microfoundations/>; <http://paulromer.net/ed-prescott-is-no-robert-solow-no-gary-becker/>; <https://growthecon.wordpress.com/2015/05/21/mathiness-versus-science-in-growth-economics/>

### *Inequality*

Solow and Krugman discuss Atkinson's new book on what can be done about inequality:

<http://krugman.blogs.nytimes.com/2015/05/23/a-conversation-about-inequality-and-atkinson/?module=BlogPost-Title&version=Blog>

Being wrong about inequality: <http://www.nber.org/papers/w21174.pdf>; summary by a journalist: <http://www.bloombergview.com/articles/2015-06-02/getting-inequality-wrong>

A short review of OECD's new volume on inequality: <http://www.bloombergview.com/articles/2015-05-24/a-bad-case-of-piketty-syndrome>

### *John Nash*

Short, dictionary description, of Nash equilibrium: <http://www.digitopoly.org/wp-content/uploads/2015/05/Nash-Equilibrium.pdf>.

On importance of John Nash for economics: <http://www.digitopoly.org/2015/05/24/economics-in-one-lesson-nash/>; and <https://afinetheorem.wordpress.com/2015/05/24/the-economics-of-john-nash/>

More on Nash: <http://www.voxeu.org/article/economics-john-nash>

Nash and Greece: <http://www.bloombergview.com/articles/2015-05-29/john-nash-s-game-theory-and-greece>

Sinn on Greece and game theory: <http://www.project-syndicate.org/print/varoufakis-ecb-grexit-threat-by-hans-werner-sinn-2015-05>

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\* Recommendation is not necessarily endorsement. The editors are grateful to Vladimir Gligorov for his valuable contribution to this section.

## Monthly and quarterly statistics for Central, East and Southeast Europe

The annex now covers **20 countries** of the CESEE region. The new graphical form of presenting statistical data is intended to facilitate the **analysis of short-term macroeconomic developments**. The set of indicators captures tendencies in the real sector, pictures the situation in the labour market and inflation, reflects fiscal and monetary policy changes, and depicts external sector development.

Baseline data and a variety of other monthly and quarterly statistics, **country-specific** definitions of indicators and **methodological information** on particular time series are **available in the wiiw Monthly Database** under: <http://data.wiiw.ac.at/monthly-database.html>. Users regularly interested in a certain set of indicators may create a personalised query which can then be quickly downloaded for updates each month.

### Conventional signs and abbreviations used

%	per cent
LFS	Labour Force Survey
HICP	Harmonized Index of Consumer Prices (for new EU Member States)
PPI	Producer Price Index
M1	Currency outside banks + demand deposits / narrow money (ECB definition)
M2	M1 + quasi-money / intermediate money (ECB definition)
p.a.	per annum
mn	million (10 <sup>6</sup> )
bn	billion (10 <sup>9</sup> )

The following national currencies are used:

ALL	Albanian lek	HUF	Hungarian forint	RSD	Serbian dinar
BAM	Bosnian convertible mark	KZT	Kazakh tenge	RUB	Russian rouble
BGN	Bulgarian lev	MKD	Macedonian denar	TRY	Turkish lira
CZK	Czech koruna	PLN	Polish zloty	UAH	Ukrainian hryvnia
HRK	Croatian kuna	RON	Romanian leu		

EUR euro – national currency for Montenegro and for the euro-area countries Estonia (from January 2011, euro-fixed before), Latvia (from January 2014, euro-fixed before), Lithuania (from January 2015, euro-fixed before), Slovakia (from January 2009, euro-fixed before) and Slovenia (from January 2007, euro-fixed before).

Sources of statistical data: Eurostat, National Statistical Offices, Central Banks and Public Employment Services; wiiw estimates.

Access: New online database access! (see overleaf)

### New online database access



**wiiw Annual Database**



**wiiw Monthly Database**



**wiiw FDI Database**

The wiiw databases are now accessible via a simple web interface, with only one password needed to access all databases (and all wiiw publications). We have also relaunched our website with a number of improvements, making our services more easily available to you.

You may access the databases here: <http://data.wiiw.ac.at>.

If you have not yet registered, you can do so here: <http://wiiw.ac.at/register.html>.

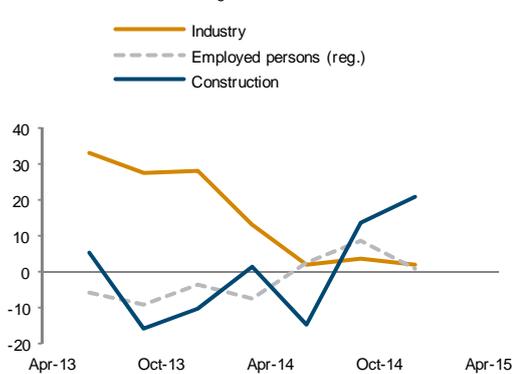
### New service package available

Starting in January 2014, we offer an additional service package that allows you to access all databases – a Premium Membership, at a price of €2,300 (instead of €2,000 as for the Basic Membership). Your usual package will, of course, remain available as well.

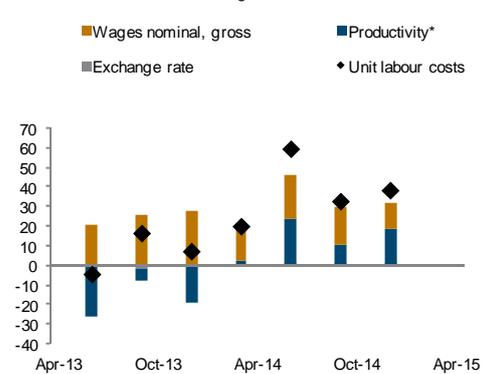
For more information on database access for Members and on Membership conditions, please contact Ms. Gabriele Stanek ([stanek@wiiw.ac.at](mailto:stanek@wiiw.ac.at)), phone: (+43-1) 533 66 10-10.

# Albania

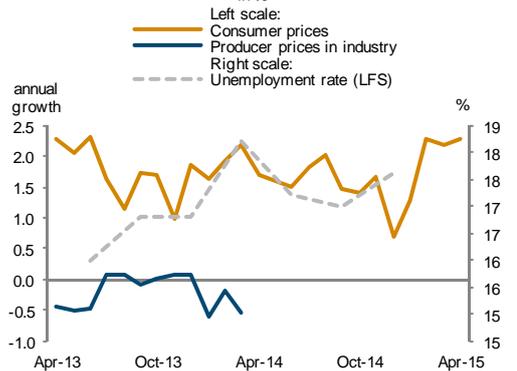
## Real sector development



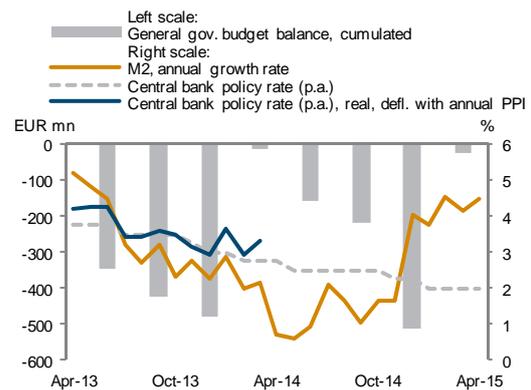
## Unit labour costs in industry



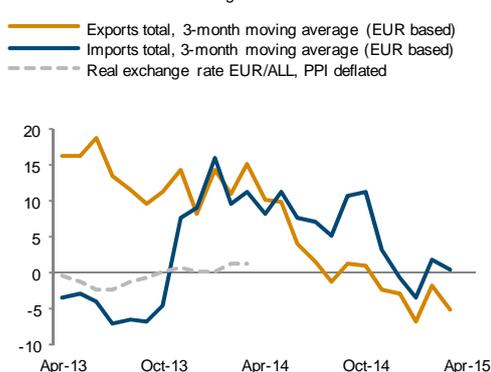
## Inflation and unemployment



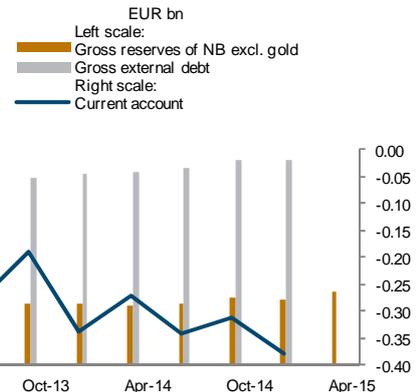
## Fiscal and monetary policy



## External sector development



## External finance



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

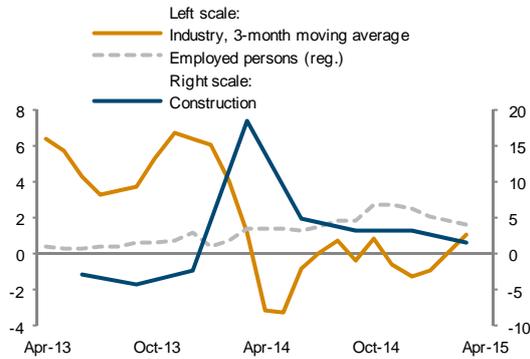
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

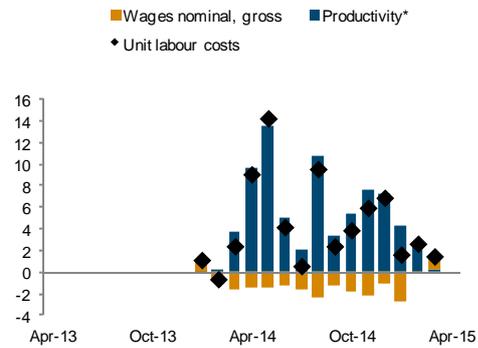
<http://data.wiiw.ac.at/monthly-database.html>

# Bosnia and Herzegovina

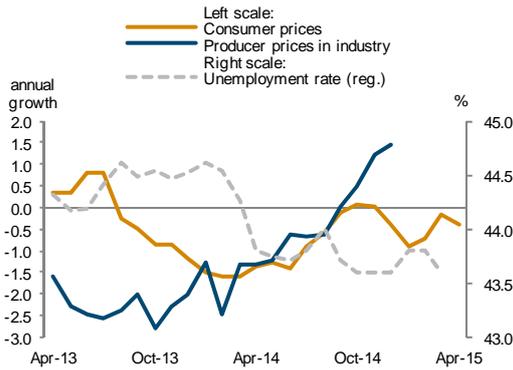
**Real sector development**  
annual growth rate in %



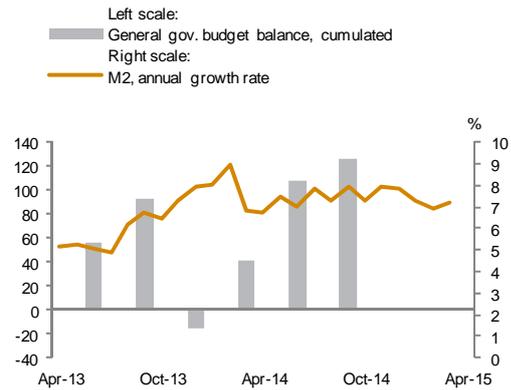
**Unit labour costs in industry**  
annual growth rate in %



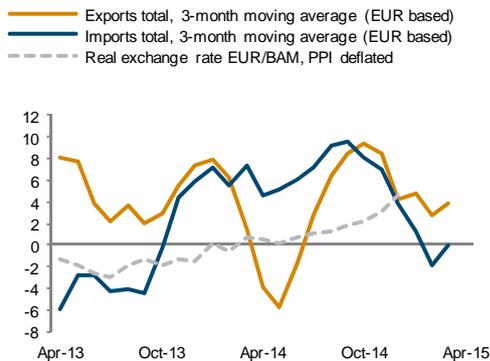
**Inflation and unemployment**  
in %



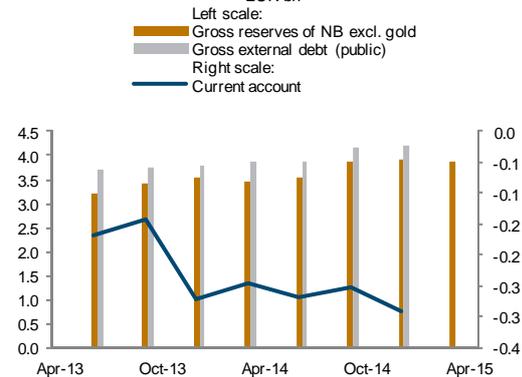
**Fiscal and monetary policy**



**External sector development**  
annual growth rate in %



**External finance**  
EUR bn



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

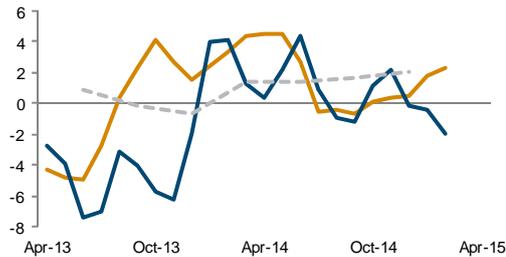
<http://data.wiiw.ac.at/monthly-database.html>

# Bulgaria

## Real sector development

annual growth rate in %

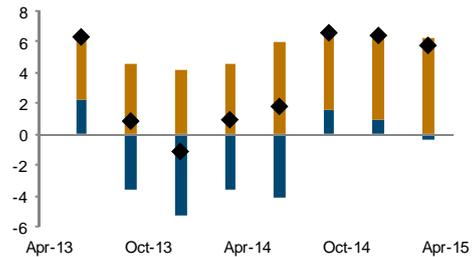
— Industry, 3-month moving average  
— Construction, 3-month moving average  
- - - Employed persons (LFS)



## Unit labour costs in industry

annual growth rate in %

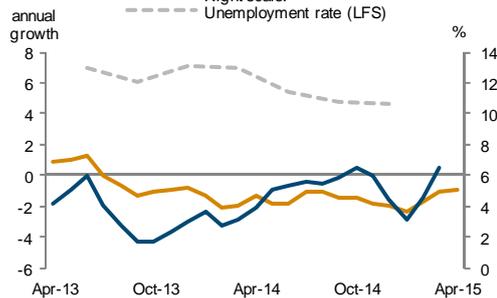
■ Wages nominal, gross ■ Productivity\* ♦ Unit labour costs



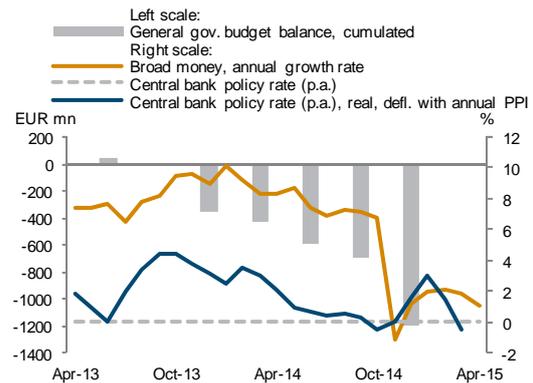
## Inflation and unemployment

in %

— Left scale:  
— Consumer prices (HICP)  
— Producer prices in industry  
— Right scale:  
- - - Unemployment rate (LFS)



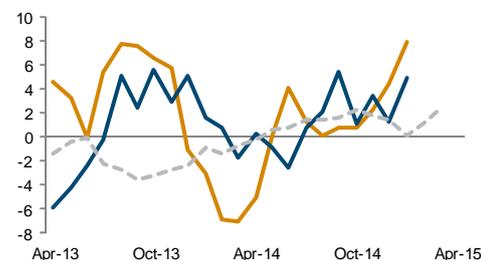
## Fiscal and monetary policy



## External sector development

annual growth rate in %

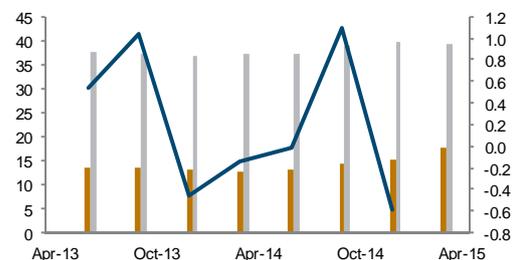
— Exports total, 3-month moving average (EUR based)  
— Imports total, 3-month moving average (EUR based)  
- - - Real exchange rate EUR/BGN, PPI deflated



## External finance

EUR bn

— Left scale:  
— Gross reserves of NB excl. gold  
— Gross external debt  
— Right scale:  
— Current account



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

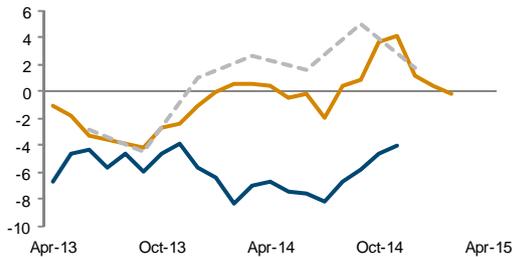
<http://data.wiiw.ac.at/monthly-database.html>

# Croatia

## Real sector development

annual growth rate in %

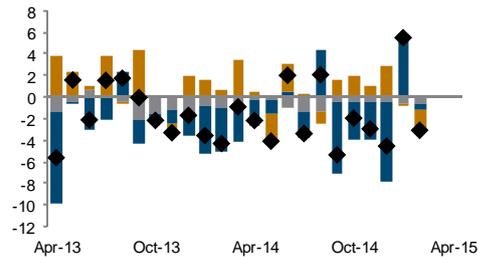
- Industry, 3-month moving average
- Construction, 3-month moving average
- - - Employed persons (LFS)



## Unit labour costs in industry

annual growth rate in %

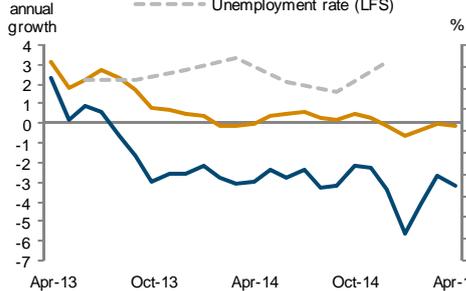
- Wages nominal, gross
- Exchange rate
- Productivity\*
- ◆ Unit labour costs



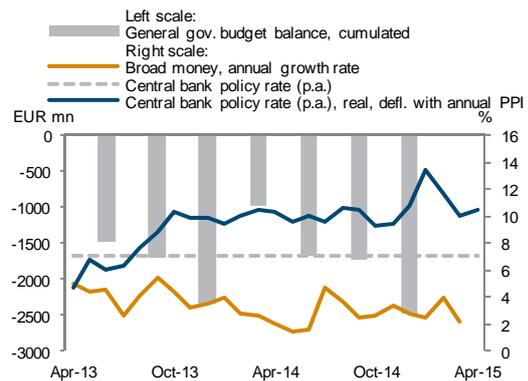
## Inflation and unemployment

in %

- Left scale: Consumer prices (HICP)
- Producer prices in industry
- Right scale: Unemployment rate (LFS)



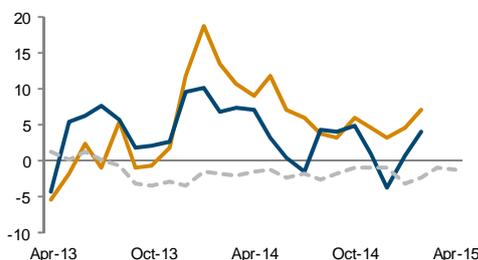
## Fiscal and monetary policy



## External sector development

annual growth rate in %

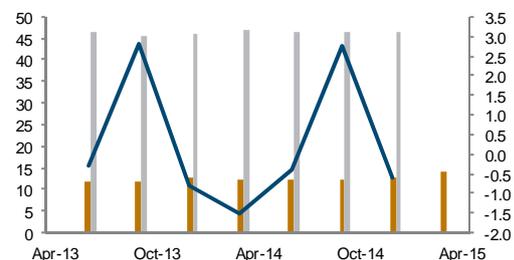
- Exports total, 3-month moving average (EUR based)
- Imports total, 3-month moving average (EUR based)
- - - Real exchange rate EUR/HRK, PPI deflated



## External finance

EUR bn

- Left scale: Gross reserves of NB excl. gold
- Gross external debt
- Right scale: Current account



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

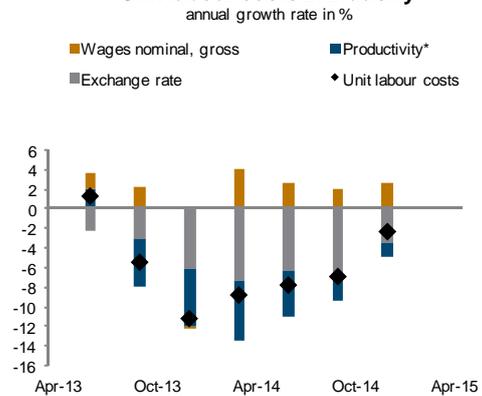
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# Czech Republic

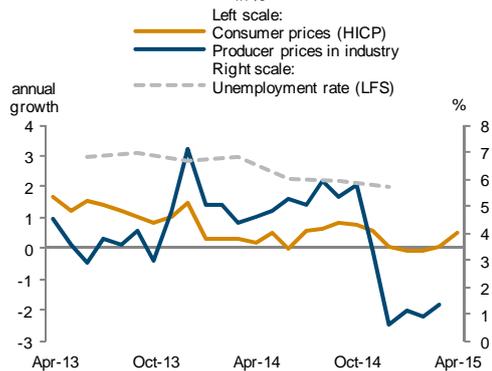
## Real sector development



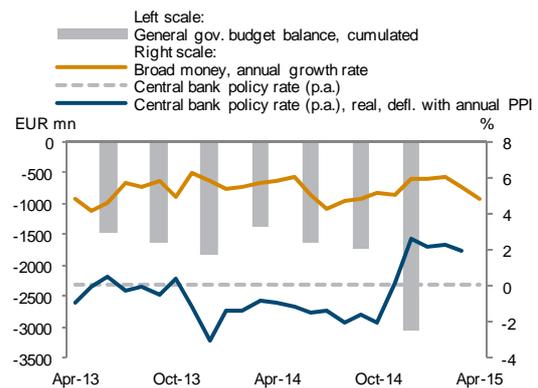
## Unit labour costs in industry



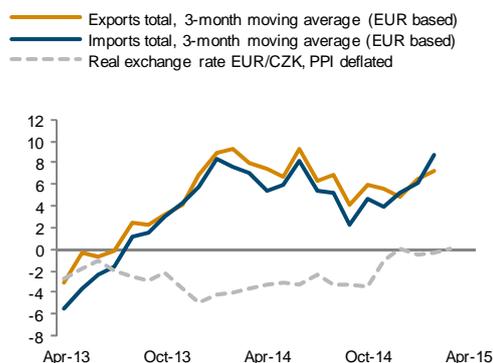
## Inflation and unemployment



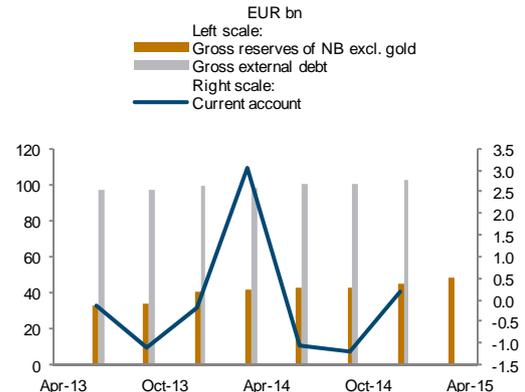
## Fiscal and monetary policy



## External sector development



## External finance



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

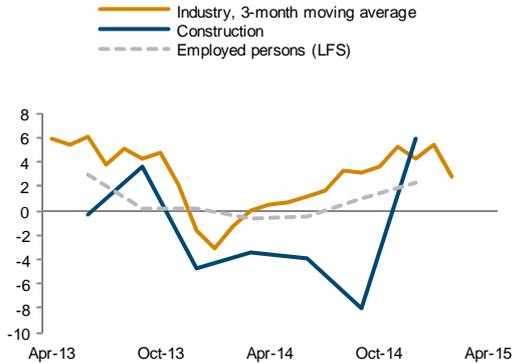
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

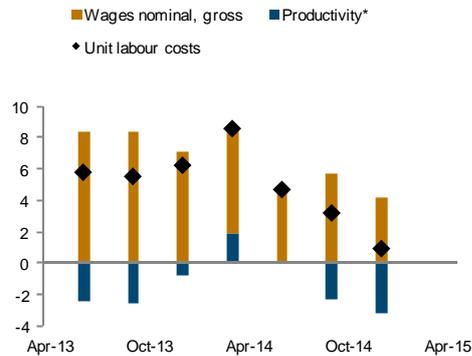
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# Estonia

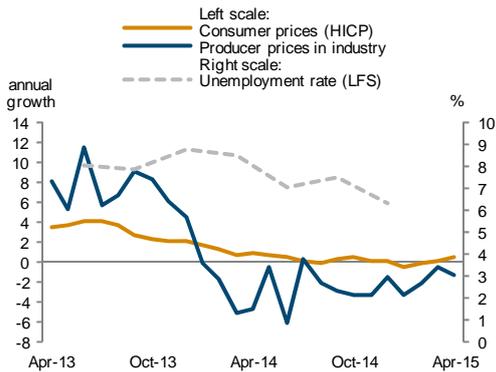
**Real sector development**  
annual growth rate in %



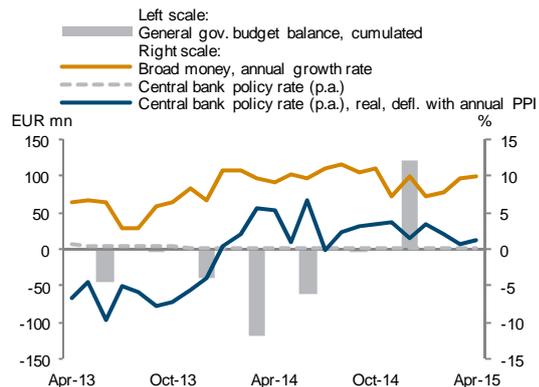
**Unit labour costs in industry**  
annual growth rate in %



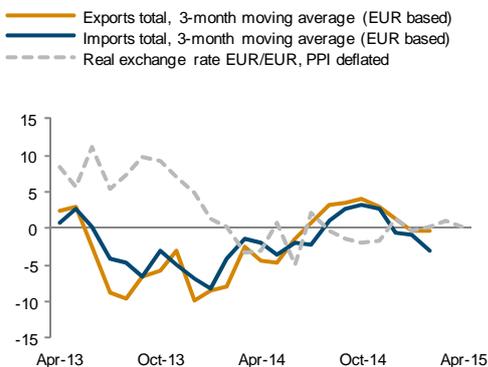
**Inflation and unemployment**  
in %



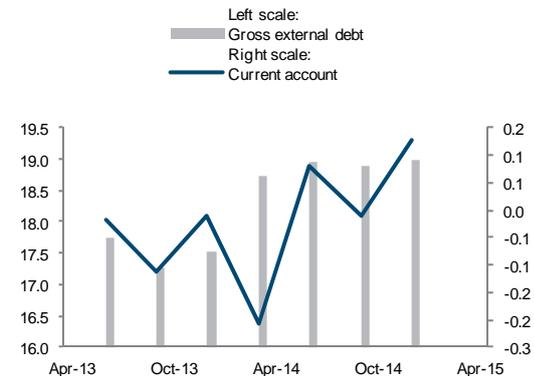
**Fiscal and monetary policy**



**External sector development**  
annual growth rate in %



**External finance**  
EUR bn



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

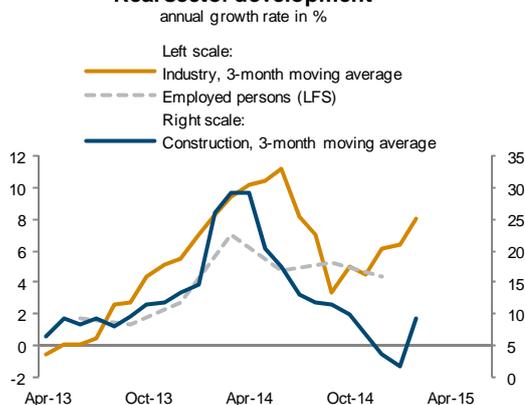
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

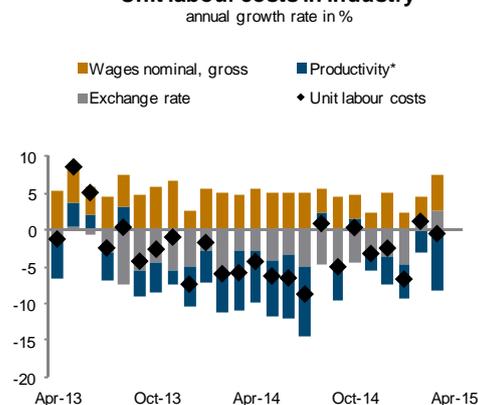
<http://data.wiiw.ac.at/monthly-database.html>

# Hungary

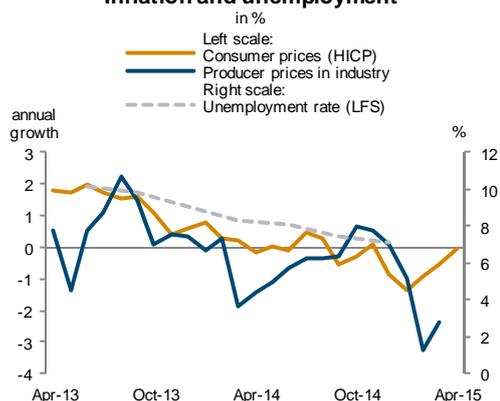
## Real sector development



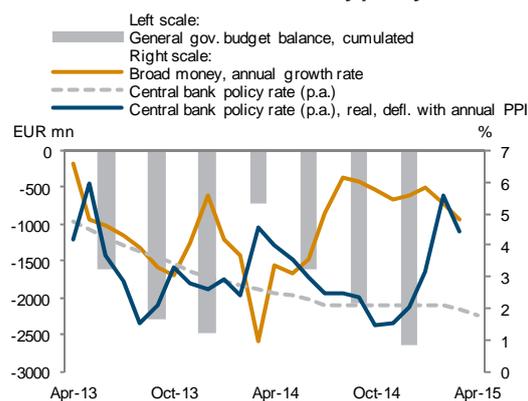
## Unit labour costs in industry



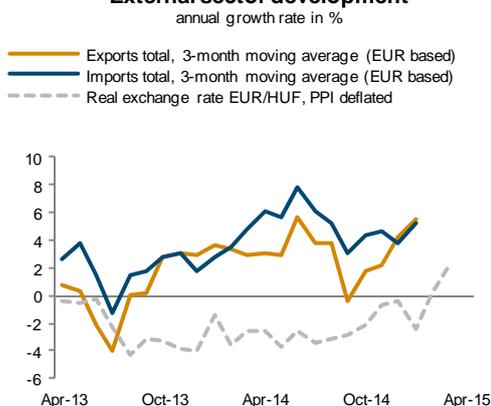
## Inflation and unemployment



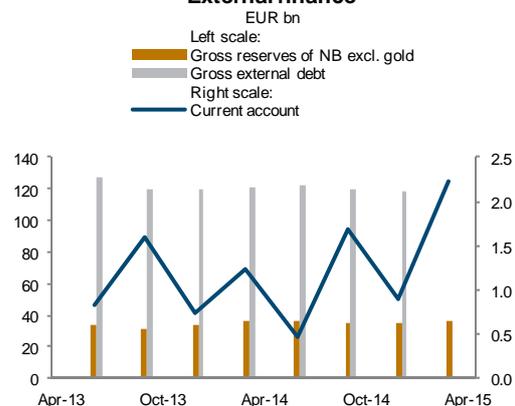
## Fiscal and monetary policy



## External sector development



## External finance



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

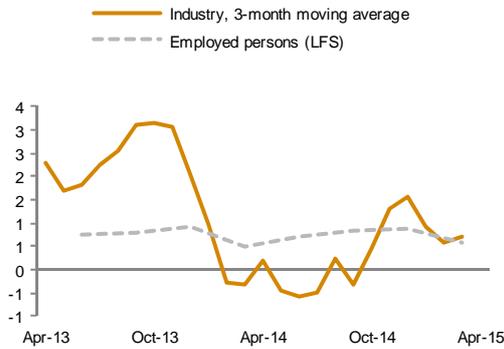
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

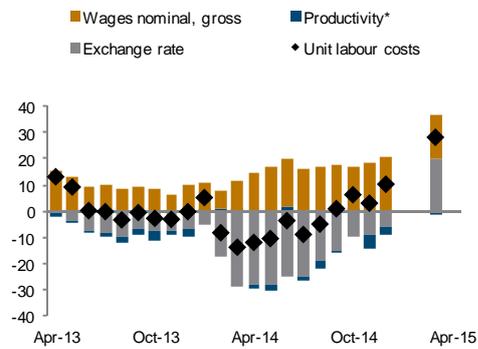
<http://data.wiiw.ac.at/monthly-database.html>

# Kazakhstan

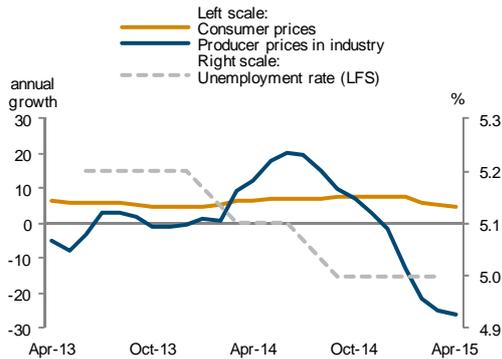
**Real sector development**  
annual growth rate in %



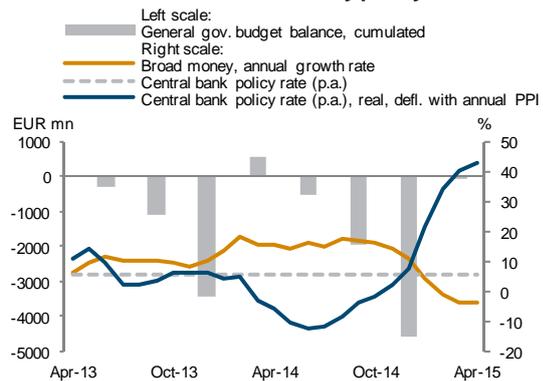
**Unit labour costs in industry**  
annual growth rate in %



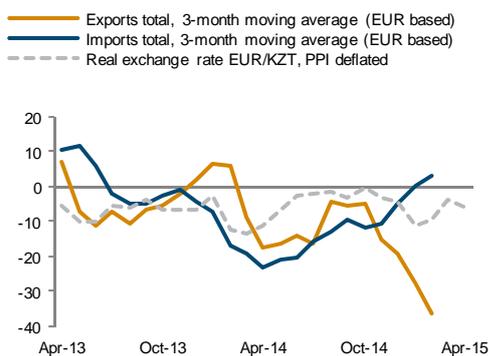
**Inflation and unemployment**  
in %



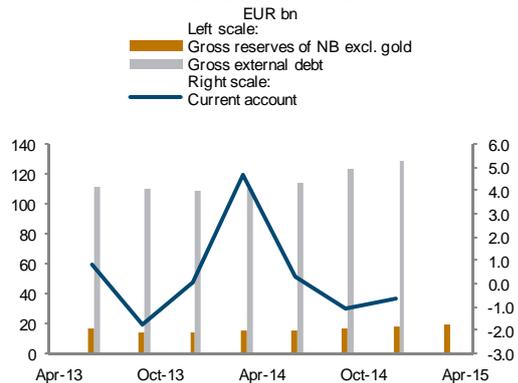
**Fiscal and monetary policy**



**External sector development**  
annual growth rate in %



**External finance**



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

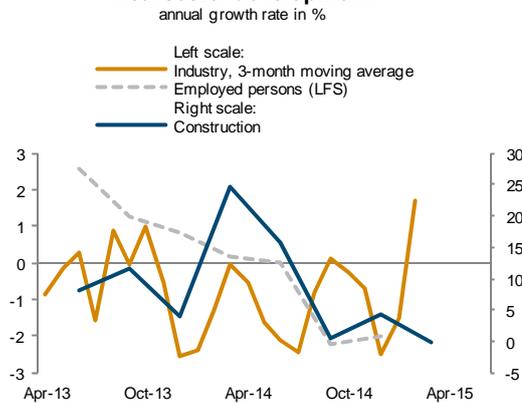
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

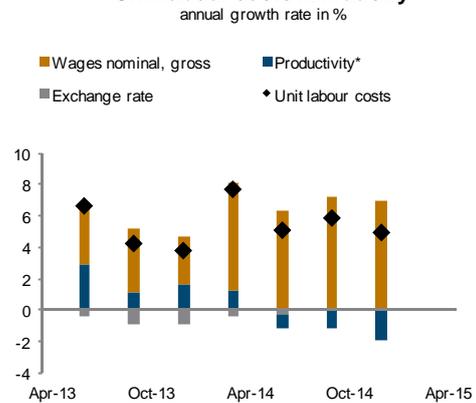
<http://data.wiiw.ac.at/monthly-database.html>

# Latvia

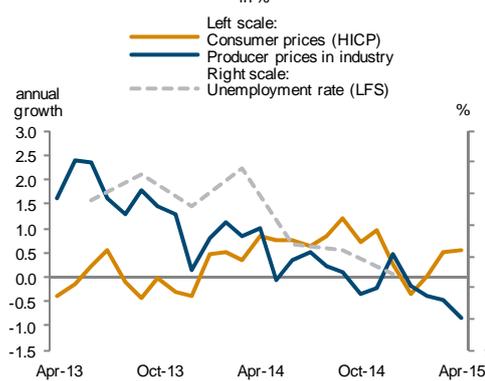
## Real sector development



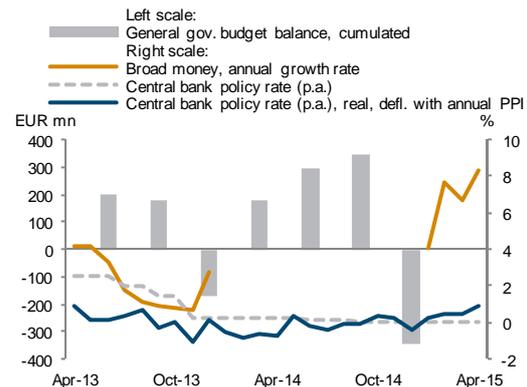
## Unit labour costs in industry



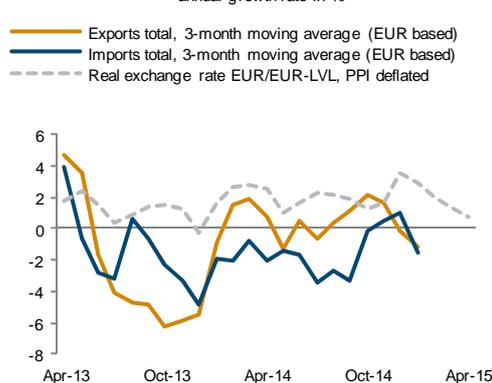
## Inflation and unemployment



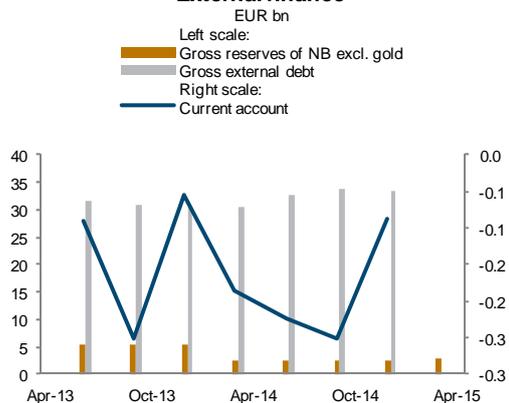
## Fiscal and monetary policy



## External sector development



## External finance



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

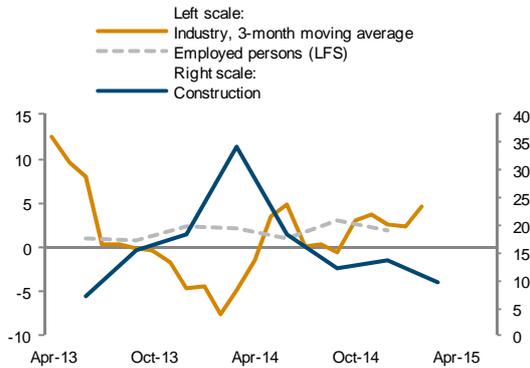
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

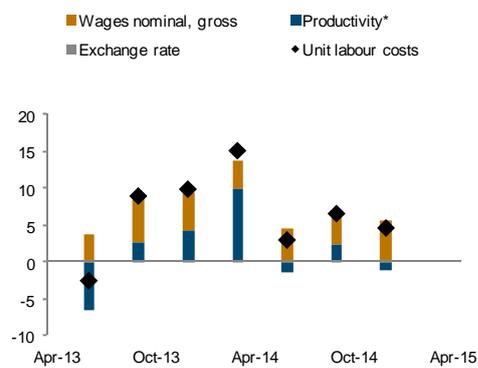
<http://data.wiiw.ac.at/monthly-database.html>

# Lithuania

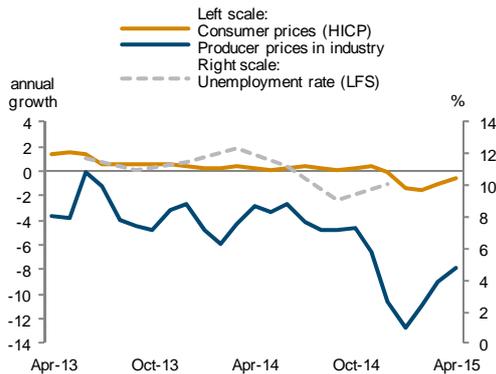
**Real sector development**  
annual growth rate in %



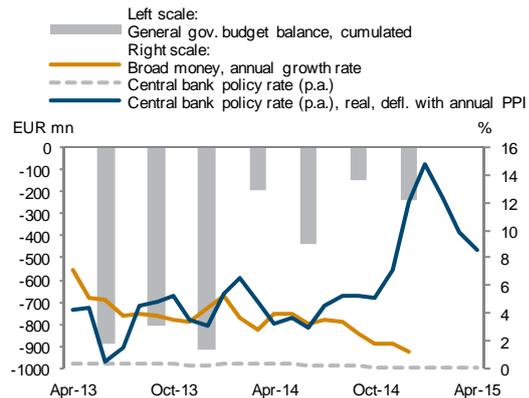
**Unit labour costs in industry**  
annual growth rate in %



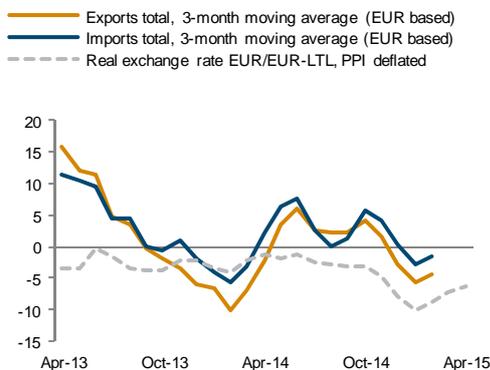
**Inflation and unemployment**  
in %



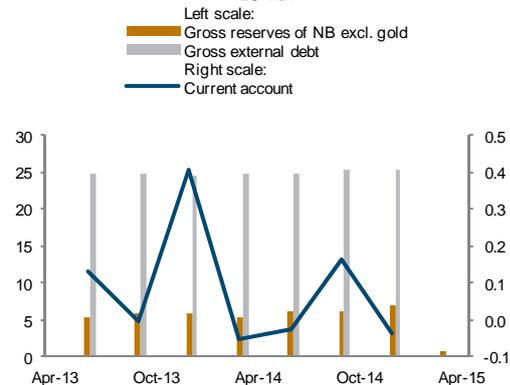
**Fiscal and monetary policy**



**External sector development**  
annual growth rate in %



**External finance**  
EUR bn



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

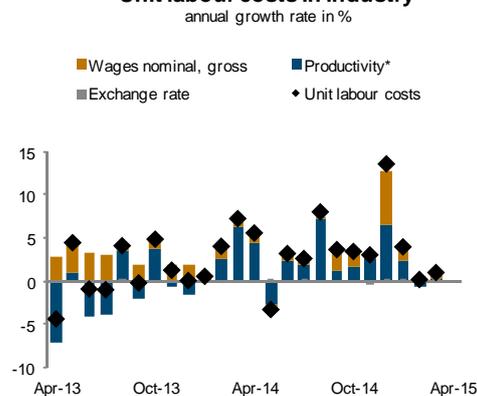
<http://data.wiiw.ac.at/monthly-database.html>

# Macedonia

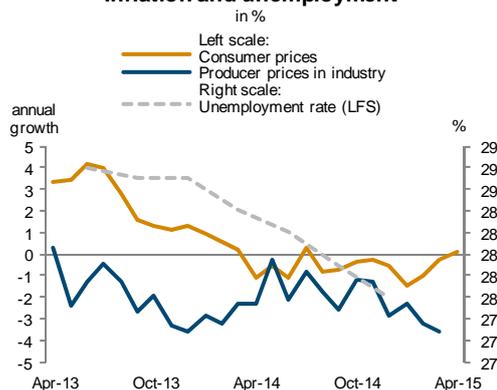
## Real sector development



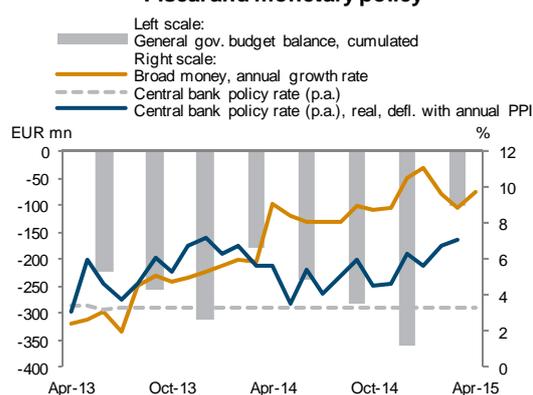
## Unit labour costs in industry



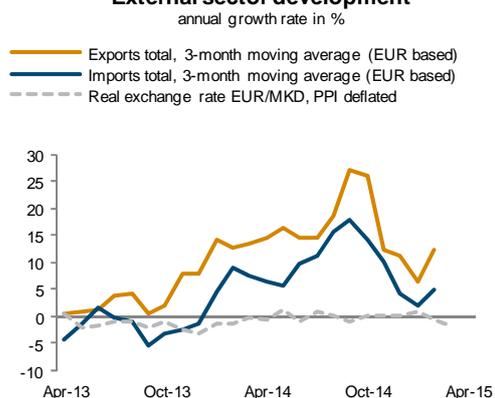
## Inflation and unemployment



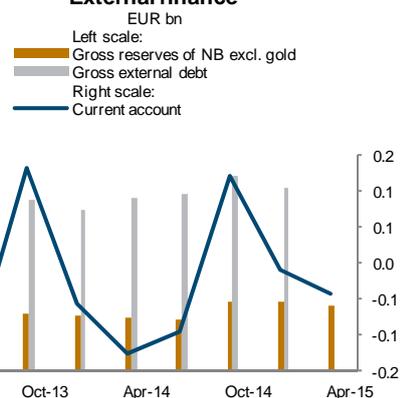
## Fiscal and monetary policy



## External sector development



## External finance



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

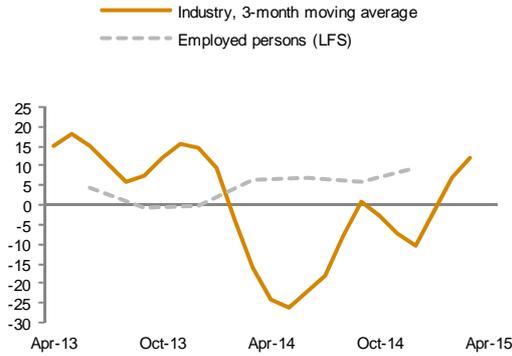
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

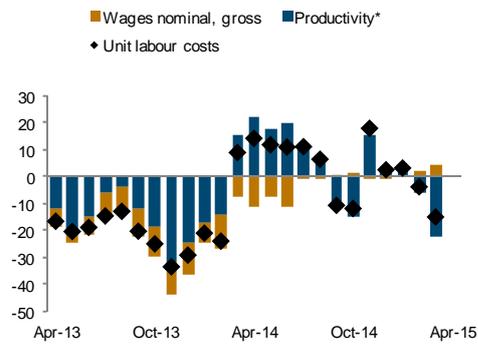
<http://data.wiiw.ac.at/monthly-database.html>

# Montenegro

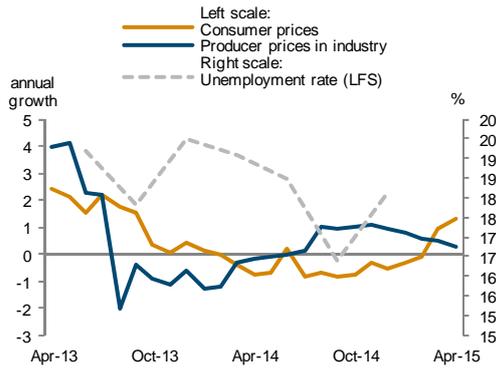
**Real sector development**  
annual growth rate in %



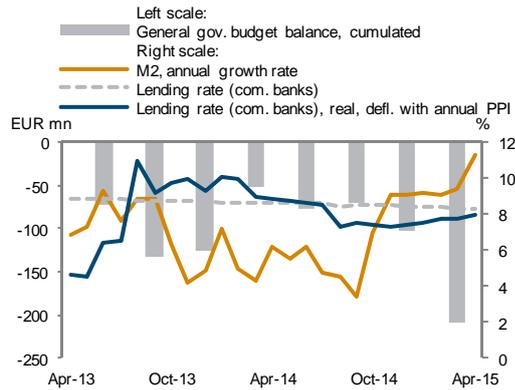
**Unit labour costs in industry**  
annual growth rate in %



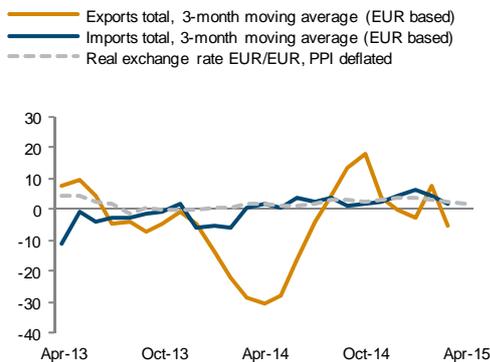
**Inflation and unemployment**  
in %



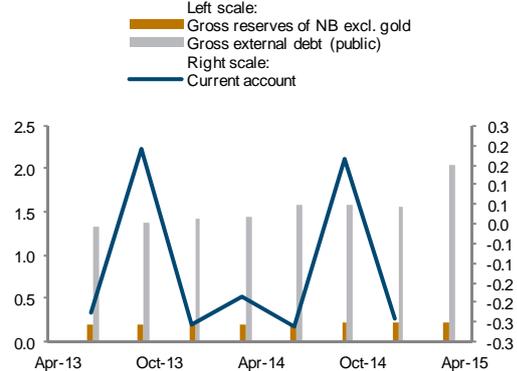
**Fiscal and monetary policy**



**External sector development**  
annual growth rate in %



**External finance**  
EUR bn



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

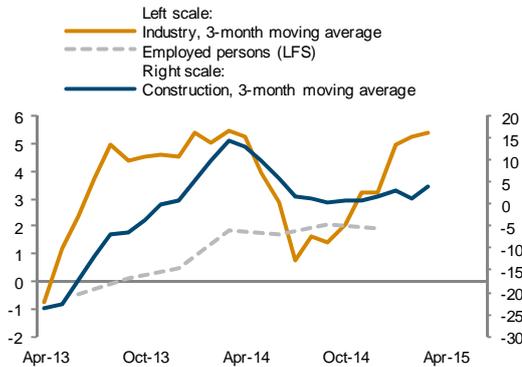
Baseline data, country-specific definitions and methodological breaks in time series are available under:

<http://data.wiiw.ac.at/monthly-database.html>

# Poland

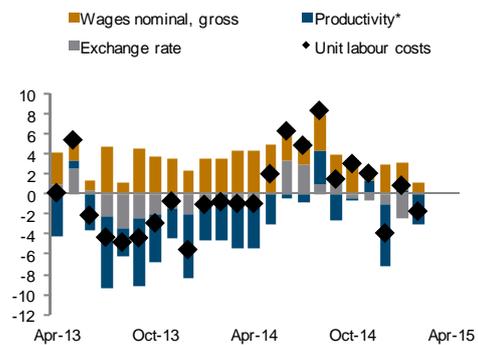
## Real sector development

annual growth rate in %



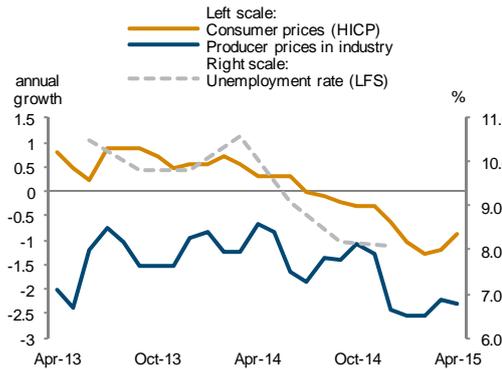
## Unit labour costs in industry

annual growth rate in %

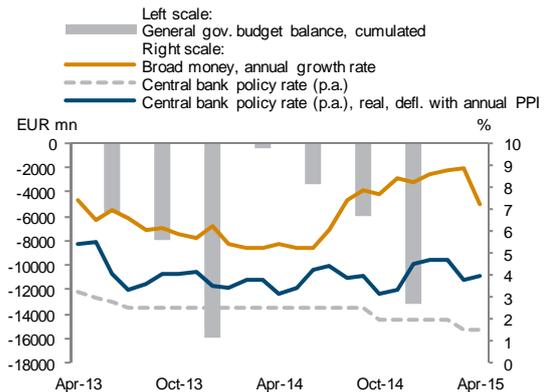


## Inflation and unemployment

in %

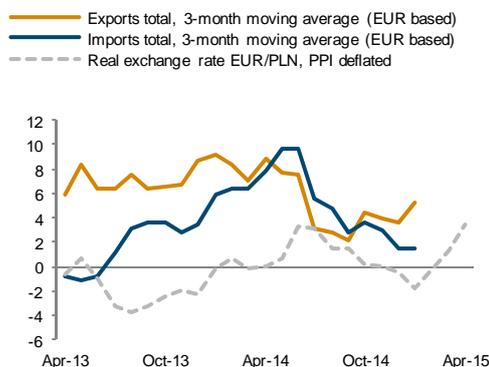


## Fiscal and monetary policy



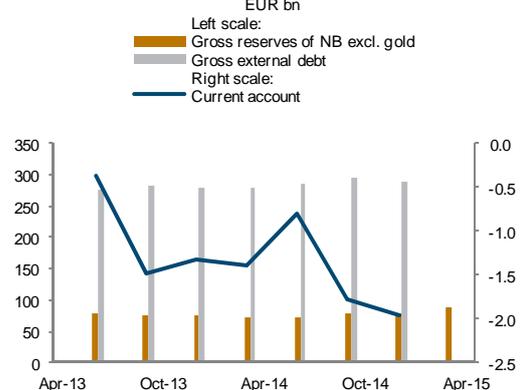
## External sector development

annual growth rate in %



## External finance

EUR bn



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

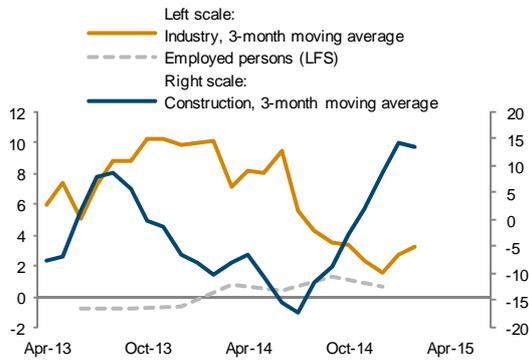
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

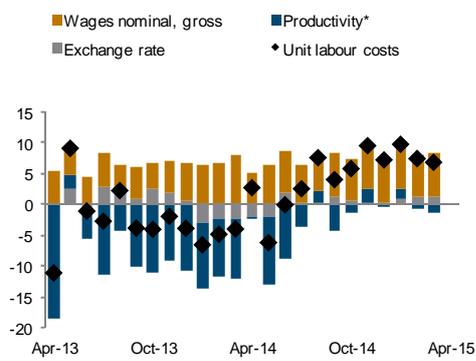
<http://data.wiiw.ac.at/monthly-database.html>

# Romania

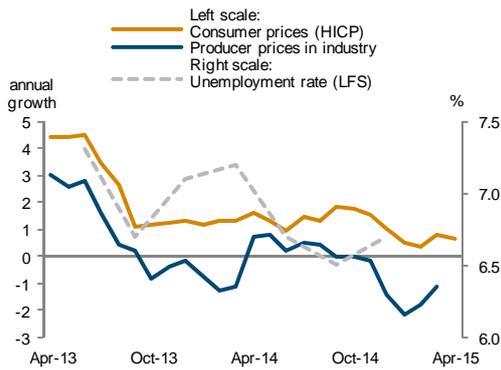
**Real sector development**  
annual growth rate in %



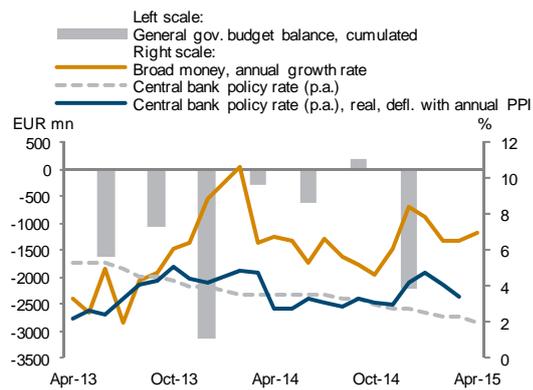
**Unit labour costs in industry**  
annual growth rate in %



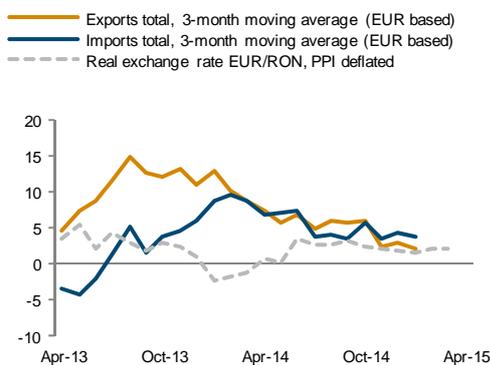
**Inflation and unemployment**  
in %



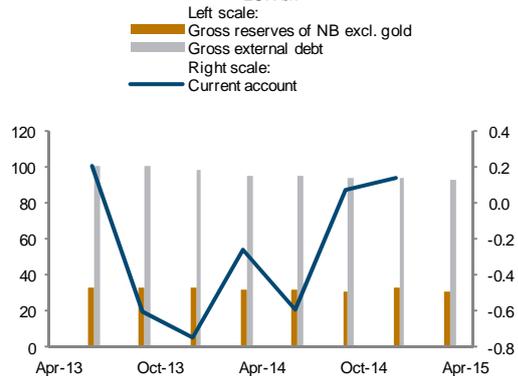
**Fiscal and monetary policy**



**External sector development**  
annual growth rate in %



**External finance**  
EUR bn



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

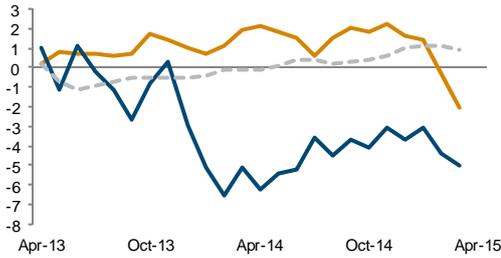
<http://data.wiiw.ac.at/monthly-database.html>

# Russia

## Real sector development

annual growth rate in %

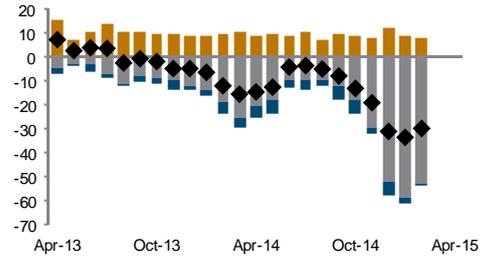
- Industry, 3-month moving average
- Construction, 3-month moving average
- - - Employed persons (LFS)



## Unit labour costs in industry

annual growth rate in %

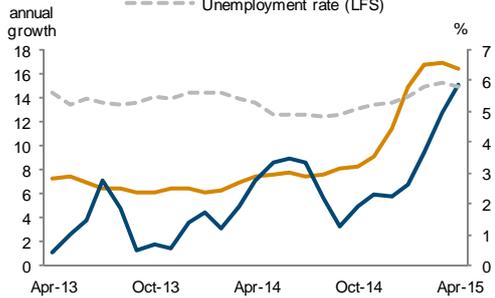
- Wages nominal, manuf., gross
- Productivity\*
- Exchange rate
- ◆ Unit labour costs



## Inflation and unemployment

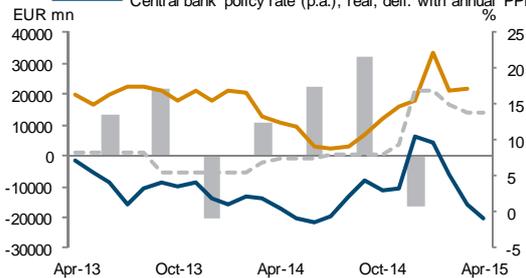
in %

- Left scale: Consumer prices
- Producer prices in industry
- Right scale: Unemployment rate (LFS)



## Fiscal and monetary policy

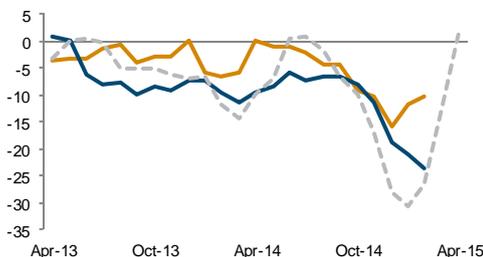
- Left scale: General gov. budget balance, cumulated
- Right scale: M2, annual growth rate
- Central bank policy rate (p.a.)
- Central bank policy rate (p.a.), real, defl. with annual PPI



## External sector development

annual growth rate in %

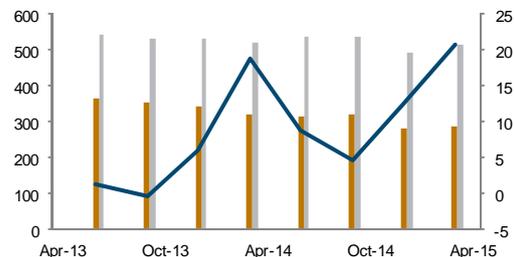
- Exports total, 3-month moving average (EUR based)
- Imports total, 3-month moving average (EUR based)
- - - Real exchange rate EUR/RUB, PPI deflated



## External finance

EUR bn

- Left scale: Gross reserves of NB excl. gold
- Gross external debt
- Right scale: Current account



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

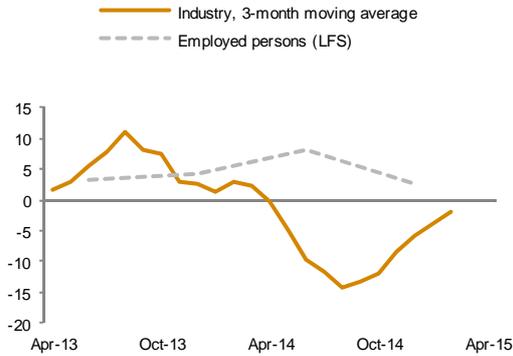
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

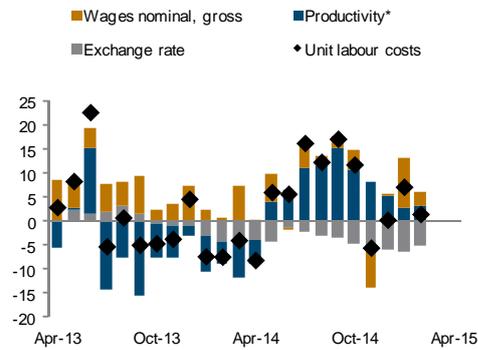
<http://data.wiiw.ac.at/monthly-database.html>

# Serbia

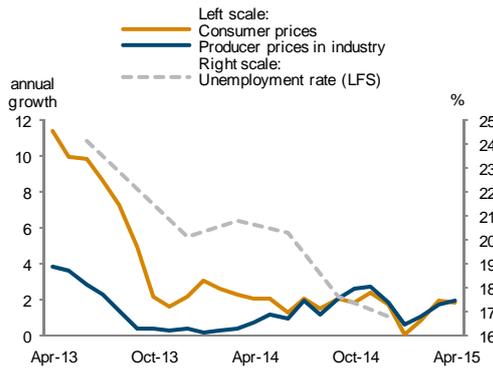
**Real sector development**  
annual growth rate in %



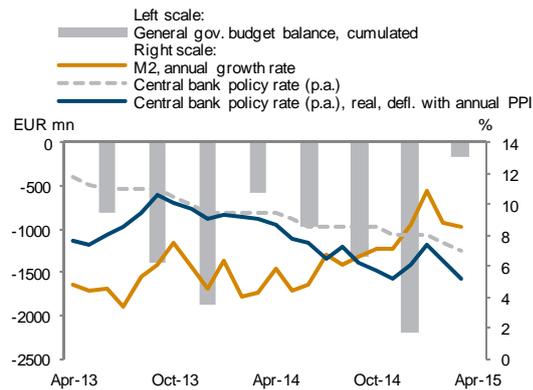
**Unit labour costs in industry**  
annual growth rate in %



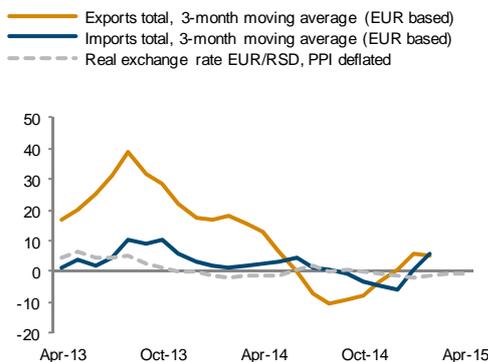
**Inflation and unemployment**  
in %



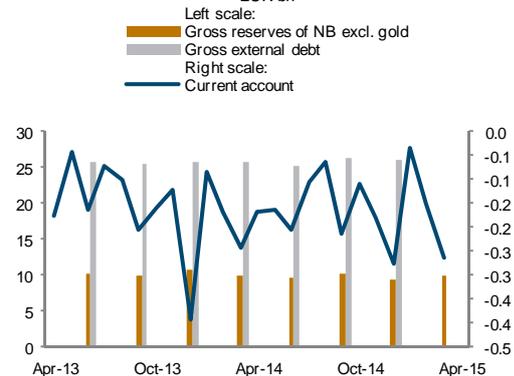
**Fiscal and monetary policy**



**External sector development**  
annual growth rate in %



**External finance**  
EUR bn



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

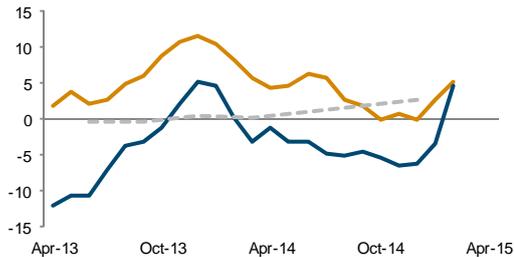
<http://data.wiiw.ac.at/monthly-database.html>

# Slovakia

## Real sector development

annual growth rate in %

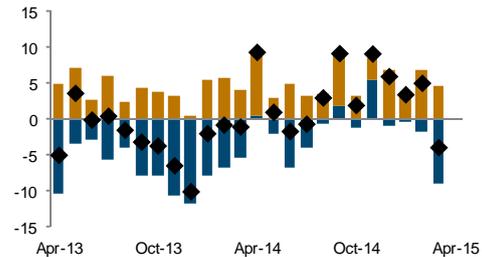
— Industry, 3-month moving average  
— Construction, 3-month moving average  
- - - Employed persons (LFS)



## Unit labour costs in industry

annual growth rate in %

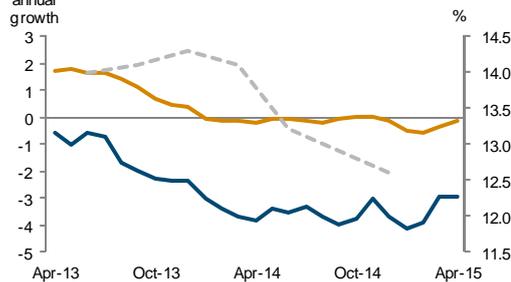
■ Wages nominal, gross ■ Productivity\*  
◆ Unit labour costs



## Inflation and unemployment

in %

— Left scale:  
— Consumer prices (HICP)  
— Producer prices in industry  
— Right scale:  
- - - Unemployment rate (LFS)



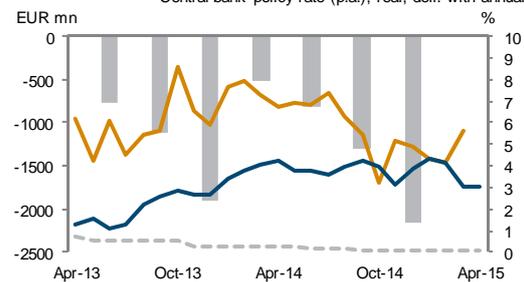
## Fiscal and monetary policy

Left scale:

— General gov. budget balance, cumulated

Right scale:

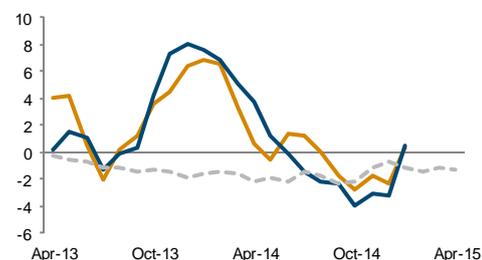
— Broad money, annual growth rate  
— Central bank policy rate (p.a.)  
— Central bank policy rate (p.a.), real, defl. with annual PPI



## External sector development

annual growth rate in %

— Exports total, 3-month moving average (EUR based)  
— Imports total, 3-month moving average (EUR based)  
- - - Real exchange rate EUR/EUR, PPI deflated



## External finance

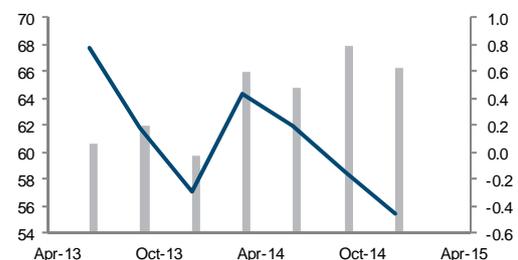
EUR bn

Left scale:

— Gross external debt

Right scale:

— Current account



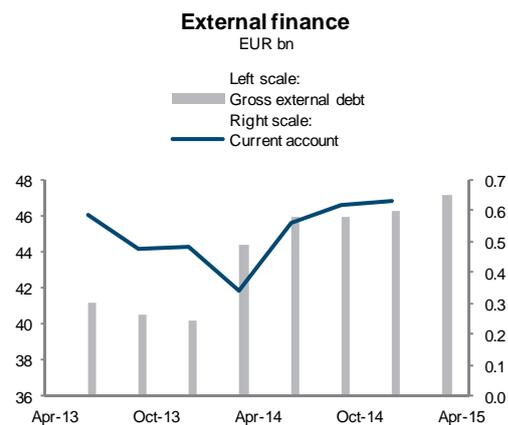
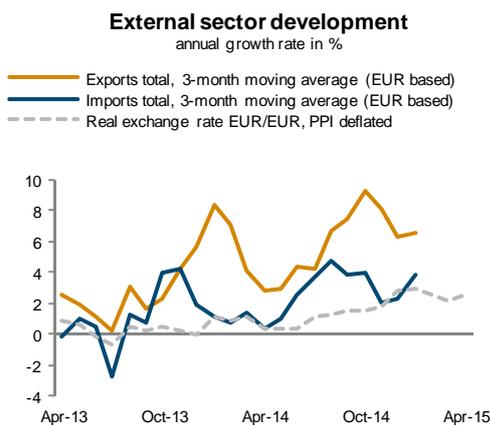
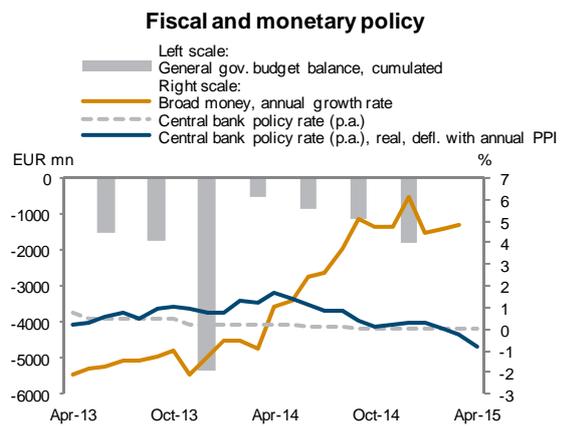
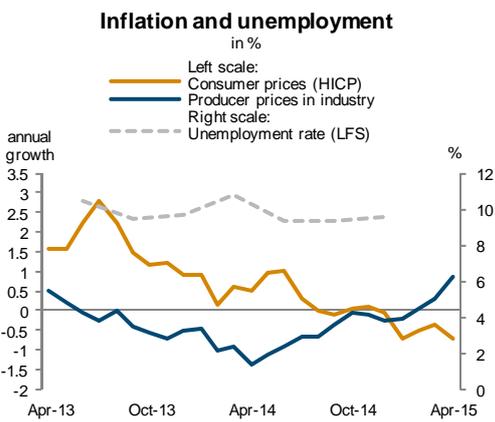
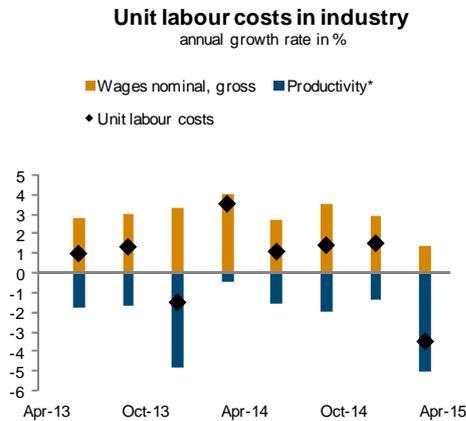
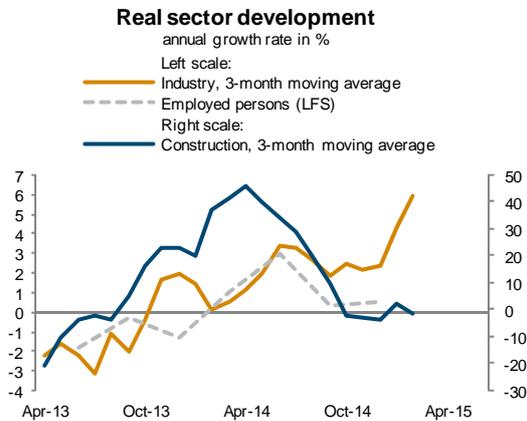
\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

<http://data.wiiw.ac.at/monthly-database.html>

# Slovenia



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

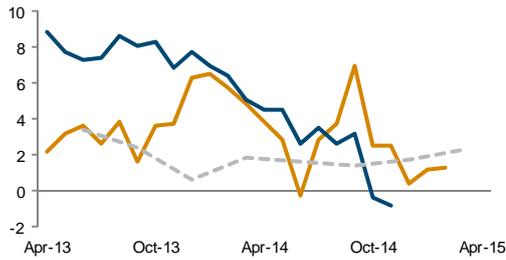
<http://data.wiiw.ac.at/monthly-database.html>

# Turkey

## Real sector development

annual growth rate in %

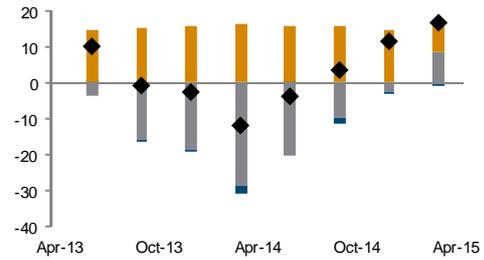
— Industry, 3-month moving average  
— Construction, 3-month moving average  
- - - Employed persons (LFS)



## Unit labour costs in industry

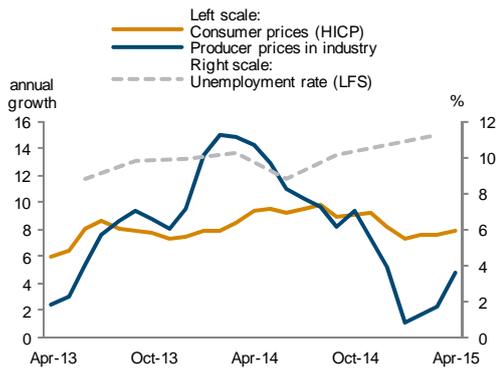
annual growth rate in %

■ Wages nominal, gross      ■ Productivity\*  
■ Exchange rate      ♦ Unit labour costs

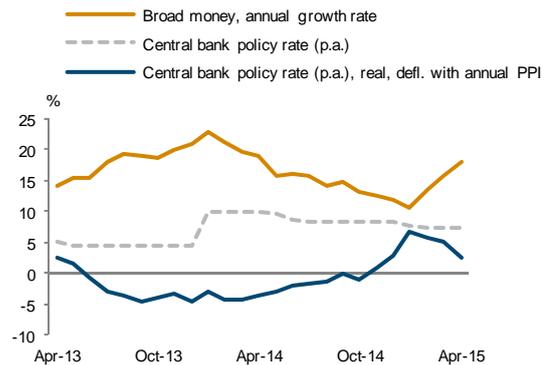


## Inflation and unemployment

in %



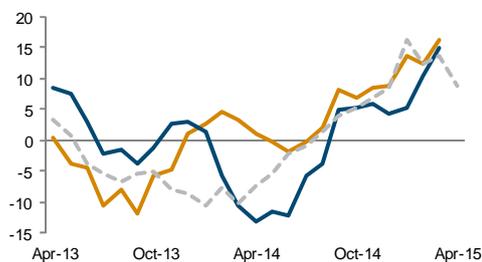
## Fiscal and monetary policy



## External sector development

annual growth rate in %

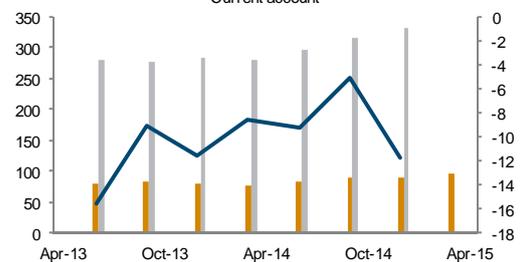
— Exports total, 3-month moving average (EUR based)  
— Imports total, 3-month moving average (EUR based)  
- - - Real exchange rate EUR/TRY, PPI deflated



## External finance

EUR bn

Left scale:  
■ Gross reserves of NB excl. gold  
■ Gross external debt  
Right scale:  
— Current account



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

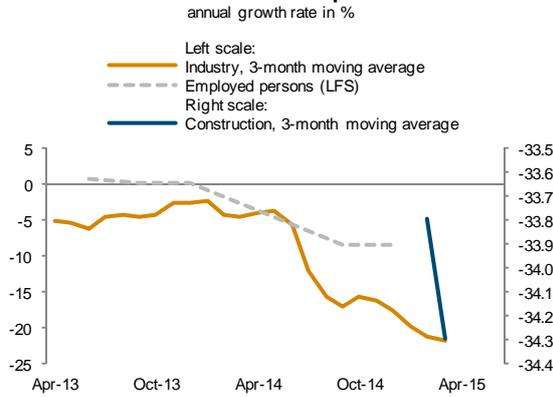
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

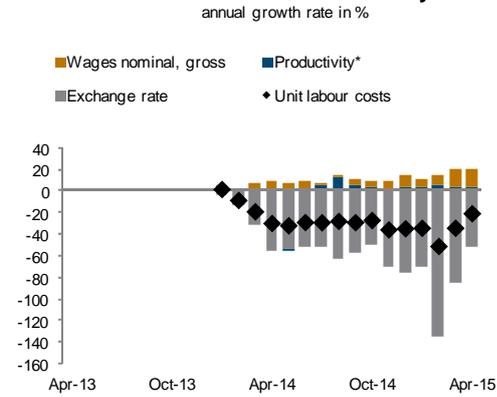
<http://data.wiiw.ac.at/monthly-database.html>

# Ukraine

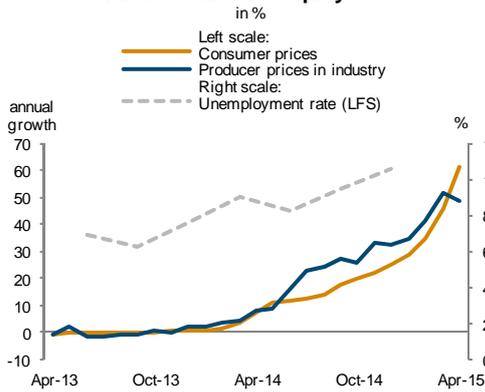
## Real sector development



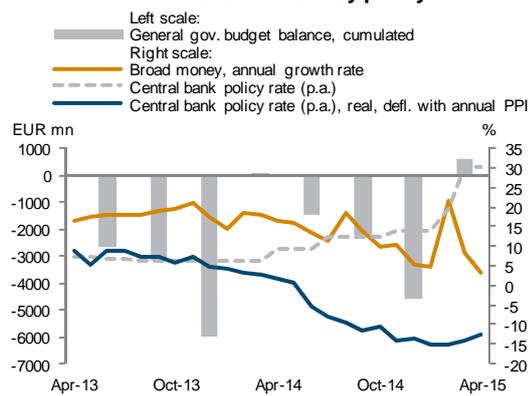
## Unit labour costs in industry



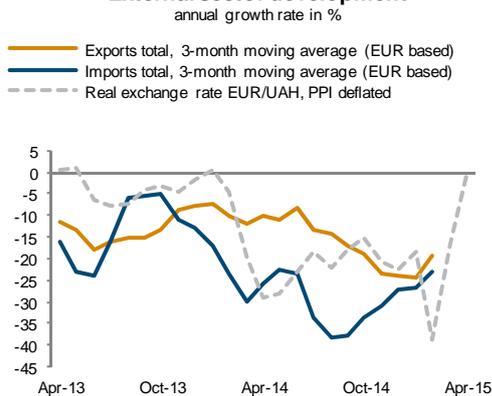
## Inflation and unemployment



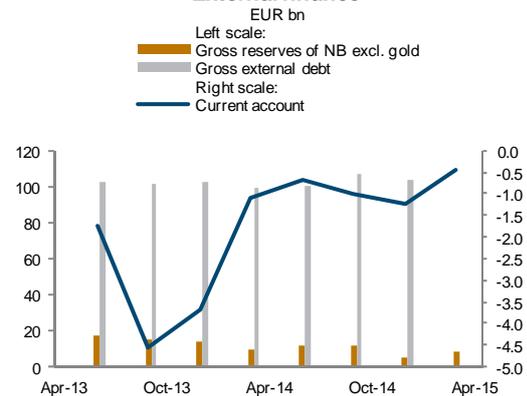
## Fiscal and monetary policy



## External sector development



## External finance



\*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

Baseline data, country-specific definitions and methodological breaks in time series are available under:

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