

Monthly Report

**Financial Assistance to Ukraine:
Will it Help?**

**Manufacturing and Business
Services in the EU**

**The Use of Services in European
Manufacturing**

**Business Services Linkages and
Manufacturing Performance**



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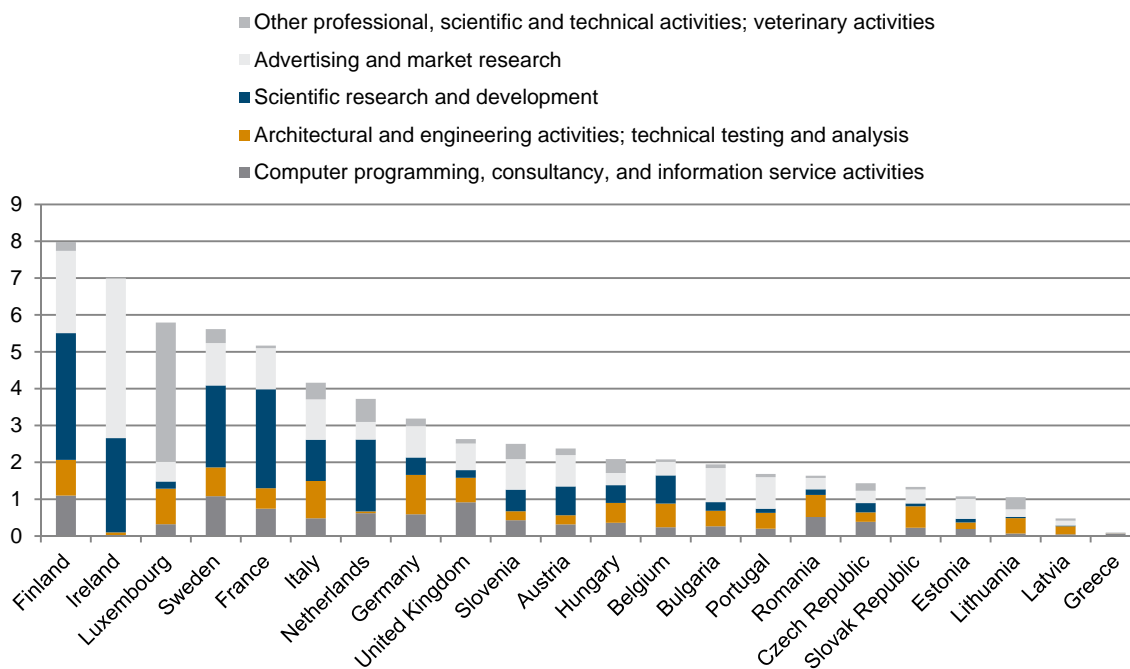
ROBERT STEHRER

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Direct cost shares of selected business services in manufacturing

in % of gross output, 2010



Source: Eurostat; wiiw calculations.

Opinion corner: Financial assistance to Ukraine: Will it Help?

ANSWERED BY WIIW EXPERTS AMAT ADAROV AND VASILY ASTROV

The recent deterioration of the economic situation in Ukraine has given rise to numerous calls for immediate large-scale financial assistance to the country. In which way could, in your opinion, such assistance be provided, and would it be helpful in solving the country's problems?

***Adarov:** The financial needs of Ukraine have increased remarkably, and the spectrum of areas in need for massive external financing is wide: macroeconomic stabilisation and public finance adjustments, anti-corruption and other institutional reforms, financial sector stability, energy and infrastructure issues, as well as medium-term challenges related to the EU Association Agreement and Deep and Comprehensive Free Trade Area. However, above all, the paramount necessity now is to end the military conflict. Unless that is resolved, or at least transformed to a less destructive 'frozen conflict' form, financial assistance will be ineffective and any reform efforts undermined. Then, another urgent matter is attaining macroeconomic stability. The economic problems Ukraine faces are deep: GDP declined by an estimated 7% last year, inflation reached double-digit highs, up to 24.9% in 2014, the hryvnia has been tumbling sharply, and international reserves have been depleted to critically low levels, prompting the National Bank of Ukraine to introduce currency controls and raise its key interest rate to a stunning 30%. The intensifying economic crisis requires firm and prompt policy reaction, and international institutions specifically focusing on these issues will be instrumental in providing both technical and financial assistance. Much headway has already been made, with the IMF, naturally, taking the lead. It has recently approved a new bail-out package worth USD 17.5 billion under a four-year Extended Fund Facility arrangement that replaces the Stand-By Arrangement endorsed earlier, in spring 2014, and offers a longer engagement and repayment period, importantly also unlocking further bilateral and multilateral aid. The EU complements the IMF efforts, and so far two macro-financial assistance loans have already been disbursed, and a third package of up to EUR 1.8 billion in medium-term loans was proposed by the European Commission in January this year. Altogether, it is declared that a total of approximately USD 40 billion of financial support from the international community will help implement the stabilisation programme, which will hopefully yield way to additional credits and debt restructuring. The programme targets critically important reforms focusing on fiscal consolidation, strengthening the financial system and monetary policy framework, structural adjustment, and the energy sector. However, the overall funding is still rather modest and may not be sufficient, especially taking into account Ukraine's debt problem. The success of the new package is heavily contingent on broad debt restructuring, involving principal and coupon reductions, and maturity extensions. While debt talks with the creditors will be tough, even in the case of success, the debt risks will persist in the future, and what Ukraine really needs is sizeable long-term financing. However, the IMF's mandate allows for only short- and medium-term loans, and other donors are not willing to take the risks.*

Aside from immediate economic stabilisation needs, Ukraine is facing medium-term challenges associated with the implementation of the EU Association Agreement. The experience of the transition economies that have joined the EU in the past suggests that the costs of aligning with the EU norms and regulations, new investment and industrial transformation in light of a more competitive environment, will be rather high for Ukraine which is characterised by weak institutions and infrastructure, low competitiveness of producers, as well as major industries in the east historically oriented towards Russian markets. Financial assistance from the EU institutions, as well as the World Bank, the IMF and the EBRD will help alleviate the sizeable medium-term costs associated with EU integration either by co-financing the investment expenditures or facilitating macroeconomic stability.

Another important dimension of financial aid should focus on the humanitarian issues Ukraine is facing now along with social costs that will likely arise as a result of fiscal consolidation and structural adjustments. As a part of the IMF deal, Ukraine has committed to austerity and amended its budget, which will lead to pension cuts, energy bills spiking, and other unpopular consequences that will hit particularly hard the poorest households already hurt by high inflation. In the longer run, industrial transformation resulting from deeper EU integration will inevitably lead to some businesses going bankrupt and worker layoffs. While Ukraine is facing a humanitarian disaster already, its central government is financially constrained to fully address social expenditures, and the loans and grants by the World Bank along the lines of its initiatives aimed at supporting conflict-affected and impoverished communities, as well as assistance from other organisations and countries, are much needed.

All in all, the mechanisms to extend financial aid are in place and already functioning, although the funding provided so far is modest and more is demanded; but yet another challenge is to ensure that the disbursed funds are utilised effectively by the Ukrainian officials. Let's face it: Ukraine has been suffering from severe corruption and poor governance issues throughout its post-Soviet history under different leadership, and it still ranks strikingly low, e.g. 142nd place out of 175 countries in the Transparency International Corruption Perception Index in 2014. Hence, it is important to ensure that the use of financial aid is transparent and strictly administered, and its effectiveness closely monitored at all stages with performance benchmarking and independent observers from the donor organisations and countries involved. In the world still recovering from the economic crisis there is no spare money, but, in the case of Ukraine, there is almost universal support from the global community for its reform ambitions. Therefore, whereas given the highly fragile situation and poor track record of previous assistance to Ukraine it is certainly a risk to provide financial aid, under the condition that the military conflict is resolved and the new government shows consistency in undertaking structural reforms, the already committed aid may be effective and additional financial assistance on multilateral and bilateral basis can be further negotiated.

Astrov: *Given Ukraine's dire economic situation, its huge financial needs are fairly obvious and range across a wide spectrum of areas: from replenishing foreign exchange reserves, which are badly needed to support the currency, to restoring war-related infrastructure damages in Donbas. It is somewhat ironic that the West is ready to provide large-scale financial assistance to Ukraine now, but was not willing to provide even a fraction of these funds to former President Yanukovich when he was hesitating whether to sign the Association Agreement with the EU in autumn 2013.*

In answering the above question, one cannot but have a certain feeling of déjà-vu when drawing parallels between the Ukraine of today and Russia in the mid-1990s, which was also a large recipient of (IMF-led) Western financial assistance at the time. The list of common features is extensive and includes: fragile macroeconomic situation; high and unsustainable budget deficits; a 'pro-Western' but weak government influenced above all by domestic oligarchs and with poor bargaining position in negotiations with Western creditors; and, last but not least, low transparency in the use of disbursed funds.

The ensuing developments in Russia are well-known: a large chunk of obtained funds were misappropriated, while others were used to sustain the overvalued exchange rate and enable, for a while, solid returns on government bonds to foreign lenders. This all culminated in sovereign default of 1998, severe economic recession and a radical political backlash, with the liberal government giving way to a much more pro-active one. If Russia's experience is of any guidance to what one might expect in Ukraine, the latter's prospects do not look particularly encouraging, particularly taking into consideration that some of the features which were present in Russia at the time – first of all with respect to the level of corruption – are even more pronounced in present-day Ukraine. On top of that, unlike Russia in the mid-1990s, Ukraine is de facto in a state of war, and part of the budgetary support provided by the West will inevitably end up being spent on the military. At the same time, broad segments of the Ukrainian population will be hit by austerity measures required by the IMF, which are arguably harsher than those implemented in Russia at the time, and which will almost certainly undermine the badly needed political support for reforms.

Specialisation in manufacturing and business services in the EU, with a particular focus on the new Member States*

BY DORIS HANZL-WEISS AND ROBERT STEHRER

INTRODUCTION

It is a well-known fact that the share of manufacturing in GDP is declining worldwide (with a few exceptions such as China and Korea) whereas the share of services is increasing. This article takes a closer look at the importance and performance of manufacturing and business services in the EU and the new Member States (NMS) in particular. Special focus is laid on business services, due to their role as growth drivers in the economy in general and their growth-enhancing potential for manufacturing in particular (see the article on the role of business services linkages for manufacturing performance in this Monthly Report).

OVERALL TRENDS AND IMPORTANCE OF MANUFACTURING AND BUSINESS SERVICES

In 1995, the manufacturing share ranged between 12% and 30% in the GDP of the EU countries, with an average share for the EU-27 at about 20% (see Table 1). A few countries – Greece, Cyprus (both 12%), France, Denmark and the Netherlands – already showed levels much below the EU average. A number of countries reached above-average shares, with some smaller countries – particularly Eastern European countries – showing much higher levels. The highest share was reached in Slovakia (27%) and Ireland (30%).

With respect to business services (here defined as financial services plus renting and business activities, which include computer and related activities, research and development services, and ‘other business services’)¹ their average share was about 14% in GDP for the EU-27 in 1995, with most countries being below that level, especially the countries of Eastern Europe. Among the countries with higher than average shares were France, Belgium, the Netherlands, and the United Kingdom. This clearly shows the initial starting point of the new Member States after the fall of communism, typically having higher

* This note is based on a study carried out within the Framework Contract for Industrial Competitiveness and Market Performance (ENTR/90/PP/2011/FC) for the European Commission’s Directorate-General for Enterprise and Industry.

¹ In the NACE Rev. 1 classification system the following codes are included: 65 (Financial service intermediation), 66 (Insurance and pension funding services), 67 (Services auxiliary to financial intermediation), 71 (Renting services of machinery and equipment without operator etc.), 72 (Computer and related services), 73 (Research and development services), and 74 (Other business services).

manufacturing shares and underdeveloped business services due to the industrialisation strategy during communism.²

Table 1 / Shares of manufacturing and business services in GDP, in %, NACE Rev. 1

	Manufacturing		Business services	
	1995	2011	1995	2011
EU-27	20.1	15.8	14.3	17.9
USA	15.5	12.3	17.8	23.1
Japan	22.6	18.6	11.7	13.2
Austria	19.6	18.5	11.8	14.8
Belgium	20.3	14.5	15.7	20.5
Bulgaria	22.0	17.6	10.4	9.1
Cyprus	11.8	6.8	9.9	14.7
Czech Republic	24.3	25.8	9.6	14.0
Denmark	17.1	11.5	11.8	15.7
Estonia	21.0	14.3	7.0	14.0
Finland	25.4	18.6	9.4	12.7
France	14.2	10.1	16.9	19.6
Germany	22.6	22.4	15.2	17.8
Greece	12.0	10.3	7.8	8.9
Hungary	21.3	25.3	11.6	14.0
Ireland	30.2	26.8	13.6	21.8
Italy	22.2	16.6	11.7	14.9
Latvia	20.7	9.9	8.8	14.9
Lithuania	19.1	16.4	3.7	8.2
Luxembourg	13.7	6.5	28.7	38.6
Malta	21.7	13.3	9.8	15.8
Netherlands	17.4	14.1	16.7	20.7
Poland	21.1	18.1	6.4	11.0
Portugal	18.4	13.4	12.4	15.3
Romania	25.6	23.6	9.8	7.7
Slovak Republic	26.8	19.6	9.3	12.7
Slovenia	25.7	19.6	11.9	15.3
Spain	19.2	13.2	10.5	13.0
Sweden	22.4	16.7	11.8	16.8
United Kingdom	20.9	11.7	16.6	25.5

Note: These figures are based on value added at basic prices as provided in the World Input-Output Database (WIOD).
Source: WIOD; wiiw calculations.

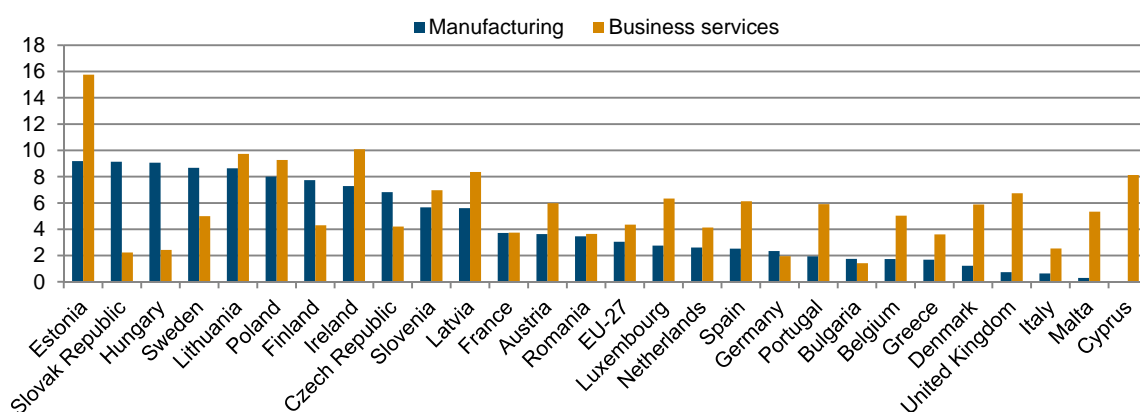
This situation had changed significantly by 2011: For the EU-27, the share of manufacturing declined from 20% to about 16%, whereas the share of business services increased from about 14% to 18%.³ For the NMS as well, falling manufacturing shares and a catch-up in business services can be assumed in line with the trends observed in the old EU Member States. Overall, in 2011 the manufacturing shares ranged from slightly above 10% (or even less in some small countries such as Cyprus or Luxembourg) to more than 25% in some of the new Member States (Hungary, Czech Republic) but also Ireland. The shares of business services now ranged from less than 10% in Bulgaria, Greece, Lithuania and Romania to 25.5% in the UK (and even almost 40% in Luxembourg). From a rough comparison it seems that specialisation patterns have been quite stable but of course there are differentiated specialisation dynamics and trends across Member States.

² One has to keep in mind that during the transitional recession between 1989 and 1993 – with a 20% GDP decline across the region – a strong de-industrialisation already occurred.

³ The shares of the other services sectors remained more or less stable.

It should be stressed, however, that – despite the declining manufacturing share in GDP – most countries experienced overall positive real growth rates of manufacturing activities at least up to the crisis, thus one should not see it as a ‘declining sector’. In most countries both manufacturing and (business) services experienced positive growth rates of value added in real terms (see Figure 1). With the latter ones in most cases being higher, this indicates a shift towards services. In manufacturing, the highest growth rates of more than 8% were achieved in Estonia, Slovakia, Hungary, Sweden and Lithuania. In business services, growth reached almost 16% in Estonia and about 10% in Ireland, Lithuania and Poland.

Figure 1 / Real annual growth rates of manufacturing and business services in %, 1995-2007



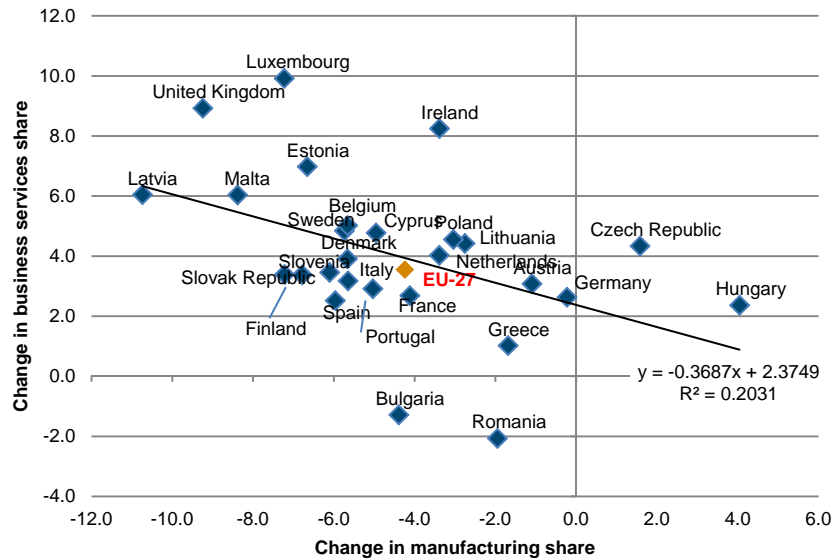
Source: WIOD; wiiw calculations.

DISTINCT SPECIALISATION PATTERNS BETWEEN 1995 AND 2011

Figure 2 plots the percentage point changes of the shares of manufacturing and business services (as per cent of GDP) over the period 1995-2011.

Looking at individual countries, the general pattern of declining manufacturing shares and increasing shares of business services is true for *all* of the ‘old’ EU countries and *most* of the new EU Member States. Changes are markedly differentiated across countries. Two contrasting patterns of development can be observed for the UK and Germany which started from very similar manufacturing shares of about 20% in 1995: The UK lost about 10 percentage points of the share of manufacturing in GDP, but it gained almost 10 percentage points in terms of business services. In Germany the share of business services increased by about 3 percentage points but the share of manufacturing in GDP remained more or less constant. However, in general these changes are not one to one. A simple regression suggests that a one percentage point decline in manufacturing goes hand in hand with a less than 0.5 percentage point increase in business services. Though the negative relationship is to be expected (as this is expressed in terms of shares), it highlights the different specialisation patterns across EU Member States. For most of the NMS this general picture is confirmed as well (declining manufacturing shares and increasing shares of business services). However, there are four exceptions: In the Czech Republic and Hungary both the shares of manufacturing and business services increased (upper right quadrant), while the opposite was the case in Bulgaria and Romania, where both shares decreased (lower left quadrant).

Figure 2 / Percentage point changes in manufacturing and business services shares, 1995-2011



Source: WIOD; wiiw calculations.

Figure 3 visualises the dynamics of specialisation of European countries between 1995 and 2011. More precisely, the figure plots the deviation of each country's shares of manufacturing and business services in per cent of GDP from the shares for the EU-27 in 1995 (indicated by green dots) and 2011 (indicated by red dots), respectively. By 2011, country shares have become much more differentiated – or, stated differently, specialisation patterns have become more pronounced. Three groups of countries can be identified:

Manufacturing core countries: Some countries have been on a trajectory showing a strengthening of their relative orientation towards manufacturing; these countries are Germany, Austria, Poland, Hungary, the Czech Republic and Romania and – to a lesser extent – Ireland. A group of other countries still maintain a relatively high share of manufacturing but nonetheless show a relative weakening of their orientation towards manufacturing; this group includes Finland, Bulgaria, Slovak Republic, Slovenia but also Italy and Sweden.

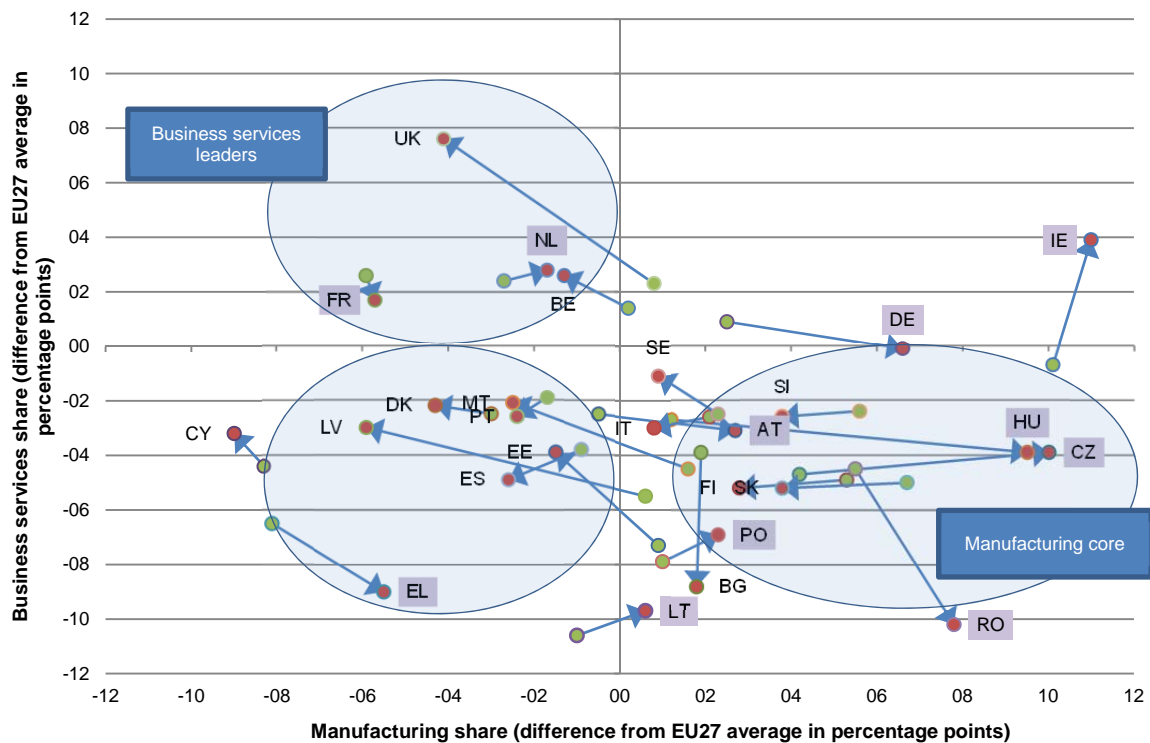
Business services leaders: Some countries have maintained their relative position of specialisation in business services, such as France and the Netherlands, though both have recorded a minor increase in their manufacturing share. The UK and Luxembourg⁴ show the most pronounced shifts towards business services and away from manufacturing.

Low manufacturing and low business services countries: The third group consists of countries which have neither been able to maintain their manufacturing share (which is even below the anyway declining EU average) nor been able to develop a large share of business services in their economies. This group comprises a number of small and peripheral countries such as the Baltic countries (with the

⁴ Luxembourg is not shown in the figure.

possible exception of Lithuania), Cyprus, Malta and Portugal but also Spain, Denmark and Greece. From a policy perspective this could imply a need for different and specific approaches towards promoting business services for these countries if they cannot develop a stronger manufacturing sector.

Figure 3 / European manufacturing and business services specialisation dynamics, 1995-2011



Note: Green dots indicate the deviation of the shares of manufacturing and business services in GDP to the EU-27 shares in 1995, whereas red dots indicate these deviations in 2011. Countries characterised by increasing manufacturing shares are highlighted in grey.

Source: WIOD; own calculations.

CONCLUSIONS

Overall, today one finds more pronounced patterns of specialisation in manufacturing and business services than was the case about a decade and a half ago. Although manufacturing shares have decreased and business services shares increased in most of the new EU Member States in line with the West European countries, the former countries have still maintained their specialisation in manufacturing. Indeed, most NMS have a more pronounced specialisation in manufacturing now than at the beginning of transition (Hungary, the Czech Republic, Romania and Poland; Lithuania even shifted towards a slight specialisation with respect to manufacturing). Bulgaria, Slovakia and Slovenia remained in the manufacturing core group as well. Only Latvia and Estonia have lost their manufacturing specialisation. On the other hand, it was not possible for the NMS to catch up with the old EU in business services specialisation, with only some smaller advances taking place in the Czech Republic, Poland and Lithuania and larger ones in Latvia and Estonia.

The use of services in European manufacturing*

BY ROBERT STEHRER

INTRODUCTION

Manufacturing industries use various service activities to a large extent as an important input in their production processes. The value of gross output produced by an industry (or firm) consists of inputs of primary factors such as labour and capital services (measured in this context by the respective factor payments to them) and the use of intermediate inputs sourced from other manufacturing industries and services, both from domestic and from foreign sources. This note sheds light on the magnitudes of these inputs in the manufacturing production process, how these vary across countries and how these have changed over time. However, it needs to be stressed that the direct cost shares considered here capture bought-in services only and therefore do not take in-house provision of services into account.¹ Part of these services inputs might be imported from service providers located abroad which is particularly important for smaller countries and the new EU Member States.

SERVICES AS AN INPUT INTO MANUFACTURING PRODUCTION

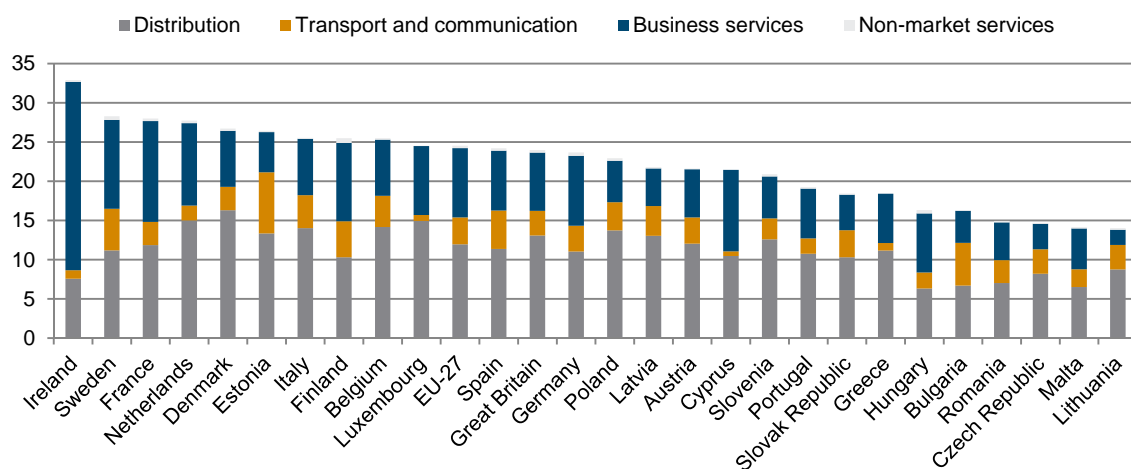
Figure 1 provides an indicator concerning the importance of services inputs in terms of (direct) cost shares, i.e. services inputs in per cent of gross output, in the manufacturing industry for the EU-27 countries.

For the EU-27 as a whole this share stood at close to 25% in 2011, marking a slight increase from about 22% in 1995. However, the shares vary widely across countries: from more than 30% in Ireland to less than 15% in the Czech Republic, Malta and Lithuania. Concerning the structure of services inputs, the cost shares of distribution services range from slightly above 6% in Bulgaria, Hungary and Malta to 15% or more in Denmark (16.3%), the Netherlands (15%) and Luxembourg (14.9%), to list the countries with the highest shares. Cost shares of transportation and communication services are more similar across countries, though they are relatively low in Cyprus, Greece and Luxembourg. Importantly, the direct cost shares of business services (including R&D, finance, marketing, consulting, etc.) are much more diverse across countries. These range from 24% in Ireland, 12.9% in France, about 10% in Cyprus, Finland, the Netherlands and Sweden to about 4-5% in the other countries. It is particularly low in Lithuania with only 2%.

* This note is based on a study carried out within the Framework Contract for Industrial Competitiveness and Market Performance (ENTR/90/PP/2011/FC) for the European Commission's Directorate-General for Enterprise and Industry.

¹ Detailed case studies for selected countries and industries can be found in R. Stehrer et al. (2015), 'The Relation between Industry and Services in terms of Productivity and Value Creation', *wiiw Research Report*, forthcoming.

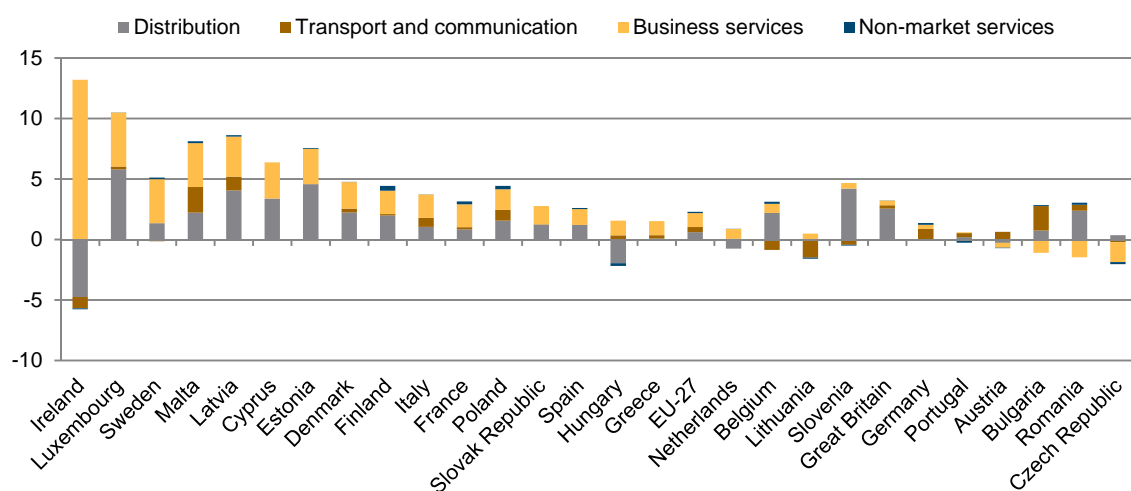
Figure 1 / Structure of services cost shares in % of manufacturing gross output, 2011



Source: World Input-Output Database (WIOD); wiiw calculations.

Generally, these shares have increased over time, particularly so with respect to business-related services and – in some countries – for transport and communication services, as highlighted in Figure 2.² Between 1995 and 2011, the cost share of services in manufacturing output increased by about 2.5 percentage points for the EU-27 as a whole. However, these changes ranged from an about 10 percentage points increase (such as in Ireland and Luxembourg) to even small decreases as observed for the Czech Republic. In most cases an increase in business-related services accounted most for the overall change.

Figure 2 / Percentage point changes in services cost shares in manufacturing, 1995-2011



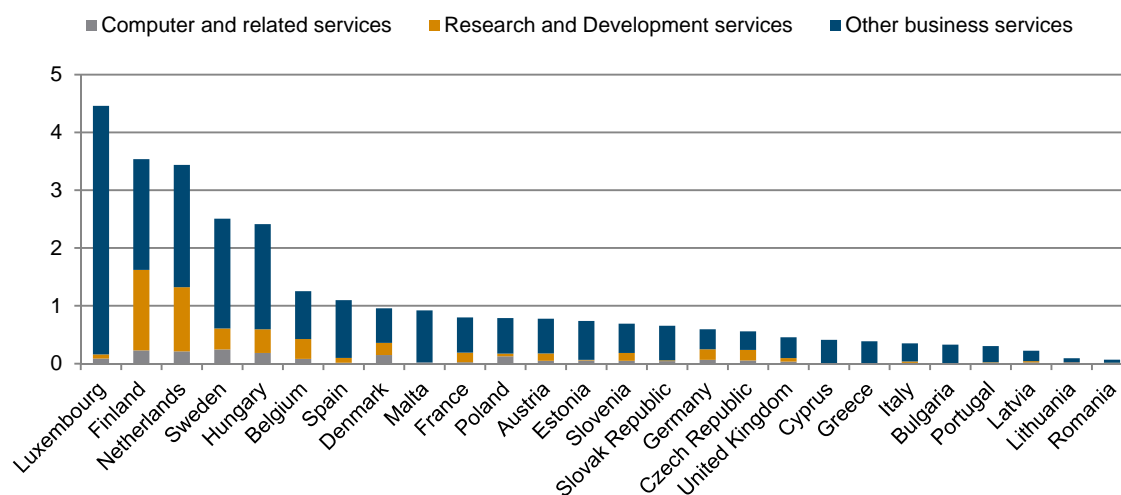
Note: Countries are ranked according to increase in business services (in percentage points). Source: WIOD; wiiw calculations.

² More detailed results based on the new NACE classification also highlight country differences with respect to scientific research and development and advertising and market research (see Graph of the month on p. 1 of this Monthly Report).

IMPORTED SERVICES ARE PARTICULARLY IMPORTANT FOR NEW EU MEMBER STATES

Part of the (business) services used in manufacturing industries as intermediate inputs are imported from other countries. This becomes more and more important when taking account of the increasing specialisation across Europe (as indicated in the previous article of this Report), the effects of the Single Market and more recently the EU services directive³. The bulk of imported services for most countries are made up of business services.⁴ It needs to be emphasised that for the distinction between domestic and imported intermediaries (and therefore also for business services) it is the location of production which matters, but not the ownership of the providing firms, in line with national accounting principles. Furthermore, it should be stressed that these figures only include Mode 1 and Mode 2 services trade.⁵

Figure 3 / Cost shares of imported business services used in manufacturing in % of gross output, 2011



Note: These figures do not include financial intermediation services.

Source: Eurostat; wiiw calculations.

Figure 3 presents the shares of imported business services used in manufacturing in per cent of gross output for individual EU Member States.⁶ Across individual Member States, the shares of imported business services in per cent of gross output range from more than 4.5% in Luxembourg to about 1-2%

³ See Directive 2006/123/EC of 12 December 2006 on services in the internal market.

⁴ Imports of transport and communication services in manufacturing play a relatively important role in e.g. Sweden, Belgium, Austria and Denmark with a cost share of about 1%. Distribution services show cost shares of less than 1% in general.

⁵ These two modes characterise services supply where the supplier is not present within the territory of the country: Mode 1 (cross-border services supply) is defined as delivery of a service from the territory of one country into the territory of another country, whereas Mode 2 (consumption abroad) comprises consumption abroad (supply of a service in a country to the service consumer of any other country). Modes 3 (commercial presence) and 4 (presence of a natural person) are services deliveries where the supplier is present in the territory of the partner.

⁶ Comparing the EU-27 (extra-EU imports) with the United States and Japan reveals that for these large countries the imported services account for a very small share only, usually less than 1%. These shares are slightly higher for the EU-27 as some European economies (e.g. Switzerland, Norway) are included in the rest-of-world category. This is also the reason why shares for individual EU Member States are generally larger when including intra-EU imports.

or less in a number of countries. In fact, in seventeen EU countries these shares are below 2% in 2011. This group comprises both large countries such as Germany, Italy, Great Britain or France but also most of the Eastern European countries. Larger shares are observed for the Netherlands, Finland, Sweden and Hungary with about 3%. In most countries these shares have been increasing over time.

In combination with the findings concerning the overall use of (business) services as presented in Figure 1, there is a wide range of import intensities defined as the share of imported business services in per cent of total business services used in manufacturing. These import intensities range from more than 50% in Ireland and Luxembourg to less than 10% in France, Germany, Italy and other countries. Particularly high import intensities are observed in smaller countries and the new Member States for which imports of business services thus play a more important role in the manufacturing process when compared to larger countries. This will be studied in more detail in the next article of this Monthly Report.

SUMMARY

Services inputs in manufacturing industries account for about 25% of total costs for the EU-27, a share which has increased only slightly since 1995. Differentiating by services categories shows that distribution (12% on average) and business services (9% on average) are the most important services inputs on average. Over time, the shares of business services have been the most dynamic cost component in the majority of countries. The cost share of imported services in manufacturing gross output is at about 1% for most countries; only a few countries show significantly larger shares. These patterns are dominated by imports of business services, which account for about 50% of services imports. Most of the smaller countries tend to have lower shares of business services in manufacturing production together with relatively larger imports resulting in a larger 'import intensity'. The most important items imported for use in manufacturing are scientific research and development, and legal and accounting activities, followed by advertising and market research according to NACE/CPA Rev. 2 classification, with a wide heterogeneity across countries.

These results indicate a generally rising importance of services sourced from outside a firm for the manufacturing production process; however, there are wide variations across countries due to differences in market structure and firm organisation. The results further point towards the importance of a well-functioning Single Market for business-related services. This is particularly the case for smaller countries and the new Member States which rely relatively more strongly on imported services given the specialisation tendencies across Europe as outlined in the previous article of this Monthly Report.

The role of business services linkages for manufacturing performance in EU Member States*

BY SANDRA M. LEITNER

INTRODUCTION

Manufacturing and the services sectors can less and less be considered independent of each other as, for a number of reasons, the two sectors are strongly intertwined. First, manufacturing firms not only use various services as important inputs in their production process in a broad sense but also bundle their products and provide services along with their products. Second, a number of service activities are typically carried out within firms, of which only a part is outsourced or offshored. Hence, given strong inter-sectoral linkages and interrelationships, changes or improvements in the services sector have important effects on the productivity, efficiency, innovativeness or competitiveness of the manufacturing sector, and vice versa.¹ For instance, many manufacturer-related services are important vehicles for productivity-enhancing knowledge transfers which increase process efficiency in client companies' functional areas, not only in manufacturing, but also in logistics and other departments.

Against this backdrop, the analysis sheds light on the role manufacturing–services interactions play for performance improvements observable in the manufacturing sector. In particular, it looks at labour productivity growth to capture performance improvements in the manufacturing sector. Furthermore, the analysis focuses on business services linkages that are considered more relevant than other types of services and important sources of productivity spillovers for the manufacturing sector; those business services comprise financial intermediation services (NACE Rev. 1 70) and renting of machinery and equipment without operator etc., computer and related services, research and development services and other business activities (NACE Rev. 1 71t74). Additionally, the analysis also accounts for different geographic sourcing strategies and their likely effects on performance changes in the manufacturing sector and accordingly differentiates between (i) *domestic* business service linkages, that is business services that are sourced domestically, and (ii) *foreign* business service linkages, that is business services that are sourced from abroad.

* This note is based on a study carried out within the Framework Contract for Industrial Competitiveness and Market Performance (ENTR/90/PP/2011/FC) for the European Commission's Directorate-General for Enterprise and Industry.

¹ A channel not considered here is that service industries also intensely use the output of manufacturing industries which allows them to provide their activities more efficiently (e.g. goods sold by service providers, e.g. for maintenance and repair, ICT system developer and integrator, capital goods used in service activities).

DATA AND METHODOLOGY

The analysis draws on the World Input-Output Database (WIOD)², which covers the time horizon from 1995 to 2011 (see Dietzenbacher et al., 2013; Timmer, 2012). However, to avoid any crisis-related distortions, the empirical analysis is restricted to the period between 1995 and 2007. Methodologically, a growth equation approach was taken to capture long-term trends. In this equation, apart from the variables capturing domestic and foreign linkages of manufacturing and business services, other control variables (initial productivity gap, shares of high- and low-skilled labour, FDI and R&D intensity) have been taken into account.

To account for prevailing cross-country and cross-industry differences and the different business services linkage effects that may arise as a result, a number of different groupings are analysed. The first grouping is based on **EU membership status** and differentiates between the group of EU-15 member countries on the one hand and the group of new Member States (EU-12) on the other to take account of the fact that EU members joined the EU in different years and underwent fundamentally different economic and political processes in the course of the past two to three decades. Particularly, in the period under consideration, the group of EU-12 underwent strong growth and convergence processes and initiated key financial market and trade liberalisation policies and, as a result, became strongly integrated into the EU and global markets. The second grouping is based on **country size** and differentiates between the groups of the five largest EU economies on the one hand (comprising France, Germany, Italy, Spain and the UK) and the remaining 22 medium and small EU economies on the other. Throughout the period under consideration, the five largest EU economies together accounted for about 70% of total EU-27 GDP. Given the size of their internal markets, size-related differences in business services linkages are evident and performance differences can be expected, especially as a result of the particular domestic and foreign sourcing patterns observable in large economies. Finally, the third grouping accounts for the cross-industry heterogeneity in the sample and differentiates by **technology intensity of industries**. In particular, in accordance with the R&D intensity-based OECD technology intensity definition³, it differentiates between *medium-high- and high-technology industries (MHT)* comprising Chemicals (ISIC 24), Machinery and equipment (ISIC 29), Electrical machinery (ISIC 30t33), Motor vehicles (ISIC 34t35); *medium-low-technology industries (MLT)* comprising Coke and refined petroleum products (ISIC 23), Rubber and plastic (ISIC 25), Non-metallic mineral product (ISIC 26) and Basic and fabricated metal products (ISIC 27t28); and *low-technology industries (LT)* comprising Food, beverages and tobacco (ISIC 15t16), Textiles and wearing apparel (ISIC 17t18), Leather and leather products (ISIC 19), Wood and wood products (ISIC 20), Paper, paper products, printing and publishing (ISIC 21t22) and Manufacturing n.e.c. and recycling (ISIC 36t37).

IMPACT OF BUSINESS SERVICES LINKAGES ON MANUFACTURING PERFORMANCE – EMPIRICAL EVIDENCE

The results of this exercise are reported in Table 1. In general, the analysis finds evidence of important productivity-enhancing backward linkage effects in manufacturing; these effects, however, differ by particular grouping or sourcing strategy. Results by **EU membership status** point to the presence of

² WIOD was complemented by other data sources, such as OECD ANBERD, ISIC Rev. 3; OECD IDI, ISIC Rev. 3; or the wiiw FDI Database, to account for the roles R&D expenditures or inward FDI stocks play for productivity improvements in the manufacturing sector.

³ The OECD classification had to be adapted to the slightly more aggregated industry classification in the WIOD.

non-negligible business services linkage effects. For the EU as a whole, strong business services linkages are associated with significantly higher labour productivity growth in manufacturing. However, these backward linkage effects strongly depend on the particular sourcing strategy and are only significant in the case of strong *foreign* business services linkages. This finding also holds both for the EU-15 and the EU-12.

Differentiating by the **size of economies**, results again consistently point to the presence of non-negligible business services linkage effects which, however, depend on the country sample analysed and the sourcing strategy considered. For the group of the five largest EU economies, strong *domestic* business services linkages are associated with significant labour productivity improvements in manufacturing. With respect to foreign business services linkages, results suggest a positive though insignificant relationship. However, for the group of the remaining small and medium-sized EU economies, the opposite holds: strong *foreign* business services linkages are associated with labour productivity improvements in manufacturing. This result is in line with findings that smaller countries tend to have a larger share of imported business services which renders – directly and indirectly sourced – foreign services inputs an important factor for manufacturing performance.

Finally, results by **technology intensity of industries** highlight that strong business services linkages only matter for the group of medium- and high-technology industries (MHT). More specifically, strong *foreign* business services linkages are associated with significant increases in labour productivity growth in medium- and high-technology industries only, while no significant backward linkage effects emerge for either medium-low-technology (MLT) or low-technology (LT) industries.

Table 1 / Selected results of business services linkages and manufacturing performance

Dependent variable: Labour productivity growth rates (VA-based)

	Membership status			Country size		Technology intensity		
	EU-27	EU-15	EU-12	Large	Small	Medium-high	Medium-low	Low
Initial VA-based LP	-0.038*** (-7.84)	-0.014* (-1.88)	-0.048*** (-4.91)	-0.028*** (-3.23)	-0.038*** (-6.42)	-0.049*** (-6.57)	-0.048*** (-4.76)	-0.020* (-1.92)
Business services linkages: domestic	-0.017 (-0.21)	0.007 (0.10)	0.279 (0.87)	0.240*** (2.93)	-0.211 (-1.14)	0.144 (1.58)	-0.280 (-1.23)	0.028 (0.22)
Business services linkages: foreign	0.274** (2.60)	0.281*** (2.87)	0.517** (2.13)	0.452 (1.28)	0.264** (2.11)	0.396*** (4.05)	-0.115 (-0.32)	0.086 (0.51)
Share high-skilled labour	0.042 (0.85)	-0.079 (-1.34)	0.214 (1.59)	0.026 (0.38)	0.032 (0.45)	-0.047 (-0.83)	0.057 (0.44)	0.099 (1.31)
Share low-skilled labour	-0.045** (-2.27)	-0.059** (-2.48)	-0.254*** (-2.74)	-0.038 (-1.10)	-0.035 (-1.32)	-0.058*** (-2.77)	-0.014 (-0.27)	-0.062** (-2.31)
Inward FDI intensity	0.010 (0.54)	-0.008 (-0.47)	-0.011 (-0.20)	0.066 (1.02)	0.010 (0.48)	0.019 (1.19)	0.010 (0.22)	-0.009 (-0.17)
R&D intensity	0.592*** (3.17)	0.385** (2.38)	2.066*** (3.04)	0.219 (0.95)	0.739*** (2.94)	0.327* (1.93)	2.046 (1.59)	-0.237 (-0.10)
Constant	0.156*** (8.36)	0.092** (2.54)	0.150*** (2.80)	0.064 (1.28)	0.171*** (6.88)	0.191*** (9.04)	0.237*** (4.30)	0.096*** (3.36)
No. of observations	189	106	83	44	145	76	59	54
Adjusted R ²	0.371	0.201	0.431	0.582	0.281	0.579	0.375	0.226

Note: t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Source: Own calculations.

Furthermore, the analysis also sheds light on the role of other factors for productivity growth in manufacturing and found consistent evidence of productivity convergence which, however, tends to be stronger in more technology-intensive industries. Additionally, higher R&D intensities are associated with significantly higher labour productivity growth in manufacturing; however, this holds only for the group of small and medium-sized EU economies and the group of medium- to high-technology industries. As concerns the human capital endowment indicators, larger shares of low-skilled labour are associated with significantly lower labour productivity growth. This effect is more consistent among the group of small and medium-sized EU economies and particularly holds for medium- high as well as low-technology industries. By contrast, there is no evidence that higher inward FDI intensity is associated with higher labour productivity growth, irrespective of the country sample considered.⁴

POLICY IMPLICATIONS

The above findings have important policy implications for fostering productivity growth in manufacturing in the long run. In particular, given the presence of non-negligible productivity-enhancing backward business services linkage effects, policy-makers should seek to facilitate and encourage the development and strengthening of business services linkages between manufacturing and business services industries. Hence, the reduction or dismantling of still existing hampering barriers should be one major policy objective. In this context, however, explicit account needs to be taken of prevailing sourcing patterns – i.e. domestic versus foreign – and the benefits that accrue as a result. This puts foreign business services linkages high on the political agenda of small and medium-sized economies and of economies seeking to strengthen the productivity growth potential of medium- and high-technology industries.

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Dietzenbacher, E., B. Los, R. Stehrer, M. Timmer and G. deVries (2013), The Construction of World Input-Output Tables in the WIOD project, *Economic Systems Research*, Vol. 25, No. 1, pp. 71-98.

Evenett, S. J. and A. Voicu (2001), Picking Winners or Creating Them? Revisiting the Benefits of FDI in the Czech Republic, University of St. Gallen Working Paper.

Timmer, M. (ed.) (2012), 'The World Input-Output Database (WIOD): Contents, sources and methods', WIOD Background document available at www.wiod.org.

⁴ This finding is particularly surprising for the group of NMS which experienced strong inward FDI flows and a rapid accumulation of inward FDI stocks after the fall of the iron curtain. However, there are a number of reasons for the absence of any positive effect in the group of NMS countries: firstly, the strongest push in inward FDI accumulation took place in the initial transition phase of the 1990s, a period not properly covered by the analysis due to low data quality and limited availability in either the OECD IDI or wiiw FDI Database. Secondly, firm-level analyses (e.g. Evenett and Voicu, 2001) find evidence of 'cherry picking', i.e. foreign firms are found to invest in domestic firms which are more productive ex ante so that hardly any productivity effects materialise as a result of the investment. And even if productivity improvements occur at the micro-level, aggregation tends to blur effects.

The editors recommend for further reading*

Europe

On fiscal multipliers in the euro area:

<http://www.voxeu.org/article/fiscal-multipliers-and-eurozone-consolidation>

On Friedman's plucking model:

<http://www.bruegel.org/nc/blog/detail/article/1579-the-plucking-model-of-recessions-and-recoveries/>

Oil prices

Why oil prices fell: <http://www.voxeu.org/article/causes-2014-oil-price-decline>

Gavyn Davie on prospects for the price of oil:

<http://blogs.ft.com/gavyndavies/2015/02/16/is-the-oil-crash-over/>

Greece

An academic summary of the German view of Greek problems and policies:

<http://www.voxeu.org/article/greece-no-escape-inevitable>

Krugman on EU-Greece deal:

http://krugman.blogs.nytimes.com/2015/02/22/greece-did-ok/?module=BlogPost-Title&version=Blog%20Main&contentCollection=Opinion&action=Click&pgtype=Blogs®ion=Body&_r=0

Russia and Ukraine

On the Russian economy: <http://www.cer.org.uk/insights/reduced-rouble-update-russian-economy>

On the murder of Boris Nemtsov: <http://go.carnegieendowment.org/gy0h1Vn00008PV0oP000tUm>

Ukraine's economy does not look good:

<http://www.bloombergvew.com/articles/2015-03-06/ukraine-s-economy-is-worse-than-it-looks>

Gorodnichenko and Roland on energy policy for Ukraine:

<http://voxukraine.org/2015/03/05/dual-track-for-ukraine/>

On volunteer battalions in Ukraine: <http://www.iai.it/en/pubblicazioni/heroes-or-villains>

Miscellaneous

Branko Milanovic on human capital:

<http://glineq.blogspot.com/2015/02/on-human-capital-one-more-time.html>

John Cochrane on classical monetary theories being obsolete:

<http://johnhcochrane.blogspot.co.at/2015/02/doctrines-overtuned.html#more>

Suresh Naidu on Piketty's *Capital* and mainstream economics:

<https://www.jacobinmag.com/2014/05/capital-eats-the-world/>

More on Piketty:

http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2015/q1prerelease_1.pdf

* 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 ⁶)
bn	billion (10 ⁹)

The following national currencies are used:

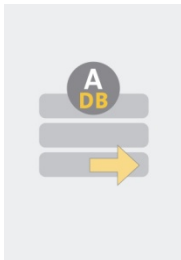
ALL	Albanian lek	HUF	Hungarian forint	RSD	Serbian dinar
BAM	Bosnian convertible mark	KZT	Kazakh tenge	RUB	Russian rouble
BGN	Bulgarian lev	MKD	Macedonian denar	TRY	Turkish lira
CZK	Czech koruna	PLN	Polish zloty	UAH	Ukrainian hryvnia
HRK	Croatian kuna	RON	Romanian leu		

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>.

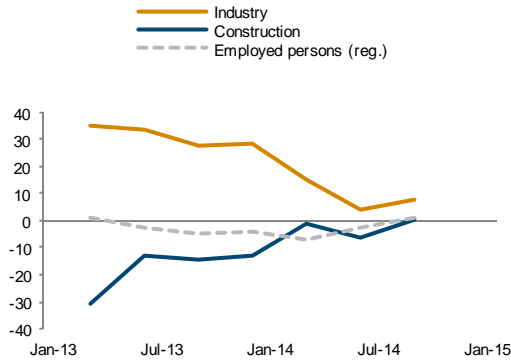
New service package available

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.

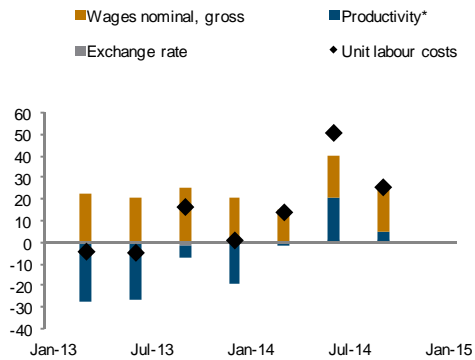
For more information on database access for Members and on Membership conditions, please contact Ms. Gabriele Stanek (stanek@wiiw.ac.at), phone: (+43-1) 533 66 10-10.

Albania

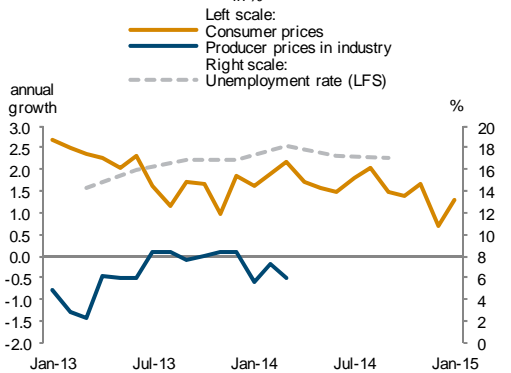
Real sector development
cumulated annual growth rate in %



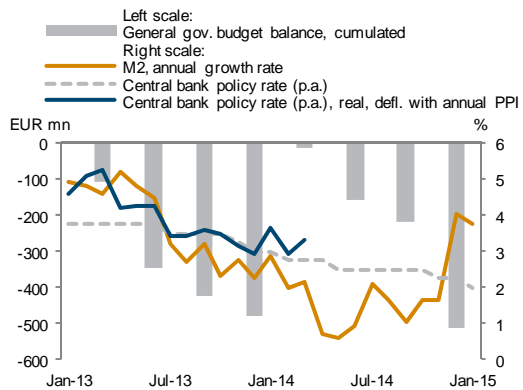
Unit labour costs in industry
annual growth rate in %



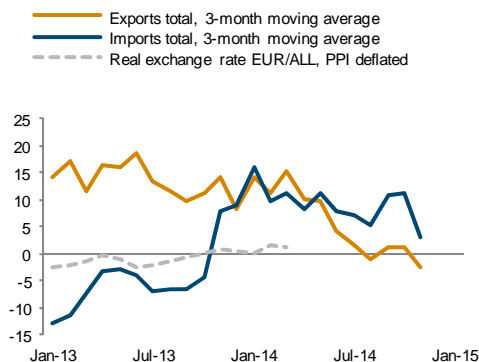
Inflation and unemployment
in %



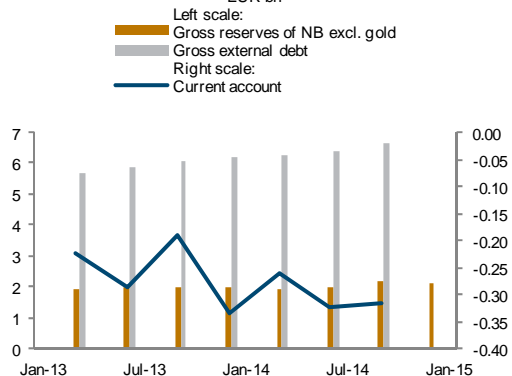
Fiscal and monetary policy



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:

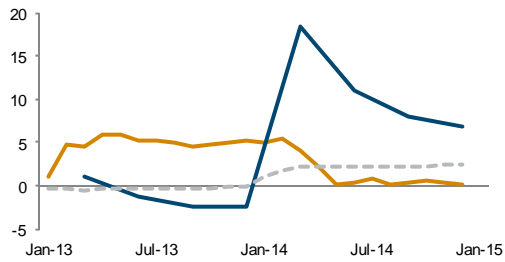
<http://data.wiiw.ac.at/monthly-database.html>

Bosnia and Herzegovina

Real sector development

cumulated annual growth rate in %

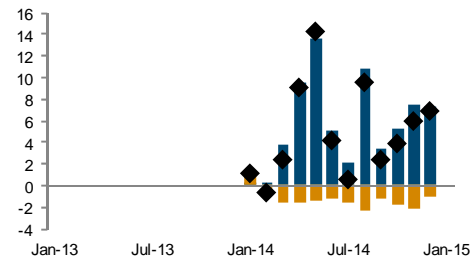
— Industry
— Construction
- - - Employed persons (reg.)



Unit labour costs in industry

annual growth rate in %

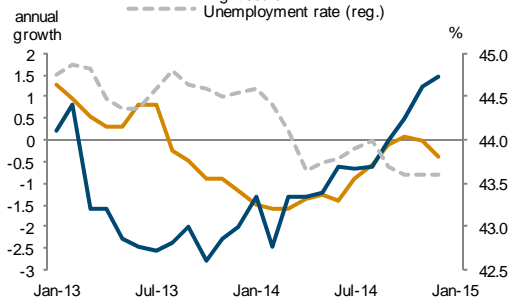
■ Wages nominal, gross ■ Productivity*
◆ Unit labour costs



Inflation and unemployment

in %

Left scale:
— Consumer prices
— Producer prices in industry
Right scale:
- - - Unemployment rate (reg.)



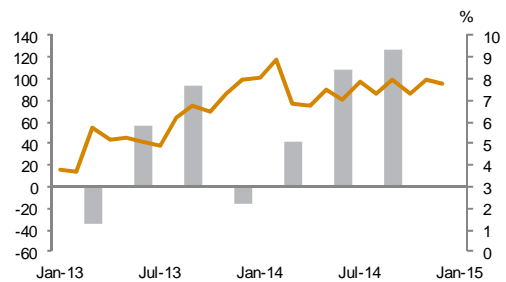
Fiscal and monetary policy

Left scale:

■ General gov. budget balance, cumulated

Right scale:

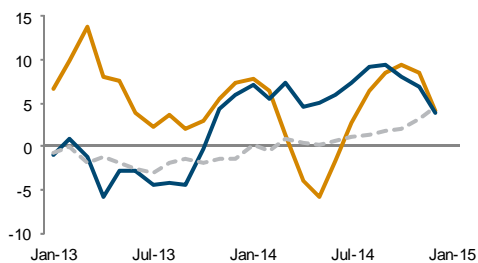
— M2, annual growth rate



External sector development

annual growth rate in %

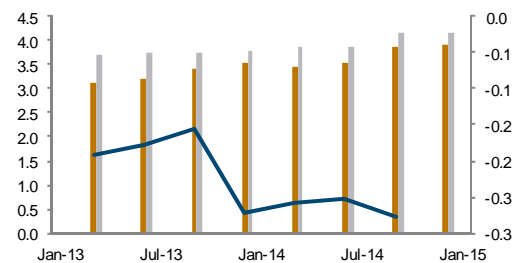
— Exports total, 3-month moving average
— Imports total, 3-month moving average
- - - Real exchange rate EUR/BAM, PPI deflated



External finance

EUR bn

Left scale:
■ Gross reserves of NB excl. gold
■ Gross external debt (public)
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:

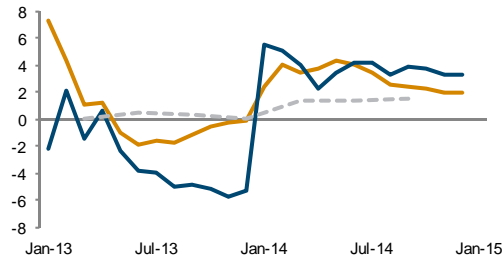
<http://data.wiiw.ac.at/monthly-database.html>

Bulgaria

Real sector development

cumulated annual growth rate in %

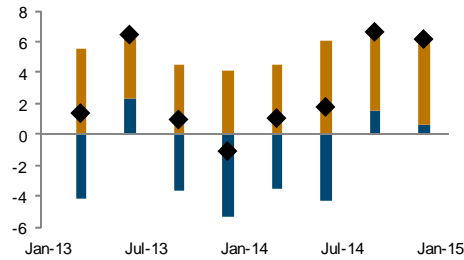
- Industry
- Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

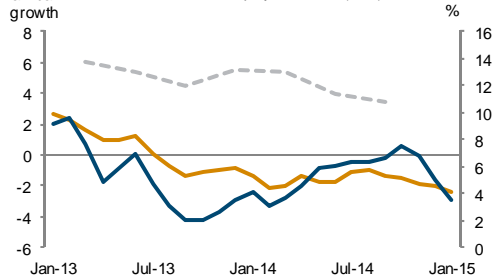
- Wages nominal, gross
- Productivity*
- ◆ Unit labour costs



Inflation and unemployment

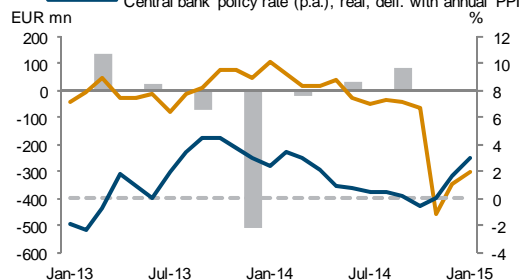
in %

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



Fiscal and monetary policy

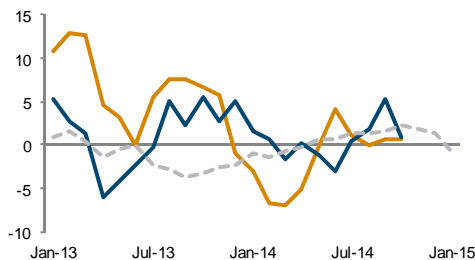
- Left scale: General gov. budget balance, cumulated
- Right scale: Broad money, annual growth rate
- Central bank policy rate (p.a.)
- Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

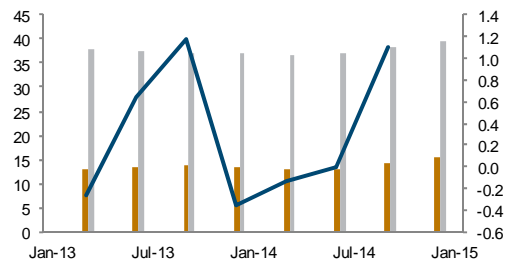
- Exports total, 3-month moving average
- Imports total, 3-month moving average
- - - Real exchange rate EUR/BGN, PPI deflated



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:

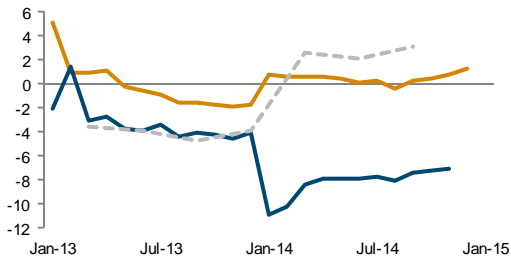
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Croatia

Real sector development

cumulated annual growth rate in %

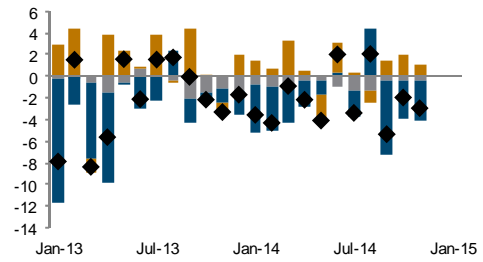
- Industry
- Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

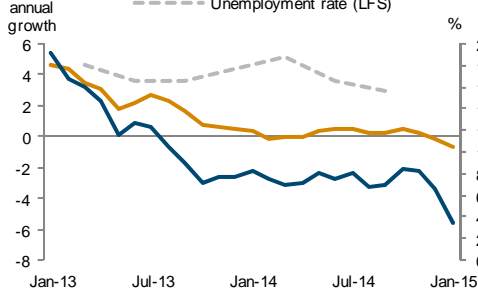
- Wages nominal, gross
- Productivity*
- Exchange rate
- ◆ Unit labour costs



Inflation and unemployment

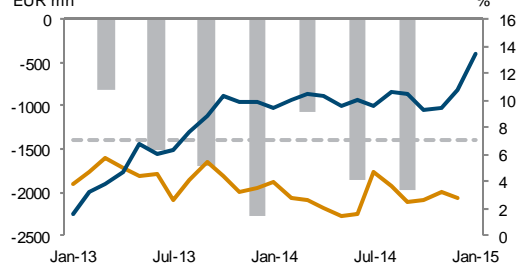
in %

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



Fiscal and monetary policy

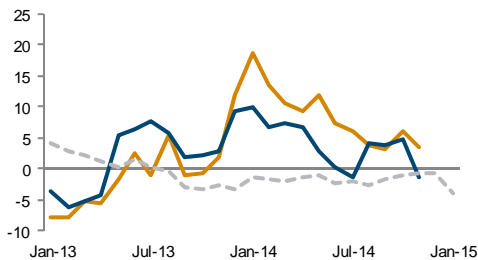
- Left scale: General gov. budget balance, cumulated
- Right scale: Broad money, annual growth rate
- Central bank policy rate (p.a.)
- Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

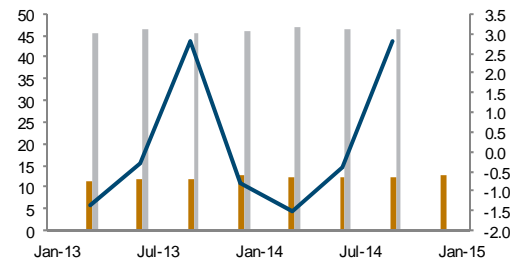
- Exports total, 3-month moving average
- Imports total, 3-month moving average
- - - Real exchange rate EUR/HRK, PPI deflated



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:

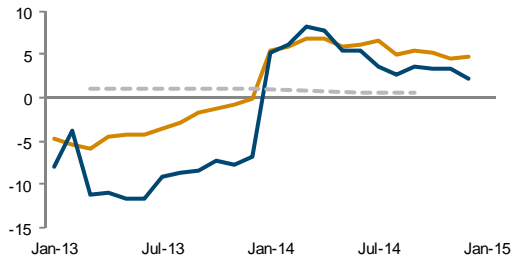
<http://data.wiiw.ac.at/monthly-database.html>

Czech Republic

Real sector development

cumulated annual growth rate in %

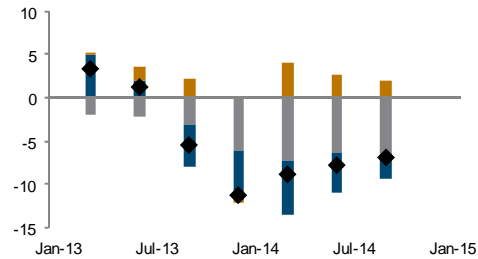
- Industry
- Construction
- Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

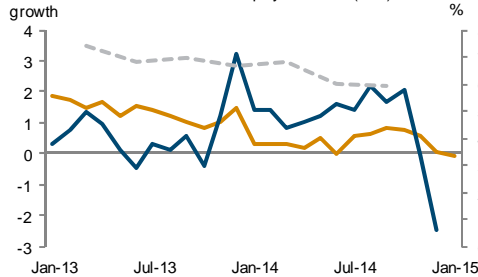
- Wages nominal, gross
- Exchange rate
- Productivity*
- Unit labour costs



Inflation and unemployment

in %

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



Fiscal and monetary policy

Left scale:

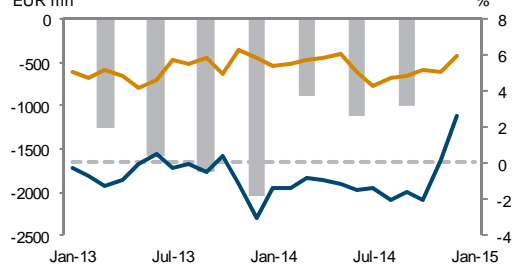
General gov. budget balance, cumulated

Right scale:

Broad money, annual growth rate

Central bank policy rate (p.a.)

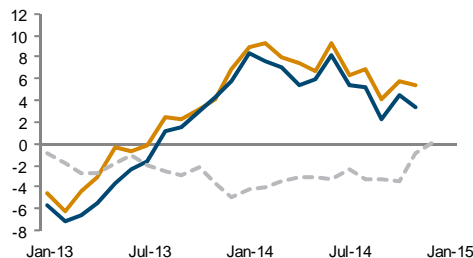
Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

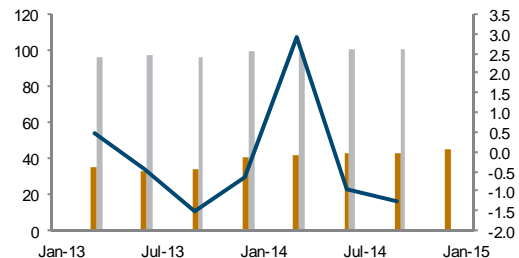
- Exports total, 3-month moving average
- Imports total, 3-month moving average
- Real exchange rate EUR/CZK, PPI deflated



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:

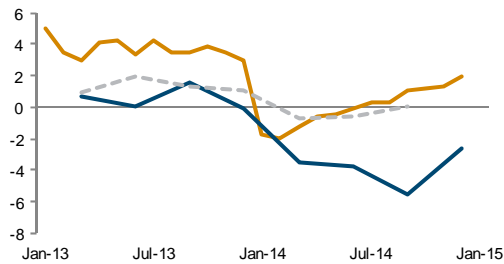
<http://data.wiiw.ac.at/monthly-database.html>

Estonia

Real sector development

cumulated annual growth rate in %

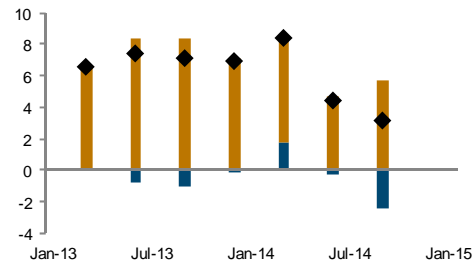
— Industry
— Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

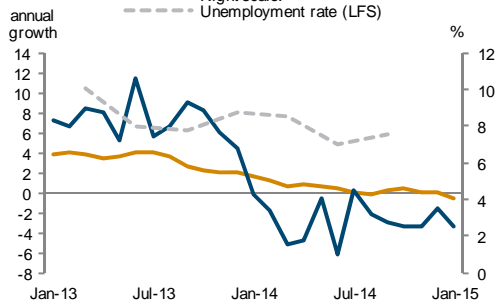
■ Wages nominal, gross ■ Productivity*
◆ Unit labour costs



Inflation and unemployment

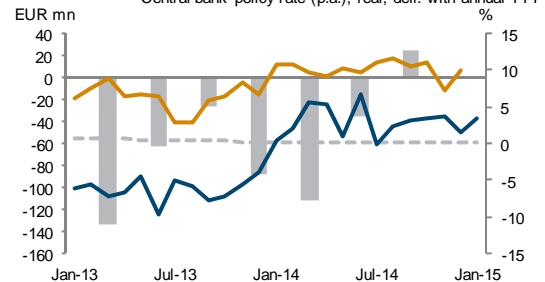
in %

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



Fiscal and monetary policy

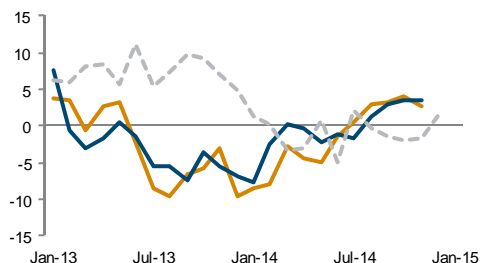
Left scale:
■ General gov. budget balance, cumulated
Right scale:
— Broad money, annual growth rate
- - - Central bank policy rate (p.a.)
— Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

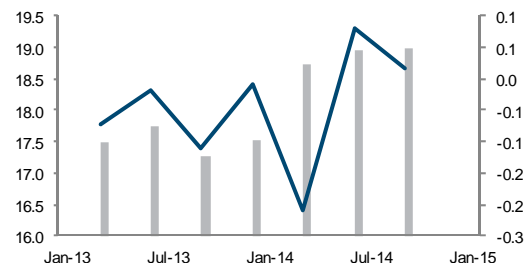
— Exports total, 3-month moving average
— Imports total, 3-month moving average
- - - Real exchange rate EUR/EUR, PPI deflated



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:

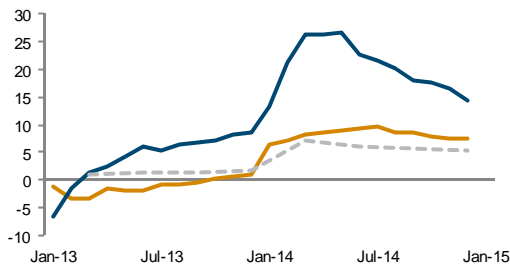
<http://data.wiiw.ac.at/monthly-database.html>

Hungary

Real sector development

cumulated annual growth rate in %

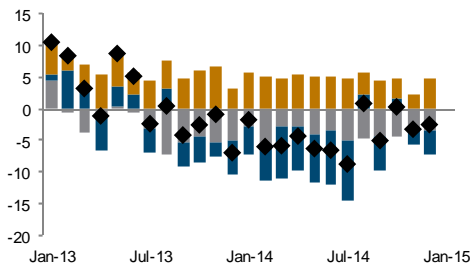
- Industry
- Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

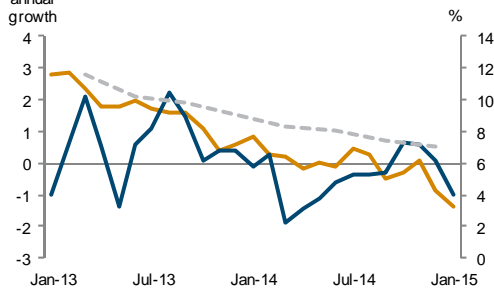
- Wages nominal, gross
- Exchange rate
- Productivity*
- ◆ Unit labour costs



Inflation and unemployment

in %

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



Fiscal and monetary policy

Left scale:

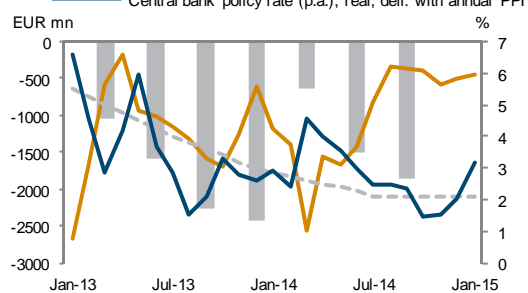
General gov. budget balance, cumulated

Right scale:

Broad money, annual growth rate

Central bank policy rate (p.a.)

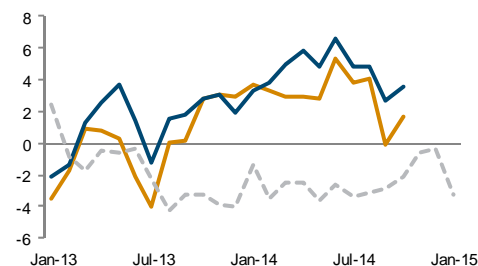
Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

- Exports total, 3-month moving average
- Imports total, 3-month moving average
- - - Real exchange rate EUR/HUF, PPI deflated



External finance

EUR bn

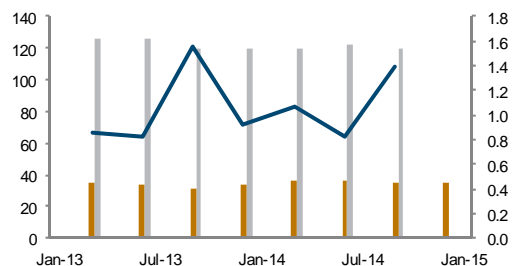
Left scale:

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:

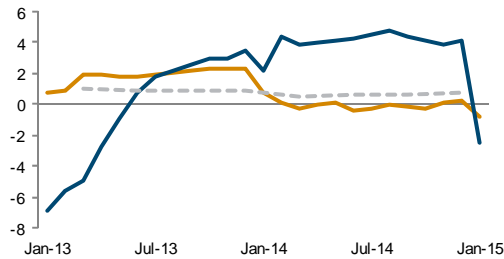
<http://data.wiiw.ac.at/monthly-database.html>

Kazakhstan

Real sector development

cumulated annual growth rate in %

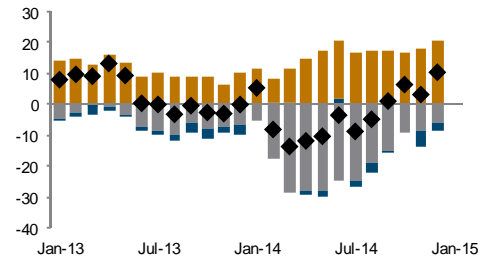
— Industry
— Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

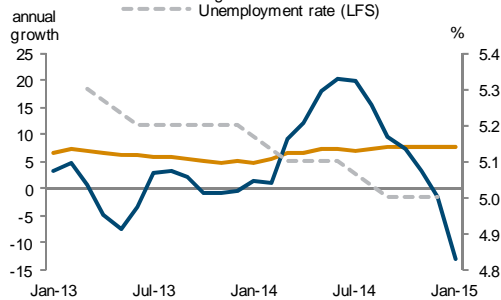
■ Wages nominal, gross ■ Productivity*
■ Exchange rate ◆ Unit labour costs



Inflation and unemployment

in %

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



Fiscal and monetary policy

Left scale:

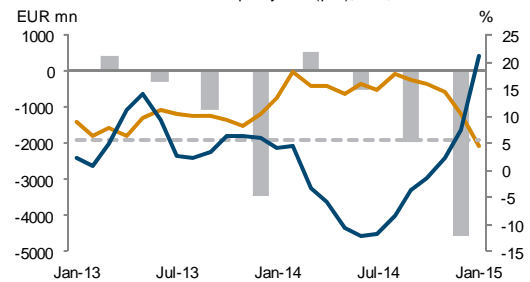
■ General gov. budget balance, cumulated

Right scale:

— Broad money, annual growth rate

- - - Central bank policy rate (p.a.)

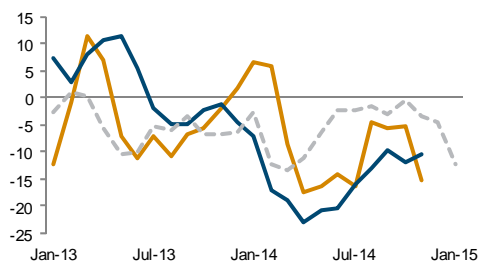
— Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

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



External finance

EUR bn

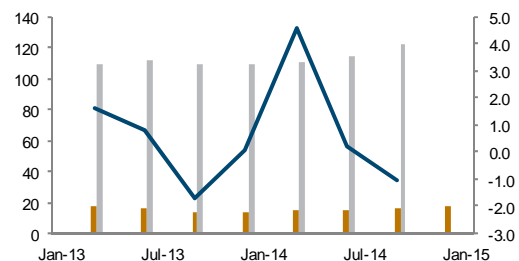
Left scale:

■ 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.

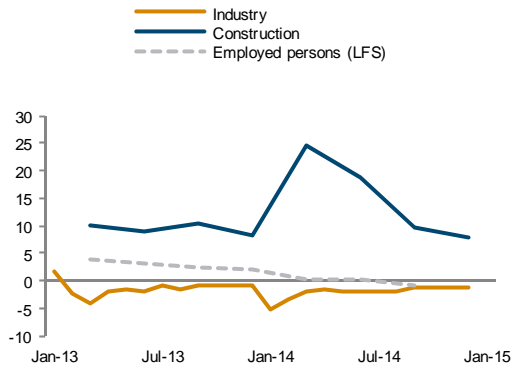
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

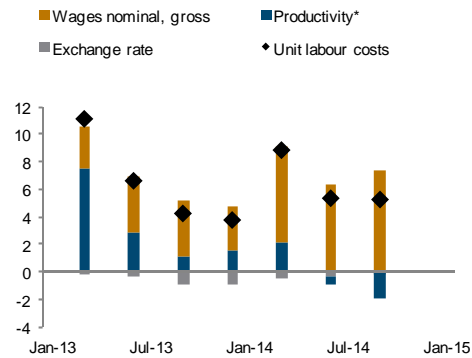
<http://data.wiiw.ac.at/monthly-database.html>

Latvia

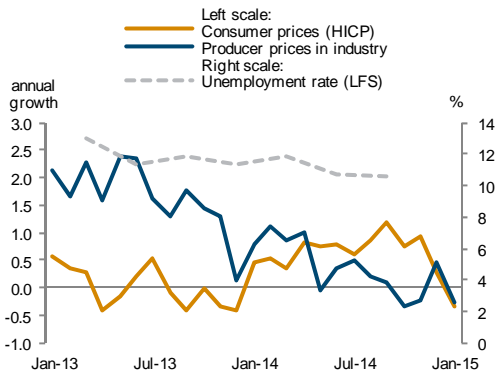
Real sector development
cumulated annual growth rate in %



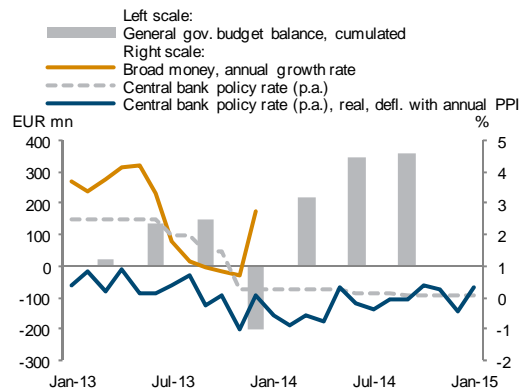
Unit labour costs in industry
annual growth rate in %



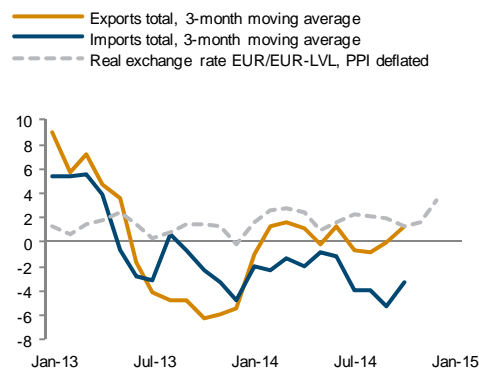
Inflation and unemployment
in %



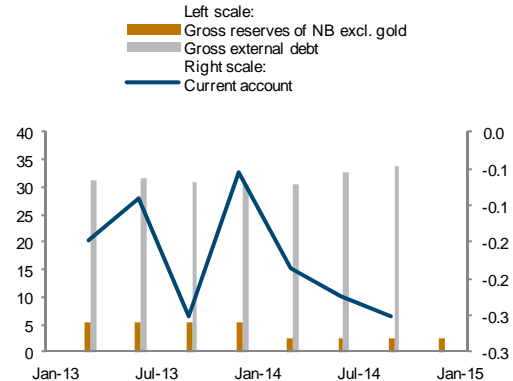
Fiscal and monetary policy



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:

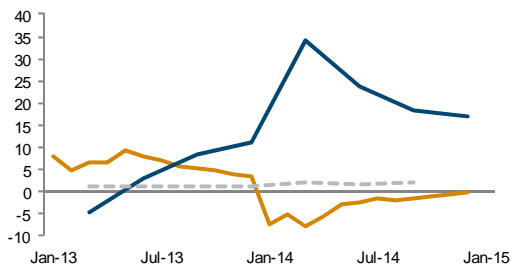
<http://data.wiiw.ac.at/monthly-database.html>

Lithuania

Real sector development

cumulated annual growth rate in %

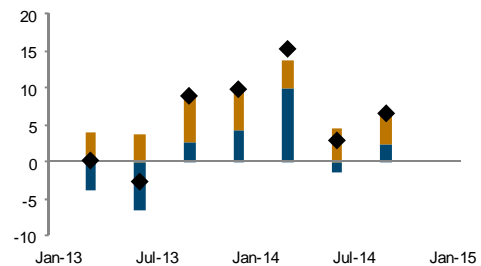
— Industry
— Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

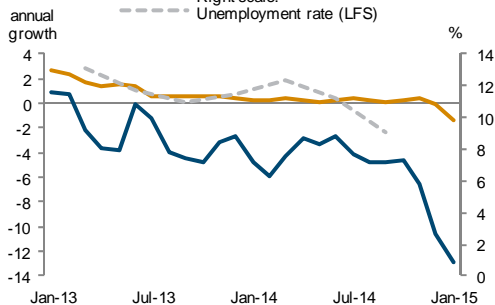
■ Wages nominal, gross ■ Productivity*
■ Exchange rate ◆ Unit labour costs



Inflation and unemployment

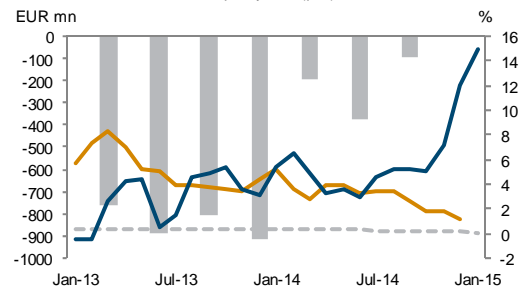
in %

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



Fiscal and monetary policy

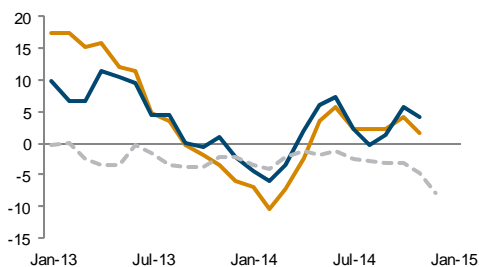
Left scale:
■ General gov. budget balance, cumulated
Right scale:
— Broad money, annual growth rate
- - - Central bank policy rate (p.a.)
— Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

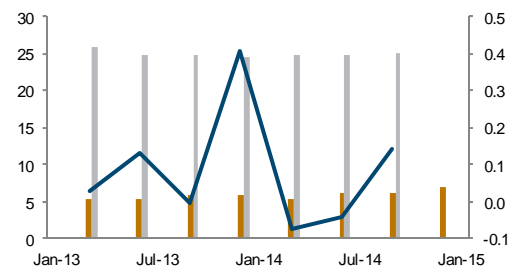
— Exports total, 3-month moving average
— Imports total, 3-month moving average
- - - Real exchange rate EUR/EUR-LTL, PPI deflated



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.

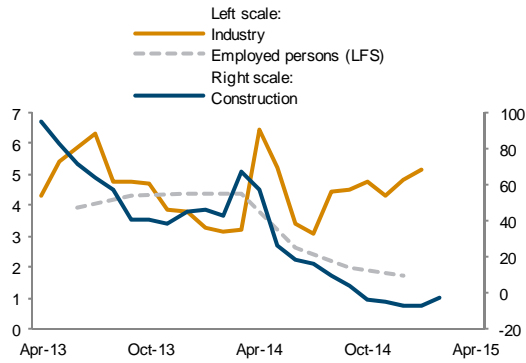
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

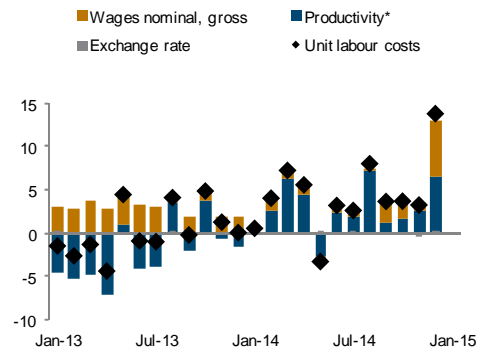
<http://data.wiiw.ac.at/monthly-database.html>

Macedonia

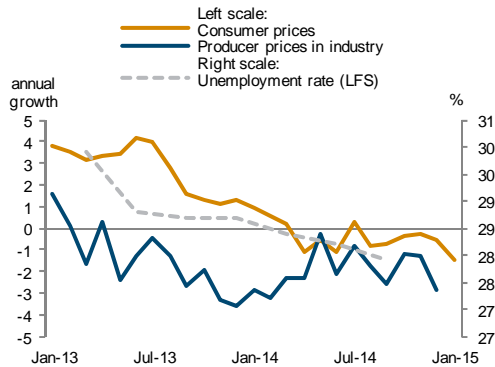
Real sector development
cumulated annual growth rate in %



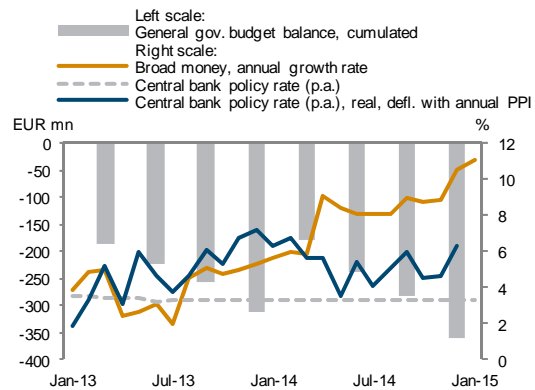
Unit labour costs in industry
annual growth rate in %



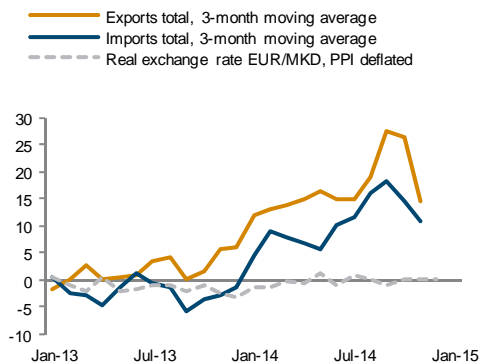
Inflation and unemployment
in %



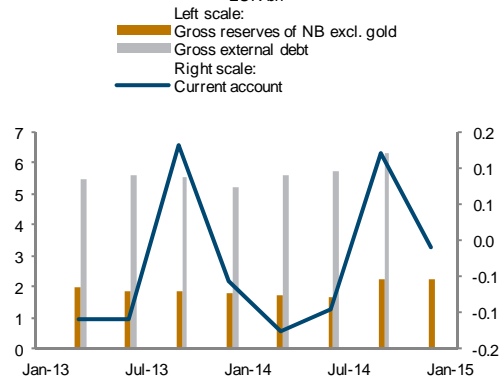
Fiscal and monetary policy



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.

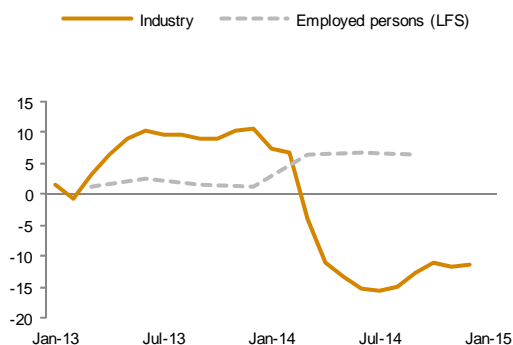
Baseline data, country-specific definitions and methodological breaks in time series are available under:

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

Montenegro

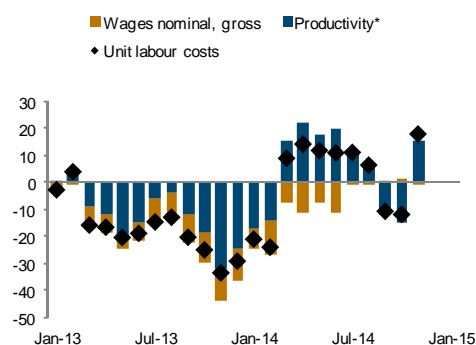
Real sector development

cumulated annual growth rate in %



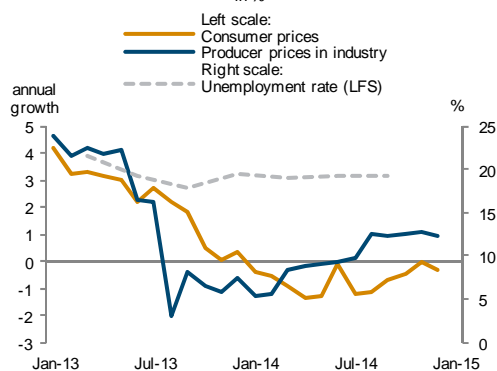
Unit labour costs in industry

annual growth rate in %

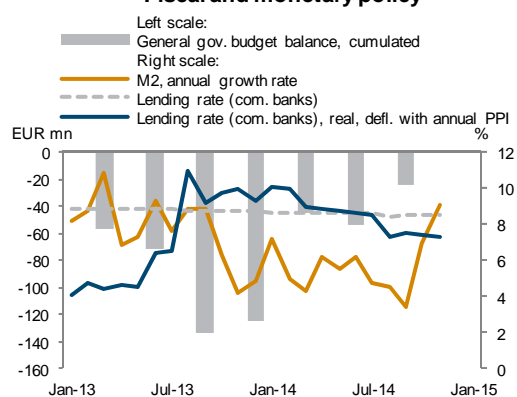


Inflation and unemployment

in %

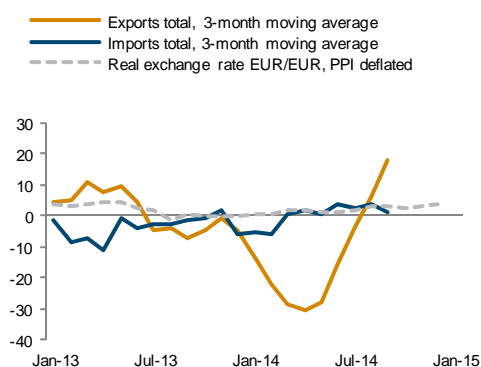


Fiscal and monetary policy



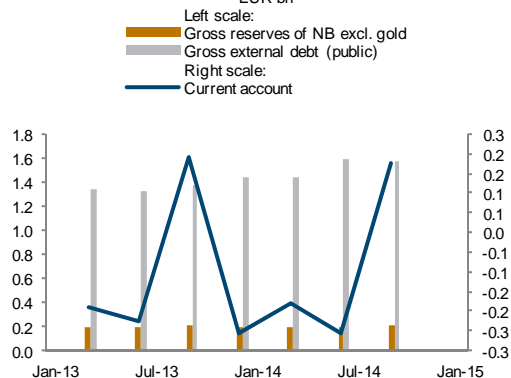
External sector development

annual growth rate in %



External finance

EUR bn



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

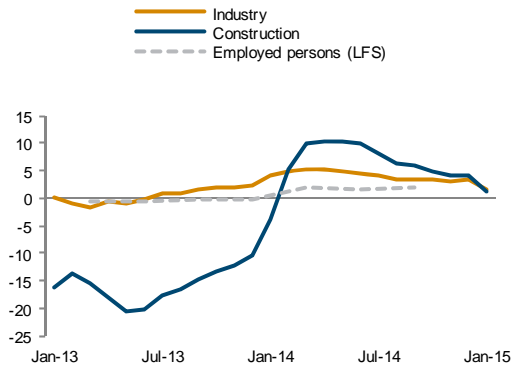
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

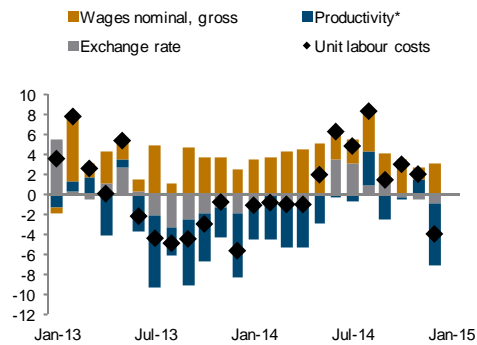
<http://data.wiiw.ac.at/monthly-database.html>

Poland

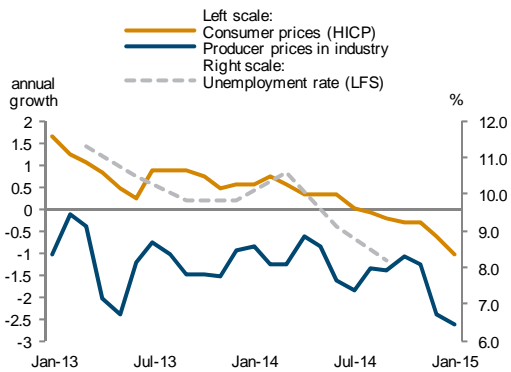
Real sector development
cumulated annual growth rate in %



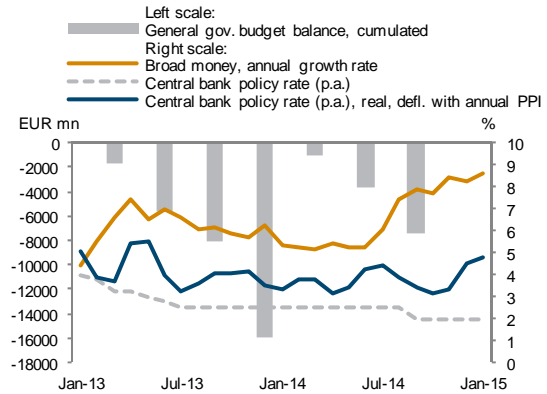
Unit labour costs in industry
annual growth rate in %



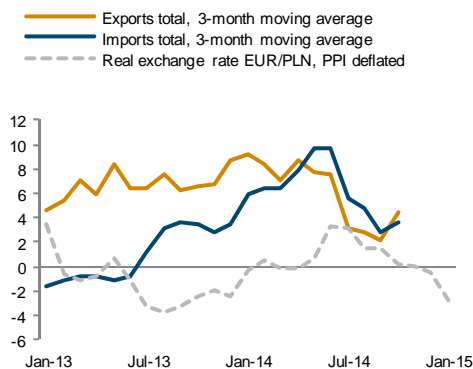
Inflation and unemployment
in %



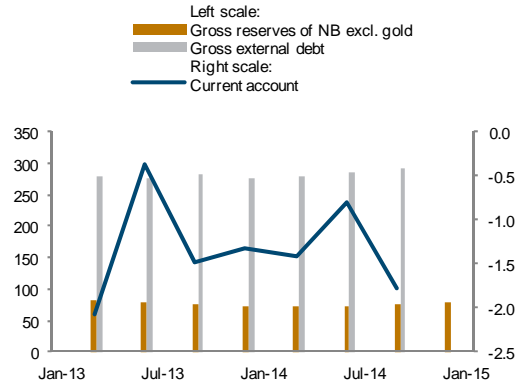
Fiscal and monetary policy



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:

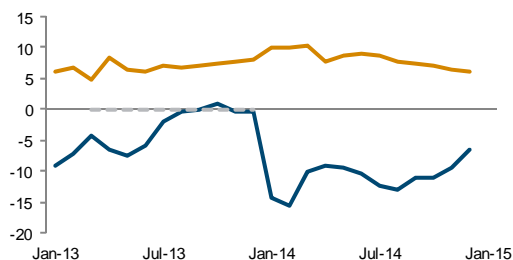
<http://data.wiiw.ac.at/monthly-database.html>

Romania

Real sector development

cumulated annual growth rate in %

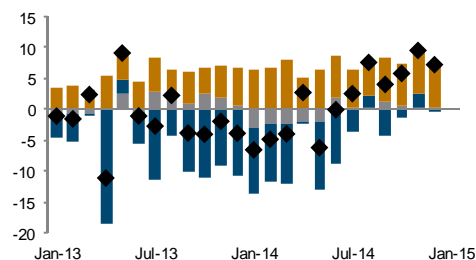
— Industry
— Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

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



Inflation and unemployment

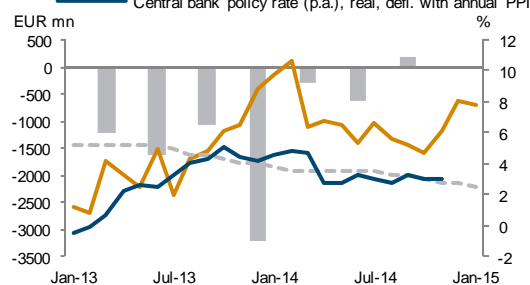
in %

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



Fiscal and monetary policy

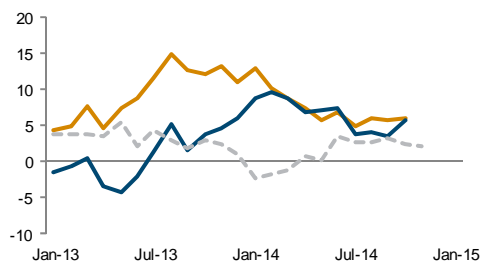
Left scale:
■ General gov. budget balance, cumulated
Right scale:
— Broad money, annual growth rate
- - - Central bank policy rate (p.a.)
— Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

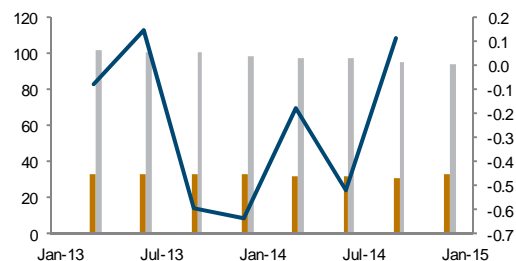
— Exports total, 3-month moving average
— Imports total, 3-month moving average
- - - Real exchange rate EUR/RON, PPI deflated



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:

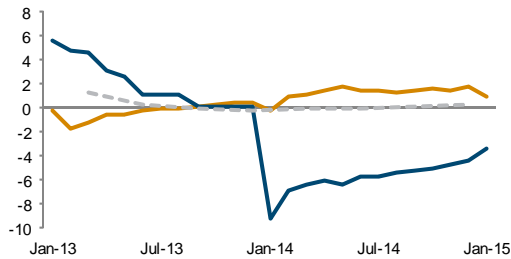
<http://data.wiiw.ac.at/monthly-database.html>

Russia

Real sector development

cumulated annual growth rate in %

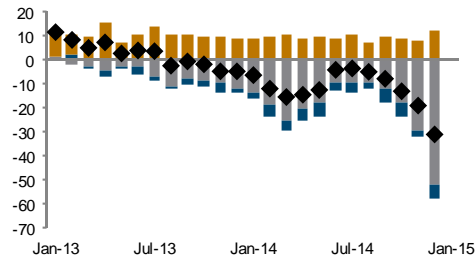
- Industry
- Construction
- Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

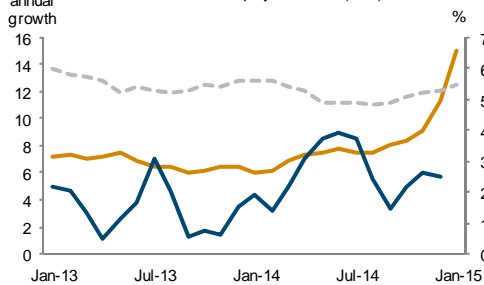
- Wages nominal, manuf., gross
- Exchange rate
- Productivity*
- Unit labour costs



Inflation and unemployment

in %

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



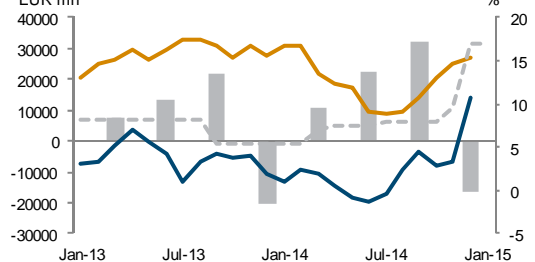
Fiscal and monetary policy

Left scale: General gov. budget balance, cumulated

Right scale: M2, annual growth rate

Central bank policy rate (p.a.)

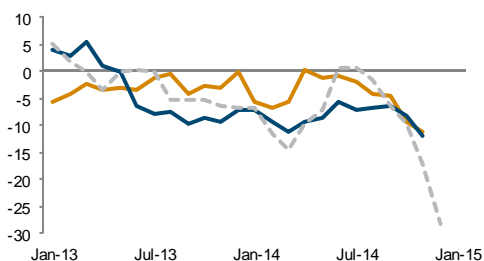
Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

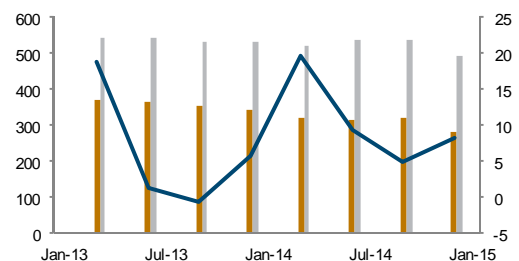
- Exports total, 3-month moving average
- Imports total, 3-month moving average
- Real exchange rate EUR/RUB, PPI deflated



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.

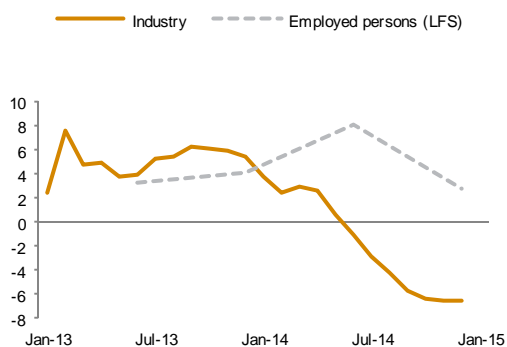
Baseline data, country-specific definitions and methodological breaks in time series are available under:

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

Serbia

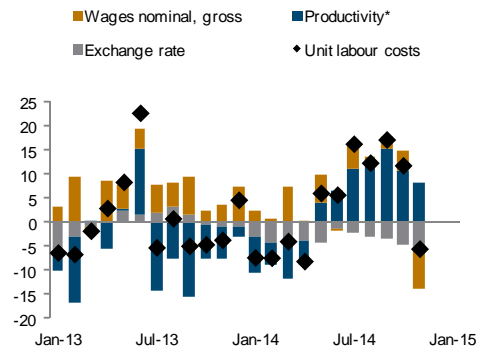
Real sector development

cumulated annual growth rate in %



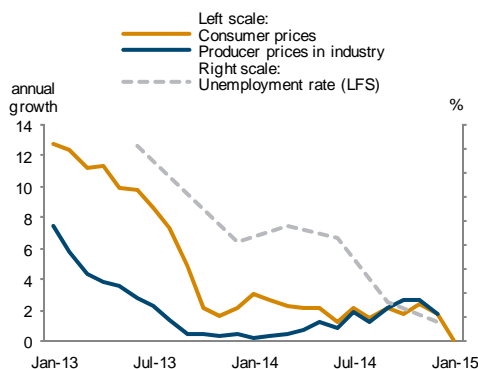
Unit labour costs in industry

annual growth rate in %

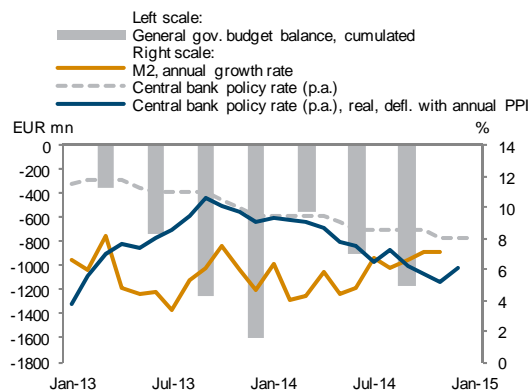


Inflation and unemployment

in %

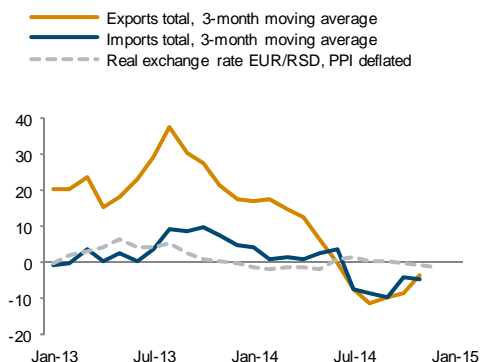


Fiscal and monetary policy



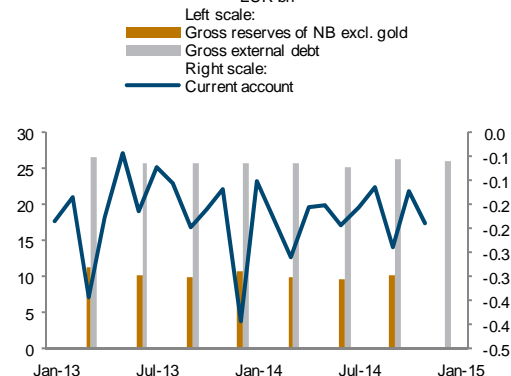
External sector development

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:

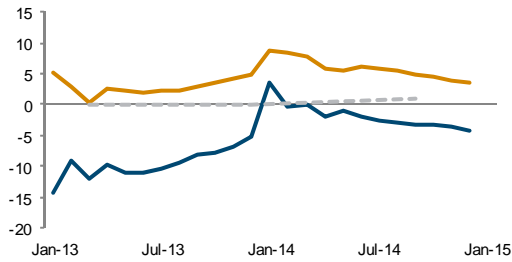
<http://data.wiiw.ac.at/monthly-database.html>

Slovakia

Real sector development

cumulated annual growth rate in %

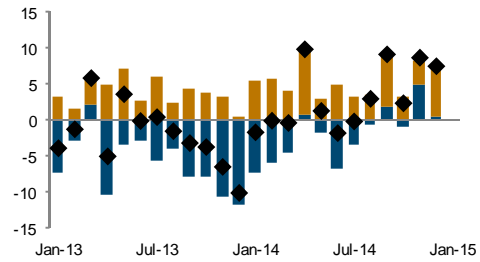
- Industry
- Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

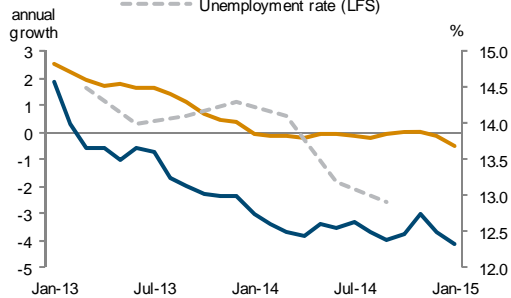
- Wages nominal, gross
- Productivity*
- ◆ Unit labour costs



Inflation and unemployment

in %

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



Fiscal and monetary policy

Left scale:

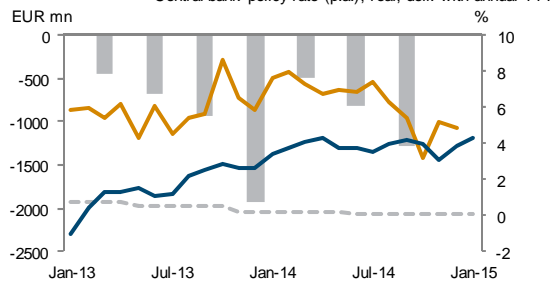
General gov. budget balance, cumulated

Right scale:

Broad money, annual growth rate

Central bank policy rate (p.a.)

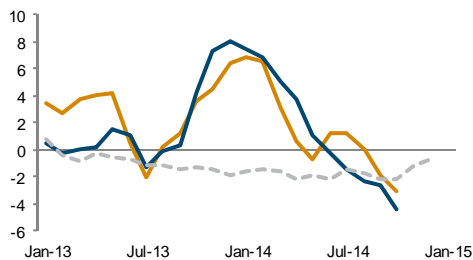
Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

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



External finance

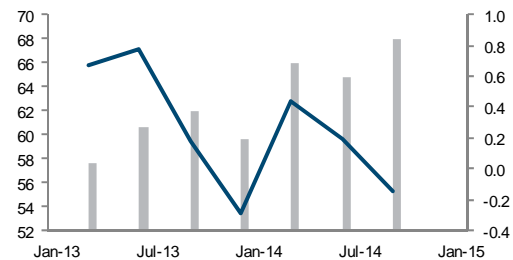
EUR bn

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:

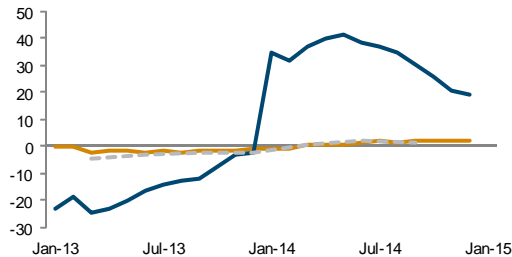
<http://data.wiiw.ac.at/monthly-database.html>

Slovenia

Real sector development

cumulated annual growth rate in %

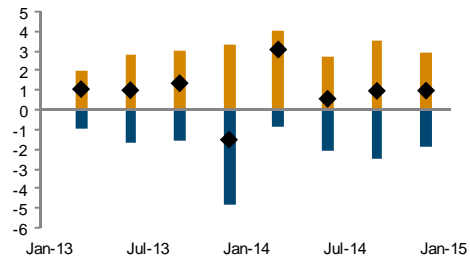
— Industry
— Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

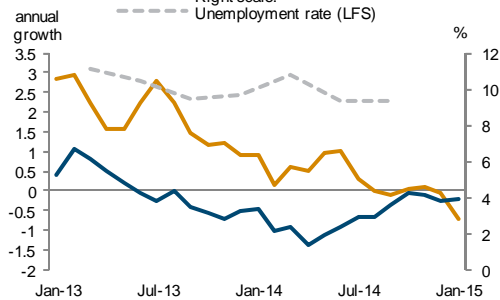
■ Wages nominal, gross ■ Productivity*
◆ Unit labour costs



Inflation and unemployment

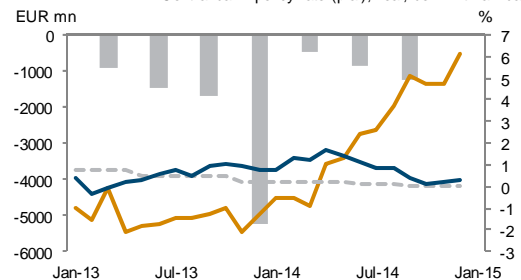
in %

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



Fiscal and monetary policy

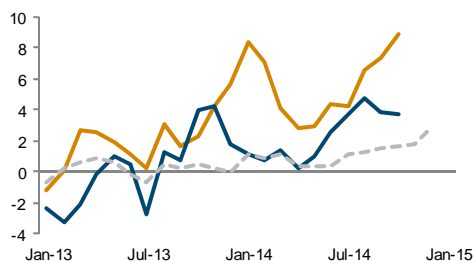
Left scale:
— General gov. budget balance, cumulated
Right scale:
— Broad money, annual growth rate
- - - Central bank policy rate (p.a.)
— Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

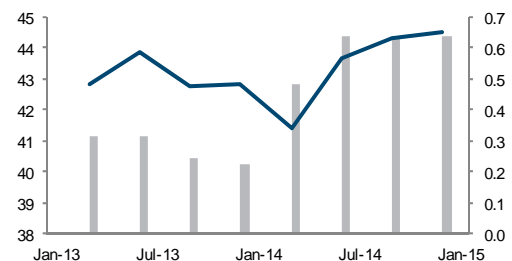
— Exports total, 3-month moving average
— Imports total, 3-month moving average
- - - Real exchange rate EUR/EUR, PPI deflated



External finance

EUR bn

Left scale:
— Gross external debt
Right scale:
— Current account



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Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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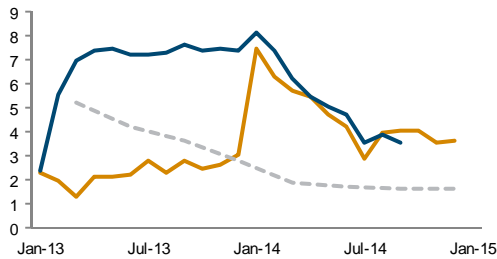
<http://data.wiiw.ac.at/monthly-database.html>

Turkey

Real sector development

cumulated annual growth rate in %

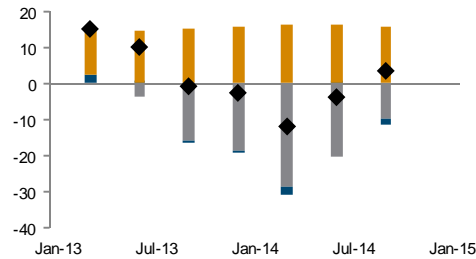
- Industry
- Construction
- - - Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

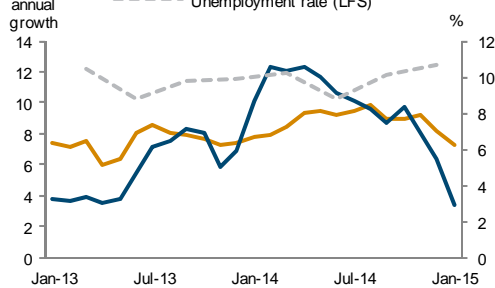
- Wages nominal, gross
- Exchange rate
- Productivity*
- ◆ Unit labour costs



Inflation and unemployment

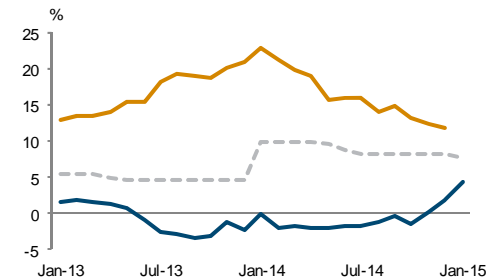
in %

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



Fiscal and monetary policy

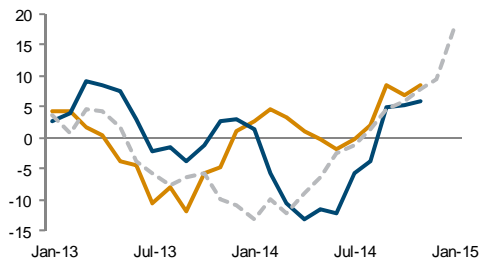
- Broad money, annual growth rate
- - - Central bank policy rate (p.a.)
- Central bank policy rate (p.a.), real, defl. with annual PPI



External sector development

annual growth rate in %

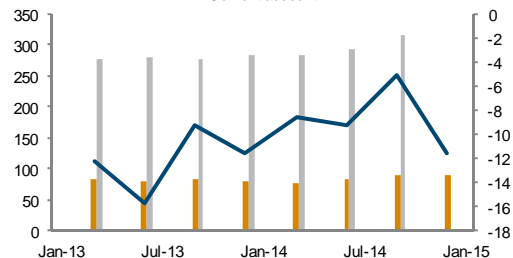
- Exports total, 3-month moving average
- Imports total, 3-month moving average
- - - Real exchange rate EUR/TRY, PPI deflated



External finance

EUR bn

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



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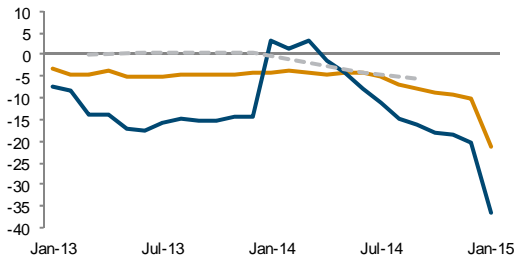
<http://data.wiiw.ac.at/monthly-database.html>

Ukraine

Real sector development

cumulated annual growth rate in %

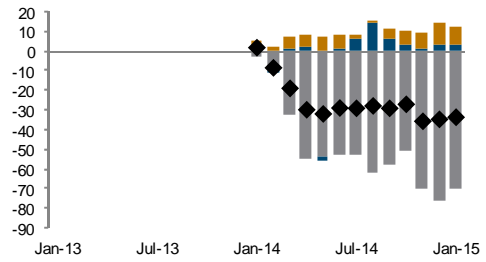
- Industry
- Construction
- Employed persons (LFS)



Unit labour costs in industry

annual growth rate in %

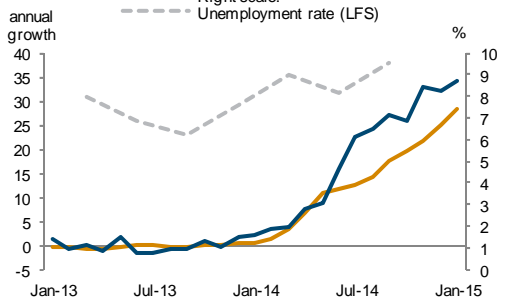
- Wages nominal, gross
- Productivity*
- Exchange rate
- Unit labour costs



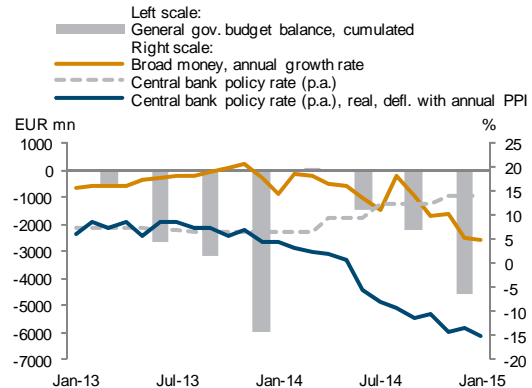
Inflation and unemployment

in %

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



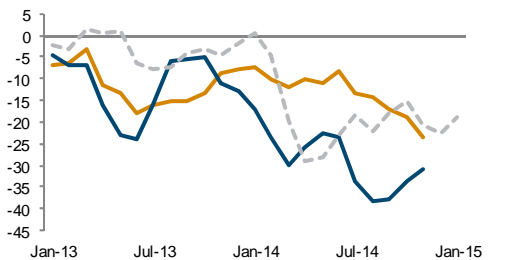
Fiscal and monetary policy



External sector development

annual growth rate in %

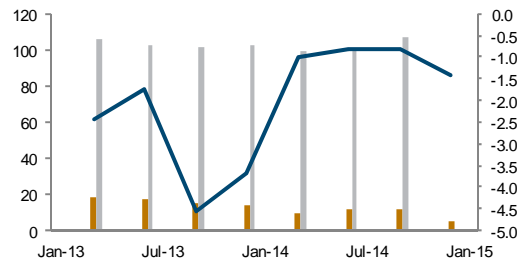
- Exports total, 3-month moving average
- Imports total, 3-month moving average
- Real exchange rate EUR/UAH, PPI deflated



External finance

EUR bn

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



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Economics editors: Vasily Astrov, Sándor Richter

IMPRESSUM

Herausgeber, Verleger, Eigentümer und Hersteller:
Verein „Wiener Institut für Internationale Wirtschaftsvergleiche“ (wiiw),
Wien 6, Rahlgasse 3

ZVR-Zahl: 329995655

Postanschrift: A 1060 Wien, Rahlgasse 3, Tel: [+431] 533 66 10, Telefax: [+431] 533 66 10 50
Internet Homepage: www.wiiw.ac.at

Nachdruck nur auszugsweise und mit genauer Quellenangabe gestattet.
P.b.b. Verlagspostamt 1060 Wien

Offenlegung nach § 25 Mediengesetz: Medieninhaber (Verleger): Verein "Wiener Institut für Internationale Wirtschaftsvergleiche", A 1060 Wien, Rahlgasse 3. Vereinszweck: Analyse der wirtschaftlichen Entwicklung der zentral- und osteuropäischen Länder sowie anderer Transformationswirtschaften sowohl mittels empirischer als auch theoretischer Studien und ihre Veröffentlichung; Erbringung von Beratungsleistungen für Regierungs- und Verwaltungsstellen, Firmen und Institutionen.



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