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Juncker's European Investment Plan

How Large Should the EU Budget Be from the New Member States' Perspective?

International Economic Sanctions: the Case of Iran

The Input-Output Table as a Network

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SÁNDOR RICHTER
ROMAN RÖMISCH
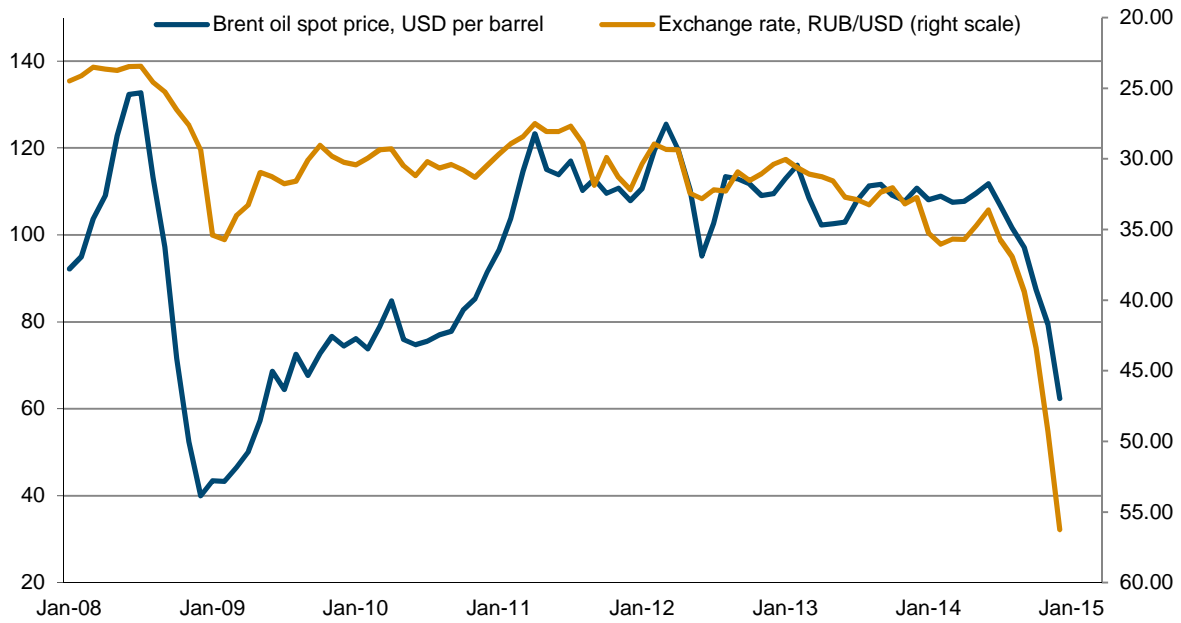ROMAN STÖLLINGER
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Oil price and exchange rate of the Russian rouble, 2008-2014

Source: Russian Central Bank, US Energy Information Administration.

Opinion corner: Is Jean-Claude Juncker's EUR 315 billion European investment plan the proper answer to the EU's anaemic economic performance?

ANSWERED BY WIIW EXPERTS SÁNDOR RICHTER, ROMAN RÖMISCH AND ROMAN STÖLLINGER

Richter: Anyone who has been engaged in the research of the European Union's budget must have been puzzled reading the news about the Juncker initiative. According to the plan, with EUR 21 billion public money, EUR 315 billion private investment will be mobilised in a very short time. At first glance this seems really impressive, but at a second glance doubts arise. Instead of giving a short 'no' answer to the initial question, I can't help but raise a couple of unpleasant questions myself.

What happens to the public money of EUR 140 billion, annually disbursed from the traditional EU budget, of which, using a very conservative estimate, at least half is turned into investment? Why don't we expect the assumed fabulous 15-fold leverage mentioned in the Juncker initiative to be achieved in the case of the EU budgetary expenditures on investment as well, concluding into 70x15 = 1050 billion euro worth of new investment in a single year? If we reckon with this multiplier for the resources from the traditional EU budget, why do we need this new initiative? If we think that the EU budgetary resources produce a much lower multiplier, then why don't we liquidate the traditional EU budget as soon as possible, and re-channel these resources to the new initiative – or, with a less demanding approach, why don't we reform the EU budget instead of inventing something very similar, without the accumulated experiences of the traditional EU budget?

Will EU-supported investment disbursed very rapidly as planned (without unnecessary bureaucratic but also without the absolutely necessary professional control) help create sustainable growth? Haven't we learnt anything from the case of Greece, the historically largest beneficiary of the EU's cohesion policy? Was the moral hazard of the new initiative properly assessed, with regard to potential corruption?

What is fundamentally different in the new initiative compared to the traditional EU budget, is that it is not based on grants but on guaranteed loans. This is a great leap forward indeed. But again the unpleasant question: Why are the resources in the traditional EU budget disbursed predominantly as grants, instead of applying appropriately subsidised traditional financial instruments, principally credits?

Is the invention of a quasi EU budget the proper answer to the decade-long blockade of far-reaching reforms in the traditional EU budget?

Römisch: The answer to the main question is no, probably not. Still, EUR 315 billion sounds a lot. It corresponds to 2.3% of the EU-28 GDP in 2013 and thus is roughly of the same size as the funds Austria received through the Marshall Plan in the 1950s (Haas, 2007). Knowing of the positive impacts the Marshall Plan had on Austria, why then the negative assessment of the Juncker Plan?

First of all, the envisaged EUR 315 billion is spread over three years so that the annual investment stimulus to the EU economy is around 0.8% of its GDP. It is still a lot of money, but the question is whether this is enough to bring the EU back on the road to recovery.

Secondly, it is not EUR 315 billion. It is only EUR 21 billion coming from EU sources, EUR 5 billion coming from the European Investment Bank and EUR 16 billion taken away from other EU programmes (inter alia the Horizon 2020 programme that supports high-end research), i.e. money that would have been invested anyway by the EU.

Thirdly, the Juncker Plan hopes that these initial funds (spent through the European Fund for Strategic Investment) trigger at least EUR 315 billion of additional public or private investments (EUR 307 billion net of EU guarantees). This would give a leverage ratio of 1:15. The point is, much of the money is going to be invested into infrastructure related to transport, communication, energy, environment and health. Going through the list of projects that may be financed (inter alia a nuclear power plant in Poland), many of those are submitted by either public authorities or companies close to the government. Moreover, they look like projects that would have been done in any case, also in the absence of the Juncker Plan. So, the impression is that the Juncker Plan will hardly finance new, additional investment, but rather subsidise existing investment plans. If this is to be the case, attributing any positive growth effect to the Juncker Plan would be misleading. (But at least it would explain the high leverage ratio.)

Finally, one cannot deny a certain amount of inconsistency on the EU's part when fiscal consolidation is demanded on the one hand, and then money is channelled to countries so that they finance (public) investments they otherwise cannot easily do because of the Stability and Growth Pact.

Stöllinger: *Jean-Claude Juncker's announcement of a EUR 315 billion investment plan, tentatively termed European Fund for Strategic Investment (EFSI), has generally been well received. After all, in times of low growth and weak demand, reflected in considerable economic slack and very low inflation, a boost to public investment sounds like a good idea to kick-start the economy. However, there are two important questions to be clarified. First of all, there is the question whether the EU investment plan can really be expected to provide a noticeable demand push; and second, what is strategic about the plan?*

So let's first put the funds allocated under the plan into perspective: the EUR 315 billion amount to 2.3% of the EU's GDP and 12% of the EU's investment expenditure (gross fixed capital formation). Since the investment package is going to be spread across a three-year period (2015-2017) we are talking about roughly 0.8% of GDP per year. Let's be optimistic and assume that the fiscal multiplier associated with government purchases is relatively high, amounting to 1.6, as suggested by Romer and Bernstein (2009). In this case, the EFSI would boost EU GDP by 1.24% in each year. Hence, at given forecasts, the Juncker plan should be expected to more than double the growth rate. This sounds great – if the EFSI really were to inject an extra EUR 315 billion of public money into the economy. But unfortunately, it is not. Rather, only a tiny fraction of the heralded investment programme will be public expenditure, with the rest (hopefully) coming from private investors. Now, private investment is of course not a bad thing by itself but it would only help if the EFSI miraculously managed to crowd in additional private investments. The more likely scenario is that the EFSI will either attract private funds which would otherwise have been spent on other projects, or that the selection of projects for benefiting from the EFSI will be based on existing appetite of private investors for the project. In both cases, the extra investment generated by the EFSI is limited to the injection of public money. And even the public seed money (EUR 16 billion from the EU budget and EUR 5 billion from the European Investment Bank plus the possibility for Member States to pledge additional funds) apparently does in its majority not constitute

new funds. Rather, already pledged funds are relabelled as being part of the EFSI. The EFSI funds will, for example, come from money already allocated to the Connecting Europe Facility (CEF), another European investment initiative. The fact that a project will be financed with the support of the EFSI rather than the CEF presumably will not have much impact on economic growth.

It remains to be seen what is strategic about the plan. Unfortunately, also in this respect, the plan appears to be disappointing. So far, no details have been released as to what kind of projects are supposed to benefit from the initiative, leading to the expectation that a targeted approach will be missing. This would represent another missed opportunity. The plan could have easily been harnessed for achieving some of the EU's green industrial policy objectives set out in the EU's industrial policy strategy from 2012 (European Commission, 2012), reiterated in 2014 (European Commission, 2014). For example, in order to support the development of clean vehicles, one of the six priority areas for investment in innovation in the Commission's industrial policy strategy, the EFSI could be used for a large-scale roll-out of emission-free municipal bus fleets including the required charging facilities. For the realisation of this project, the insights and experiences gained from the EU's ZeEUS project, a demonstration project for zero emission city buses in eight European cities, could be relied on. This would also be an opportunity for the EU to act as lead user for front-end technologies (another of the EU's industrial policy goals) thereby reinforcing innovation in this field, adding another advantage for European industry. Apart from supporting the European transport equipment industry to keep a competitive edge in the production of clean vehicles, such a focused approach would obviously also be highly visible and become more acceptable to the general public.

This is just one example of how a European investment plan could be used to tackle the triple objective of stimulating growth (highly welcome in times of low growth), supporting industry (highly welcome in times of growing fears of de-industrialisation) and protecting the environment (highly welcome in times of strict emission targets). By contrast, in its current design, none of these effects are likely to be achieved due to the lack of new funds and the lack of a strategic focus. So as it stands, the Junker plan is a bluff package rather than a strategic investment package.

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HOW LARGE SHOULD THE EU BUDGET BE FROM THE NEW MEMBER STATES' PERSPECTIVE?

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How large should the EU budget be from the new Member States' perspective?

BY SÁNDOR RICHTER

INTRODUCTION

The objective of the expert survey 'Cohesion policy as a function of the EU budget: a perspective from Central and East European Member States' was to provide an assessment of the 2007-2013 cohesion policy of the EU and of its position within the EU budget, and further to identify the prospects for cohesion policy as one of the key components of the EU budget in the future.[1] An online questionnaire was prepared and sent to individuals in ten Member States of Central and Eastern Europe and in Croatia (CEE MS) who had been identified as persons with substantial knowledge of the EU cohesion policy and the EU budget. Respondents to the questionnaire were asked to provide their informal and personal views based on their experience.

THE QUESTIONNAIRE AND THE RESPONDENTS

The goal was to select a group of experts from the ten Central and East European Member States and Croatia working either in the administration: ministry, managing authority, institution involved in the implementation of the cohesion policy (intermediate body or similar) at national or regional levels or in the academia (educational and research institutes). An important requirement was experience on the job concerning the EU budget and/or cohesion policy. The pool of the potential respondents was collected from various resources. The largest segment was constituted from participants of a 2008 Brussels conference organised by the European Commission. The conference had the mission to launch the consultation on the EU Budget Review 2008/9. This list was expanded by participants of smaller conferences on the subject and other persons identified as outstanding experts in the field. Finally, a selection of persons enlisted at the official INTERREG national contact point websites of the ten CEE Member States were added to the list.

The questionnaires were sent out in April 2013. Out of the 248 questionnaires which reached the selected experts, 78 were completed and returned (31.5% of the total). Concerning the composition of the respondents, 33 persons (42% of the respondents) were working in government bodies and 29 persons (37%) in academia. This distribution provided a roughly balanced participation from the two main occupation groups (and mentalities). 16 persons (or 21% of the respondents) ticked the option 'other' or left the occupation-related question unanswered. More than two thirds of the respondents had over 6 years of working experience with the EU budget and/or the cohesion policy, and over 80% of

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[1] This contribution is based on the research paper 'Cohesion Policy as a Function of the EU Budget: A Perspective from CEE Member States', by M. Mrak, S. Richter and T. Szemler, written in the framework of the GRINCOH project under the EU's Seventh Framework Programme for research, technological development and demonstration. It is under publication in the wiiw Research Report series.

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them had more than three years' experience. The questionnaire contained altogether 28 questions. In this note the answers to three particular questions are presented. These answers seem to convey an important and counterintuitive message.

Question 1: In your view, what would be the optimal size of the EU budget in terms of percentage share of the EU's gross national income (GNI)?

51 respondents, or 65% of the total, gave a quantifiable answer to this question.[2] Though most of the answers were in numerical terms, some were provided in text which necessitated interpretation and a translation into numerical terms. The responses show that the proposed size for an optimal EU budget ranges from 1% to 50% of the EU's GNI. Without doubt, respondents who opted for a 1% of GNI EU budget had something completely different in mind about the requirements an imaginary future EU budget should correspond to than those who proposed 50%. Based on this wide range of the proposed size of the EU budget, five distinct categories were set up in order to distinguish between the implicitly proposed types of redistribution. 'Implicitly' here means that the respondents were asked only about the size of the budget and not about the type of redistribution, but obviously the figures indicated in the answers have a more or less clear message about the envisioned type of redistribution.

What concerns the results, 14% of the respondents were satisfied with the size of the EU budget for 2014-2020 as approved at the European Council on 7-8 February 2013, namely 1% of the EU's GNI. Close to one third of the respondents proposed an EU budget larger than 1% of EU GNI but not surpassing the current official upper limit (1.24% of EU GNI). One fifth of the respondents would support an EU budget between 1.25% and 1.5% of the EU GNI, which is a relatively small expansion from the current level but would enable the financing of nearly all goals the Commission envisioned about a modernised, interconnected, socially inclusive and environment-friendly Europe. This enlarged redistribution would most probably not yet upset the current framework of the EU budget, although the reconciliation of interests concerning the changes in the net financial position of individual Member States could become a highly critical issue. All in all, 65% of the respondents imagine an optimal EU budget roughly in the currently existing framework and fulfilling more or less the functions it fulfils today or which can be fulfilled with a modest expansion of the budget.

A further one quarter of the respondents opted for an EU budget size between 2% and 10% of the EU GNI, which already indicates the wish for a departure from the current practice and the adoption of new functions. These may range from a fiscal capacity as proposed by former European Council President Herman Van Rompuy to smooth business cycles in individual Member States from Community resources, to the adoption of selected (and limited) fiscal competencies, delegating them from the national budgets to EU level.[3] Finally, 10% of the respondents must have had a European federal state in mind, either with relatively limited tasks (from 10% to 20% of the EU GNI) or a highly centralised federation with 33-50% of GNI redistributed through the EU budget. Altogether more than a third of the respondents favour a resolute departure from the current state of affairs and would move towards stronger fiscal competences of the European Union over the individual Member States.

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2   Of the rest, some left the question unanswered, others provided unquantifiable answers, e.g. 'much more than today'.

3   H. Van Rompuy (2012), Towards a genuine economic and monetary union;
     http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/134069.pdf (downloaded on 18 December 2013).

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Question 2: What would be your proposal for the proportions among main EU budget expenditure headings under your preferred size of the EU budget?

Although this question clearly refers to the previous one about the size of the EU budget, there were respondents who answered this question but not the former one and vice versa. There were altogether 63 complete responses (81% of the total) to Question 2. In order to present the consensus opinion of CEE experts on the desired future structure of the EU budget, an unweighted average was calculated from the individual answers. As displayed in Table 1, respondents focused on three major headings of expenditures: cohesion, competitiveness and agriculture, all other expenditures remained nearly the same as in the expenditure structure approved by the European Council on 7-8 February 2013. The most important reallocation took place among the three major expenditure headings. In particular, experts wished a position for agricultural expenditures one third leaner than it is in the official EC proposal. In exchange, they wish competitiveness to gain in importance, its share practically doubling against the EC proposal. Cohesion expenditures also should gain in importance, but the difference between the CEE expert consensus and the EC proposal is surprisingly small, only 2.9 percentage points. For comparison, the difference between the EC-proposed and the CEE consensus share of 'Competitiveness for growth and jobs' in total EU budget expenditures was 12.1 percentage points. This shows a clear preference of the CEE experts for modernisation and the creation of more European value added with the support of the EU budget. This result is important, as competitiveness is not the expenditure position where CEE Member States gain the most from the EU budget; that segment is cohesion policy expenditures. This latter was also considered as too lean by respondents, but the proposed increase was far less than that recommended for competitiveness expenditures.

Table 1 / Preferred allocation of EU budget expenditures, unweighted average of responses

Selected expenditure headings in the EU budget	Total (63 respondents)	Respondents proposing an EU budget with a size up to 1.5% of EU GNI (32 respondents)	of which: Administration sub-sample (9 respondents)	Academia sub-sample (14 respondents)	As agreed at the European Council in February 2013
Economic, social & territorial cohesion	36.8	38.3	40.3	38.1	33.9
Competitiveness for growth and jobs	25.2	23.2	19.6	26.8	13.1
Natural resources	25.3	26.4	28.2	22.8	38.9
Other	12.7	12.1	11.9	12.3	14.1
Total	100.0	100.0	100.0	100.0	100.0

As discussed under Question 1 above, the range for the preferred size of the future EU budget was quite wide. Those respondents who proposed a budget with a size in the range of 1% to 1.5% of the EU GNI might have an imaginary future EU budget in mind which, concerning the tasks it is expected to fulfil, is not too much different from those set out in the current EU budget. We were curious to know the preferences of this segment of respondents ('moderate reformers') concerning the optimal proportions among the main expenditure headings. Therefore we filtered out respondents with a fundamentally different vision (preferring an EU budget ranging between 1.5% and 50% of the EU GNI). The figures in Table 1 display that the preferences of 'moderate reformers' are indeed more conservative than the

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average. 'Moderate reformers' would settle for more cohesion-policy and agricultural and less competitiveness-related expenditures than the total group. There are interesting differences according to the affiliation of the respondents in the 'moderate reformer' group. Those working in the administration are much less enthusiastic about the competitiveness chapter in the EU budget than 'moderate reformer' respondents with an academic background. The latter group in turn would allocate less funds to both cohesion and agriculture compared to those with an administrative background. Nevertheless, even 'moderate reformer' respondents with an administrative background wish to spend more on competitiveness than the EU budget that was proposed by the European Council.

Question 3: In 2011 the EU budget accounted for 1.08% of the EU's GNI. One quarter of it represented redistribution from 'net contributor Member States' to 'net beneficiary Member States'. (The rest represented Member States' payments to the EU budget which were fully compensated by transfers from the EU budget.) In your opinion, what would be the appropriate share of redistribution from 'net contributors' to 'net beneficiaries' within the EU budget?

This overall 'net' redistribution from the group of net contributor to the group of net beneficiary Member States through the EU budget is not in the centre of attention either of the broad public or of the expert community, unlike individual Member States' net financial positions, probably in order to avoid unfavourable political implications.[4] This fact may have discouraged part of the respondents from answering, as not more than 48 respondents, 62% of the total, undertook to provide an answer to this unusual question.

More than a third of the respondents were satisfied exactly with the current extent of overall net redistribution. Altogether 59% of the respondents indicated the wish for a proportion in the range of one quarter to one third of the EU budget. Only 13% of the respondents would support a smaller (less than one quarter of the EU budget) overall net redistribution than the currently prevailing one. 28% would prefer a substantially larger (over one third of the EU budget) overall net redistribution than the current practice.

CONCLUDING REMARKS

From the responses to the three questions above it turns out that CEE experts are not obsessed predominantly with the feared 'juste retour' mentality. They are generally open to an accelerated modernisation of the EU budget focusing on activities under the spending chapter 'Competitiveness', even if more 'Cohesion' were in the short run financially more lucrative for their countries. Although the respondents were experts and not politicians, the main message of the survey is that the Central and East European new Member States will most probably not represent the major stumbling block in the way of reforms of the post-2020 EU budget.

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4   'Net' redistribution was discussed in S. Richter (2008), 'Facing the Monster "Juste Retour": On the Net Financial Position of Member States vis-à-vis the EU Budget and a Proposal for Reform', *wiiw Research Reports*, No. 348, Vienna, pp. 17-18.

International economic sanctions: the case of Iran

MAHDI GHODSI (WIIW) AND PAYAM ELHAMI (INDEPENDENT RESEARCHER)

INTRODUCTION

Iran, a country with around seventy-eight million inhabitants, is one of the major producers of oil and gas in the world. According to the US Energy Information Administration, Iran enjoys the third largest proven reserves of crude oil (about 10% of the world's reserves). Moreover, Iran holds the second largest proven reserves of natural gas after Russia (about 17% of the world's reserves).

IRAN, RUSSIA AND THE EU

Russia has been the major supplier of energy to the EU for many years (according to Eurostat[5] in 2012, 34% of crude oil, 32% of natural gas and 26% of solid fuels imports to the EU came from Russia). The recent crisis in Ukraine brought about serious tensions between the EU and Russia. These tensions raise concerns regarding the future of energy supplies to the EU. By contrast, Iran has not been a large supplier of energy to the EU for a long time – a much smaller one than Russia. There might be some technical and transportation difficulties, but we cannot ignore the political reasons behind this. The recent sanctions imposed by the EU on Iran have made it very difficult to benefit from Iranian energy resources. In fact, the current tensions with Russia and Iran might potentially put the EU in a serious need for the most crucial input of production. The recently intensified sanctions against Iran were mainly rooted in its excessive uranium enrichment under the presidency of Mahmoud Ahmadinejad starting from 2005. He lifted the suspension of uranium enrichment that had been agreed in the Sa'dabad agreement between Iran, Britain, France and Germany (the E3) and the International Atomic Energy Agency (IAEA) on 1 October 2003 under the former reformist president, Mohammad Khatami.

Russia and China, in pursuit of their own interests, have an informal alliance with Iran's government. Both countries have veto power in the UN Security Council but they neither have supported any sanctions on Iran nor vetoed against them. However, both countries are in line with the international community against military utilisation of Iran's nuclear programme. On the other side of the conflict, the United States and Canada are big producers of energy being in good relations with the EU, and all are engaged in the economic conflict of Russian and Iranian sanctions. Although the United States and the EU are in a partnership, their support for each other would not be sufficient to satisfy the EU's current needs for energy. Hence, the EU has to find an appropriate new strategy to have access again to the former energy abundance partnership, given the sanctions against Iran and Russia.

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[5]   See http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_production_and_imports

THE IMPACT OF THE SANCTIONS

The large share of public expenditure in the Iranian economy[6] makes it very vulnerable to political shocks. Moreover, government revenue is highly dependent on the export of crude oil, natural gas and petroleum products. During the past five years, around 25-35% of Iranian exports represented a variety of mineral oil and petroleum products. The assumed high level of corruption seems to indicate that government officials have also been benefiting from these products' production and exportation.

Western and international embargoes have firstly and most importantly hampered Iranian exports of petroleum products, refinery development and investment in order to prevent Iranian energy products from reaching western countries. In the meantime, President Ahmadinejad was underlining the ineffectiveness of the sanctions on Iranian trade. He mainly emphasised that trade deflection helped bypassing the sanctions. In fact, instead of trading with western countries imposing sanctions, trade has been rerouted to other non-allied re-exporter countries such as China, India, Malaysia, and the United Arab Emirates. Using firm-level data, Haidar (2014) empirically found that the sanctions induced Iranian firms to sell at cheaper prices to new destinations, deflecting the products with a higher transportation cost to another final destination which imposes the embargo.

In this situation, the Iranian central bank was controlling the currency within a semi-fixed exchange rate regime. The low prices for exported products and the high costs of their re-routing via third countries, accompanied by economic mismanagement of the government, led to a contraction of the Iranian currency reserves. Lack of major foreign currency reserves domestically and restrictive sanctions on trade forced the government to resort to barter in foreign trade.

Figure 1 / Trade vs. sanctions
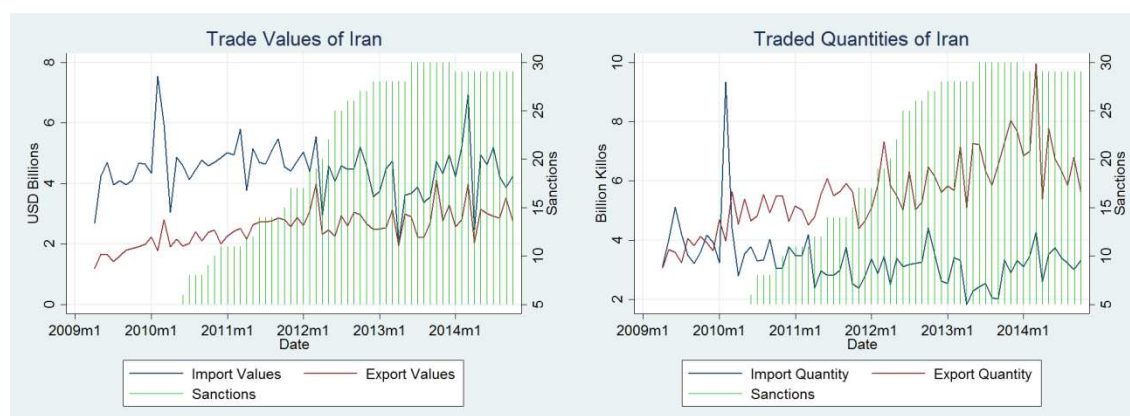
Source: The Islamic Republic of Iran Customs Administration (IRICA).

Figure 1 depicts the traded values and quantities of Iran from March 2009 to October 2014, when international sanctions on Iran were tightened. The right-hand vertical axes refer to the number of

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[6]   According to the data provided by the Central Bank of Iran, general government final consumption expenditure was about 20% of private final consumption expenditure between March 2012 and March 2013. However, based on two different Iranian studies, the Iranian government has played an enormous role in the economy. Iranian public and semi-public organisations control around 80-90% of Iran's economy. These studies can be found at:
http://tccim.ir/NewsFullStory.aspx?nid=29359
http://www.khabaronline.ir/detail/198798/

international sanctions[7] during the period. The trade deficit in monetary terms is evident in the left panel of the figure. This deficit coupled with the lack of currency reserves triggered the Iranian economy to export more at cheaper prices. As depicted in the right panel, increasing export quantities and decreasing import quantities led to a trade surplus in quantities from the beginning of the period.

At the same time, econometric evidence shows that the sanctions have had no statistically significant impact on the quantities of products imported to Iran.[8] However, the sanctions have increased the USD value of product imports. This suggests that the sanctions have rather affected Iranian imports in monetary terms, meaning that prices of imports have increased because of the sanctions.

Further, we can argue that the sanctions have rather increased the transaction costs inducing higher prices. The sanction-imposing countries have prohibited product exports to Iran. Firms in those countries were not allowed to choose Iran as a destination for their exports (except humanitarian assistance and related exports to the Iranian people, which require a special licence from OFAC[9]). Moreover, after blocking Iranian financial transactions and closing the SWIFT channels, those firms were no longer able to receive any payment for their exports. However, this situation was not completely sustainable during the whole period. As mentioned earlier, the Iranian government has used its offshore agents and firms to bypass the bans. Moreover, exporting to Iran through re-exporting channels such as the UAE, China, India and Malaysia was not a very drastic obstacle for independent individuals. Again, this re-routing increased the transaction costs which caused higher import prices.

According to the latest annual data, exports and imports are respectively 8% and 13% of the Iranian GDP. Importing expensive products resulted in a very high increase in inflation, and exporting cheap products discouraged economic growth. Thus, the Iranian economy, depending crucially on trade – exports of mineral and petroleum products, and imports of products necessary for subsistent, machinery equipment, and final goods – was weakened drastically by the sanctions.[10] The deterioration in Iran's terms-of-trade following the imposition of sanctions hit the country's real economy ultimately. Since then, high inflation and the central bank's mismanagement have led the economy into a huge destructive depression. The era of Iranian stagflation once again appeared, but this time stemming from the heavy economic sanctions. The government authorities therefore looked for alternative approaches to bypass the sanctions using their offshore agents[11] and financial resources.

The US officials had been monitoring these developments and from mid-2011 sanctions were tightened by the international coalition. Following this, on 23 March 2012 the EU adopted new legislation which amended and tightened previous sanctions and embargoes, and targeted the central bank of Iran and other financial institutions. These sanctions were also followed by separate regulations introduced by the United Kingdom and Canada. Consequently, all Iranian banks were disconnected from SWIFT transactions, which severely paralysed Iranian international trade. Thereafter, Iran had no more

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[7]   These include all sanctions legislated and implemented by the UN, USA, EU, UK and Canada. The trend shows an increasing number of these sanctions during the period. After the Joint Plan of Actions of November 2013, few restrictions have been suspended.

[8]   Complete econometric analysis and specifications will be soon available as a wiiw working paper.

[9]   US Office of Foreign Assets Control.

[10]   Separate regressions on samples at HS 2-digit level also support this conclusion.

[11]   Offshore agents affiliated with the government such as Babak Zanjani channelled oil revenue through their companies (http://www.bbc.com/news/world-middle-east-25551849).

connection with its foreign financial assets to control its domestic currency reserves. This outcome left the central bank no other choice than a floating exchange rate regime. Suddenly the Iranian rial depreciated drastically.

Figure 2 / Currency vs. sanctions
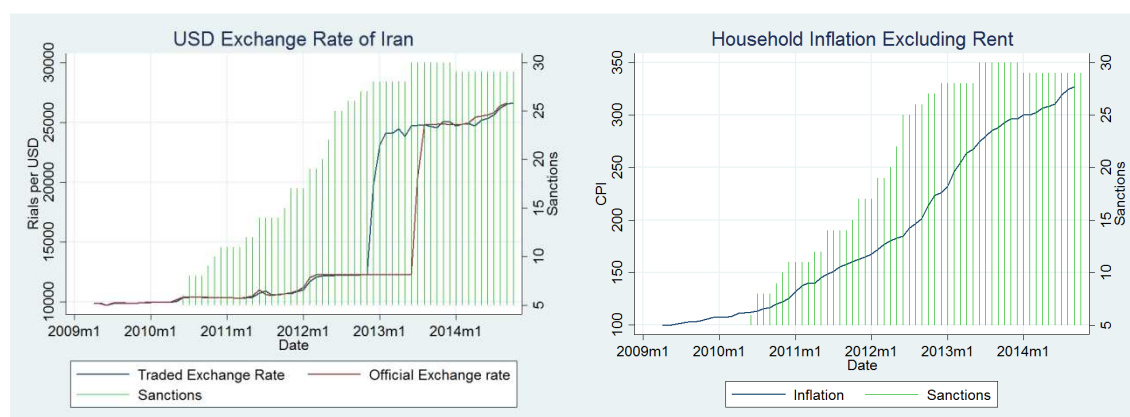
Source: Traded exchange rate: own calculations from trade values (IRICA); official exchange rate and inflation: Central Bank of Iran.

Figure 2 shows a slight depreciation of Iranian currency with respect to the US dollar (by around 20%) at the beginning of 2012, which stems from the authorised US sanctions on Iranian financial assets and transactions. This situation became worse and central bank could no longer defend the fixed exchange rate regime, so that by the end of 2012 the Iranian currency depreciated by more than 200%[12]. The officially announced exchanged rate inevitably followed a similar pattern in mid-2013, when the EU and other allied partners of the United States implemented stringent new financial and asset-freezing sanctions. In spite of the fixed exchange rate regime, inflation was rising gradually. The right panel of Figure 2 shows a 330% growth of the consumer price index (excluding housing prices) during the period of analysis. The high inflation destabilised the investment, production and consumption patterns of the economy, leading to negative growth. As the international coalition believes, it was the stagflation which ultimately forced the Islamic Republic government to return to the negotiation table with the US, the UK, France, Russia, China, plus Germany (P5+1). However, this claim has been officially denied by the Iranian authorities repeatedly. The moderate president Hassan Rouhani – with his background as secretary of the Supreme National Security Council of Iran (1989-2005) – replaced the hardliner president Mahmoud Ahmadinejad after the 2013 presidential election.

OUTLOOK

Although Iranian officials have persistently claimed the ineffectiveness of sanctions, the ongoing sustained recession in the economy has damaged the living standards of the country's citizens. In this political conflict, living conditions of Iranians have been ignored by the two sides: strong Western pressure on the economy, and ignorance and economic mismanagement of the Iranian government.

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[12] It is important to mention that Iran introduced two currency exchange rates. The analysed exchange rate is the one applied in international trade. The other exchange rate, which was applied for non-trade transactions such as tourism, was higher by the end of the period of analysis. It stood at around 30,000 Iranian rials for one US dollar. This would essentially bring revenue to the government.

Hence, it could be argued that the nation was the net loser of the imposed sanctions. However, observing the weak economy and the pressure on peoples' lives would often push the governments to be worried about their political future. This might be an important reason which brought the two parties of the conflict to the negotiation table in November 2013. The current military unrest in the Middle East, and the recent brutal actions of the terrorist military group of the Islamic State of Iraq and the Levant (IS) – supported by specific countries in the region – as a major threat to the West and the Iranian Shiite government can be mentioned as another motivation behind the current rounds of negotiations.

In a speech on 30 December 2014, President Obama stated in a positive gesture that Iran could be a very successful regional power if it were to agree to a deal over its nuclear programme, reintegrating into the international community. However, following his earlier speech on new relationships with Cuba after half a century of sanctions regime, he pointed to US desires for regime reforms in Cuba and similarly in Iran. The recent military advisory activities of Iran in Iraq, the attendance and involvement of high-ranking Iranian military officials in Iraq and the attempt of Iranian officials to keep the IS far enough from Iran's border are other issues representing mutual benefits of the West and Iran in the current negotiations. However, based on Ali Shamkhani's speech (secretary of the Supreme National Security Council of Iran) negotiations are possible only on a nuclear deal rather than general Western concerns regarding the government regime reforms. Nevertheless, the fact that no agreement was reached up to the first deadline of November 2014 and that the negotiations were extended points to a broader range of issues to be negotiated than just nuclear concerns.

As stated earlier, energy is one of the major issues in the current tensions between the West and Russia. Reaching a deal on Iranian oil and gas might be another important topic aiding both the EU and Iran. As stated by Dickel et al. (2014), enjoying the Iranian resources seems to be a very long shot with the current (above-mentioned) complexities. The EU could potentially benefit from this having Russian energy supplies substituted partially by Iran. Iran would also benefit from stabilising its oil-dependent economy. However, considering the rent-seeking institutions affiliated with the government who are supporting the conservative hardliner parties of Iran, the relations between the Iran and the West may not be very stable in the long run.

REFERENCES

Dickel, R., E. Hassanzadeh, J. Henderson, A. Honoré, L. El-Katiri, S. Pirani, H. Rogers, J. Stern and K. Yafimava (2014), Reducing European Dependence on Russian Gas – distinguishing natural gas security from geopolitics, The Oxford Institute for Energy Studies, OIES Paper NG92.

Haidar, J. I. (2014), Sanctions and Trade Diversion: Exporter-Level Evidence from Iran, available at SSRN 2420752.

The input-output table as a network

BY OLIVER REITER

INTRODUCTION

Social networks have attracted a lot of research in recent years. In economics, the study of business networks is not yet that common. However, a multiregional input-output table can be seen as a weighted directed network, where the country-sectors are the nodes of the network and the transactions between the sectors constitute the edges. It is then, of course, interesting to investigate the specific nature of the network, i.e., what are the important sectors, which sectors are 'central' to the economy?

In this brief note, we shall use the recently established and published World Input-Output Database (WIOD) as a representation of the economic flows around the world.

MEASURES

To identify a key sector, we calculate a centrality measure for each node. This measure should assign a real number to each node. The better connected, i.e., the more important a sector is in the network, the higher the number should be.

There are two conventional centrality measures:

› closeness centrality: the average length of a route of a sector s to sector i;
› betweenness centrality: the average number of shortest paths between two nodes that pass through sector i.

However, since an input-output network is usually very dense (meaning that every node in the network is directly connected to every other node), shortest paths and average length of a route do not necessarily make sense. Additionally, it is important to account for three specifics of an input-output table:

› the weights of the edges, i.e., the size of the economic flow;
› the direction of the edge, as, for example, the mining sector delivers significantly more goods to the basic metals sector than the other way around;
› self-loops (in input-output tables, a sector usually provides a sizable amount of input for itself).

Blöchl et al. (2011) derive two variants of the above-mentioned measures that explicitly take the properties of input-output networks into account. They propose to use a) random walk centrality and b)

random walk counting betweenness. Since both measures yield similar results[13], we shall only study the results of the random walk centrality measure.

A random walk in a network is straightforward: A 'walker' starts at a node and decides randomly (according to some probabilities) which edge to take. Of course, the probabilities are just the weights of the outgoing edges. A random walk fits nicely to the properties of the input-output network: First, a random walk follows the direction of the edges (thus it is easier for a walker to get from the periphery to the centre than the other way around). Then, since the weight of the edge matters, the walker is more likely to follow the big economic flows.

Random walk centrality is calculated as the inverse of the average 'mean first passage time' of all sectors j. Mean first passage time is the expected number of steps it takes a random walker to get from sector j to sector i. Again, the directedness of the edges ensures that central sectors are easier to reach than sectors that lie in the periphery. In economic terms, a sector with a high random walk centrality is more susceptible to supply disruptions, as a shock reaches this sector fast and early. (See the paper of Blöchl et al., 2011 for a more detailed explanation of the measures and their calculation.)

DATA

We use the transaction matrix (which contains intermediate input flows from firms to firms) from the World Input-Output Database in 2011, as available from www.wiod.org. The database comprises 40 countries plus a Rest-of-World region. Each country is made up of 35 sectors. A list of industries and their codes is given in the appendix.[14]

Sectors with no output or input data (mostly sector P, i.e., private households with employed persons) were deleted, as they make the matrix singular and consequently the inversion of the matrix impossible.

We have calculated both measures for each country-sector in the database. Although we report the centralities country-wise, the calculations were not carried out on a country-basis, but on the entire input-output database. Thus, the top-ranked sector is the country's internationally most central sector which must not necessarily coincide with the most central sector for the national economy.

RESULTS

We rank all sectors in a country according to its random walk centrality, since the calculated number itself allows only for limited interpretation. The following tables present the three most central sectors of each country, according to the random walk centrality:

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[13]   The Spearman rank correlation coefficient for the results of the two measures is 0.99.

[14]   In our analysis we shall distinguish between manufacturing and non-manufacturing sectors. The list of industries in the appendix also shows the definition of which sectors we consider to be manufacturing sectors.

Table 1 / The three most central sectors by country

	Australia	Austria	Belgium	Bulgaria	Brazil	Canada	China	Cyprus	Czech Republic	Germany
1	F	F	24	F	15t16	34t35	30t33	H	34t35	34t35
2	71t74	34t35	15t16	15t16	L	L	F	L	30t33	29
3	C	27t28	71t74	51	34t35	F	27t28	15t16	71t74	27t28

	Denmark	Spain	Estonia	Finland	France	Great Britain	Greece	Hungary	Indonesia	India
1	61	H	F	30t33	34t35	N	H	30t33	F	60
2	71t74	71t74	63	71t74	71t74	J	L	34t35	15t16	F
3	15t16	34t35	15t16	F	15t16	70	71t74	29	O	36t37

	Ireland	Italy	Japan	South Korea	Lithuania	Luxembourg	Latvia	Mexico	Malta	The Netherlands
1	24	51	71t74	30t33	15t16	J	F	34t35	O	15t16
2	71t74	71t74	F	34t35	AtB	71t74	15t16	30t33	H	24
3	30t33	27t28	H	27t28	23	F	70	15t16	30t33	71t74

	Poland	Portugal	Romania	Russia	Slovakia	Slovenia	Sweden	Turkey	Taiwan	USA
1	F	H	15t16	51	34t35	F	34t35	17t18	30t33	L
2	34t35	71t74	F	L	30t33	71t74	71t74	15t16	27t28	71t74
3	15t16	15t16	70	C	F	34t35	F	60	24	N

The construction sector (F) is the most central sector in several countries. Although it has as many top 3 appearances as the business service sector (71t74, both 17 appearances), it attains higher positions than the service sector in the rankings. Closely behind them we find the food and beverages sector (15t16, 16 appearances), the transport equipment sector (34t35, 14 appearances) and the electrical equipment sector (30t33, 10 appearances).

The food sector (15t16) appears, not surprisingly, in emerging countries (Brazil, Cyprus, Estonia, Latvia, Lithuania, Indonesia, Mexico, Poland, Romania and Turkey) but also more surprisingly in some industrial nations such as Belgium, Denmark, France and the Netherlands.

The manufacturing sectors emerge in countries where one would expect them to: In Germany, South Korea, Taiwan and Hungary, the top 3 positions are occupied by manufacturing sectors. In a lot of countries, two out of three ranks are taken by manufacturing sectors (Austria, Belgium, Brazil, China, the Czech Republic, France, Ireland, Lithuania, the Netherlands, Poland, Slovakia and Turkey). This tells us that manufacturing sectors are still a central part of most economies.

The emergence pattern of the hotel and restaurant sector (H) is also revealing: In the tourism-oriented countries of Cyprus, Greece, Malta, Spain and Portugal (and surprisingly Japan), that sector takes a central role. Also hardly surprising is the importance of the financial intermediation sector (J) in Great Britain and Luxembourg. What is, however, remarkable is the fact that neither Great Britain nor the United States have a manufacturing sector among the top 3 and that the health and social work sector

(N) takes the first place in Great Britain. Furthermore, it is important to note that the public administration sector (L) also plays a central role in some economies. In fact, the sector comes first in the United States.

CONCLUSION

The use of the random walk centrality as a measure for the (international) connectedness of an industrial sector yields some interesting insights: First, the construction and service sectors take the top positions in a lot of countries. Even though these sectors are not very export-oriented, they are very well connected within a country and become, via these strong intra-country ties, closely linked to sectors in other countries. Then, secondly, random walk centrality correctly captures several country characteristics: The food and beverages sector is important in emerging countries, manufacturing sectors achieve high positions in manufacturing-oriented economies and the hotel sector is central in countries where tourism plays an influential role.

REFERENCE

Blöchl, F., F. J. Theis, F. Vega-Redondo and E. O. N. Fisher (2011), 'Vertex centralities in input-output networks reveal the structure of modern economies', *Physical Review E*, Vol. 83, No. 4, pp. 046127-1 – 046127-8.

APPENDIX

Table 2 / Manufacturing sectors

Code	Description
15t16	Food, beverages and tobacco
17t18	Textiles and textile products
19	Leather, leather products and footwear
20	Wood and products of wood and cork
21t22	Pulp, paper, paper products, printing and publishing
23	Coke, refined petroleum and nuclear fuel
24	Chemicals and chemical products
25	Rubber and plastics
26	Other non-metallic mineral products
27t28	Basic metals and fabricated metal products
29	Machinery, n.e.c.
30t33	Electrical and optical equipment
34t35	Transport equipment
36t37	Manufacturing, n.e.c.; recycling

Table 3 / Non-manufacturing sectors

Code	Description
AtB	Agriculture, hunting, forestry and fishing
C	Mining and quarrying
E	Electricity, gas and water supply
F	Construction
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of fuel
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles
52	Retail trade, except of motor vehicles and motorcycles; repair of household goods
H	Hotels and restaurants
60	Inland transport
61	Water transport
62	Air transport
63	Other supporting and auxiliary transport activities; activities of travel agencies
64	Post and telecommunications
J	Financial intermediation
70	Real estate activities
71t74	Renting of M&Eq and other business activities
L	Public administration and defence; compulsory social security
M	Education
N	Health and social work
O	Other community, social and personal services
P	Private households with employed persons

The editors recommend for further reading[*]

Marek Dabrowski on 25 years of transition and convergence:
http://www.bruegel.org/nc/blog/detail/view/1502/

Price war in the oil industry:
http://www.bloombergview.com/articles/2015-01-12/americas-going-to-lose-the-oil-price-war

Saudi prince Bin Talal on the oil price:
http://www.usatoday.com/story/money/columnist/bartiromo/2015/01/11/bartiromo-saudi-prince-alwaleed-oil-100-barrel/21484911/

Cheap oil and growth in Asia: http://www.bloombergview.com/articles/2015-01-06/falling-oil-prices-are-golden-opportunity-for-china-and-india

What Brian Pinto learned about policies for growth at the World Bank (with application to the euro area):
http://www.voxeu.org/article/how-does-my-country-grow-lessons-ez

How to combine growth and reforms in the EU: http://www.piie.com/publications/briefings/piieb14-5.pdf

Eichengreen and Summers on secular stagnation: http://www.nber.org/papers/w20836#fromrss,
http://larrysummers.com/2015/01/12/response-to-marc-andreessen-on-secular-stagnation/

Banks in the EU and in the rest of the world:
http://www.voxeu.org/article/eurozone-bank-integration-eu-versus-non-eu-banks

Krugman on Russia: http://krugman.blogs.nytimes.com/2014/12/15/putin-on-the-fritz/#;
others are commenting on the interest rate hike by the Russian central bank:
http://economistsview.typepad.com/timduy/2014/12/ip-russia.html; and on other actions of the central
bank: http://www.bloombergview.com/articles/2014-12-15/why-the-ruble-fell-as-oil-rose

Russia's imports are likely to fall by half in 2015, according to Anders Aslund:
http://blogs.piie.com/realtime/?p=4692&utm_source=feedburner&utm_medium=%24%7Bfeed%7D&utm_campaign=Feed%3A+%24%7BRealTime%7D+%28%24%7BRealTime%7D%29

Greece is back in the news:
http://www.bloombergview.com/articles/2014-12-10/greeces-growing-threat-to-the-euro-project

Bloomberg's editorial on Turkey with links to the statement by the EU and some others:
http://www.bloombergview.com/articles/2014-12-16/how-not-to-lose-turkey

Renminbi as reserve currency: http://www.voxeu.org/article/global-crisis-and-global-renminbi

The debate on what went wrong with economics:
http://www.nybooks.com/articles/archives/2015/jan/08/whats-matter-economics-exchange/?insrc=hpma

Confidence intervals are not about confidence: http://andrewgelman.com/2014/12/11/fallacy-placing-confidence-confidence-intervals/ and ISLM is not the whole story:
http://rogerfarmerblog.blogspot.co.at/2014/12/john-paul-and-says-law.html#more

Behavioural economics and development:
http://conversableeconomist.blogspot.co.at/2014/12/focusing-behavioral-economics-on.html

Roger Farmer on real business cycle and time series econometrics:
http://rogerfarmerblog.blogspot.co.at/2014/12/real-business-cycle-theory-and-high.html

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

Monthly and quarterly statistics for Central, East and Southeast Europe

**NEW: Data for Turkey included.
Euro introduction in Lithuania.**

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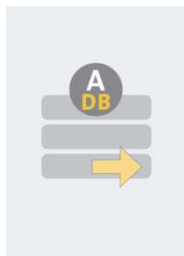
wiiw Annual Database   **wiiw Monthly Database**   **wiiw FDI Database**
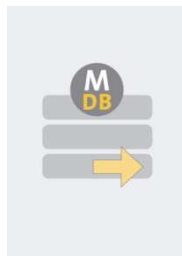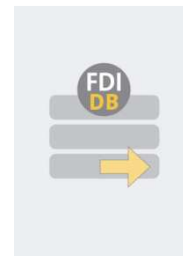
The wiiw databases are now accessible via a simple web interface, with only one password needed to access all databases (and all wiiw publications). We have also relaunched our website with a number of improvements, making our services more easily available to you.

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 contract Ms. Gabriele Stanek (stanek@wiiw.ac.at), phone: (+43-1) 533 66 10-10.

Albania

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*
- Exchange rate
- Unit labour costs

Inflation and unemployment
in %

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

annual growth

Fiscal and monetary policy

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

EUR mn

External sector development
annual growth rate in %

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

External finance
EUR bn

Left scale:
- Gross reserves of NB excl. gold
- Gross external debt
Right scale:
- Current account
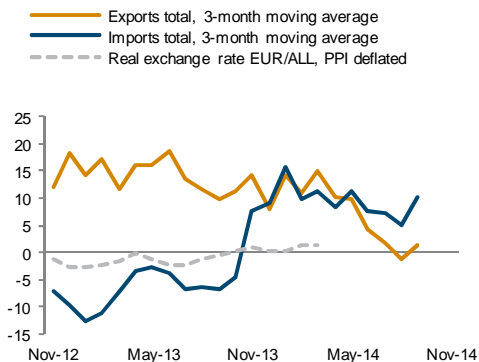
*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.
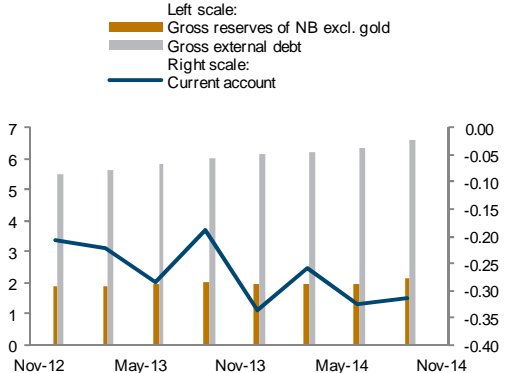
Source: wiiw Monthly Database incorporating Eurostat and national statistics.
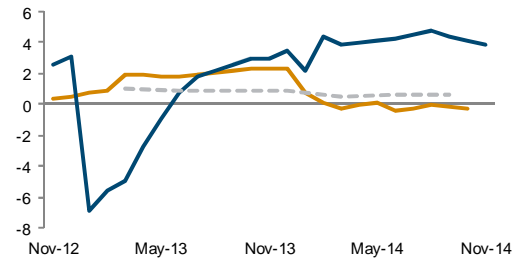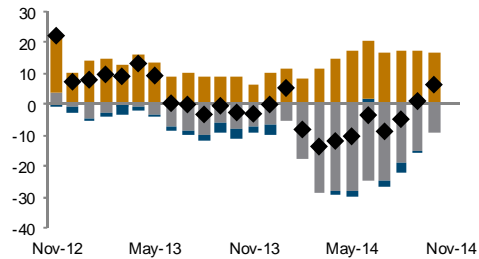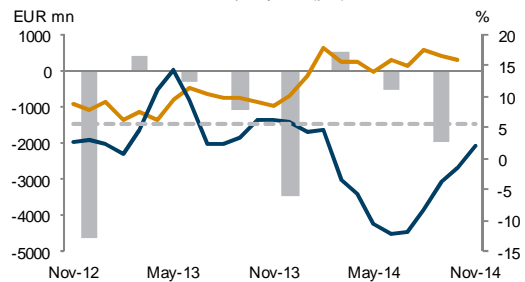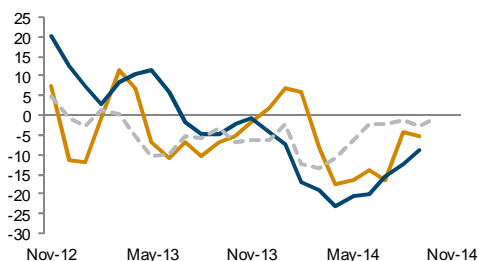Baseline data, country-specific definitions and methodological breaks in time series are available under:
http://data.wiiw.ac.at/monthly-database.html

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.)
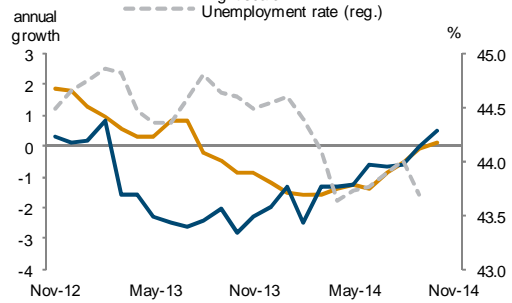
annual growth

%

Fiscal and monetary policy

Left scale:
- General gov. budget balance, cumulated

Right scale:
- M2, annual growth rate
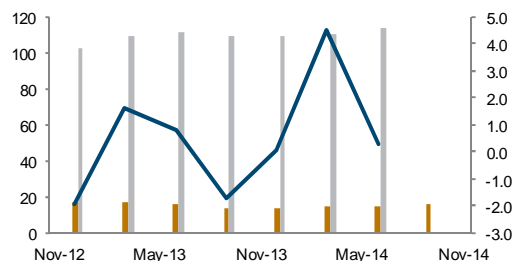
%
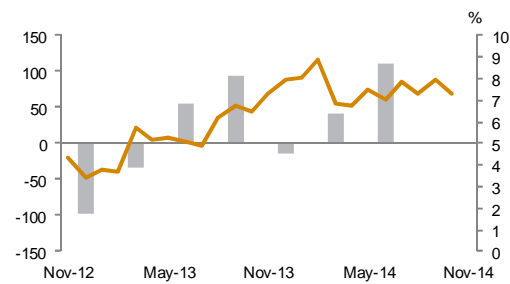
External sector development
annual growth rate in %

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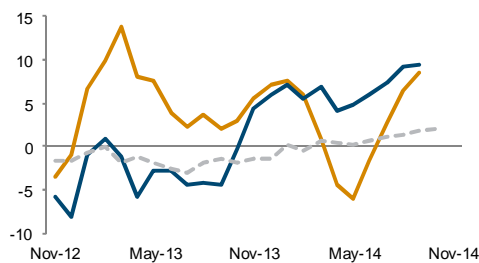
External finance
EUR bn

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.
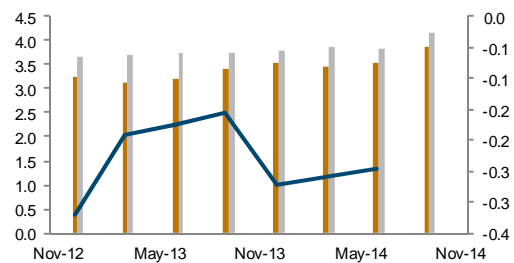
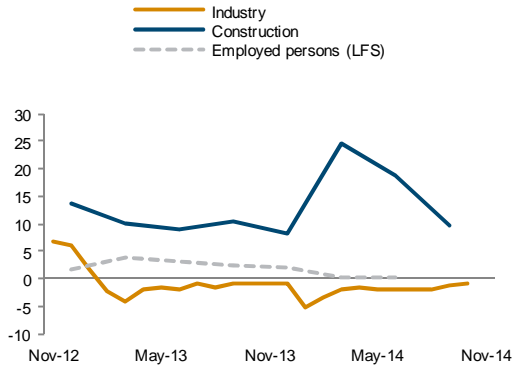Source: wiiw Monthly Database incorporating Eurostat and national statistics.
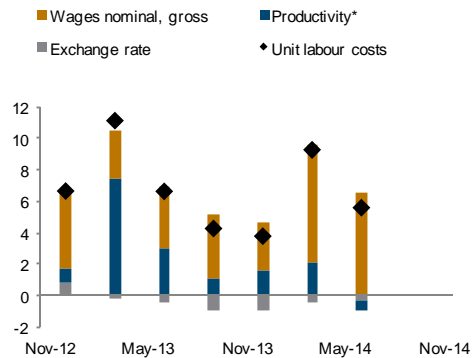Baseline data, country-specific definitions and methodological breaks in time series are available under:
http://data.wiiw.ac.at/monthly-database.html

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)
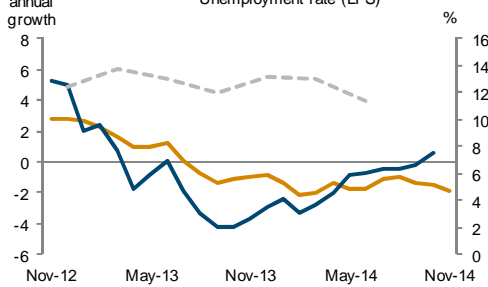
Fiscal and monetary policy

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

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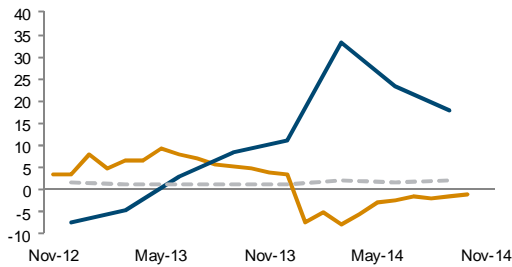http://data.wiiw.ac.at/monthly-database.html

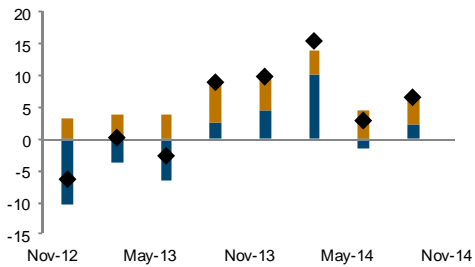# Croatia

Real sector development
cumulated annual growth rate in %

- Industry
- Construction
- Employed persons (LFS)
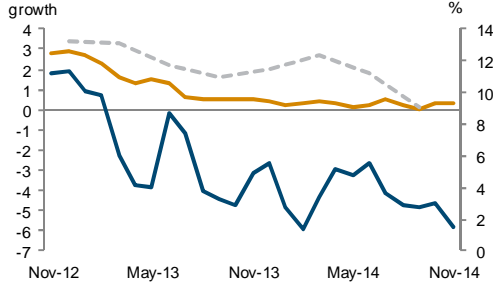
Unit labour costs in industry
annual growth rate in %

- 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)

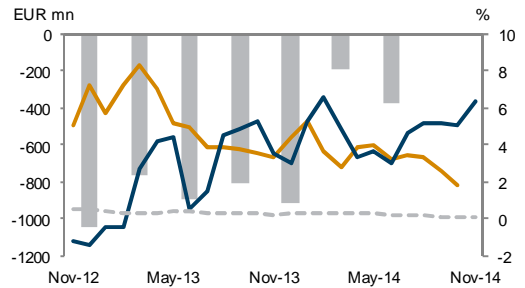annual growth

Fiscal and monetary policy

Left scale:
- General gov. budget balance, cumulated

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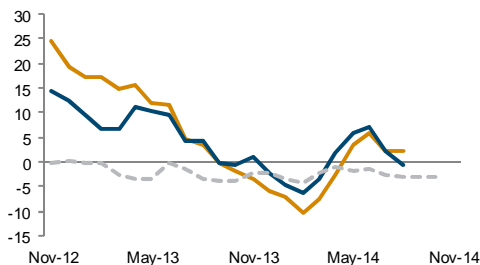- Central bank policy rate (p.a.), real, defl. with annual PPI
- Central bank policy rate (p.a.)

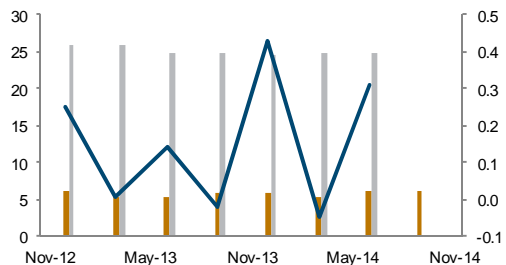EUR mn

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
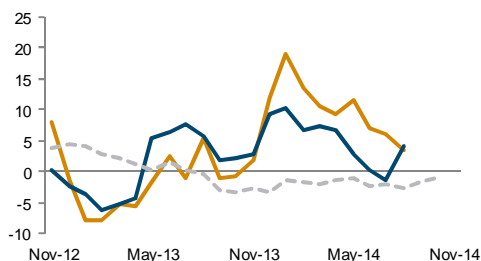
External finance
EUR bn

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.
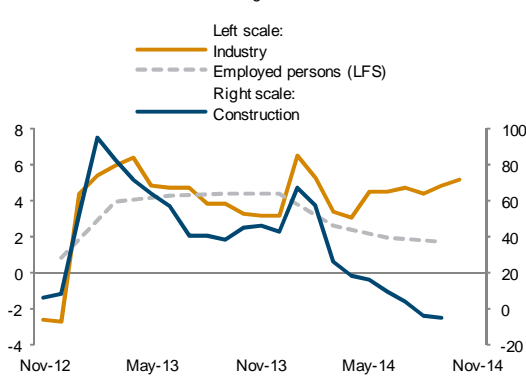
Source: wiiw Monthly Database incorporating Eurostat and national statistics.
Baseline data, country-specific definitions and methodological breaks in time series are available under:
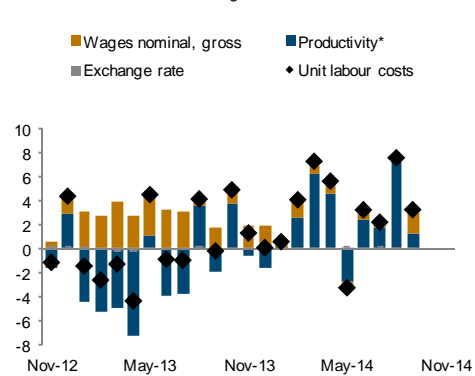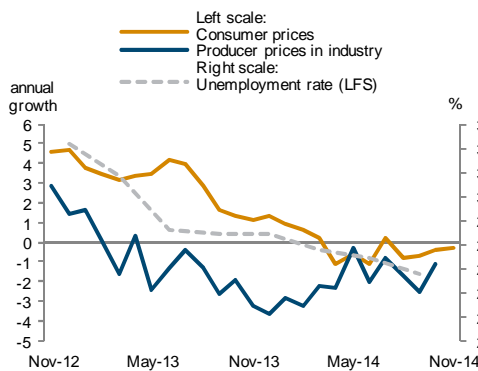http://data.wiiw.ac.at/monthly-database.html

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   ■ 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.), real, defl. with annual PPI
--- Central bank policy rate (p.a.)
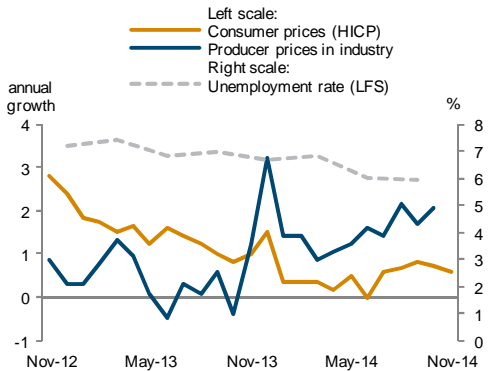
External sector development
annual growth rate in %

— 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
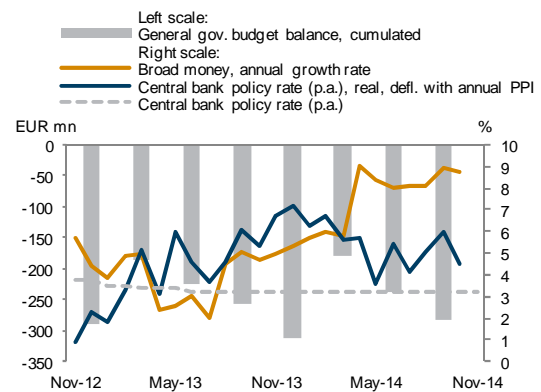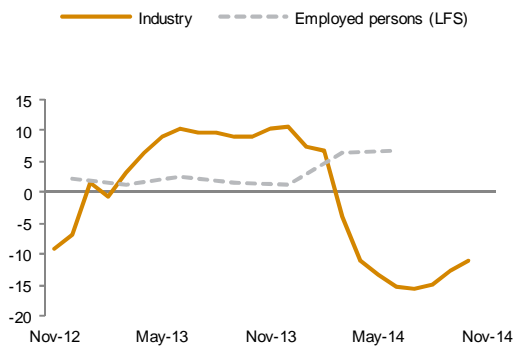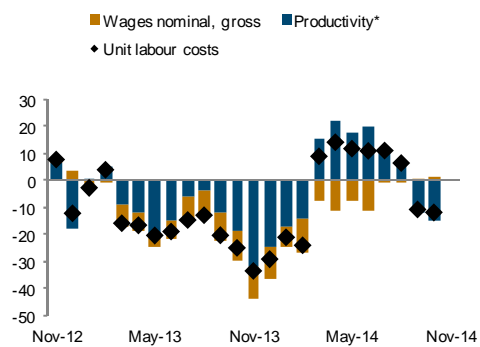
Estonia

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

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.
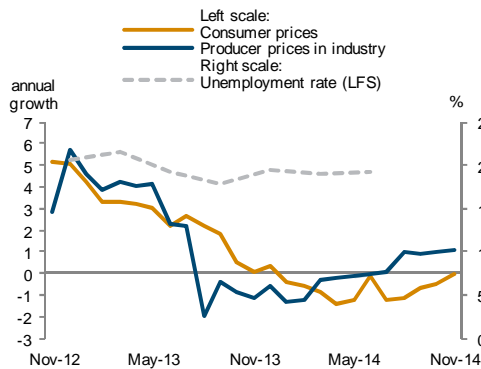Baseline data, country-specific definitions and methodological breaks in time series are available under:
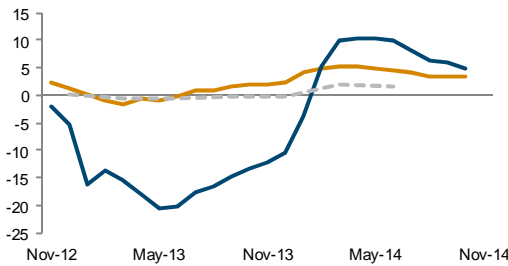http://data.wiiw.ac.at/monthly-database.html

Hungary

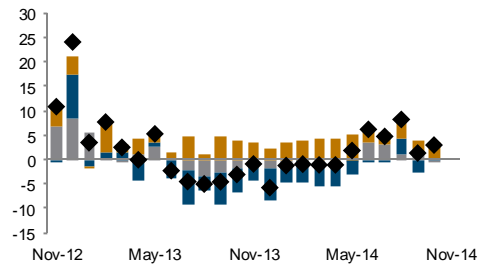### Real sector development
cumulated annual growth rate in %

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

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)
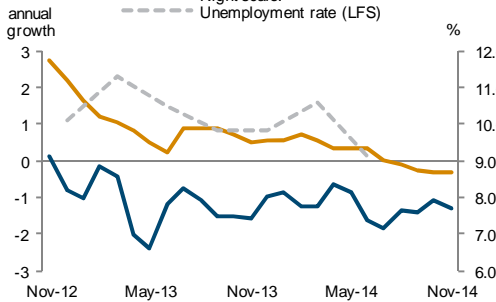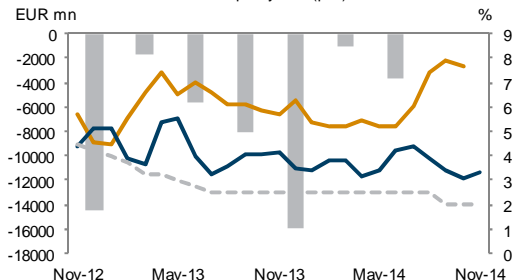
Unit labour costs in industry
annual growth rate in %

- 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)
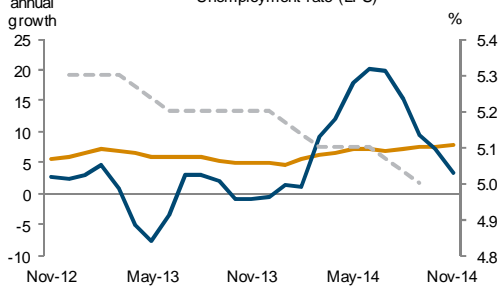
Fiscal and monetary policy

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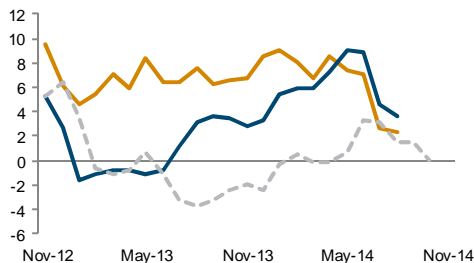- Central bank policy rate (p.a.), real, defl. with annual PPI
- Central bank policy rate (p.a.)

External sector development
annual growth rate in %

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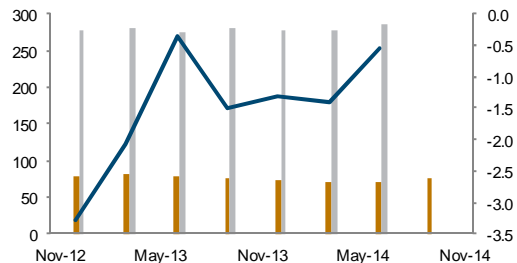- Real exchange rate EUR/KZT, PPI deflated

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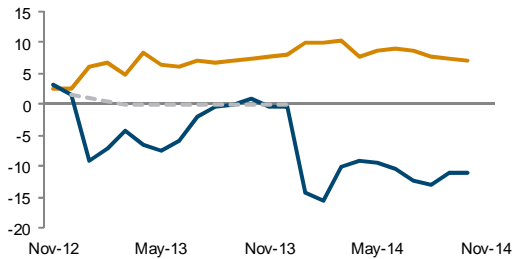http://data.wiiw.ac.at/monthly-database.html

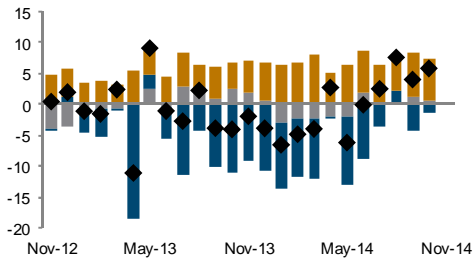# Latvia

Real sector development
cumulated annual growth rate in %

- Industry
- Construction
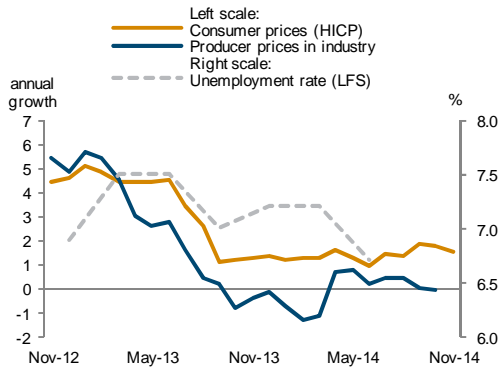- Employed persons (LFS)

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

External sector development
annual growth rate in %

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

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
- Exchange rate
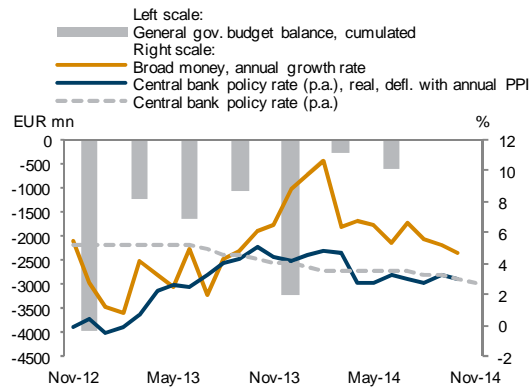- Productivity*
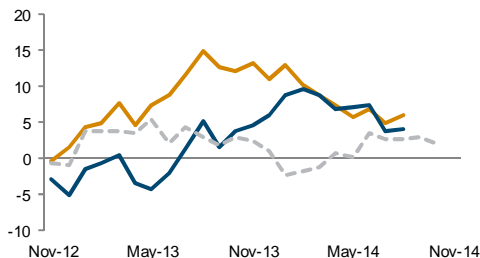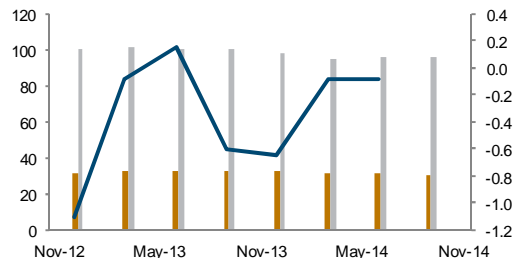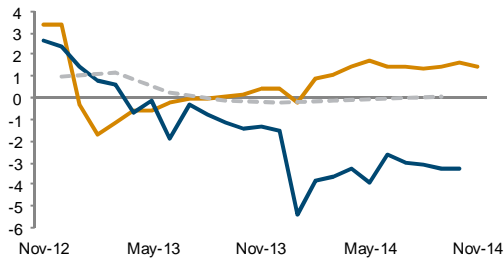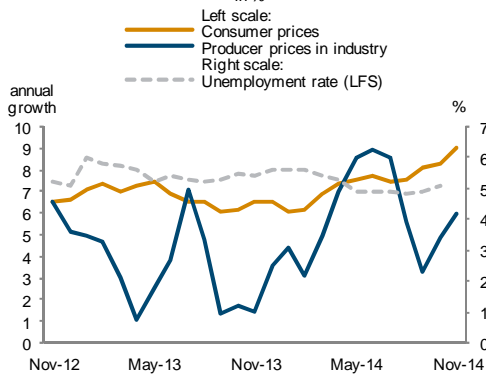- Unit labour costs

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

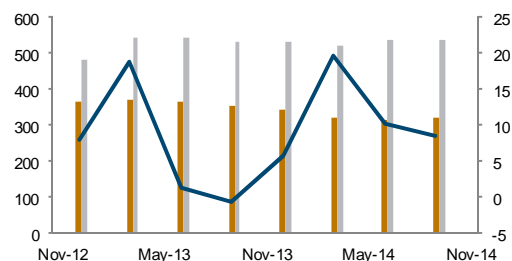### External sector development
annual growth rate in %

- 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.
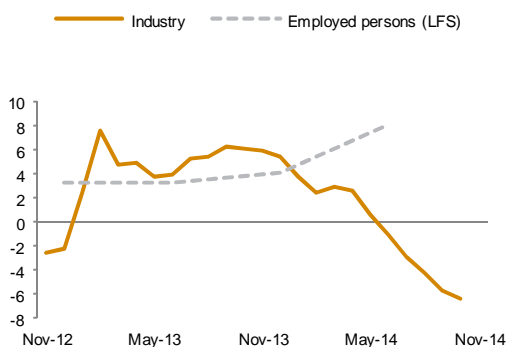
Source: wiiw Monthly Database incorporating Eurostat and national statistics.
Baseline data, country-specific definitions and methodological breaks in time series are available under:
http://data.wiiw.ac.at/monthly-database.html

Macedonia

Real sector development
cumulated annual growth rate in %

Left scale:
— Industry
---- Employed persons (LFS)
Right scale:
— Construction

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

External sector development
annual growth rate in %

— Exports total, 3-month moving average
— Imports total, 3-month moving average
---- Real exchange rate EUR/MKD, 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:
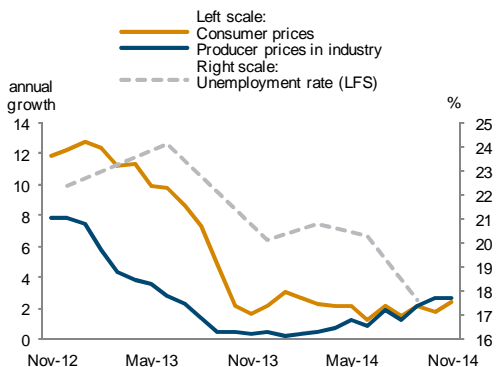http://data.wiiw.ac.at/monthly-database.html

Montenegro

Real sector development
cumulated annual growth rate in %

—— Industry   - - - Employed persons (LFS)

Unit labour costs in industry
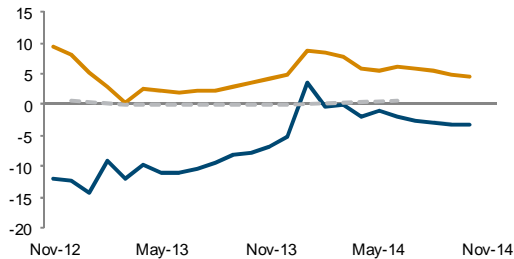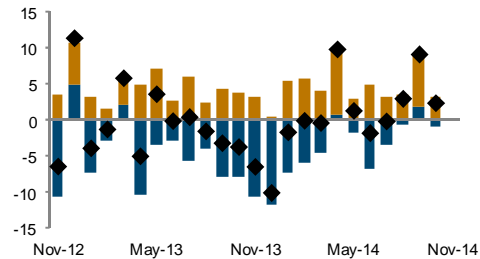annual growth rate in %

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

Inflation and unemployment
in %

Left scale:
—— Consumer prices
—— 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
—— Lending rate (com. banks), real, defl. with annual PPI
- - - Lending rate (com. banks)

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 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

Poland

Real sector development
cumulated annual growth rate in %

- Industry
- Construction
- Employed persons (LFS)
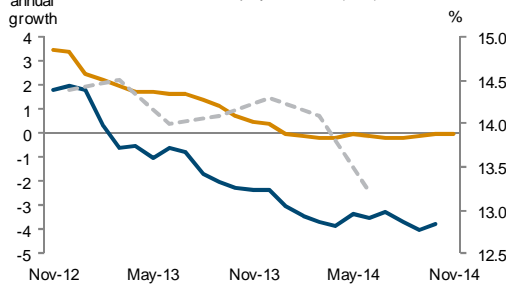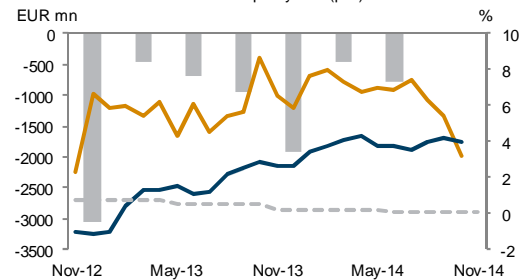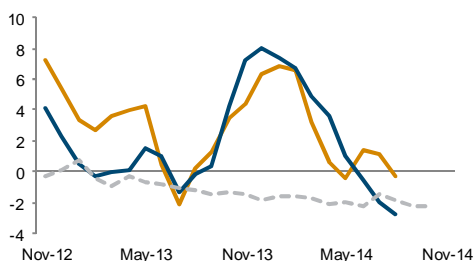
Unit labour costs in industry
annual growth rate in %

- 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)

annual growth

Fiscal and monetary policy

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

EUR mn

External sector development
annual growth rate in %

- Exports total, 3-month moving average
- Imports total, 3-month moving average
- Real exchange rate EUR/PLN, 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:
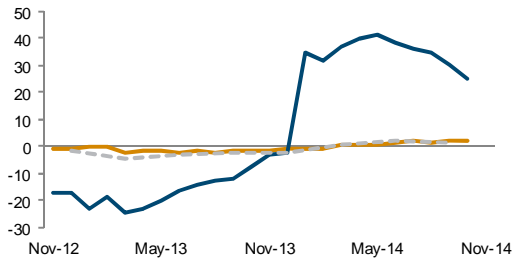http://data.wiiw.ac.at/monthly-database.html

Romania

Real sector development
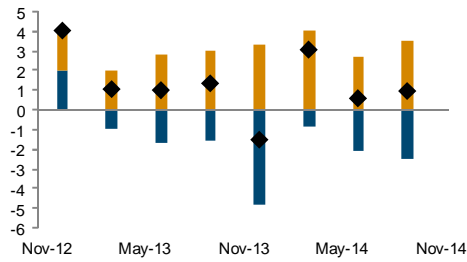cumulated annual growth rate in %

- Industry
- Construction
- Employed persons (LFS)

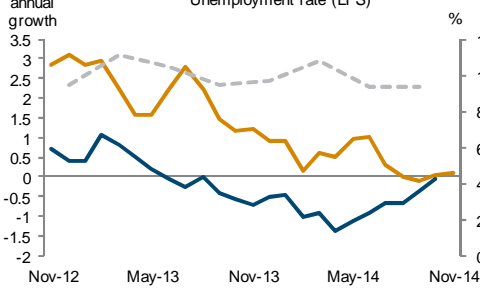### Unit labour costs in industry
annual growth rate in %

- 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)

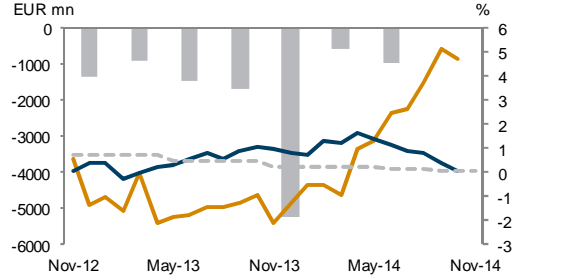### Fiscal and monetary policy

Left scale:
- General gov. budget balance, cumulated

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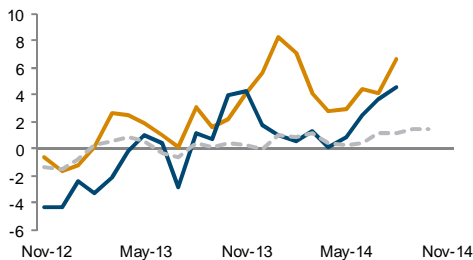- Central bank policy rate (p.a.), real, defl. with annual PPI
- Central bank policy rate (p.a.)

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
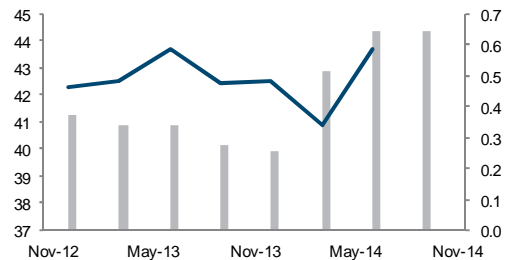
External finance
EUR bn

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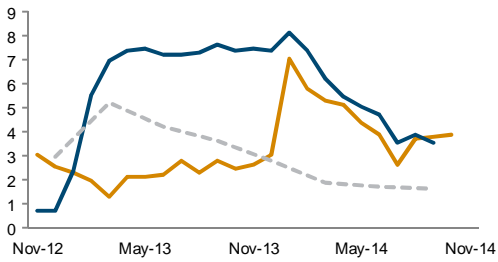http://data.wiiw.ac.at/monthly-database.html

Russia

### Real sector development
cumulated annual growth rate in %

- Industry
- Construction
- Employed persons (LFS)

Unit labour costs in industry
annual growth rate in %

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

Inflation and unemployment
in %

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

Fiscal and monetary policy

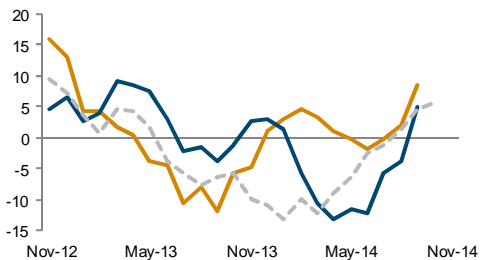Left scale:
- General gov. budget balance, cumulated
Right scale:
- M2, annual growth rate
- Central bank policy rate (p.a.), real, defl. with annual PPI
- Central bank policy rate (p.a.)
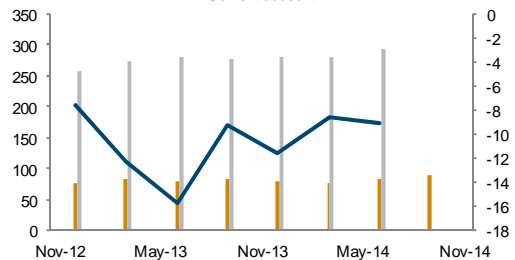
External sector development
annual growth rate in %

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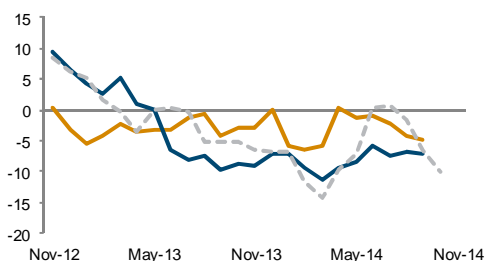
External finance
EUR bn

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 %
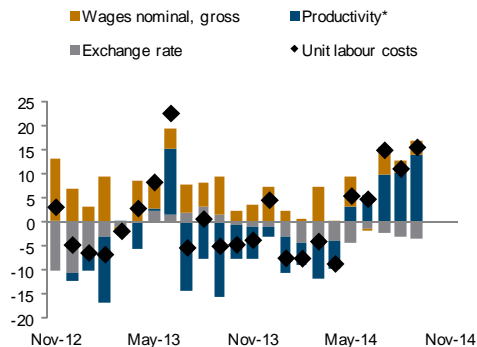
Inflation and unemployment
in %

Fiscal and monetary policy
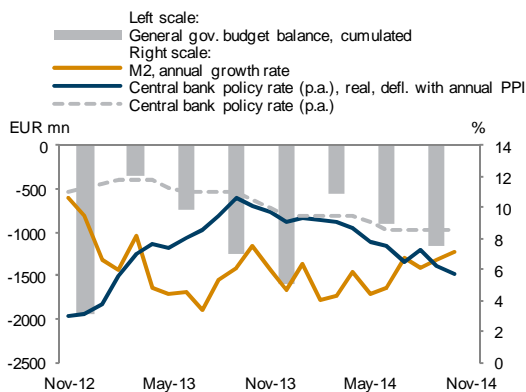
External sector development
annual growth rate in %
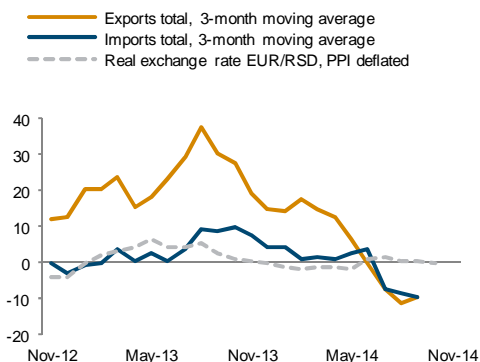
External finance
EUR bn
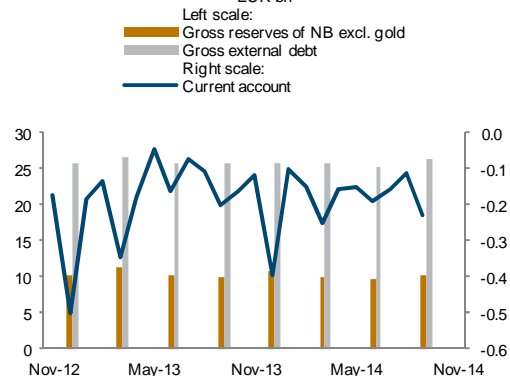
*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.

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 %
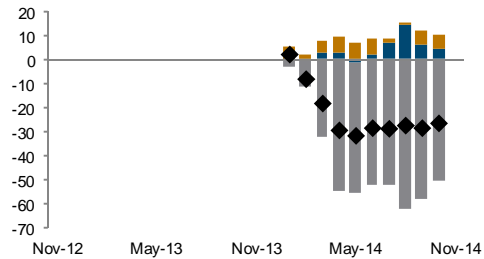
- Industry
- Construction
- Employed persons (LFS)

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

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.

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

External sector development
annual growth rate in %

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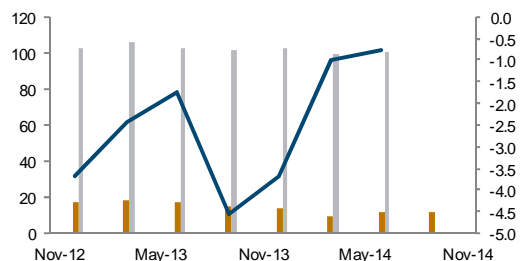- Real exchange rate EUR/EUR, PPI deflated

External finance
EUR bn

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

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Turkey

Real sector development
cumulated annual growth rate in %

- Industry
- Construction
- Employed persons (LFS)

Unit labour costs in industry
annual growth rate in %

- Exchange rate
- Productivity*
- Wages nominal, gross
- Unit labour costs
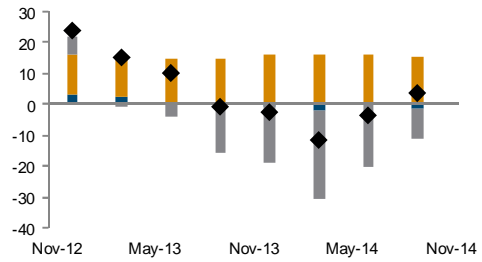
Inflation and unemployment
in %

Left scale:
- Consumer prices (HICP)
- Producer prices in industry

Right scale:
- Unemployment rate (LFS)
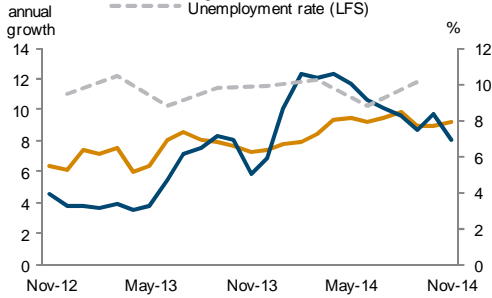
Fiscal and monetary policy

- Broad money, annual growth rate
- Central bank policy rate (p.a.), real, defl. with annual PPI
- Central bank policy rate (p.a.)
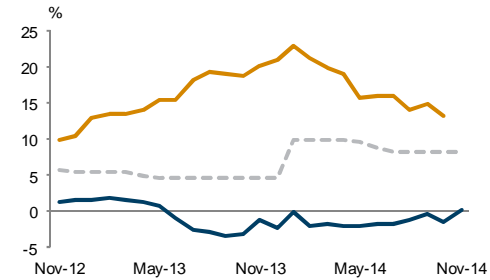
External sector development
annual growth rate in %

- 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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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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Ukraine

Real sector development
cumulated annual growth rate in %

- Industry
- Construction
- Employed persons (LFS)
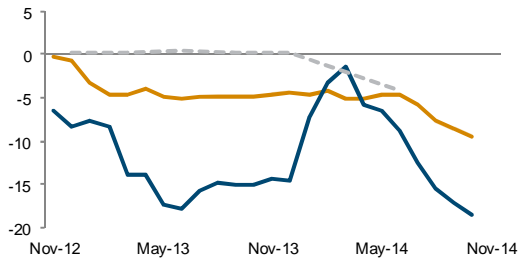
Unit labour costs in industry
annual growth rate in %

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

Inflation and unemployment
in %

Left scale:
- Consumer prices
- Producer prices in industry
Right scale:
- Unemployment rate (LFS)
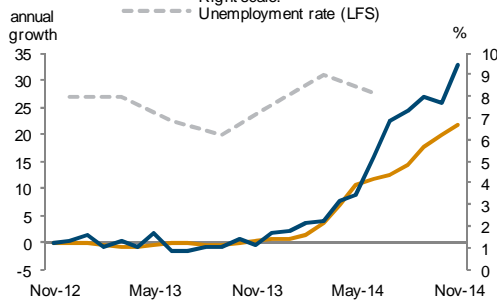
Fiscal and monetary policy

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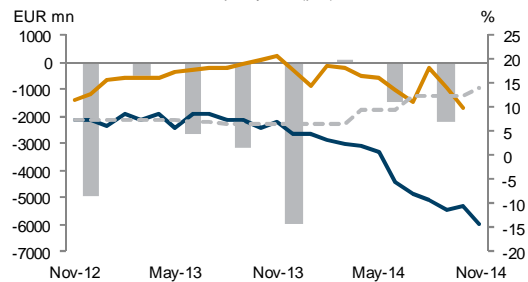
External sector development
annual growth rate in %

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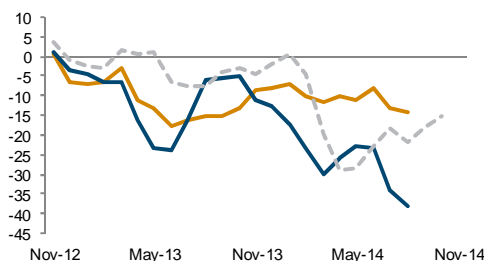
External finance
EUR bn

Left scale:
- Gross reserves of NB excl. gold
- Gross external debt
Right scale:
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Economics editors: Vasily Astrov, Sándor Richter