

Inflation Differential between Households, Income Inequality and Energy Poverty

What Future for the Economic Reconstruction of Ukraine?

What Can We Learn from Price Controls in the Western Balkans?

Mapping the Capabilities and Export Opportunities of Czechia

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CONTENTS

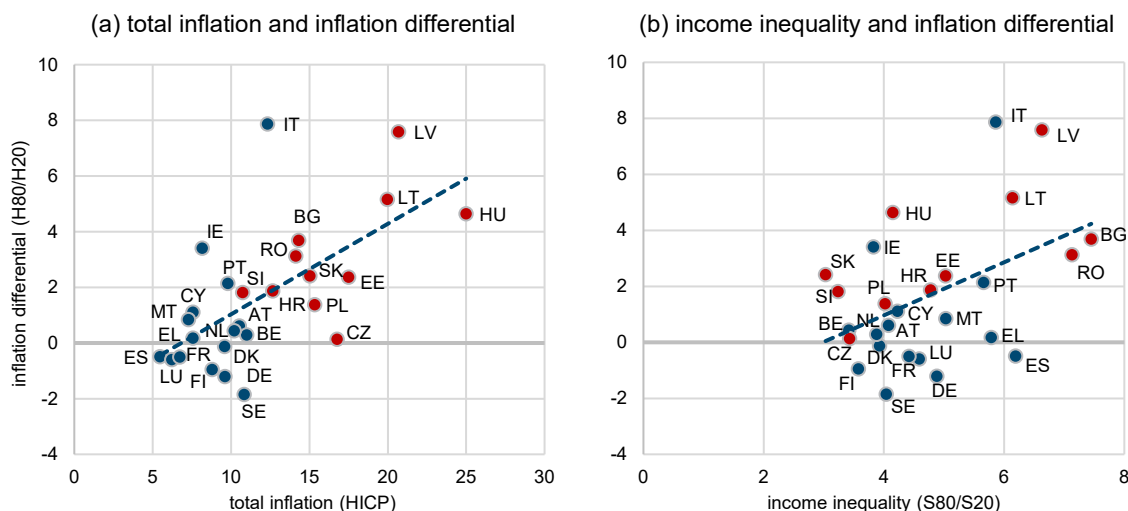
Chart of the month: Inflation differential between households, income inequality and energy poverty	7
Opinion Corner: What future for the economic reconstruction of Ukraine?	9
What can we learn from price controls in the Western Balkans?	14
Mapping the capabilities and export opportunities of Czechia.....	22
Monthly and quarterly statistics for Central, East and Southeast Europe.....	28
Index of subjects – February 2022 to February 2023	52

Chart of the month: Inflation differential between households, income inequality and energy poverty

BY SEBASTIAN LEITNER

High inflation can have a strong distributional impact – both between capital and labour, and between types of households. The sharp rise in consumer prices during 2021 and 2022 adversely affected the purchasing power of households across Europe. However, in the majority of EU countries low-income earners were hit harder than average. The consumer basket for this group of households contains relatively more food and energy, i.e. goods that saw the biggest price rises last year.

Figure 1 / Inflation differential between high- and low-income households, December 2022



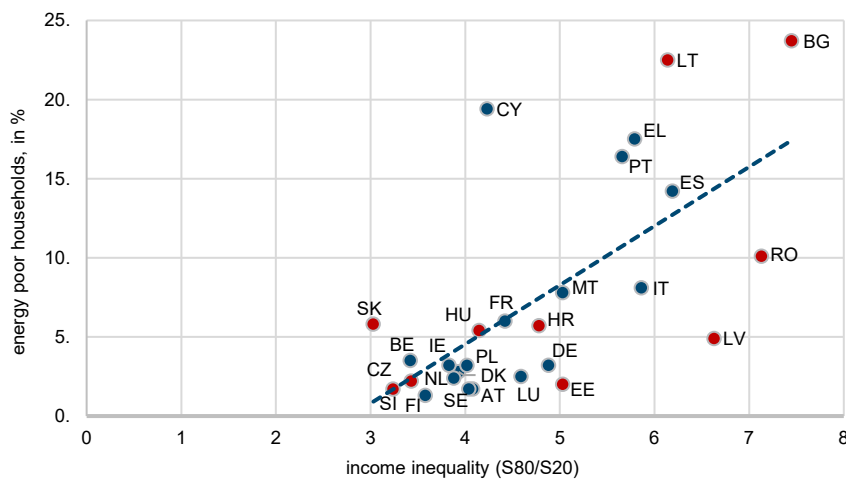
Note: Inflation against December 2021 as a percentage, based on the harmonised index of consumer prices (HICP). Inflation differential is the difference (in percentage points) between inflation experienced by the poorest 20% of households and inflation experienced by the richest 20% (according to per capita disposable income). Income inequality is measured as the ratio of the per capita disposable income of the richest 20% of households to the per capita disposable income of the poorest 20% (i.e. quintile share ratio - S80/S20) based on EU-SILC data for 2021.

Source: Eurostat, Bruegel.

Figure 1a shows that in December 2022, inflation rates were markedly higher in the (relatively poor) EU-CEE member states than in the (relatively rich) EU-15. Besides, higher inflation was on average associated with a greater inflation differential between low- and high-income earners. At the same time, in a couple of EU-15 countries (plus Czechia), the effective inflation rates for low-income households were at or even a little lower than the level experienced by high-income households. Thus, higher inflation does not inevitably result in negative distributional impacts.

One of the drivers for the inflation differential observed between households is the level of income inequality (see Figure 1b). In most EU countries where inequality is high (i.e. Bulgaria, Romania, Latvia and Lithuania, but also Italy), the consumer baskets of high- and low-income earners differ far more than in countries where income is more evenly distributed – such as Belgium and Finland, but also Czechia, Slovenia and Slovakia.

Figure 2 / Income inequality versus energy poverty



Note: Energy-poor households are those that claim in the EU Statistics on Income and Living Conditions (EU-SILC) to be unable to keep the home adequately warm. Income inequality is measured as the ratio of the per capita disposable income of the richest 20% of households to the per capita disposable income of the poorest 20% (i.e. quintile share ratio - S80/S20) based on EU-SILC income data for 2021.

Source: Eurostat, Bruegel.

However, greater income inequality increases not only the relative welfare differentials between households, but also the material deprivation of the population in absolute terms (Figure 2). Concerning energy poverty, approximately 7% of the European population was unable even in 2021 to keep the home adequately heated. However, in EU countries with high income inequality – both in Southern (e.g. Spain, Greece and Portugal) and Eastern Europe (e.g. Lithuania, Bulgaria and Romania) – the proportion of energy-poor households was elevated: in Bulgaria, it was as high as 24%. In 2023, the share of such households is likely to be even higher. Since the beginning of the inflationary period, in 2021, EU governments have applied fiscal policies and various other measures to cushion the effects of rising energy costs, particularly on low-income households. Nevertheless, the relationships illustrated above between inflation differential, inequality and energy poverty suggest that in countries with lower income inequality, the social fabric generally tends to be more stable: that is, even in periods of stronger price increases, the real income differentials between households remain subdued.

Opinion Corner* : What future for the economic reconstruction of Ukraine?

BY MICHAEL LANDESMANN

Once the vehemence of the military conflict abates, Ukraine has the potential to follow the catch-up experiences of EU-CEE countries. However, this requires massive support and engagement by the EU and other Western partners, and it also needs the institutional and political economy deficiencies that blighted the country in the past to be overcome. Much effort needs to be devoted to reversing outward migration, making the country attractive to foreign investors, rebuilding and modernising its infrastructure and managing the necessary reorganisation of the economy both regionally and structurally.

It is possible to be both up-beat and down-beat with regard to the possibility and potential for the economic reconstruction of Ukraine and the outlook for its economic development. In any case, the current military situation is such that it is impossible to predict either the length or the intensity of the war. And yet the outlook for Ukraine's economy depends heavily on this.

ON THE UPSIDE: EU CANDIDATE STATUS, CATCH-UP POTENTIAL AND PROGRESS ALREADY MADE ON RESTRUCTURING

Let us start with the up-beat assessment: **first of all**, the war itself has wrought a change in perspective regarding the possibility of EU accession. It will not happen overnight, but Ukraine has now been officially recognised as a candidate country for EU membership. This means that economic reconstruction will take place in the context of preparing for EU accession – and that brings with it pre-accession support both in financial terms and in terms of technical assistance to gradually align Ukraine's regulatory framework with the *Acquis Communautaire*, over and above its (at least partial) inclusion in such EU programmes as the European Green Deal and its greater involvement in the Trans-European Transport Network Programme (TEN-T). All this is likely to provide coherence to whatever plans are made for Ukraine's economic reconstruction. It will also involve significant support in improving the institutional capacity to implement such plans. The focus on EU accession and convergence in institutional/legal terms should provide a basis for economic stabilisation and serve to focus the efforts of the main actors (internal and external) on this goal.

Secondly, the adaptation of Ukraine's economic structures to the new geo-political reality began in the aftermath of the events of 2014/2015 – Russia's annexation of Crimea and its intervention in the Donbas region – which led to substantial trade reorientation, as well as to the economic decline of what was once Ukraine's industrial heartland. In that sense, the impact of the 2022/2023 war means a further speeding-up of the structural and regional realignment of Ukraine's economy. It also implies a much weaker position for some of the traditional industrial sectors – specifically the iron and steel and metal products industries, which used to account for a major share of the country's exports. On the other hand,

* Disclaimer: The views expressed in the Opinion Corner section of the Monthly Report are exclusively those of the authors and do not necessarily represent the official view of wiiw.

the war has led to a much greater reliance on agriculture and the agro-food industry, which will likely have further scope to strengthen its position by moving into processing and higher-value-added segments. Furthermore, the IT industry has expanded greatly and is now a major contributor to export earnings: that sector (along with other service industries) opens up employment opportunities for highly skilled persons, and therefore has an important role to play in catering for that segment of the labour force and thereby preventing (or slowing) the brain drain. Even those who have emigrated seem to keep abreast of domestic activities in this industry, and thereby contribute to its international reach.

Thirdly, prior to the war Ukraine was plagued by very problematic governance structures (in particular, in the areas of rule of law and corruption), as well as by entrenched oligarchic power structures. There are ample grounds for anticipating positive developments in political and economic governance structures: the shock of the war has weakened the specifically oligarchic economic interests based in the east of the country, while the standing of the presidency has been strengthened by its successful leadership role since the outbreak of the war. Furthermore, there is going to be considerable involvement by international agencies (European Commission, international financial institutions, donor countries) in monitoring the use of the huge funds that are likely to flow into Ukraine to bolster its reconstruction after the war. It is difficult to make confident forecasts in this respect, but it is likely that both civil society and international donors will exert powerful pressure to improve the situation with regard to transparency, the rule of law and getting corruption under control. At least for some time to come, the spirit of mobilising the national effort to successfully move towards economic, political and social renewal is likely to prevail.

Fourthly, we have the track record of those CEE countries that moved towards EU accession and that, in income terms, can be held up as examples of successful international catch-up processes. There has also been improved institutional development (although there have been examples of backsliding in certain countries, most notably Hungary). Ukraine can be expected to follow these positive examples, since there is plenty to gain from intensified trade and production integration with the European economy, and from the role that international investors can play in modernising production facilities and access to markets. Given the legacies of the war (ruined infrastructure, population loss through emigration, risk of continued military conflict), it is likely that such a catch-up process will face major hurdles, especially in its initial phases. But – unlike earlier ‘transition countries’ – Ukraine enjoys an advantage, in that the institutional and systemic changes associated with transition have already largely taken place: after all, it is embarking on the accession process long after it moved away from a planned economy. The adoption of the Deep and Comprehensive Free Trade Areas (DCFTA) arrangement has further accelerated regulatory convergence with the EU. The pre-accession phase – if handled well – has the potential to foster reform, as it focuses society’s interests on achieving this goal.

ON THE DOWNSIDE: VERY HIGH COSTS OF RECONSTRUCTION, DEMOGRAPHIC DECLINE AND QUESTIONS OVER INVESTMENT ATTRACTIVENESS

We now consider the other side of the coin, which leads us to a more sober assessment of the likelihood of a rapid and successful recovery (and restructuring) of the Ukrainian economy and polity.

The **first** – and probably the most important – factor that could retard economic recovery is the dramatic ‘demographic shock’ that Ukraine has experienced: it is estimated that there are about 6m internally displaced persons, and that about 7m people have emigrated, mainly women and children (December 2022 estimates). This comes on top of the demographic decline that was apparent even before the start of the current war: whereas Ukraine had a population of over 50m in the mid-1990s, that had fallen to about 42m by the start of the war; and taking the recent emigration into account, the figure now stands at about 35m. This decline is due to long-term low fertility (about 1.3 children per woman) and emigration – a response to the income gap with neighbouring EU-CEE countries (Poland, in particular) that has been widening since before the war. Furthermore, the post-2014 conflict has led to depopulation in those regions in and around which the fighting was bitterest. The age profile of the population has deteriorated badly, which will put the social security (pension and health) system under considerable pressure long into the future. Furthermore, as is common in most migration flows, the migrants tend to be young and highly skilled, and that is also likely to have a significant impact on the size and quality of the domestic labour force. Of course, there may be ‘return migration’ by a significant proportion of those who have left; but the longer the military conflict (and hence the deeper the integration of young families and children into their host societies), the less likely this will be. It is therefore of paramount importance to initiate effective policies to attract (particularly) the highly qualified back to the country, as well as to keep in close contact with the sizeable and growing diaspora.

Secondly, in view of the experiences of other catch-up economies, we consider the role of foreign investors to be very important in the task of restructuring and modernising Ukraine’s economy. However, there are several reasons why (at least in the medium term) it may be difficult to attract foreign investors: first, there is the ‘risk’ of continued military conflict, which will deter foreign investors. In this respect, we (in line with other policy analysts) strongly advocate internationally funded ‘risk insurance’ schemes to cover some of the risks that international investors and traders will encounter in Ukraine, even once the most intense phase of the conflict is over. Secondly, Ukraine will be embarking on its recovery with a ruined infrastructure, major damage to the housing stock and potentially a strong mismatch between regional labour needs and the availability of an adequately trained work force (Anastasia et al., 2022). Thirdly, there is the issue of those selfsame institutional factors that used to deter foreign investment (rule of law, corruption, market structures and political influence skewed towards oligarchs). It will take time to rectify these. And lastly, the regions most in need of economic reconstruction and modernisation will be (or will be close to) those very regions that have been worst affected by the military conflict, with the greatest destruction of infrastructure, the largest number of displaced persons and the biggest risk of continued conflict. Hence they will be the least attractive to international investors. Those regions will have to rely largely on public investment and public support for training and education, and will need to be the areas best covered by any ‘risk insurance’ schemes.

Thirdly, quite a few studies (Becker et al., 2022; Bogdan et al., 2022; Ganster et al., 2022; World Bank, 2022) have calculated that the sums needed for the economic reconstruction of Ukraine will be astronomical: estimates range from USD 450 billion to 1 trillion over about a 10-year period. It is far from clear at this stage where that money will come from, as the international community (US, EU, G7) is still mainly concerned with covering Ukraine's most urgent budgetary needs and supporting its current essential social and administrative services, as well as its military requirements. However, major pieces of analysis have already discussed detailed sectoral plans, as well as priority areas for the economic restructuring of Ukraine (National Recovery Council, 2022; Gorodnichenko et al., 2022; Bogdan, 2023). Suggestions have also been made about the institutional set-up of such a reconstruction effort and about how to coordinate the multitude of donor countries and institutions. It is fair to say that we are still a long way from having any clear idea about where the money for the massive funding needs will come from, how the coordination problems will be resolved and how Ukrainian 'ownership' of the programmes will proceed, given the country's institutional deficiencies, which could well persist after the war (there are however, already policy initiatives in this direction, as well as detailed sets of proposals; see for example, Eichengreen and Rashkovan, 2022).

Fourthly, there is a particular issue that various 'transition countries' have encountered: the macroeconomic imbalances that emerge in the process of economic restructuring and catch-up. The economic reconstruction of Ukraine will – for a considerable time – likely be accompanied by persistent trade deficits, as (initially) there will be very strong import demand: domestic production (and export) capacities have taken a hit and will need time to recover. On top of that, the considerable financial inflows in support of the reconstruction effort, together with the significant remittances from the sizeable Ukrainian diaspora, may exert upward pressure on the Ukrainian hryvnia exchange rate, which could prove detrimental to the country's competitiveness and to the build-up of export capacities. We have seen this happen in various transition countries (particularly in the Balkans), which have experienced long-term balance-of-payments problems. It will be difficult to counter these pressures unless there is a special focus on assisting the tradable sector (such as targeted efforts to support integration into cross-border production networks, through regionally differentiated industrial policy measures, including infrastructure, training, foreign direct investment support, etc.), plus measures to avoid domestic real estate booms and to channel remittance flows (at least in part) towards investment and business start-ups.

Finally, the speed of – and indeed the very commitment to – Ukraine's EU accession are far from settled. The example of the dreadfully protracted process of the Western Balkans' EU integration (let alone Turkey's!) should be a warning sign – also with respect to the political repercussions that long delays and EU dithering can have in candidate countries. The pre-accession phase can (as previous accessions have shown) be a successful period of institutional reform and economic catch-up – provided realistic milestones are set and consistency in conditionalities and timelines is maintained. It is also important – even in the pre-accession phase – for new schemes of rapid integration into major EU programmes (regional and industrial policy, educational exchange and research collaboration, trans-border infrastructure development, Green Deal) to be developed and offered, so that Ukraine (and indeed other candidate countries) can, from the point of view of integration into such schemes, already be considered a 'quasi-EU member' country, even while it still has candidate status.

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What can we learn from price controls in the Western Balkans?

BY BRANIMIR JOVANOVIĆ

Price controls can help curb inflation, but their effectiveness depends on the type of control used. 'Hard' price controls – which place a limit on final product prices and do not raise that limit – are effective, whereas controls that limit only profit margins or that raise the price cap over time are not. The strategy for exiting price controls is also important: abolishing them abruptly amidst global price pressures can undo all the hard-won gains.

A BRIEF HISTORY OF PRICE CONTROLS

At the end of 2021, Isabella Weber (2021) caused a stir among economists by suggesting that governments should consider price controls as a tool for taming the inflationary wave that was beginning to surge at that time. The op-ed sparked many reactions, such as from Tooze (2022), Casselman and Smialek (2022) and Neely (2022). However, price controls are nothing new, having been employed fairly often throughout history.

The practice of price controls dates back to ancient civilisations: some 4,000 years ago, in ancient Mesopotamia, the Code of Hammurabi imposed detailed price controls on various goods and services – and stipulated penalties for those who violated them. Ancient Egypt, Rome and India all employed similar measures to ensure that the basic necessities were affordable for the lower classes and to prevent merchants from overcharging (Scheuttinger and Butler, 2009).

In more recent times, price controls have commonly been used during major social upheavals and turmoil, such as the French Revolution, World War I and World War II. They were also famously employed during the 1970s period of inflation in many developed countries, such as the US, the UK and France (Guénette, 2020).

From the end of 2021, price controls were introduced in three Western Balkan economies – Serbia, North Macedonia and Albania. They covered basic food items, and their dual purpose was to prevent price gouging by companies and to curb inflation.

OVERVIEW OF RECENT PRICE CONTROLS IN THE WESTERN BALKANS

The first to introduce controls was Serbia. On 30 November 2021, the government there decided to cap the price of sugar, flour, sunflower oil, pork and milk: prices could not rise above those charged on 15 November 2021. The caps applied to producer, wholesale and retail prices. The government also mandated that those products must not be sold in quantities smaller than the average over the previous 12 months. The penalties for non-compliance were fairly light – between EUR 850 and EUR 17,000 – though the authorities could also impose a ban on operations for a period of between 6 and 12 months. The limits were initially due to last for 60 days, but were extended several times.

Then, from the end of April 2022, the government started to raise the price limits – first on milk, then on sugar, and then on the other products. The most recent increase, on 1 December 2022, for example, capped the retail price of sugar at RSD 114.99/kg – considerably higher than the limit back in June of RSD 96.99/kg. Thus, one might say that Serbia has had two price-control regimes: a ‘hard’ one, which kept prices at the level of 15 November 2021 and which was in place from December 2021 until April 2022; and a ‘soft’ one, which saw prices gradually rise and which was in force from May 2022 onwards.

North Macedonia followed suit in December 2021. It capped the wholesale and retail price (though not the producer price) of bread, sugar, flour, sunflower oil, milk, fresh meat, meat products and cheese at the levels of 1 December. Three weeks later, the list was extended to include three more products – rice, eggs and pasta. Unlike in Serbia, there were no special fines for non-compliance. The cap was intended to last for 2 months, until the end of January 2022, but in fact it was extended until the end of February, at which point it was abolished.

From 1 March 2022, the government changed its approach: instead of capping prices, it started to limit the profit margins of wholesale and retail companies on the sale of staple foodstuffs. The wholesale profit margin was initially limited to 5% and the retail profit margin to 10%. The list of products with a limit on profit margins was at the same time extended, to include wheat, fruit and vegetables. On 9 March, the maximum profit margins were cut – to 4% in wholesale trade, 3% in retail trade and 0% for flour, bread and sunflower oil. In June, the margins were raised to 5% for wholesale and retail trade in bread, sugar and sunflower oil, and to 10% for the other products. In September, the measures were extended to the end of the year. Throughout the period when profit margins were regulated, there were no fines imposed for non-compliance.

Thus, again one can say that North Macedonia had two price-control regimes: a ‘hard’ one, which capped prices at the level of 1 December 2021 and which was in force between December 2021 and February 2022; and a ‘soft’ one, which limited profit margins and was in operation from March 2022 until the end of the year.

Albania was the last to introduce price controls, in March 2022, but its approach was the most elaborate – and perhaps the most interesting. It created a so-called Transparency Board, whose duty it was to monitor the wholesale and retail prices of basic foodstuffs. The Board was supposed to meet every week to set both profit margins and prices for the wholesale and retail trade in staple food products. It took decisions by a simple majority of its members; and since representatives of the public authorities outnumbered those of private companies, it could take decisions that were not supported by the private companies.

The product list that the Board had to regulate was not too extensive, and usually consisted of flour, sugar, sunflower oil and rice. Interestingly – and in a departure from the approach taken by Serbia and North Macedonia – the Board set the price caps lower and lower as time went by: for example, in September 2022, the retail price of sugar was capped at ALL 118/kg, whereas in April, the limit had been ALL 123/kg; for flour, the maximum price in September was set at ALL 83/kg, whereas in April it had been ALL 90.50/kg.

Importers and producers were obliged to ensure an uninterrupted supply of the regulated goods and wholesalers had to maintain 3-month reserves of the products. Compliance with the price controls was monitored by the tax administration, through company invoices, and the penalties for non-compliance were quite stiff: for wholesalers, up to EUR 86,000; and for retailers, up to EUR 17,000. If a company was found to be a repeat offender, the punishment was closure of the business and sequestration of its entire stock.

WERE THE PRICE CONTROLS EFFECTIVE?

To assess whether the price controls imposed by the three countries were effective in taming inflation, we compare the dynamics of food prices across the six Western Balkan economies during the periods in which the controls were in operation. We begin with a visual comparison of the monthly inflation rates and then proceed with an econometric analysis.

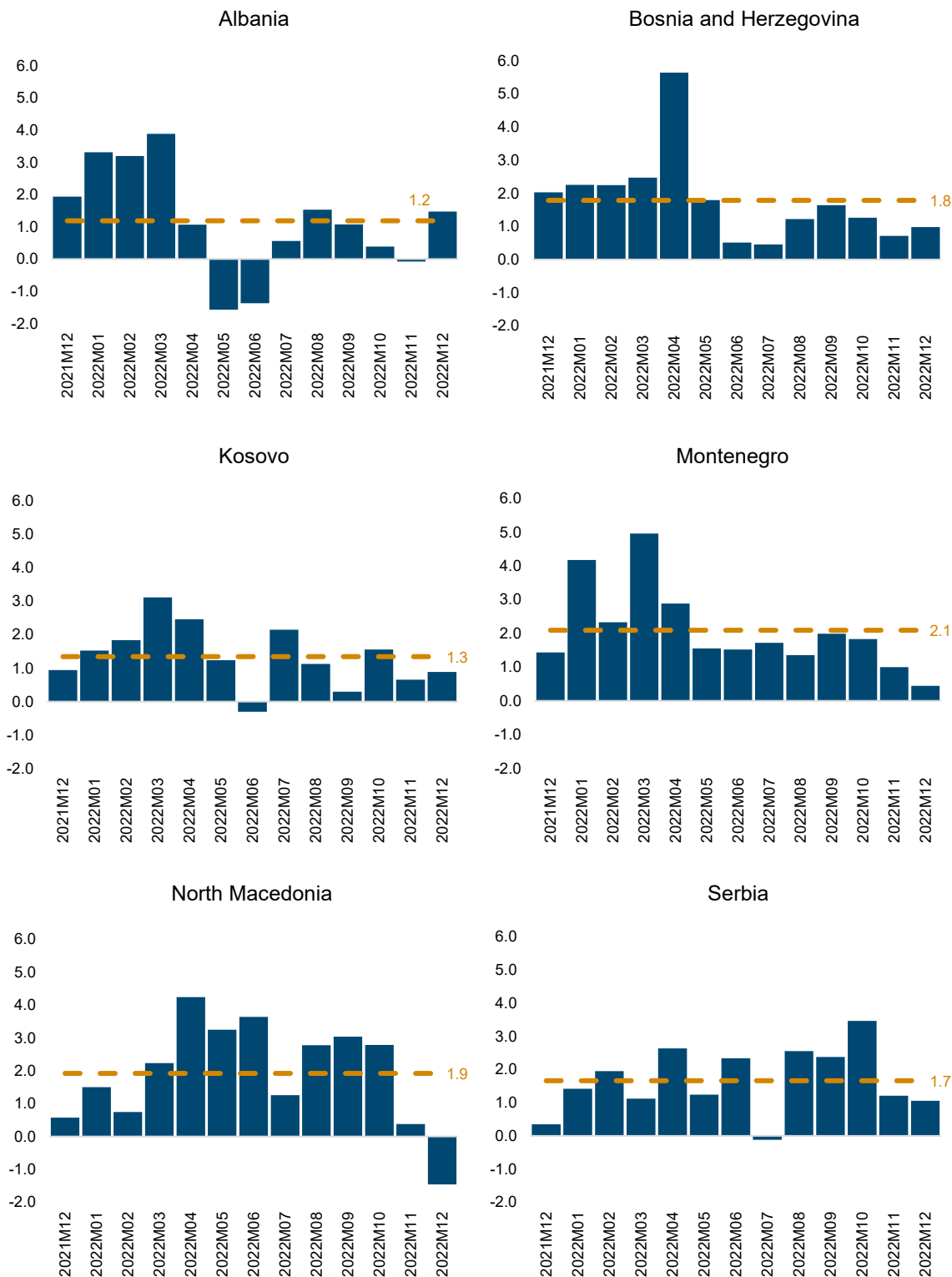
Figure 1 shows the monthly food inflation rates for the six economies, between December 2021 and December 2022, when price controls were in place in Serbia and North Macedonia. One can see that average month-on-month food inflation in Serbia during this time was 1.7%, which was lower than in Montenegro, North Macedonia, and Bosnia and Herzegovina, but higher than in Kosovo and Albania. Average month-on-month food inflation in North Macedonia during this period was 1.9%, which was lower only than in Montenegro. On this score, then, there are no firm indications that price controls in Serbia and North Macedonia were very successful in taming inflation.

By contrast, it would appear that price controls in Albania were more successful (Figure 2). Average monthly food inflation in Albania between April and December 2022, when Albanian price controls were in place, stood at only 0.3%, by far the lowest in the region.

What could explain the different findings for Albania, and for Serbia and North Macedonia? As was noted above, there were two distinct phases in the price controls in Serbia and North Macedonia. In the first, 'hard', phase, prices were capped at what they had been on 15 November (in Serbia) or 1 December (in North Macedonia). In the second, 'soft', phase, the prices in Serbia were gradually raised, while the limits in North Macedonia referred only to the profit margins of companies, and not to the final price of the products. The Albanian price controls were always of the 'hard' type, as they always capped final prices, and those limits did not rise.

Figure 3 shows the average monthly food inflation rates across the Western Balkan economies, but for the periods during which 'hard' price controls were in place in Serbia and North Macedonia. As the left-hand panel shows, when 'hard' price controls were enforced in Serbia (December 2021 - April 2022), food inflation there averaged 1.5% on a month-to-month basis, which was lower than in any other country of the region. Similarly, during December 2021 - February 2022, when 'hard' price controls were in place in North Macedonia, food inflation there averaged 0.9% month on month – lower than anywhere else (right-hand panel). This suggests that 'hard' price controls – which place a cap on the final prices of goods and do not increase them – are indeed helpful in curbing inflation.

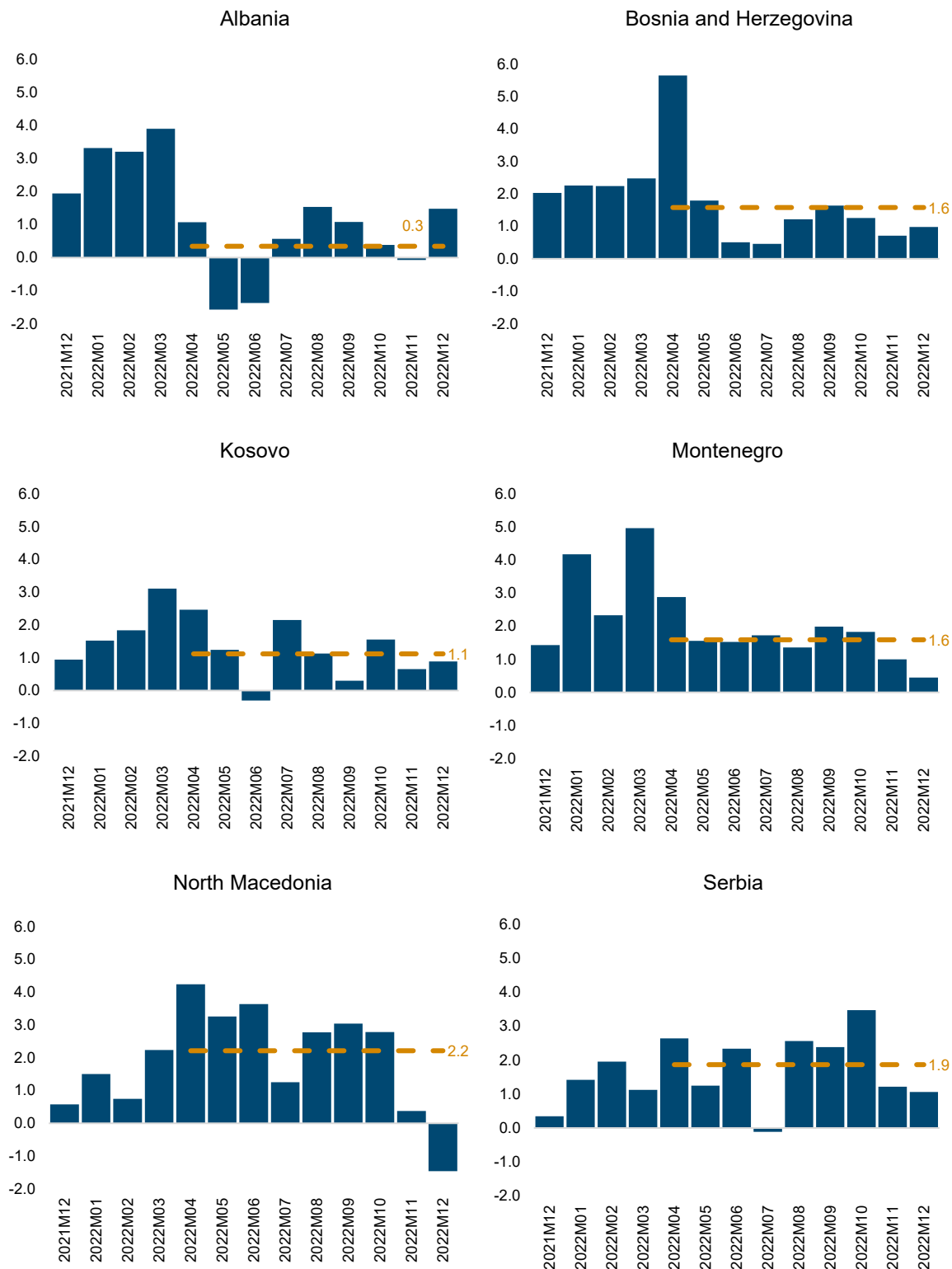
Figure 1 / Monthly food inflation in the Western Balkan countries during the period of price controls in Serbia and North Macedonia (December 2021 - December 2022), %



Note: The bars show the month-on-month food inflation rates; the dashed line indicates the average during the price controls. Food inflation is calculated from the food and beverages sub-index of the national inflation indices.

Source: Author's calculations, using data from national statistical offices.

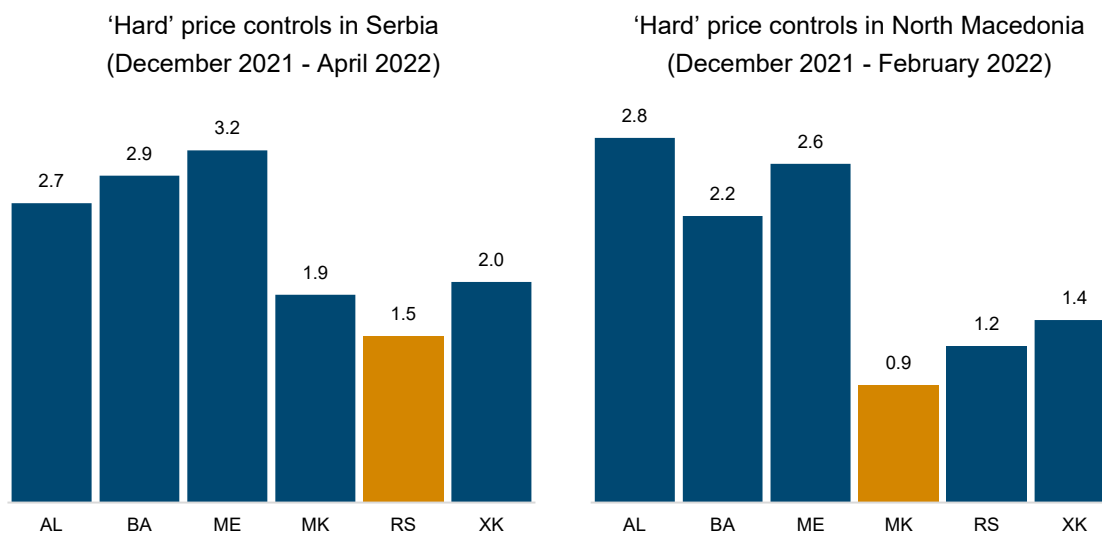
Figure 2 / Monthly food inflation in the Western Balkan countries during the period of price controls in Albania (April 2022 - December 2022), %



Note: The bars show the month-on-month food inflation rates; the dashed line indicates the average during the price controls. Food inflation is calculated from the food and beverages sub-index of the national inflation indices.

Source: Author's calculations, using data from national statistical offices.

Figure 3 / Average monthly food inflation in the Western Balkan countries during the period of 'hard' price controls in Serbia and North Macedonia, %



Note: The bars show the average month-on-month food inflation rates during the specified periods. Food inflation is calculated from the food and beverages sub-index of the national inflation indices.

Source: Author's calculations, using data from national statistical offices.

WHAT DOES THE ECONOMETRICS SAY?

We next assess the effectiveness of the price controls, applying an econometric analysis. We perform a simple econometric investigation, where we relate month-on-month food inflation rates in the six Western Balkan economies to global food prices, exchange rate developments, and the price controls that were implemented in some of those countries. Specifically, we estimate the following model:

$$food_inflation_{i,t} = a_1 + a_2 * global_food_inflation_t + a_3 * exchange_rate_{i,t} + a_4 * price_controls_{i,t} + e_{i,t}$$

where *food_inflation* is the month-on-month food inflation in each of the six economies; *global_food_inflation* is the month-on-month change in the global food price index (on a USD basis) of the United Nations' Food and Agriculture Organization; *exchange_rate* is the month-on-month change in the nominal exchange rate against the USD; and *price_controls* is a dummy variable, which takes the value 1 for periods when price controls were in operation, and 0 otherwise. The subscript *i* denotes the six Western Balkan countries, while *t* denotes the different time periods, i.e. the months between January 2021 and December 2022.

The main coefficient of interest is a_4 , as it shows whether price controls had any effect on food inflation. If it is estimated to be significant and negative, that would mean that price controls helped reduce inflation. As in the previous section, we define the *price_controls* variable in two ways. The first covers the whole period during which price controls were used in the three countries (column 1 in Table 1); the second refers to the period of 'hard' price controls, as discussed above (column 2). The equation is estimated using panel technique, including fixed effects for the six economies, and using robust standard errors.

The results are similar to those in the descriptive analysis. Price controls are insignificant in the specification with all the price controls, suggesting that price controls on average did not lead to lower food inflation in the Western Balkans. However, in the specification with 'hard' controls, price controls are significant, with a negative coefficient. The magnitude of the coefficient implies that 'hard' price controls reduced month-on-month food inflation by around 0.3 percentage points on average, which is a sizeable effect. For a period of a whole year, that is roughly equivalent to lower food inflation of 4 percentage points.

It is also interesting to note that both global food inflation and exchange rate to USD appear significant. The coefficient on global food inflation is positive, meaning that food inflation in the Western Balkans was caused partly by the higher global food prices. The coefficient on exchange rate against the USD is also positive, meaning that the stronger dollar contributed to food inflation in the Western Balkans, too, because it magnified the effect of the higher global food prices.

Table 1 / Econometric results on how price controls affect food prices

VARIABLES	(1) food_inflation	(2) food_inflation
price_controls_all	0.007 (0.131)	
price_controls_hard		-0.003*** (0.008)
global_food_inflation	0.079*** (0.003)	0.062** (0.013)
exchange_rate	0.149** (0.040)	0.138** (0.043)
constant	0.009*** (0.000)	0.011*** (0.000)
Observations	138	138
Number of countries	6	6

Robust p values in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

WHAT ARE THE TAKE-AWAYS OF ALL THIS?

The first take-away of these findings is that price controls can indeed help tame inflation. One of the reasons why Albania had the lowest inflation in the region in 2022 – it was the only country where headline inflation did not reach double digits at any point in the year – is the price controls that it introduced in March 2022.

The second take-away is that the type of price control matters. Not all price controls help curb inflation. It turns out that only 'hard' price controls, which limit the final price of a product and do not raise that limit over time, are effective. Price controls that cap only the profit margins of companies (as in North Macedonia after February 2022) or that gradually raise the price of goods (as in Serbia after April 2022) are ineffective.

One final message is that the strategy for exiting price controls is also very important. While the experience of the three countries involved still does not allow us to conclude what the best way is of abandoning price controls – for the simple reason that none of them has yet fully abandoned controls – we can state with some certainty what is **not** a good way. And that is to scrap controls abruptly during a period of continued global price pressure. That will wipe out all the gains previously achieved, as happened in North Macedonia: the country that had one of the lowest food inflation rates in the region at the beginning of 2022 ended the year with one of the highest rates, because it abruptly replaced its ‘hard’ price controls with controls on profit margins.

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Mapping the capabilities and export opportunities of Czechia

BY ONDŘEJ SANKOT, JANA VLČKOVÁ, CRISTINA PROCHÁZKOVÁ ILINITCHI
AND TEREZA DE CASTRO¹

Czechia is an exceptionally export-oriented country, with a high level of economic complexity. Its innovative capabilities, however, remain limited. We determine the country's optimal diversification path by identifying machinery for specialised industries, machine-tools for specialised industries, and pneumatic or non-electric hand tools as the most promising export categories in terms of complexity, expected trade volume growth, and proximity to Czechia's existing production capabilities and manufacturing base.

INTRODUCTION

It is widely acknowledged that countries can only produce goods if they have the necessary productive knowledge (factors of production, institutions, infrastructure) (Hidalgo and Hausmann, 2009; Hausmann et al., 2014). The scope for diversification is thus largely dependent on the set of localised capabilities (Maskell and Malmberg, 2007), as reflected in the type of products that countries already produce and export. The relatedness of productive knowledge – the so-called distance between products – is thus crucial for future regional diversification and future economic growth (Breschi et al., 2003; Boschma et al., 2012). These ideas were further elaborated by Hidalgo and Hausmann (2009) and Hausmann et al. (2014), who proposed the Economic Complexity Index (ECI) – a measure of the productive knowledge available in a country, as determined by the mix of exported products. Similarly, they quantified the productive knowledge needed to make an individual product using the Product Complexity Index (PCI). These concepts have gained in popularity in recent years, as they offer a guide to a country's scope for diversification. Yet their application to EU-CEE countries has so far been rather limited.

This article aims to determine the optimal diversification path for Czechia, based on an identification of promising export sectors. The identification of strategic options is vital for future structural transformation. We focus on product categories that have the greatest potential for Czechia in terms of complexity and future growth possibilities. This approach allows us to ignore products that are obsolescent and that could contribute to a lock-in situation, should there be a shift in global demand (Hassink, 2010), and also helps us to identify products that are highly complex, are expected to enjoy a growth in demand and that can be found close to existing production capabilities – i.e. are related to Czech products that are already exported and that have high revealed comparative advantage (RCA).

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PRODUCT SPACE AND ECONOMIC COMPLEXITY

The extensive literature provides evidence that innovation and technology are drivers of economic growth (e.g. Romer, 1990; Grossman and Helpman, 1991). Innovations are embodied in goods and services, and so these products reveal how an economy's knowledge assets are being used to leverage resources and generate wealth. In general, exports tend to represent the part of a country's output that is the most efficient, since only a limited number of companies export – and those that do tend to be larger and more productive than non-exporting companies (Bernard and Jensen, 1999). Countries which export more sophisticated goods have also generally experienced faster economic growth (Fagerberg, 1994; Hausmann et al., 2007).

The concept of 'product space', set out in a seminal article by Hidalgo et al. (2007), deals with the network of all globally traded goods and illustrates their relatedness. Each product is represented by a node, which corresponds to the volume of its trade. The level of relatedness (proximity) between products is given by the frequency of co-occurrence of two products with comparative advantage ('revealed relatedness': Neffke and Henning, 2008) in a country's export portfolio. Densely connected, generally more sophisticated products are located at the core of the product space, whereas the periphery is occupied by less sophisticated products characterised by fewer connections to other products (Felipe et al., 2012). The ability to produce a new product is determined by the similarity of the promising product to already existing products close to the productive knowledge (Hausmann et al., 2014). Thus, countries with a larger number of products occupying the core of the product space have greater scope for diversification related to their current export basket (Kali et al., 2013). Poorer countries, on the other hand, tend to occupy more of the periphery of the product space; therefore their diversification path is longer, since great leaps in diversification are harder to achieve.

A country's productive capabilities are reflected in its export sophistication, which can be measured by the Economic Complexity Index proposed by Hidalgo and Hausmann (2009). The ECI comprises two dimensions: diversity and ubiquity. While diversity corresponds to the number of goods that a country exports, ubiquity reflects the 'uniqueness' of exports, which is related to the number of countries exporting the same goods. Hence, top-performing countries tend to have more diversified and less ubiquitous exports. Several studies have also provided evidence that ECI is positively correlated with per capita income and can be used to predict future economic growth (Hausmann et al., 2014; Zhu and Li, 2017). At the product level, the Product Complexity Index estimates the technological sophistication of individual products and the productive capabilities needed for their production. The most complex products include chemicals, machines and machinery, and electronics; meanwhile, the least complex are mineral resources and simple agricultural products (Felipe et al., 2012; Hausmann et al., 2014).

DATA AND METHODOLOGY

The empirical analysis of the paper is based on product space and proximity methodology, which enables us to assess the current position of Czechia in terms of product space and to identify potential export diversification. The initial position of a country within the product space determines potential diversification possibilities: countries can diversify their exports either by taking a big leap forward towards distant products or by shifting their production towards products that lie close to the current export basket. When analysing export opportunities, we will focus on the second path, because it requires less effort from the country undergoing such a diversification process.

Export data are taken from the Atlas of Economic Complexity published by the Center for International Development at Harvard University. We employ this dataset to predict export data time series until 2023, using ARMA/ARIMA models. We use three-year temporal means to smooth potential single-year trend deviations: 2011-2013, 2016-2018 and 2021-2023.

The data obtained are employed in the following four steps.

A. Identification of current comparative advantages and disadvantages of Czechia

We calculate the Balassa index of RCA for Czech exports. Let the temporal mean of the Balassa index in the period t (2016-2018) identify the current comparative advantage of Czechia. All manufacturing products j are subsequently split into two groups, based on whether their RCA_{ij} is above or below the country's mean RCA (\overline{RCA}_i). Since we are interested in the future opportunities of Czechia (period $t+1$), we consider only those commodities with an RCA below the country's mean.

B. Identification of products with a high PCI and good export prospects

We evaluate the PCI and export development. Namely, we identify products with a PCI higher than the PCI of Czechia's current comparative advantage. We calculate the PCI for all four-digit SITC export categories, employing the method of reflections (see Hidalgo and Hausmann, 2009 for details). Now, let the PCI temporal mean of products, in which Czechia in 2016-2018 demonstrates an above-average comparative advantage $\overline{PCI}_i | (RCA_{ij} > \overline{RCA}_i)$, determine the threshold that splits Czechia's exports in the period $t+1$ (2021-2023) into two groups. Opportunities for Czechia are sought within the group of commodities that demonstrate PCI higher than the commodities currently produced and that have above-average comparative advantage.

Simultaneously, we evaluate the development of global export volumes by comparing the export temporal mean of a commodity j in the period $t+1$ (2021-2023) and the period $t-1$ (2011-2013). Let Czechia's opportunities be found within the group of commodities that exhibit export growth.

C. Selection of promising products for Czechia – those that Czechia does not produce with comparative advantage and that simultaneously demonstrate high PCI and growth prospects

We identify the promising products as the intersection of opportunities in terms of PCI, export development and the current comparative disadvantage of Czechia.

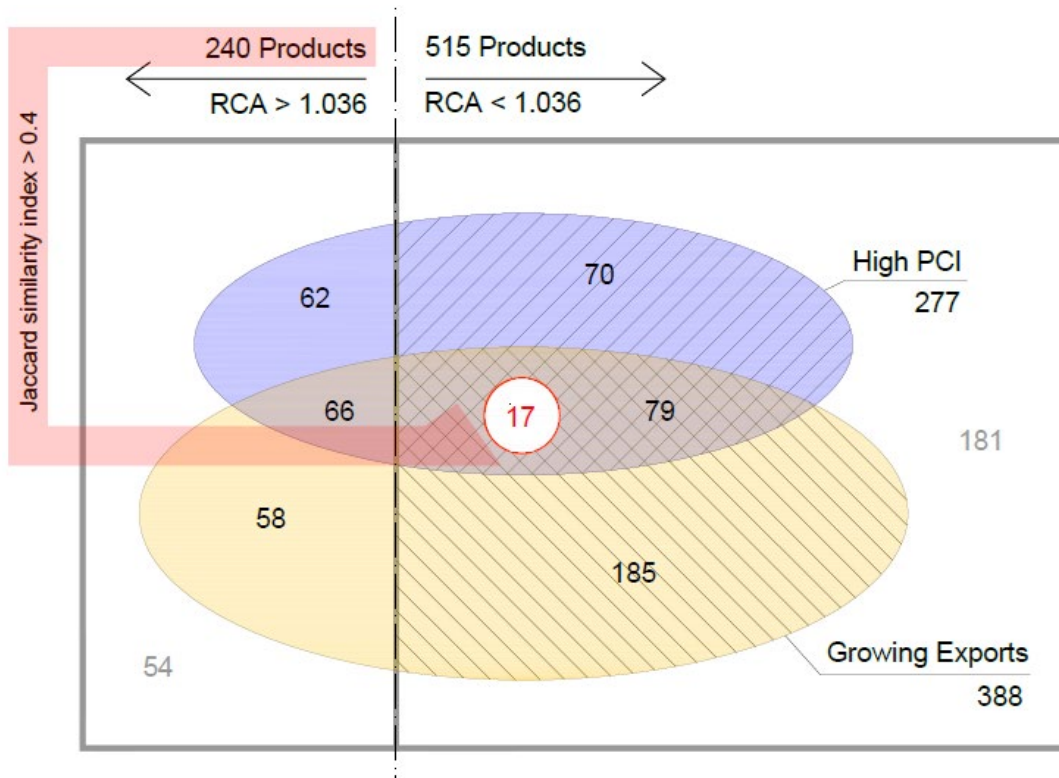
D. Assessment of the similarity of promising products to the products Czechia currently produces with comparative advantage

We compute the product relatedness and create the product space. The results for the Balassa index are transformed into a binary system, where 0 corresponds to comparative disadvantage ($RCA_{ij} < 1$) and 1 to comparative advantage ($RCA_{ij} > 1$). Subsequently, we construct a proximity matrix for products based on the Jaccard similarity index, a statistical measure to identify similarity of sets.

The Jaccard similarity index holds values from 0 to 1. Values closer to unity indicate stronger relatedness and vice versa. Let the Jaccard similarity index compare similarity between products that

Czechia currently exports with comparative advantage ($RCA_{ij} > \overline{RCA_i}$) and promising products. For reasons of clarity, the above-mentioned methodology is illustrated in Figure 1.

Figure 1 / Methodology



We then build the world product space network, depicting the mutual relatedness (proximity) of exported products, based on similar productive knowledge and the capabilities required to produce them (Hausmann and Hidalgo, 2011; Hausmann et al., 2014). Following Hidalgo et al. (2007) we set the threshold for proximity between products at > 0.4 , in order to eliminate a number of weak connections.

RESULTS AND DISCUSSION

Having performed the steps described in the methodology section, we identified 79 product groups with a potential for future export diversification. These products meet the following criteria: i) they demonstrate below-average comparative advantage ($RCA < 1.036$); ii) they demonstrate higher expected future PCI than products currently produced with a comparative advantage ($PCI^{t+1} > 0.439$); and iii) their forecast export growth rates are positive. Furthermore, we tested their similarity to products currently exported with comparative advantage and considered only those that have a Jaccard similarity index > 0.4 . We thus identified 17 products that meet the above conditions, of which the top 10 are presented in Table 1.

Table 1 / Promising products of Czechia

	SITC	SITC description	Predicted RCA	Predicted PCI
1	7284	Machinery for Specialised Industries and Parts thereof, nes	0.91	2.35
2	7281	Machine-tools for Specialised Industries Parts or Accessories, nes	0.92	1.41
3	7451	Power Hand Tools, Pneumatic or Non-electric, and Parts thereof, nes	0.80	1.74
4	5824	Polyamides	0.40	1.56
5	6631	Hand Polishing Stone, Grindstones, Grinding Wheels, etc	0.89	1.23
6	5827	Silicones	0.52	1.77
7	7442	Lifting, Handling, Loading Machinery, Telphers and Conveyors	0.87	0.85
8	7452	Other Non-electrical Machines and Parts thereof, nes	0.80	0.72
9	7758	Electro-thermic Appliances, nes	0.80	0.72
10	5829	Other Condensation, Polycondensation or Polyaddition Products	0.06	1.15

Source: own calculations.

Of the 17 products, seven fall into the Machinery and Transport Equipment (SITC 7) category; six into Chemicals and Related Products (SITC 5); three into Manufactured Goods (SITC 6); and one into Miscellaneous Manufactured Articles (SITC 8).

CONCLUSION

Czechia is a highly export-oriented country. Despite being identified as one of the countries with the highest economic complexity in the world, its innovative capabilities are still lower than in Western European countries. This may be related to the fact that, as well as intermediates imported from other countries, foreign ownership plays a significant role in Czech exports. At the same time, Czechia occupies the core of the so-called product space, and thus its scope for export diversification is quite large. The country can therefore benefit from a wide range of already existing cognitive knowledge, which can facilitate implementation of new industrial specialisation.

Based on similarities in existing productive knowledge (exported products in which Czechia has comparative advantage), we identified 17 product categories that have high complexity, whose exports are expected to grow in the future, and which are close to the production capabilities present in Czechia. Specifically, we consider three product groups – machinery for specialised industries, machine-tools for specialised industries, and pneumatic or non-electric hand tools – to hold out good prospects for Czechia, as they are manufactured by several large, highly innovative firms in the country. Whereas *Machinery for Specialised Industries and Parts thereof (SITC 7284)* is quite well established in terms of exports and the number of domestically owned large and innovative firms, *Machine-Tools for Specialised Industries Parts or Accessories (SITC 7281)* and *Power Hand Tools, Pneumatic or Non-Electric, and Parts thereof (SITC 7451)* have lower predicted shares of total exports and a smaller number of firms.

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Monthly and quarterly statistics for Central, East and Southeast Europe

The monthly and quarterly statistics cover **22 countries** of the CESEE region. The graphical form of presenting statistical data is intended to facilitate the **analysis of short-term macroeconomic developments**. The set of indicators captures trends in the real and monetary sectors of the economy, in the labour market, as well as in the financial and external sectors.

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: <https://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
ER	exchange rate
GDP	Gross Domestic Product
HICP	Harmonised Index of Consumer Prices (for new EU member states)
LFS	Labour Force Survey
NPISHs	Non-profit institutions serving households
p.a.	per annum
PPI	Producer Price Index
reg.	registered
y-o-y	year on year

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
BYN	Belarusian rouble	PLN	Polish zloty	UAH	Ukrainian hryvnia
CZK	Czech koruna	RON	Romanian leu		

EUR euro – national currency for Montenegro, Kosovo 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), Slovenia (from January 2007, euro-fixed before) and Croatia (from January 2023, euro-fixed before).

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

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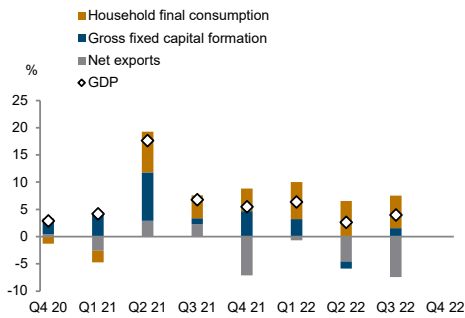
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Albania

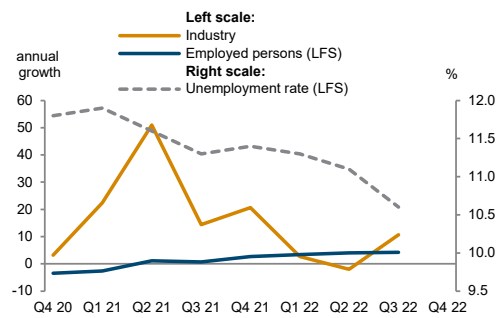
Real GDP growth and contributions

y-o-y



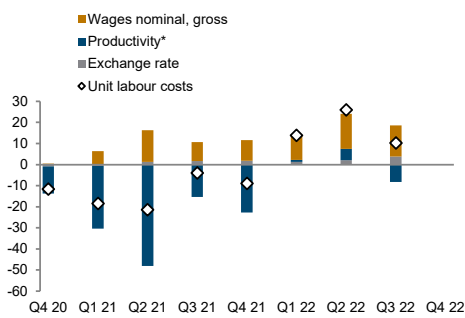
Real sector development

in %



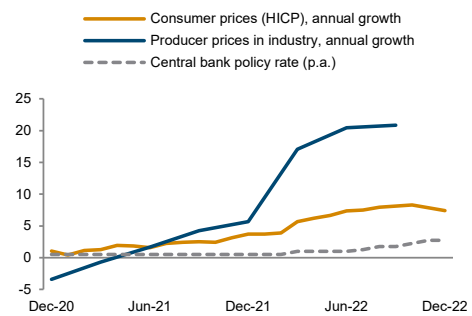
Unit labour costs in industry

annual growth rate in %



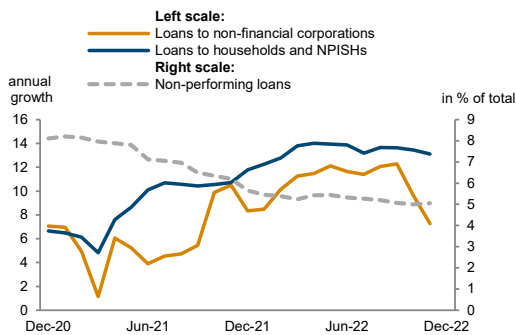
Inflation and policy rate

in %



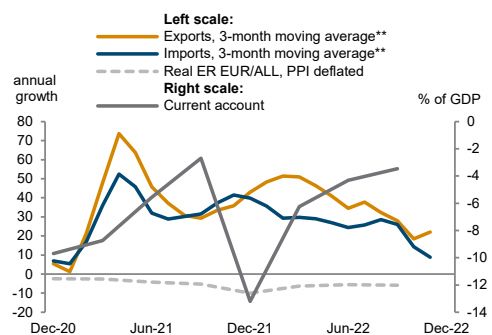
Financial indicators

in %



External sector development

in %



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

**EUR based.

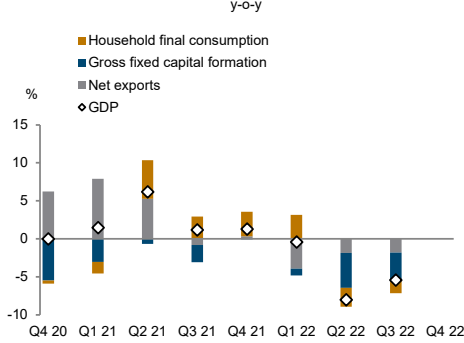
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

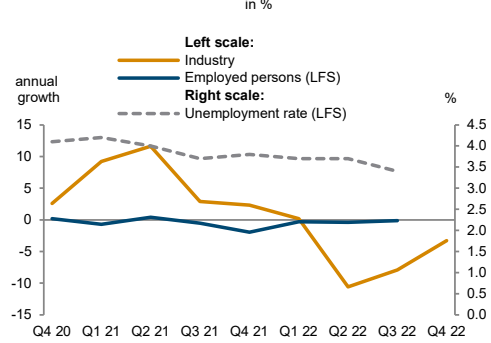
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Belarus

Real GDP growth and contributions



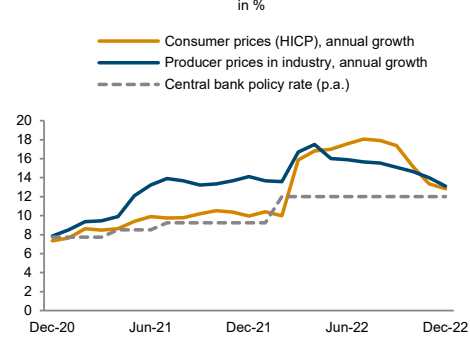
Real sector development



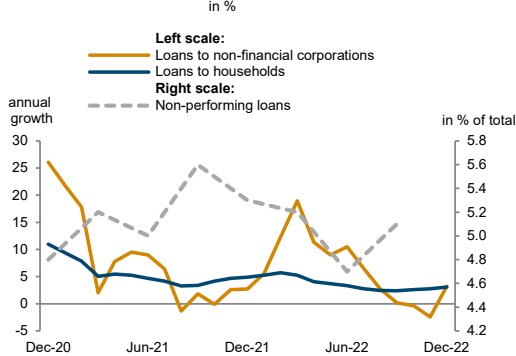
Unit labour costs in industry



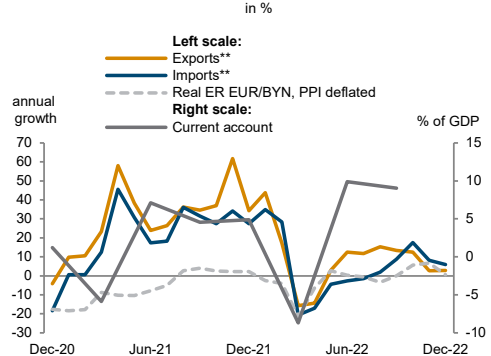
Inflation and policy rate



Financial indicators



External sector development



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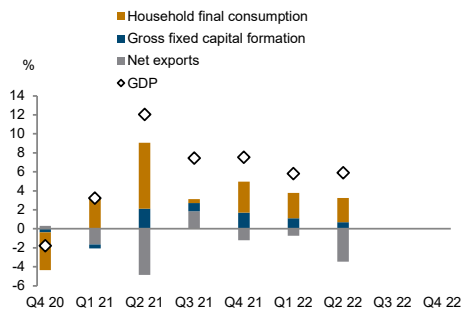
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Bosnia and Herzegovina

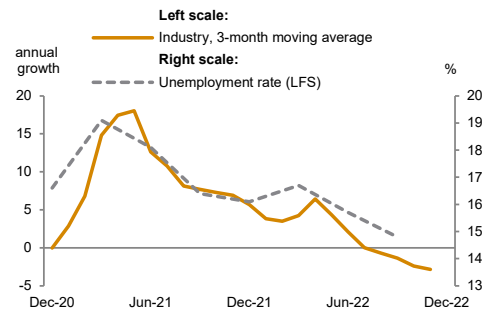
Real GDP growth and contributions

y-o-y



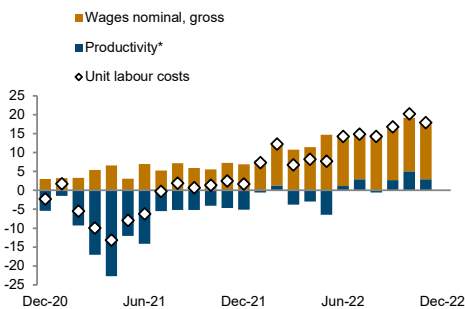
Real sector development

in %



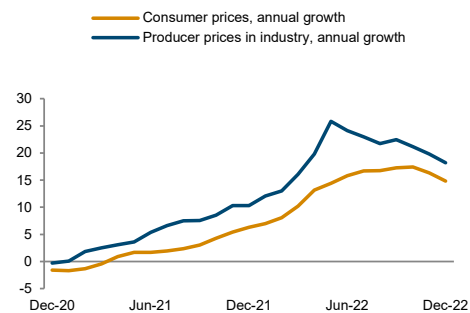
Unit labour costs in industry

annual growth rate in %



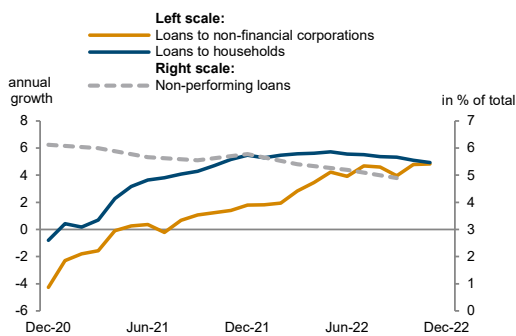
Inflation

in %



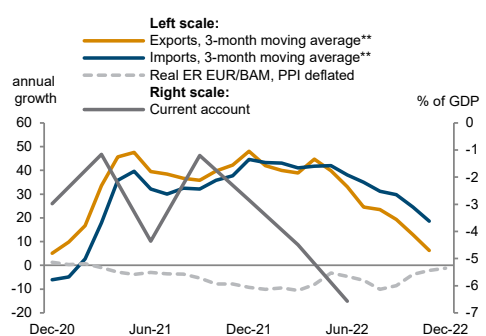
Financial indicators

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External sector development

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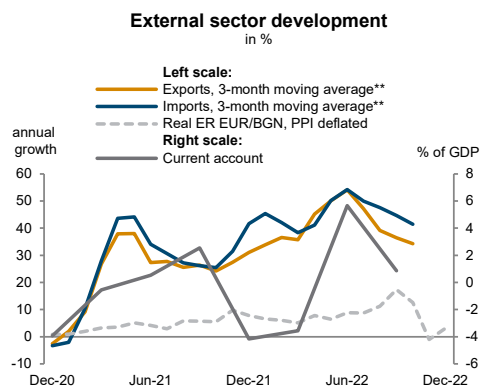
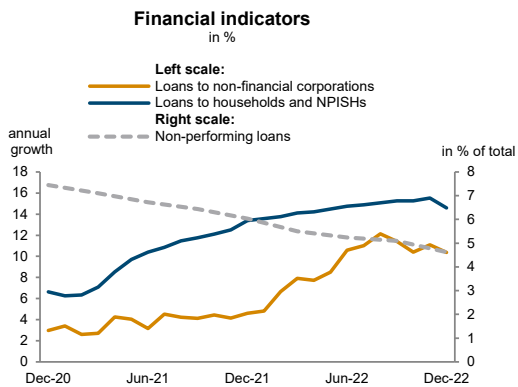
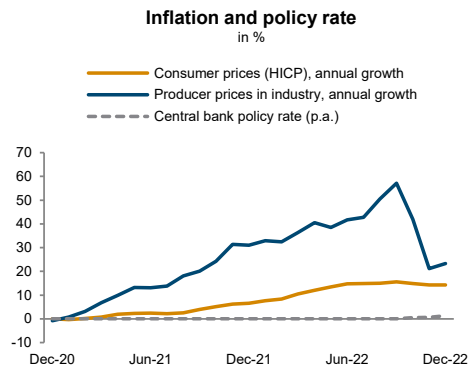
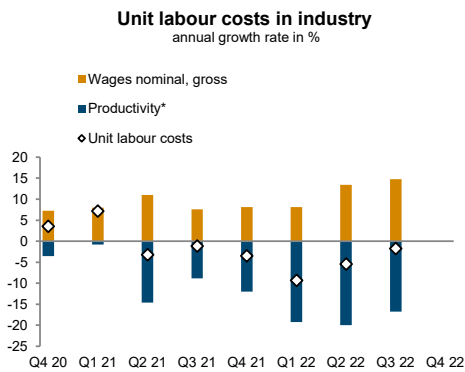
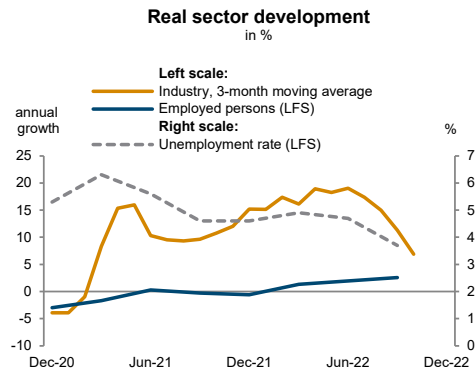
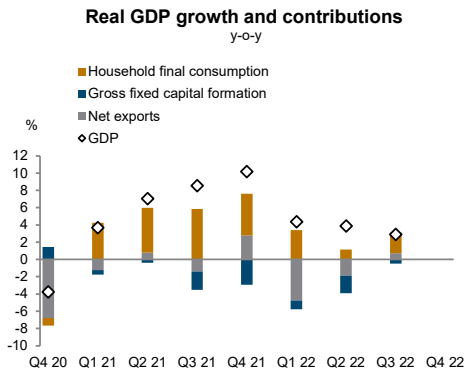
**EUR based.

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Bulgaria



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

**EUR based.

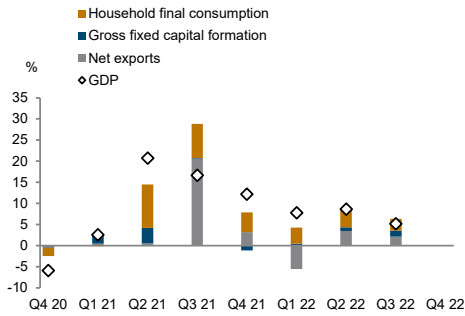
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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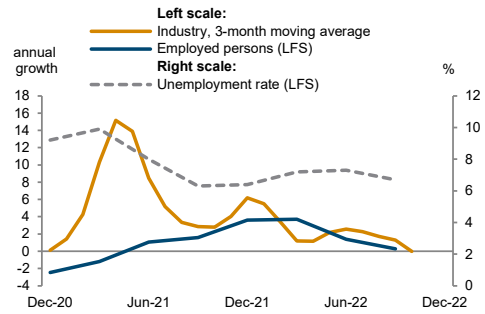
<https://data.wiiw.ac.at/monthly-database.html>

Croatia

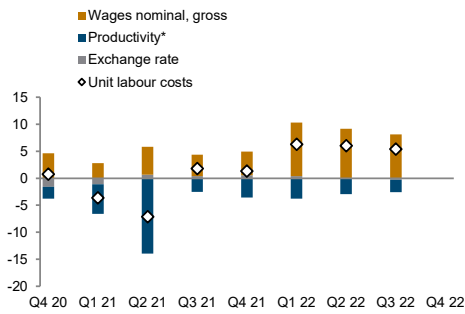
Real GDP growth and contributions
y-o-y



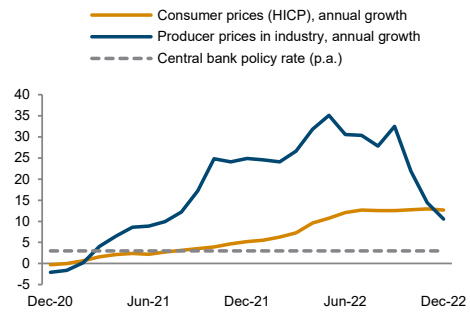
Real sector development
in %



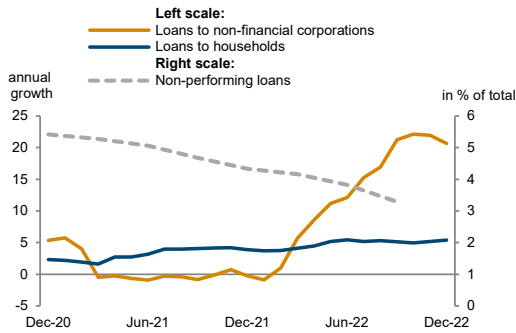
Unit labour costs in industry
annual growth rate in %



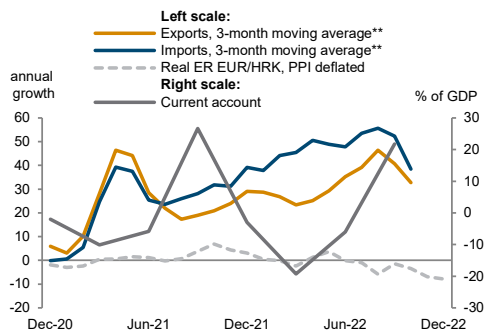
Inflation and policy rate
in %



Financial indicators
in %



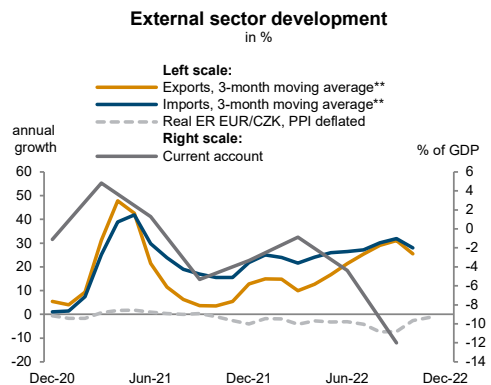
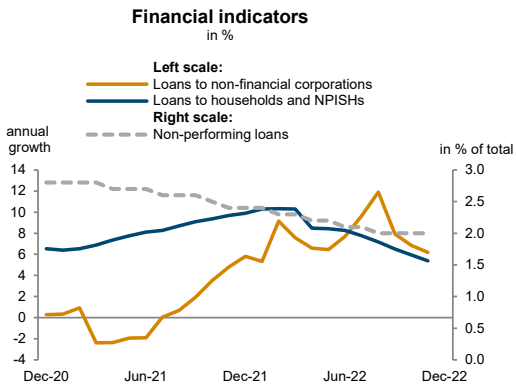
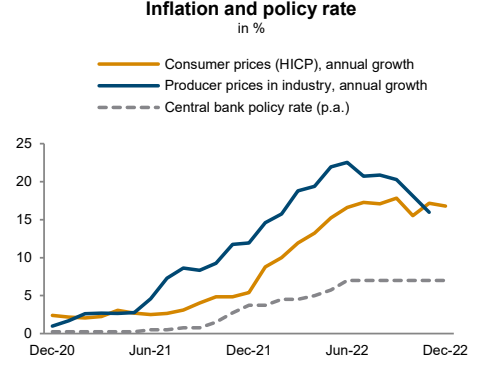
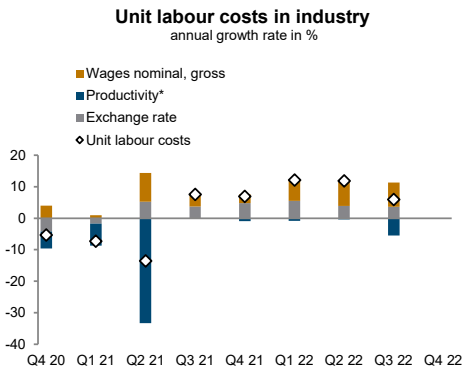
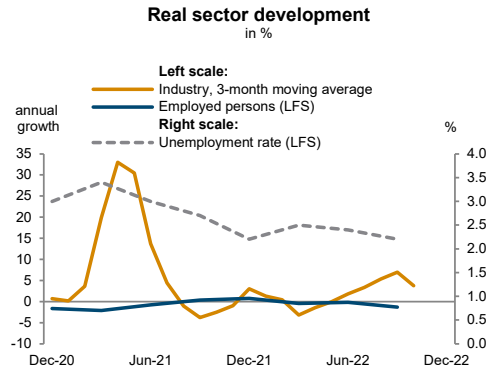
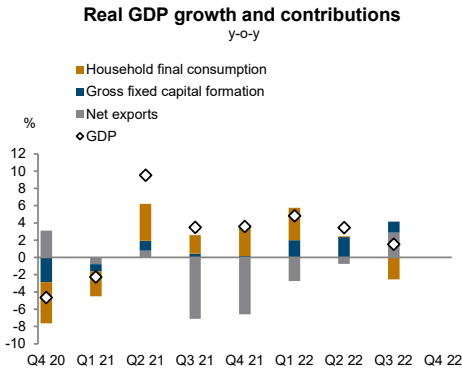
External sector development
in %



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

Source: wiiw Monthly Database incorporating Eurostat and national statistics.
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Czechia

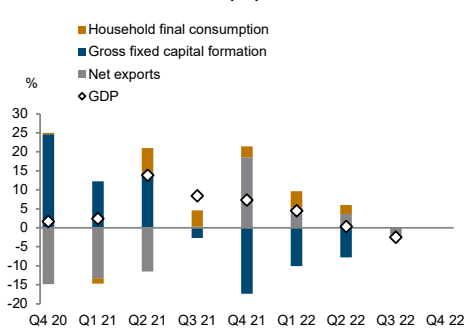


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 **EUR based.

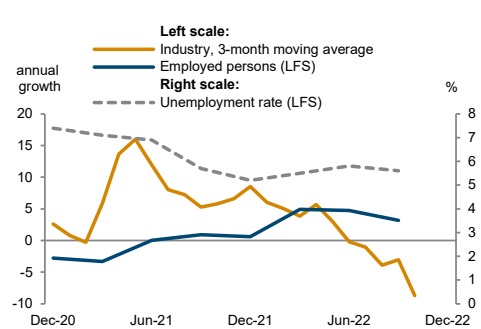
Source: wiiw Monthly Database incorporating Eurostat and national statistics.
 Baseline data, country-specific definitions and methodological breaks in time series are available under:
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Estonia

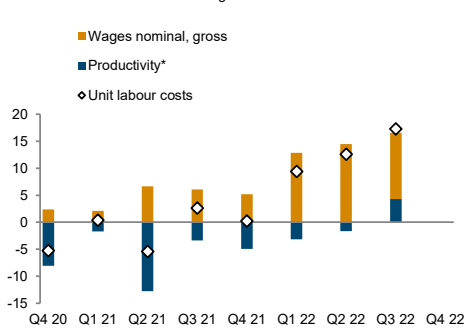
Real GDP growth and contributions



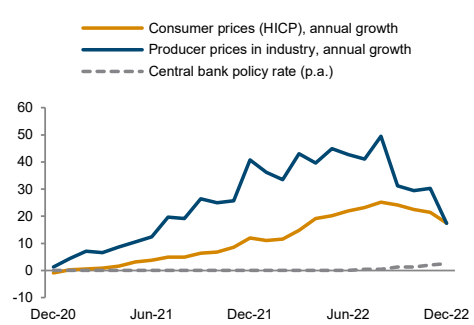
Real sector development



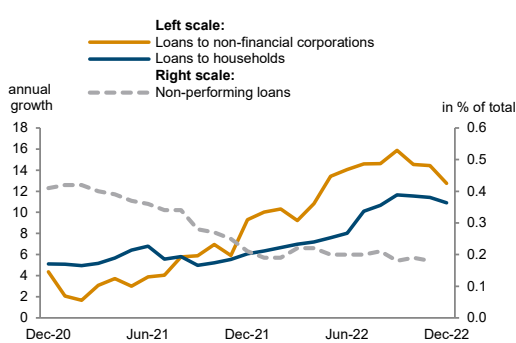
Unit labour costs in industry



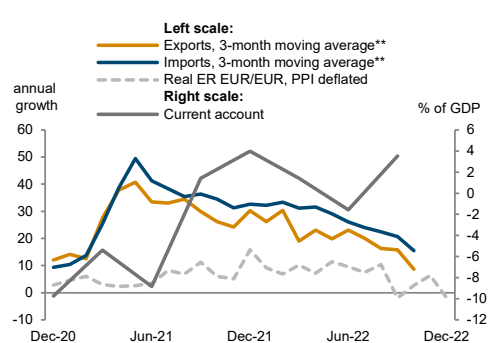
Inflation and policy rate



Financial indicators



External sector development



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**EUR based.

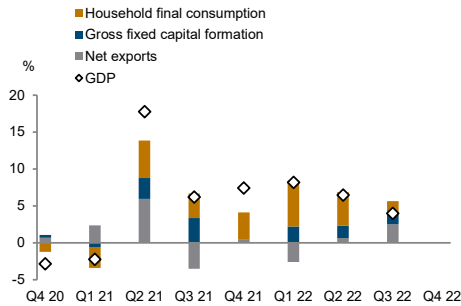
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

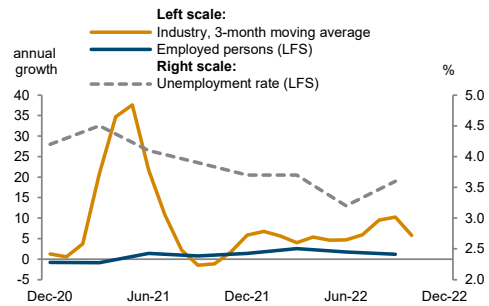
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Hungary

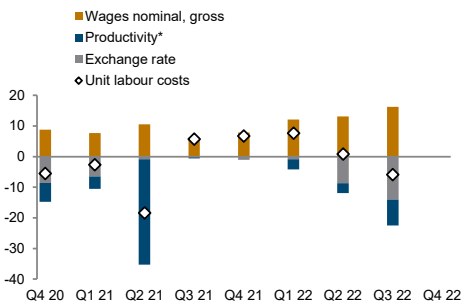
Real GDP growth and contributions
y-o-y



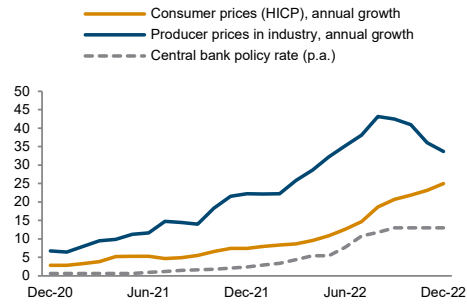
Real sector development
in %



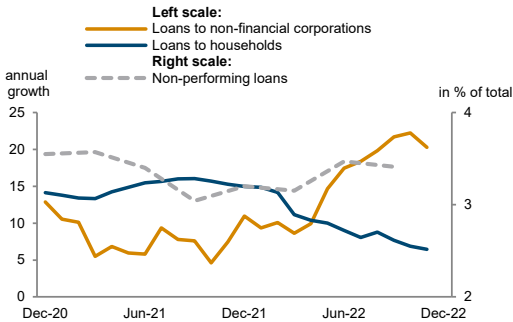
Unit labour costs in industry
annual growth rate in %



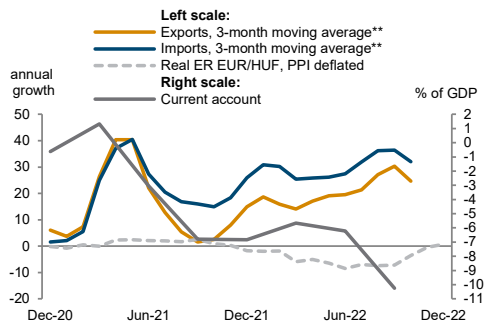
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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**EUR based.

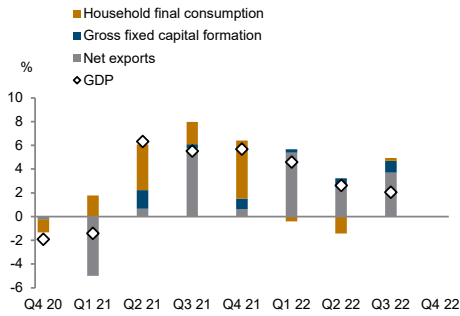
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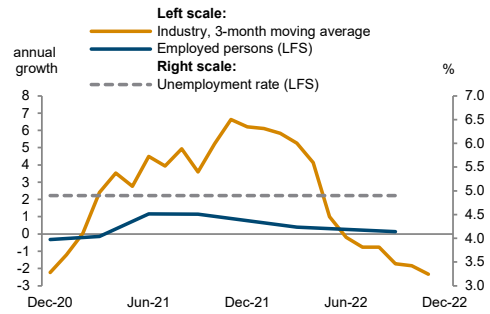
<https://data.wiiw.ac.at/monthly-database.html>

Kazakhstan

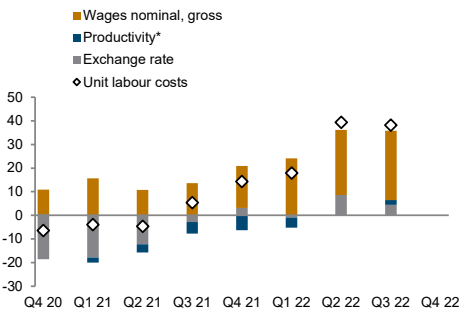
Real GDP growth and contributions
y-o-y



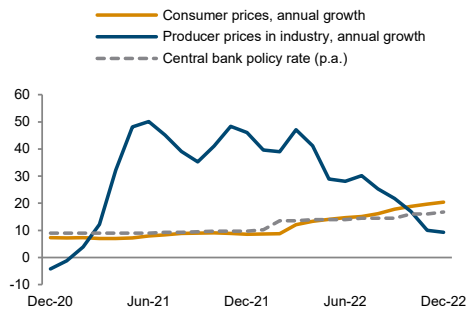
Real sector development
in %



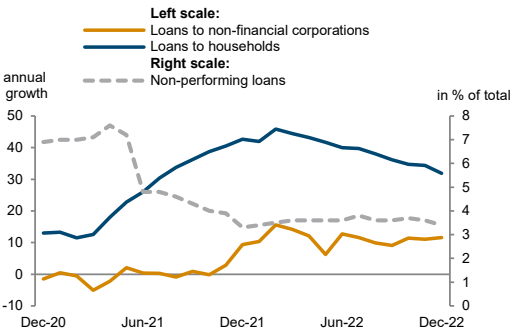
Unit labour costs in industry
annual growth rate in %



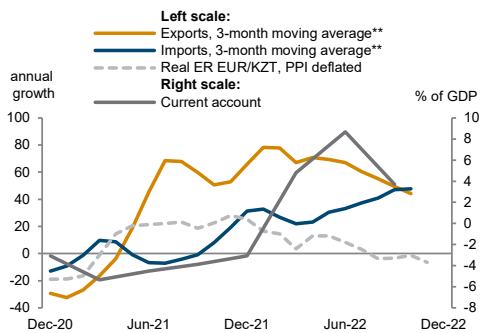
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %

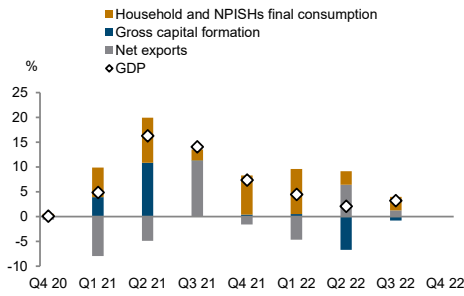


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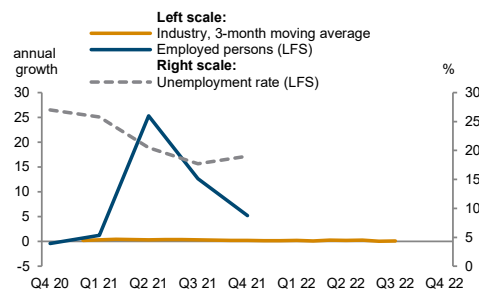
Source: wiiw Monthly Database incorporating Eurostat and national statistics.
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Kosovo

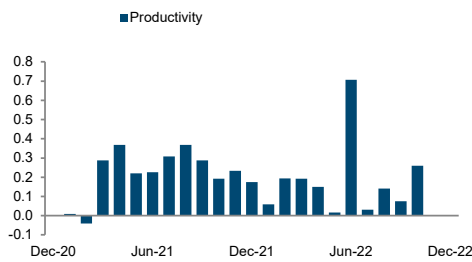
Real GDP growth and contributions
y-o-y



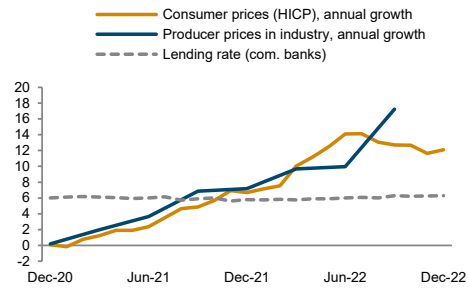
Real sector development
in %



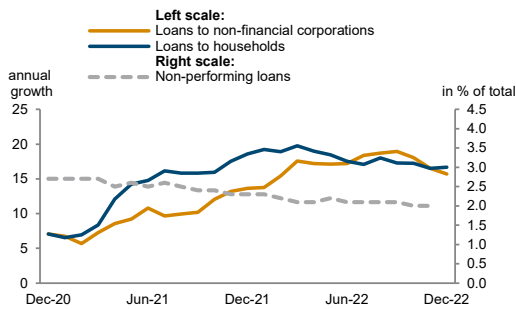
Productivity in industry
annual growth rate in %



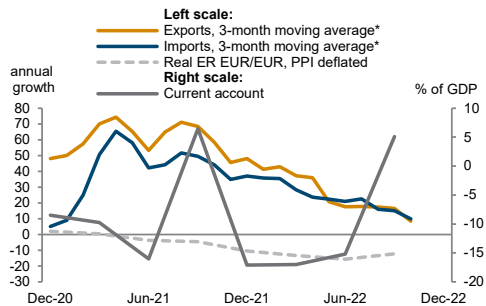
Inflation and lending rate
in %



Financial indicators
in %



External sector development
in %



*EUR based.

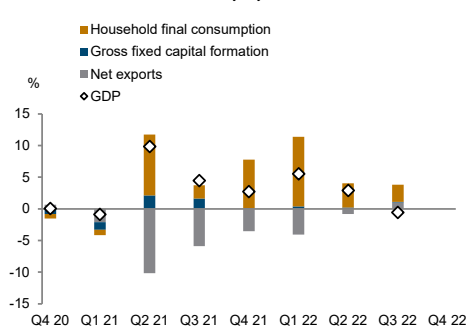
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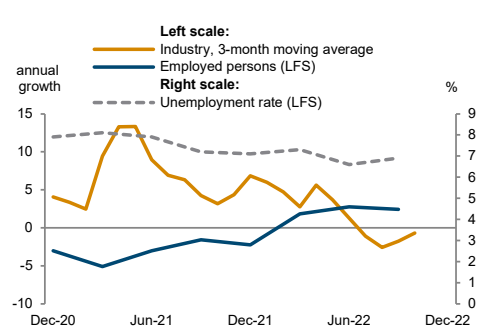
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Latvia

Real GDP growth and contributions



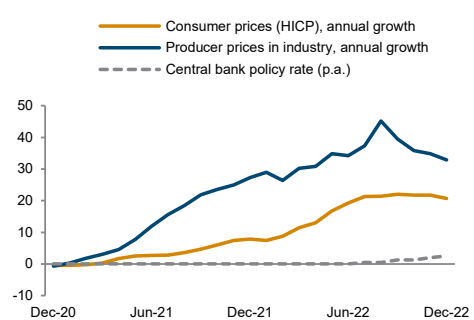
Real sector development



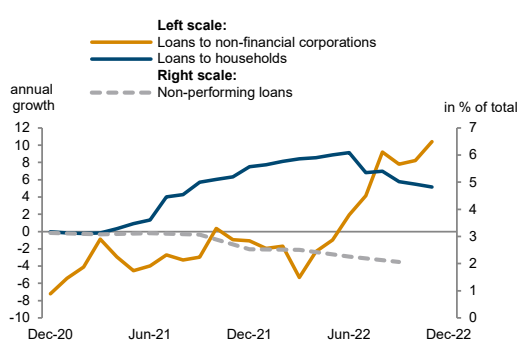
Unit labour costs in industry



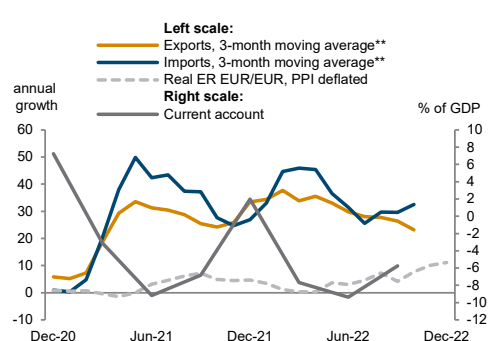
Inflation and policy rate



Financial indicators



External sector development



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**EUR based.

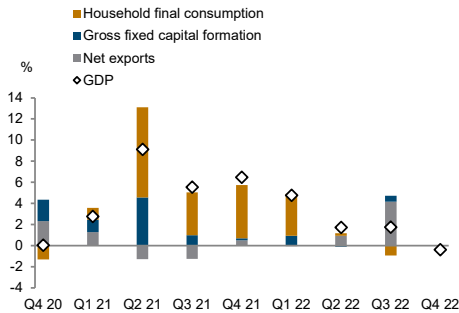
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

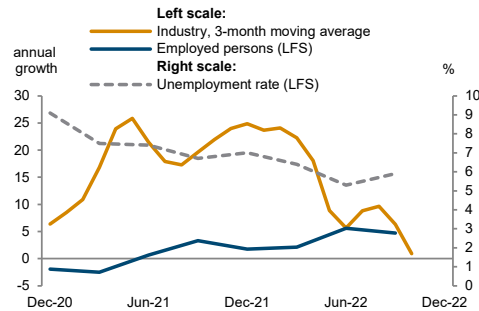
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Lithuania

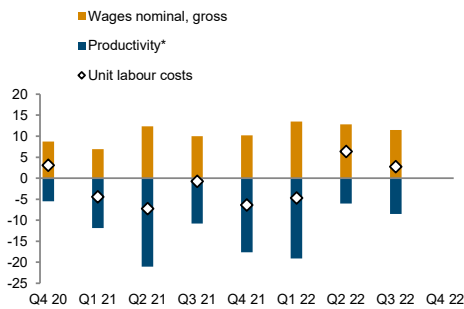
Real GDP growth and contributions
y-o-y



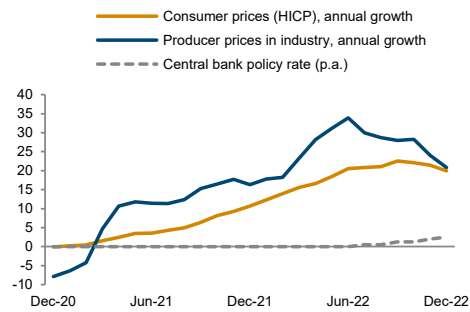
Real sector development
in %



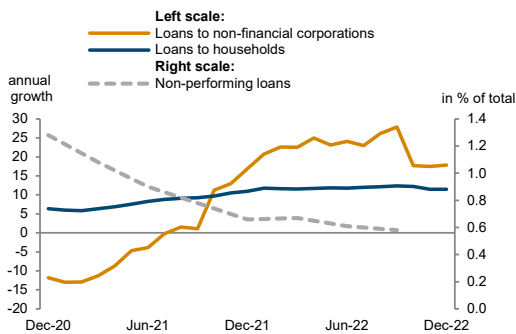
Unit labour costs in industry
annual growth rate in %



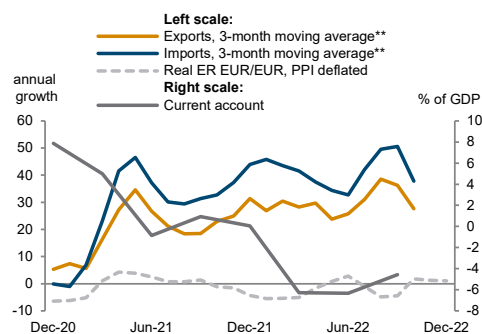
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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**EUR based.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

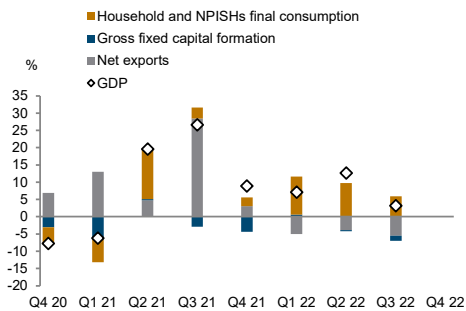
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Montenegro

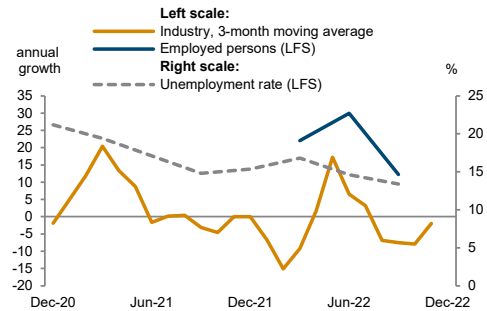
Real GDP growth and contributions

y-o-y



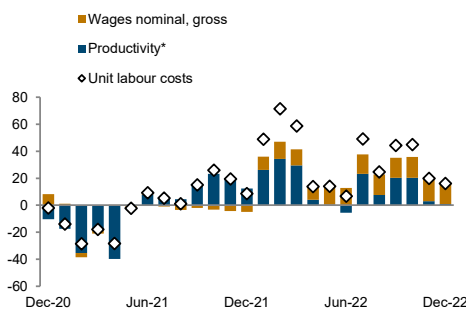
Real sector development

in %



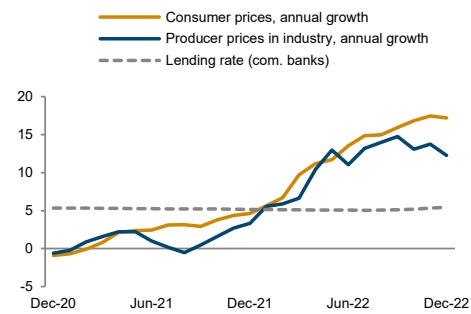
Unit labour costs in industry

annual growth rate in %



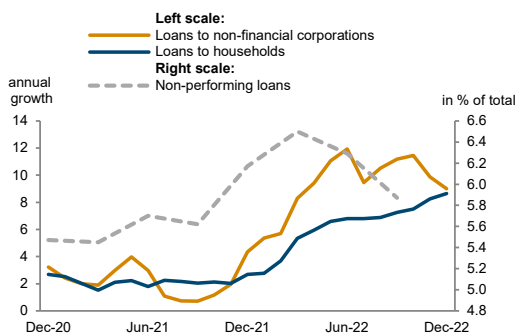
Inflation and lending rate

in %



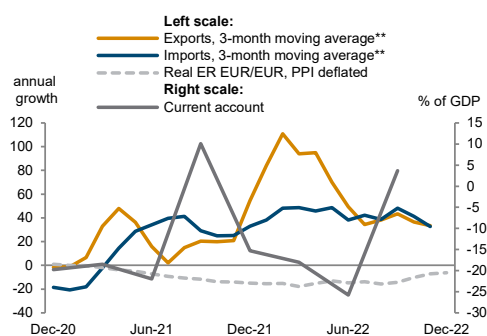
Financial indicators

in %



External sector development

in %



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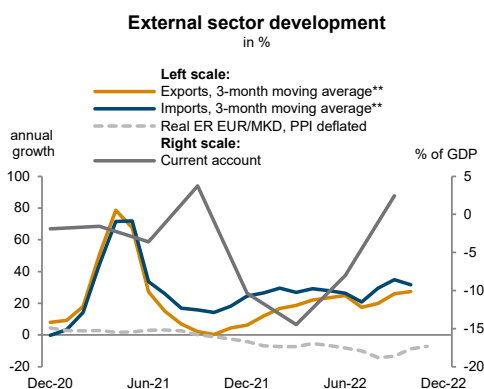
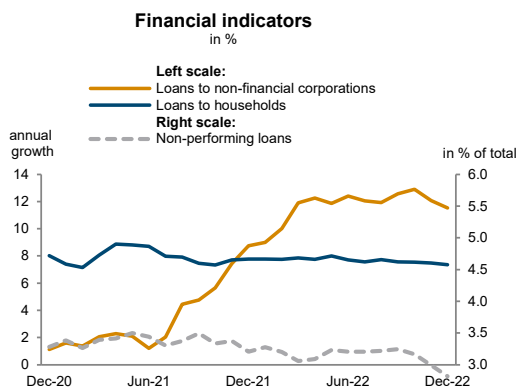
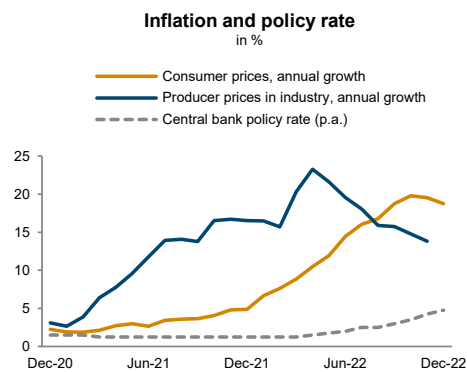
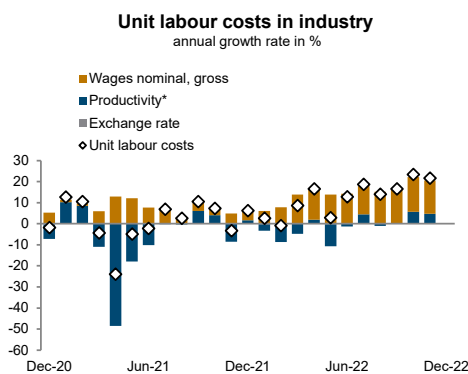
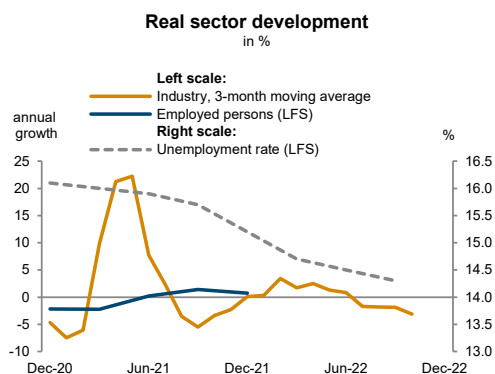
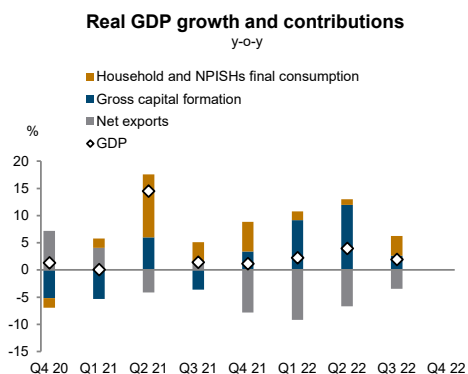
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North Macedonia

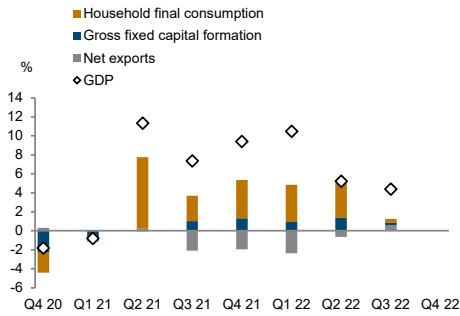


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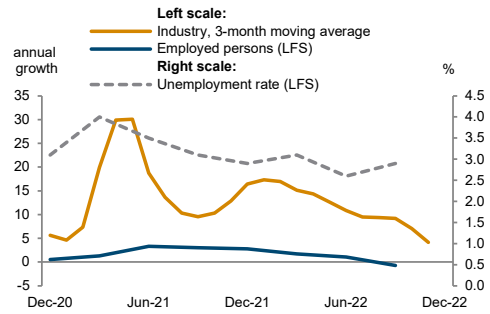
Source: wiiw Monthly Database incorporating Eurostat and national statistics.
 Baseline data, country-specific definitions and methodological breaks in time series are available under:
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Poland

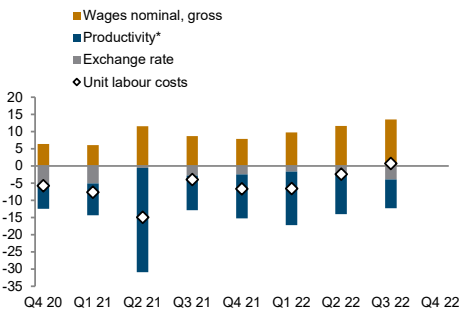
Real GDP growth and contributions
y-o-y



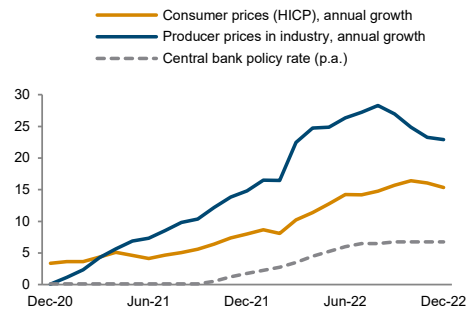
Real sector development
in %



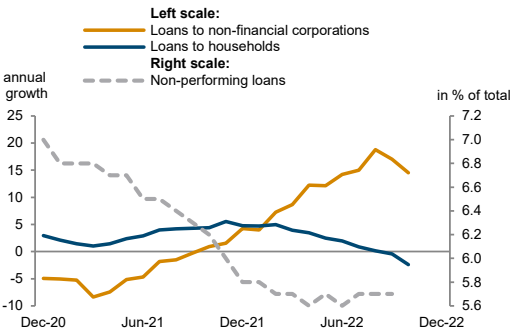
Unit labour costs in industry
annual growth rate in %



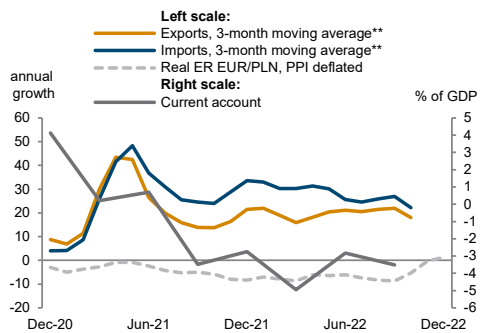
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %

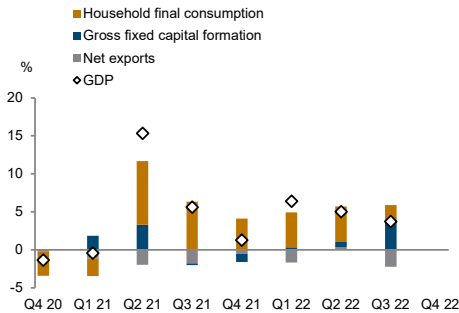


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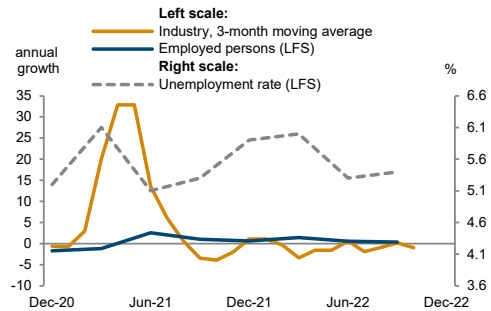
Source: wiiw Monthly Database incorporating Eurostat and national statistics.
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Romania

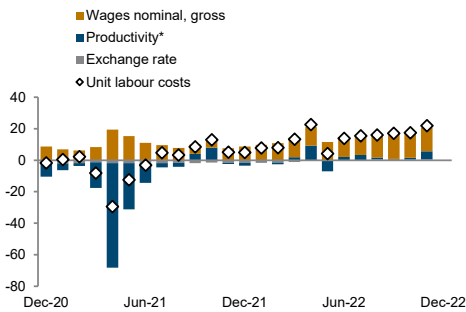
Real GDP growth and contributions
y-o-y



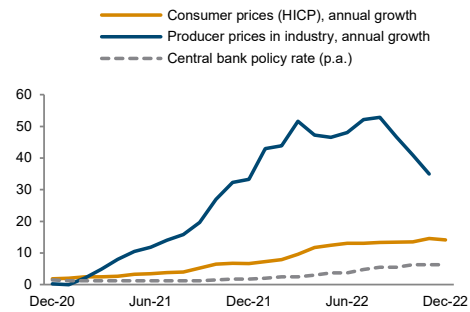
Real sector development
in %



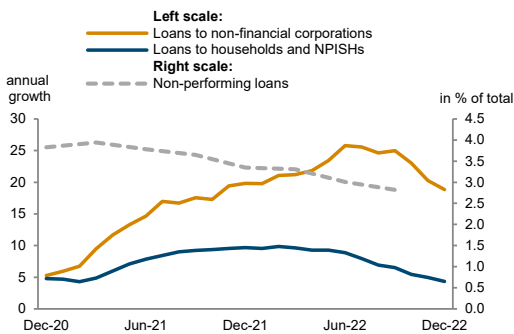
Unit labour costs in industry
annual growth rate in %



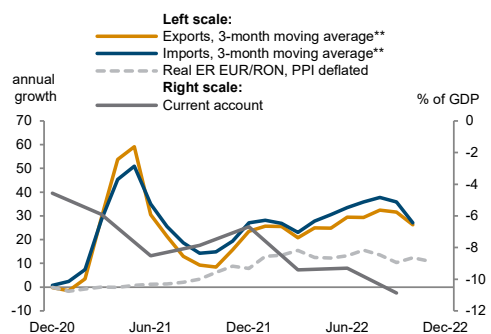
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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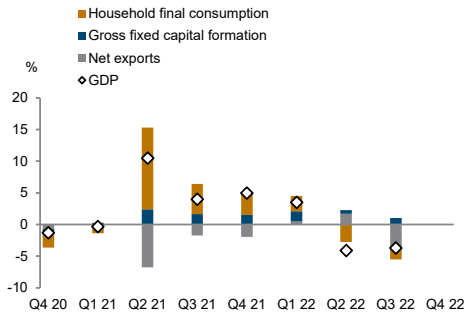
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

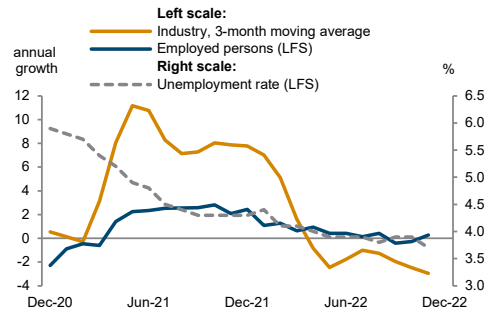
<https://data.wiiw.ac.at/monthly-database.html>

Russia

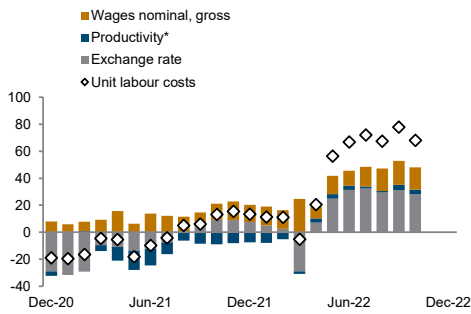
Real GDP growth and contributions
y-o-y



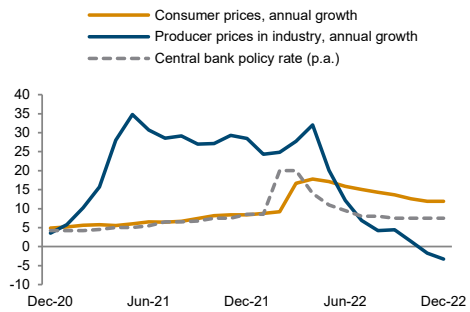
Real sector development
in %



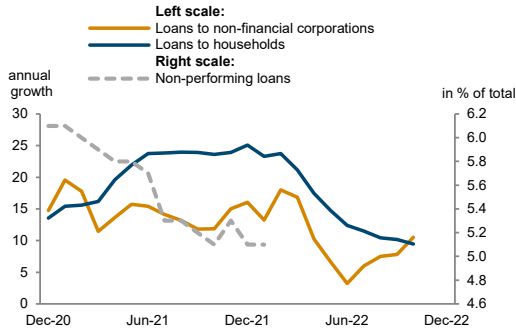
Unit labour costs in industry
annual growth rate in %



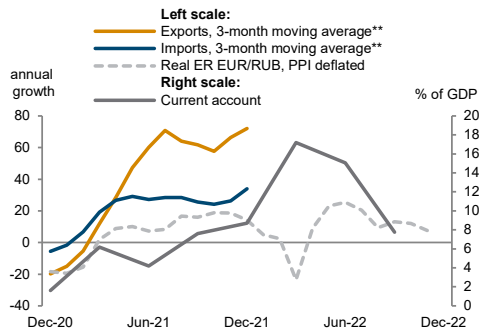
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %

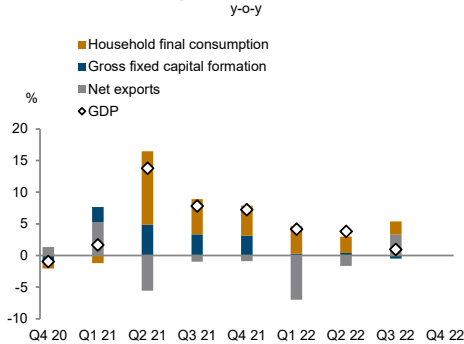


*Positive values of the productivity component on the graph reflect decline in productivity and vice versa.
**EUR based.

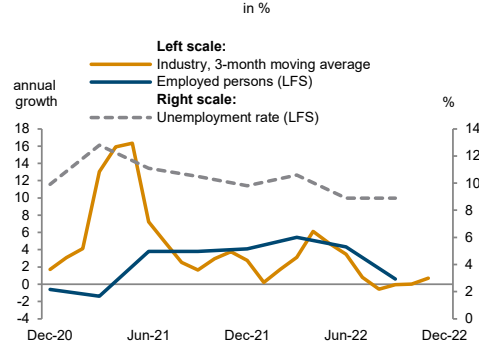
Source: wiiw Monthly Database incorporating Eurostat and national statistics.
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<https://data.wiiw.ac.at/monthly-database.html>

Serbia

Real GDP growth and contributions



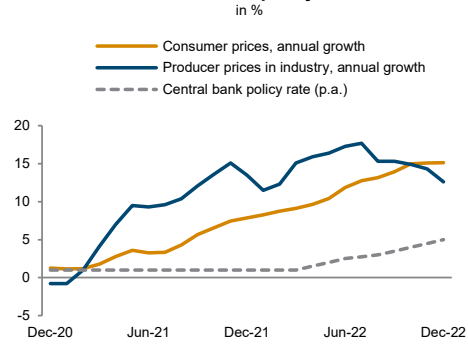
Real sector development



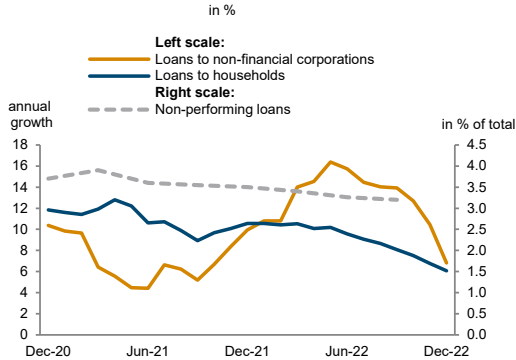
Unit labour costs in industry



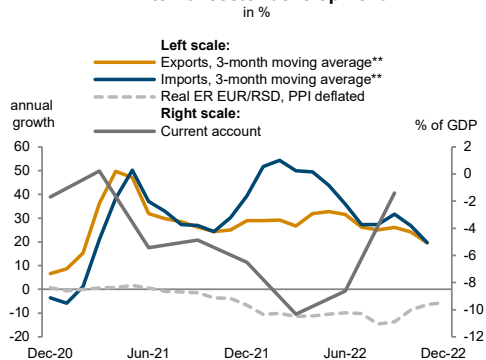
Inflation and policy rate



Financial indicators



External sector development



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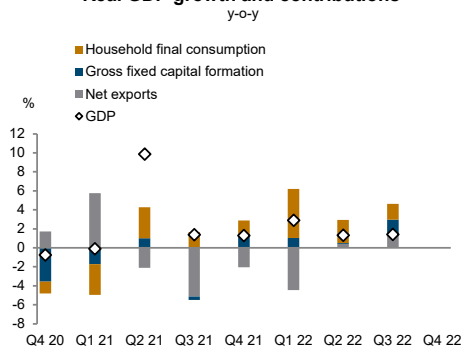
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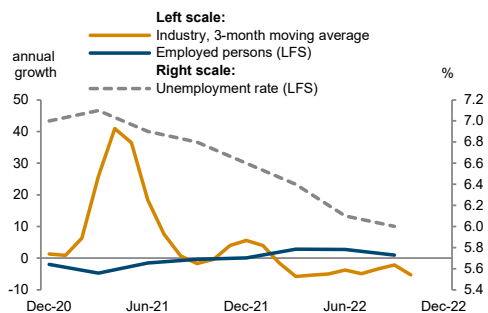
<https://data.wiiw.ac.at/monthly-database.html>

Slovakia

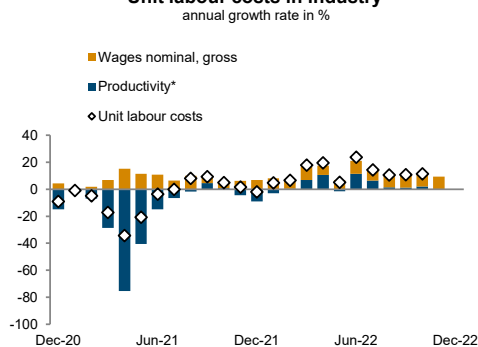
Real GDP growth and contributions



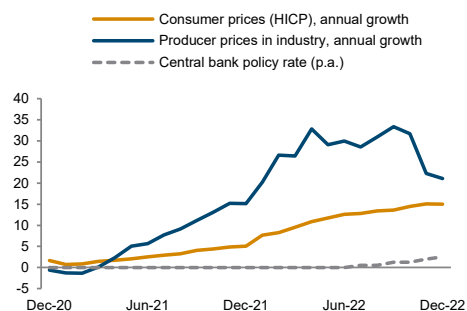
Real sector development



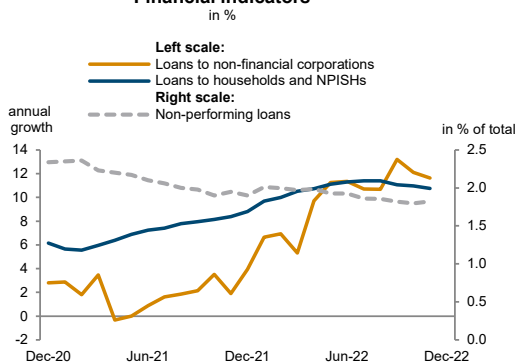
Unit labour costs in industry



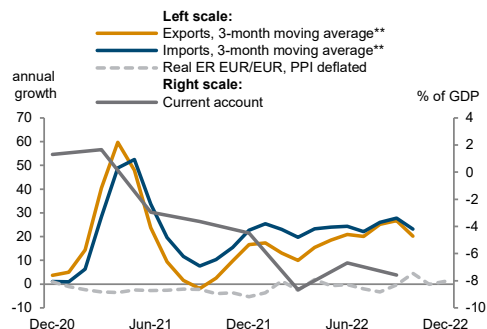
Inflation and policy rate



Financial indicators



External sector development



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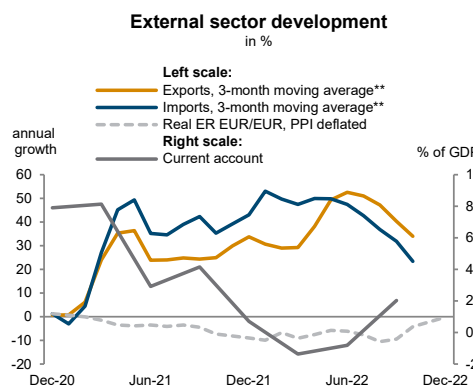
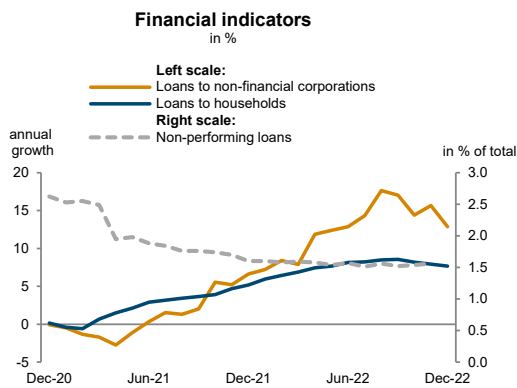
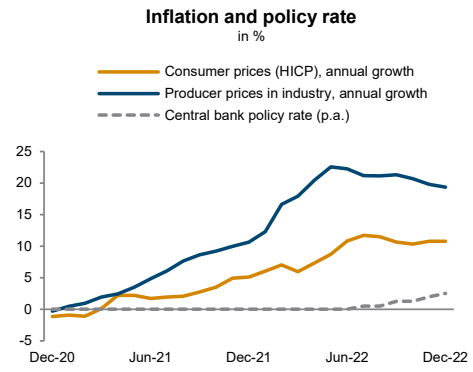
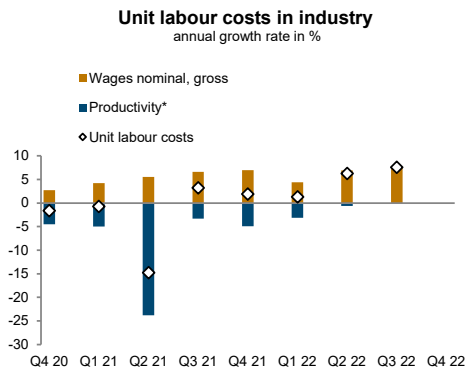
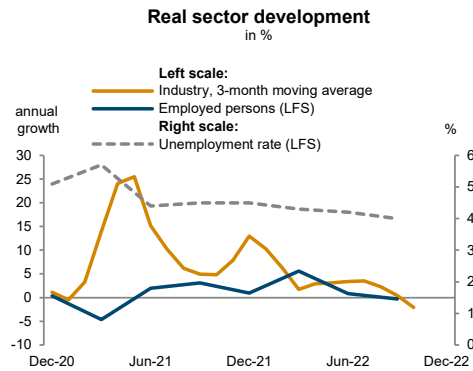
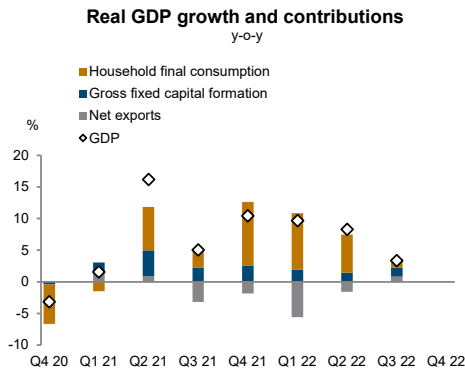
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Slovenia

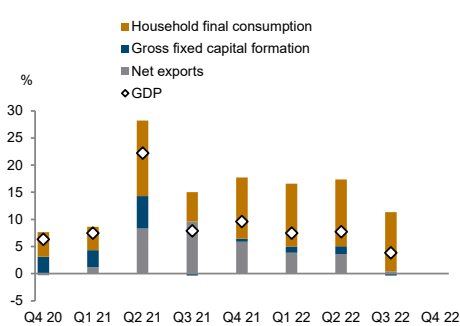


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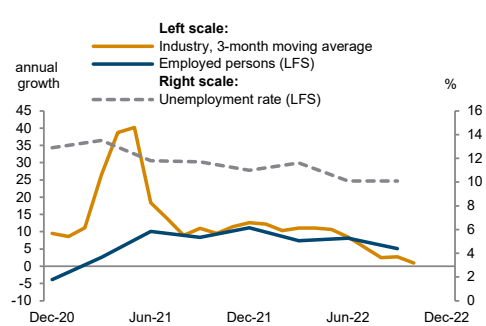
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Turkey

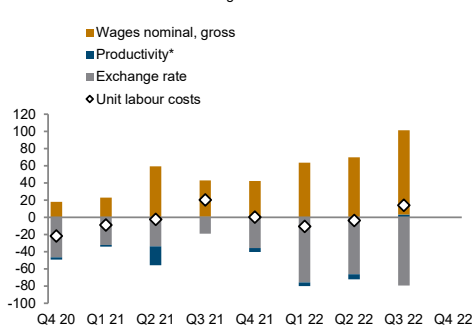
Real GDP growth and contributions



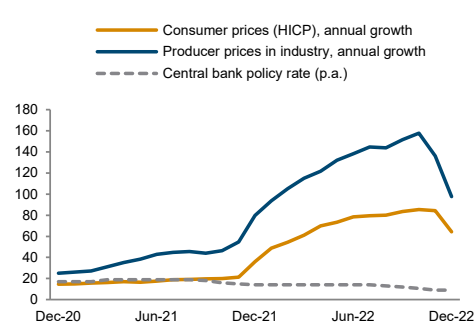
Real sector development



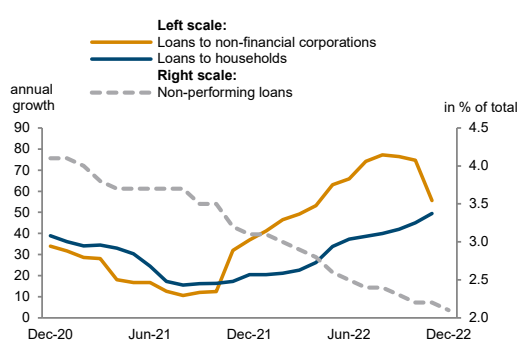
Unit labour costs in industry



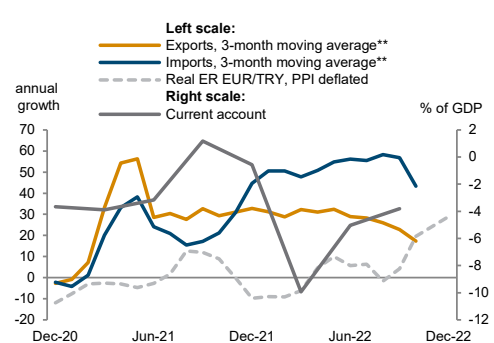
Inflation and policy rate



Financial indicators



External sector development



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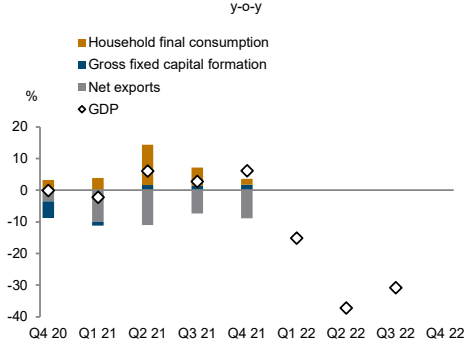
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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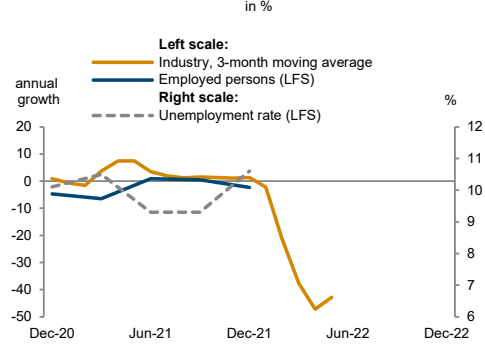
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Ukraine

Real GDP growth and contributions



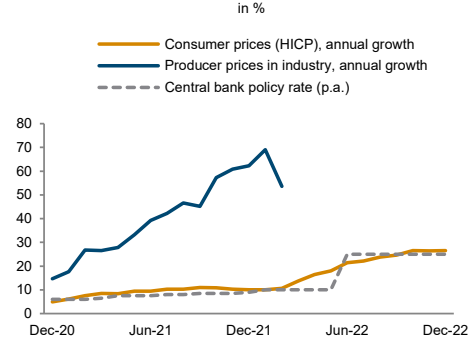
Real sector development



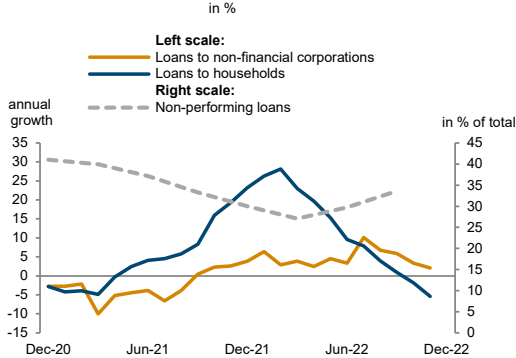
Unit labour costs in industry



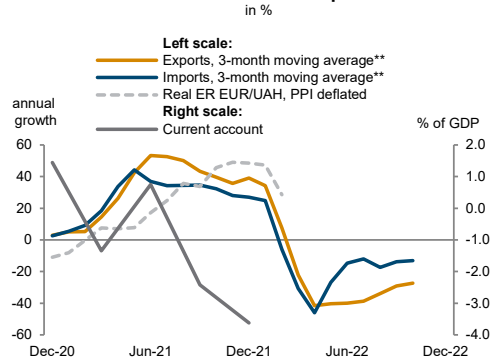
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Index of subjects – February 2022 to February 2023

Albania	economic situation	2023/1, 2022/7-8
Austria	economic impact of the war in Ukraine	2022/7-8
Belarus	economic situation	2023/1, 2022/7-8
Bosnia and Herzegovina	economic situation	2023/1, 2022/7-8
Bulgaria	economic situation	2023/1, 2022/7-8
China	FDI from the EU	2022/3
Croatia	economic situation	2023/1, 2022/7-8
Czechia	economic situation	2023/1, 2022/7-8
	export specialisation	2023/2
Estonia	economic situation	2023/1, 2022/7-8
Hungary	economic situation	2023/1, 2022/7-8
Kazakhstan	economic situation	2023/1, 2022/7-8
Kosovo	economic situation	2023/1, 2022/7-8
Latvia	economic situation	2023/1, 2022/7-8
Lithuania	economic situation	2023/1, 2022/7-8
Moldova	economic situation	2023/1, 2022/7-8
Montenegro	economic situation	2023/1, 2022/7-8
North Macedonia	economic situation	2023/1, 2022/7-8
Poland	economic situation	2023/1, 2022/7-8
Romania	economic situation	2023/1, 2022/7-8
Russia	economic effects of mobilisation	2022/10
	economic situation	2023/1, 2022/7-8
	role in EU energy crisis	2022/10
	trade and value chain integration with the EU and EU-CEE	2022/4
	war economy	2022/3
Serbia	economic situation	2023/1, 2022/7-8
Slovakia	economic situation	2023/1, 2022/7-8
Slovenia	economic situation	2023/1, 2022/7-8
Turkey	economic situation	2023/1, 2022/7-8
Ukraine	economic situation	2023/1, 2022/7-8
	fiscal situation	2022/10
	post-war reconstruction	2023/2
	trade and value chain integration with the EU and EU-CEE	2022/4
	war refugees	2022/4

(continued on the next page)

**multi-country articles
and statistical overviews**

business services sector in CESEE	2022/2
current developments: CESEE	2023/1, 2022/7-8
digital endowments and comparative advantage	2022/6
economic and environmental convergence of EU regions	2022/9
economic transformation: thirty years	2022/9
energy crisis and phasing out of coal in EU regions	2022/9
energy dependence on Russia and inflation in the EU	2022/12
EU economic policy	2022/6
EU institutions	2022/12
FDI in CESEE: recent trends	2022/11, 2022/5
functional specialisation in CESEE	2022/11
great disinflation hypothesis	2022/4
inflation and monetary policy response	2022/2
price controls in the Western Balkans	2023/2
public debt and short-term interest rates	2022/12
semiconductor shortages in CESEE	2022/2

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