

COVID-19 is Complicating Global Trade Debates

**Trade Policy's About-turn in Times of Global Health
Distress**

A Network of Free Trade Agreements

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CONTENTS

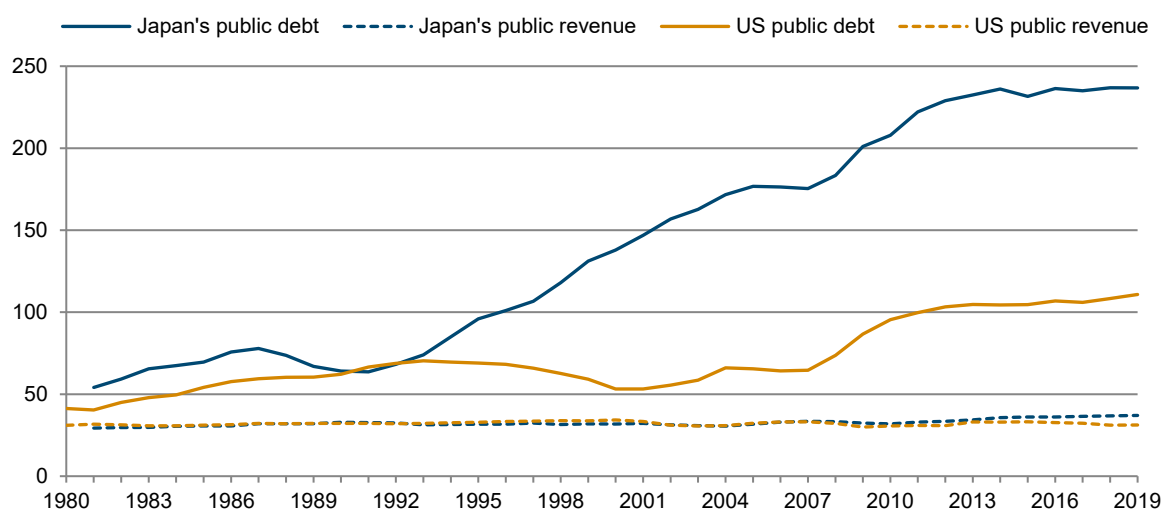
Chart of the month: Ricardian equivalence does not hold in practice.....	1
Opinion Corner: COVID-19 is complicating global trade debates.....	2
Trade policy's about-turn in times of global health distress.....	5
A network of free trade agreements.....	12
Monthly and quarterly statistics for Central, East and Southeast Europe.....	18
Index of subjects – June 2019 to June 2020	42

Chart of the month: Ricardian equivalence does not hold in practice

BY LEON PODKAMINER

The coronavirus pandemic is prompting many countries to enact large-scale fiscal stimuli in order to fight recessions. Meanwhile, the so-called Ricardian equivalence doctrine suggests that fiscal deficits must be offset, more or less immediately, by cuts in spending by the private sector, 'rationally expecting' higher compensatory taxes to be levied in the future.¹ But how can the private sector ever come to such a belief? My guess is that the answer is 'by learning'. If practical experience were to teach the general public that there is no 'free lunch', then it should be true that public debt is inevitably followed, sooner or later, by 'penalising' taxation.

Public debt versus public revenue, as % of GDP: Japan and the US, 1980-2019



Source: AMECO.

Is this the case? Not quite, as suggested by the above chart, which shows the longer-run trajectories of public debt and public-sector revenue (as a share of GDP) for two countries: the US and Japan. As can be seen, the public revenue/GDP ratios have been essentially constant all along. The tax burden has not risen since the early 1980s. In contrast, the public debt/GDP ratios have been very dynamic: public spending in excess of public-sector revenue has been a constant feature of the long-term performance of both countries. Clearly, the private sectors, sensitive to reality (and not to long-defunct economic doctrines), cannot be assumed to be oblivious to empirical facts such as those illustrated by the chart above.

¹ See e.g. Abel, A.B. (2008), 'Ricardian Equivalence Theorem', in: Palgrave Macmillan (eds.) *The New Palgrave Dictionary of Economics*, Palgrave Macmillan, London. https://link.springer.com/referenceworkentry/10.1057/978-1-349-95121-5_1752-2

Opinion Corner* : COVID-19 is complicating global trade debates

BY JULIA GRÜBLER¹

Trade policy used to be a niche topic of limited interest to the public. In recent years, however, it has received a much wider audience, making it to the front pages of newspapers. The current global health crisis has pushed some major trade policy issues – including disputes between China and the US – into the background. But they will flare up again, once the biggest uncertainties related to COVID-19 have been weathered, potentially in more complex ways than before.

By the end of 2019, the hot topics in international trade were manifold and characterised by distinctly different policies pursued by the world's three biggest economies:² the United States, China and – caught in the crossfire – the European Union.

China's rapid economic development, partly attributed to unfair competition (e.g. state-owned enterprises, price dumping, violation of intellectual property rights), ultimately resulted in the declaration of a 'trade war' by the Trump administration. Import tariffs, which had been thought of as a trade policy tool that was becoming obsolete, experienced a dramatic comeback that continues to hurt the economies of both the US and China, as well as their trading partners. Analysis by the Peterson Institute for International Economics shows that China's tariffs³ on US exports increased from 8% in January 2018 to 21.1% in December 2019. During the same timeframe, US tariffs on Chinese exports soared from 3.1% to 21.0% (Bown, 2020).

The 'Phase-I Deal', signed in January 2020, might have propitiated the disputing parties, but managed trade (e.g. requiring China to increase imports of certain goods by about USD 95 billion compared with a 2017 baseline) is a danger to the multilateral rule-based trade order and may cause huge negative trade diversion effects for other economies. For example, estimates published by the Kiel Institute for the World Economy suggest a loss of about USD 11 billion (or 5%) in EU exports to China as a result of the deal (Chowdhry and Felbermayr, 2020).⁴

Although China seems to be a particular thorn in the side of the US, it is not the only target directly attacked by US trade policy. There have been repeated threats of the imposition of tariffs on cars and car parts, in addition to increasing US tariffs on steel (25%) and aluminium (10%). On 24 January 2020,

* 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.

¹ An earlier version of this text was published in the *Baltic Rim Economies* review, Pan-European Institute, Issue No. 2/2020, p. 15, <https://sites.utu.fi/bre/>

² For recent cross-country comparisons, see e.g. Grüber (2019) and World Bank (2020).

³ Tariff data weighted by exporting country's exports to the world in 2017, i.e. prior to the tariff escalation.

⁴ In times of global crisis, however, it can be assumed that it will not be possible to fulfil negotiated concessions. A report by Panjiva (2020), a market intelligence company, shows that China will miss the target purchases of the Phase-I Deal by 59%.

President Trump extended these tariffs to other product categories accounting for almost USD 450 million of US imports, affecting the EU and China among others.

In fact, the US is not only affronting its major trading partners, but all 164 members of the World Trade Organisation, by blocking the appointment of new members to its Appellate Body. On 10 December 2019 the terms of two judges expired. These judges agreed to continue their work on three appeals for which oral hearings have been completed (WTO, 2019) – after that, with only one judge left, the WTO Appellate Body as we knew it will be dysfunctional.⁵

The slow progress in multilateral negotiations (the ‘Doha Development Round’), together with frequent US assaults against the WTO, is spurring the conclusion of bilateral and plurilateral agreements. The EU is at the forefront in negotiating free trade agreements.

The year 2019 proved particularly eventful. On 1 February the EU-Japan Economic Partnership Agreement entered into force. It is considered the most ambitious trade agreement with any Asian economy, relegating the EU’s agreement with South Korea to the second rank. In June the EU’s agreement with Vietnam was signed and an agreement in principle was reached with the Southern Common Market (Mercosur), comprising Argentina, Brazil, Paraguay and Uruguay. The agreement with Singapore entered into force in November. And a dozen other negotiations are ongoing.

The protectionist turn by the US, together with the EU’s increased focus on bilateralism, had significantly shaped global trade debates, yet, the current global uncertainty that is crippling the world economy may shake up globalisation even more profoundly. Today, the virus SARS-CoV-2, which causes the disease COVID-19, is dominating all policy agendas. Within a month, the main concern has shifted from a negative economic impact of COVID-19 in China affecting the economies of foreign investors and trading partners (e.g. UNCTAD, 2020; WTO, 2020) to the fear of a worldwide economic downturn (e.g. OECD, 2020; IMF, 2020). The ‘factory of the world’ has already been cautiously restarting its engines, while the pandemic is bringing the economies of EU and the US to a halt and confronting their health and social security systems with an enormous stress test.

Given current developments, major trade policy issues as of end-2019 are temporarily receiving little attention; however, they will reappear once the main uncertainties related to COVID-19 have been tackled. But when they do, the impact of COVID-19 will have placed an additional layer of complexity on top. One might assume that national security concerns could shift from the ‘threat of imported cars’ to topics such as dependency on imports of pharmaceuticals and personal protective equipment, or reliance on migrant labour for harvest work and elderly care (EC, 2020b, c). Strategies to overcome trade dependencies may vary considerably, from incentivising domestic production to some nearshoring (e.g. to the Western Balkans (GTAI, 2020)) and/or internationally diversifying production to reduce reliance on one country or region. Steps towards liberalisation in services trade might be revoked to reduce the risk of person-to-person transmission of diseases, while education policy might complementarily focus more strongly on ‘systemically relevant’ professions. Without question, the year 2020 will leave its mark on the global economy and international trade policy debates for the years to come.

⁵ On 27 March 2020 the EU and 15 WTO members, including China, decided on a contingency appeal arrangement for the period of paralysis of the WTO appeal function (EC, 2020a).

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Trade policy's about-turn in times of global health distress

BY JULIA GRÜBLER AND OLIVER REITER¹

Over the last three years, trade policy has been characterised by a global revival of tariffs as trade policy instruments and retaliatory measures. Today, trade policy is in the grip of the coronavirus pandemic, leading to a reversal of recent tariff increases, while non-tariff measures are on the rise. The latter can have far-reaching consequences; and with imprudent use may even deepen the crisis.

GLOBAL UNCERTAINTY IS CRIPPLING THE WORLD ECONOMY

The world is experiencing a time of enormous uncertainty. The spread of the virus SARS-CoV-2, which causes the respiratory disease COVID-19, presents us with unimagined health, social and economic challenges. Today, it dominates essentially all policy areas – including trade policy. In fact, international trade plays a crucial role in addressing the economic amplification of the crisis and in tackling the health challenge through safeguarding supplies of critical medical goods.

At the beginning of 2020, economic concerns were confined to China's economic downturn, brought about by the new coronavirus trickling through global production and supply chains. Temporary factory shutdowns and travel bans affected both Chinese and foreign (including European) companies. The Purchasing Managers' Production Index² in China plummeted by more than 45% between January and February, in the wake of the extended Lunar New Year holidays forced by the pandemic (National Bureau of Statistics of China, 2020). Compared to 2019, Chinese imports in January and February were 3% lower, while exports were 17% down, resulting in a trade deficit of USD 7 billion. For comparison, during the first two months of 2019 China had generated a surplus of USD 44 billion.

For 2020 as a whole, the drop in China's production index observed in February would correspond to a decrease in annual exports of 2%, according to the United Nations Conference on Trade and Development (UNCTAD, 2020). In March, UNCTAD published estimation results for a scenario in which Chinese exports of intermediate inputs decrease by 2% in 2020. The authors conclude that the EU will suffer the greatest absolute damage (roughly USD 15.6 billion) – almost three times as high as the negative effect estimated for the US (USD 5.8 billion) and Japan (USD 5.2 billion). The computations did not consider the slowdown in Chinese demand or 'second-order' issues arising from missing deliveries (such as shortages of pharmaceuticals, resulting in additional pressure on healthcare systems), and – most importantly – it assumed that COVID-19 could be contained mostly within China.

¹ An earlier version of this text will be part of an article published in the *Economic Policy Papers (Wirtschaftspolitische Blätter)*, Issue 1/2020 - <http://wirtschaftspolitischeblaetter.at>

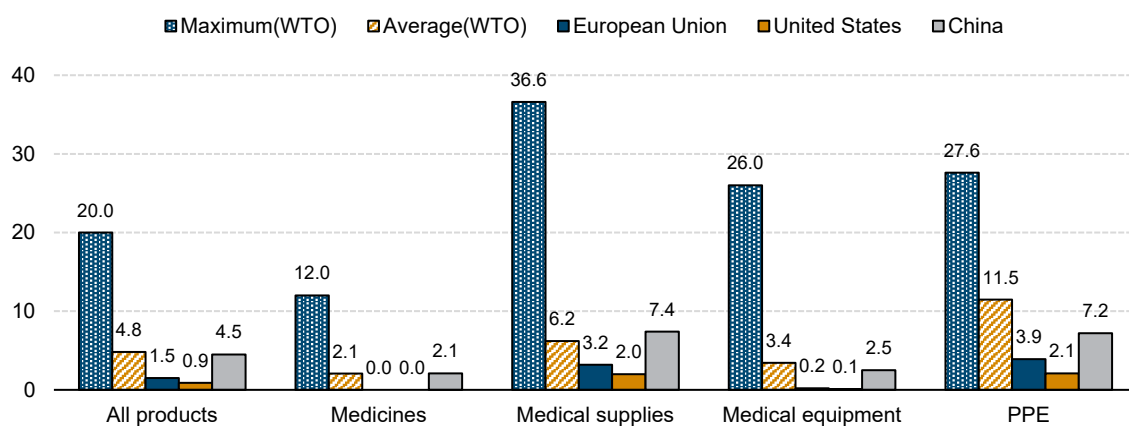
² The Purchasing Managers' Index (PMI) is an index based on monthly surveys of enterprises' purchasing managers. The PMI Production Index is a sub-index for the manufacturing sector PMI.

However, the global dispersion of the virus is speeding up the vicious economic cycle. While China started slowly to return to normality in March, the global pandemic brought the economies of major industrialised countries to a juddering halt. This is a major difference, compared to previous epidemics and pandemics, which primarily affected economically less-dominant countries (e.g. Baldwin and Weder di Mauro, 2020). In its most recent forecast, the International Monetary Fund projects a global contraction of 3% in 2020 (IMF, 2020). With very few exceptions (notably China, whose anticipated growth rate is +1.2%), countries around the world are expected to experience recessions that are even more profound than during the last global economic and financial crisis of 2008/2009. One of the most severe contractions is projected for the euro area (-7.5%). The economic downturn forecast for the US is slightly less dramatic (-5.9%), yet recent developments in COVID-19 infection and death numbers in the US, and the millions of people who have become unemployed within just a few weeks, cast doubt on this projection.

A MIX OF TRADE POLICY TOOLS TO TACKLE CHALLENGES POSED BY COVID-19

Countries around the world are responding to the pandemic with a multifaceted spectrum of policy responses. In the area of international trade, reactions to the sharp increase in demand for medical supplies, at a time of supply shortages, have ranged from reducing the cost of importing medical goods or components (e.g. by reducing tariffs and non-tariff barriers), over restricting exports of domestically produced medical supplies, to incentivising domestic and foreign production of those goods. Referring to the Global Trade Alert, Hoekman et al. (2020) state that by early April, 70 governments had implemented some sort of export restraint on medical products, while at the same time 75 countries had liberalised imports of similar goods.

Figure 1 / Latest average applied tariffs (%) on medical products



Notes: Simple average over applied most-favoured nation tariffs. Maximum(WTO) and Average(WTO) are calculated over all WTO members. PPE = Personal protective equipment. Annex 1 of the WTO report lists the products considered.

Source: WTO (2020a).

The virus has indeed resulted in (temporary) tariff cuts; yet COVID-relevant product groups are still subject to an average applied tariff rate of 4.8% across members of the World Trade Organization (WTO, 2020). Tariffs applied by the US and the EU are significantly lower than this, in particular for

medicines and medical equipment (such as ventilators). Tariff barriers on medical supplies (such as surgical gloves) remain higher (Figure 1). The WTO reports that there are only four economies that have cut tariffs on all medical products to zero: Iceland, Hong Kong, Macao and Singapore.

In general, the importance of tariffs as a trade policy tool for international trade in non-agricultural goods has diminished since the establishment of the General Agreement on Tariffs and Trade (GATT) in 1948; but the tool has experienced an unexpected comeback since US President Trump took office in 2017. The upward spiral of 'trade war' tariffs and retaliatory duties between the USA and China also affected products that have proved essential during the COVID crisis.

US tariffs targeted medical goods imports from China worth roughly USD 5 billion before the onset of the 'trade war' in early 2018. This corresponded to more than a quarter of total US imports of medical goods. As a result, US imports of healthcare products from China decreased by 16% between 2017 and 2019, while the demands of the growing American economy and its aging population were growing (Bown, 2020). In March 2020, the US excluded from tariffs certain medical products (e.g. face masks, blood pressure cuff sleeves and hand sanitising wipes) imported from China – tariffs that had only been imposed in September 2019 (Beech, 2020).

Nevertheless, the decrease in trade will not be easily reversible: Chinese exports have been redirected to other countries, and the spike in global demand exceeds stocks and supply capacities. Additionally, many producers of critical goods urgently needed during the coronavirus calamity are imposing export restrictions, hoarding the products to meet their domestic health crises.

STIRRING UP TROUBLE OVER NON-TARIFF MEASURES

Alarm bells are therefore now ringing on the export side.³ Medical exports are strongly concentrated among a few economies (Table 1), with some having started to impose measures to restrict these exports. To some extent these have been lifted again, after governments realised that domestic producers of medical goods relied on imports of inputs.⁴

Germany and the US lead the list of medical exporters. These two economies account for more than a quarter of global exports of medical products; and the top 10 economies account for almost three quarters of global exports. In comparison to US and European suppliers, China specialises more in personal protective equipment (PPE), including face masks, hand soap and sanitisers. Over the period 2017-2019, 17.2% of global exports of PPE originated from China, 12.7% from Germany and 10.2% from the US. European economies show a much stronger focus on pharmaceuticals, while the US has a relatively stronger export position in medical equipment (such as apparatus for ultrasonic scanning, magnetic resonance imaging, computer tomography or X-rays) and medical supplies (such as ethyl alcohol, first-aid kits, needles, surgical gloves, or antisera and other blood fractions).

³ See Baldwin and Evenett (2020) for a collection of articles on global supply chains and export restrictions in times of health shocks.

⁴ Examples are provided e.g. in Hoekman et al. (2020).

Table 1 / Major exporters of medical products, 2019

Exporting country	Exports		Global medical exports (%)	Share in countries' total medical exports (%)			
	billion USD	% of total exports		Medical equipment	Medical supplies	Medicines	PPE
World	995.8	6	100	14	17	55	14
1. Germany	136.2	9	14	15	15	57	13
2. United States	116.6	7	12	25	29	35	12
3. Switzerland	89.9	29	9	5	5	88	2
4. Netherlands	73.1	10	7	17	18	58	7
5. Belgium	65.8	15	7	7	12	74	6
6. Ireland	65.3	38	7	5	20	71	4
7. China	51.6	2	5	19	22	10	49
8. France	49.9	9	5	9	14	65	13
9. Italy	42.9	8	4	6	7	75	12
10. United Kingdom	38.2	8	4	11	15	64	10

Notes: PPE = Personal protective equipment. Annex 1 of the WTO report lists the products considered.
Source: WTO (2020a).

MAINTAINING TRANSPARENCY OVER POLICY MEASURES

Within the EU, Germany and the Czech Republic were among the first movers in restricting the export of personal protective equipment. Other countries followed – and so did a public outcry, particularly in those countries worst hit by the COVID-19 crisis. Hence, the European Commission responded on 15 March by requiring export authorisations from EU members for deliveries of PPE outside the EU and asking EU members to revise individual measures, so as to avoid shortages of critical products within the EU.

In addition to surveillance (and potential restriction) of medical exports, the European Commission has taken several trade-related policy steps to address the current public health crisis; these were notified to the WTO in early April (European Commission, 2020a, 2020b):

- › On **16 March**, the Commission presented guidelines for border measures to protect health (such as internal border controls for health checks, and preventing queues/gatherings at borders, which increase the risk of the spread of the virus) and to ensure that goods and essential services continue to flow in the European internal market. As COVID-19 is transmitted from person to person, a first response by many countries to limit contagion was to restrict the movement of people – and in particular, the entry of people who had spent time in countries with high infection rates. These first policy responses had some unintended consequences and revealed quite plainly how dependent many European economies are on migrant workers and cross-border commuters – in particular from Central and Eastern European countries – in so-called 'systemically relevant' sectors, such as health care, elderly care and the food sector.
- › Three days later, on **19 March**, the EU decided to create a 'rescEU' stockpile of medical equipment, with an initial EU budget of EUR 50 million: 90% of the cost of the stockpile is covered by the Commission as a direct grant, while 10% has to be borne by EU member states.

- › In order to promote the expansion of production of medical and protective products in line with EU safety standards, the European Committee for Standardisation (CEN) and the European Committee for Electrotechnical Standardisation (CENELEC) made respective European standards available to companies in the EU and third countries on **20 March**.
- › Guidelines on the implementation of 'green lanes' were presented on **23 March**. These should guarantee that EU internal border crossings along the Trans-European Transport Network (TEN-T) continue to be open for all freight vehicles, with the border crossing (including health screening) taking not more than 15 minutes.
- › Air freight transport was addressed three days later, on **26 March**, when EU member states were asked to grant additional traffic rights for essential cargo operations, even if they were arriving from outside the EU and were carried out by passenger aircraft. In addition, night curfews should be temporarily removed and aircrew exempted from travel restrictions. These measures should reduce the risk of shortages in the supply of time-sensitive products, such as pharmaceuticals.
- › Limiting the risk of product shortages in cases of extreme urgency also lies at the heart of temporary amendments to public procurement rules for medical and protective equipment. The Commission communicated temporary changes to the public procurement framework on **1 April**, allowing substantially reduced deadlines, negotiations without prior publication, and even the granting of direct awards to operators, if they are the only producers able to deliver the necessary supplies in time.
- › On **3 April**, the Commission decided on a relief covering tariffs and value added tax on imports of medical devices and protective equipment needed by health professionals and patients. It applies retroactively, from 30 January, and will last for a period of six months (with the possibility of extension) e.g. for masks, testing kits and ventilators.

NON-TARIFF MEASURES ARE AGAIN IN THE LIMELIGHT

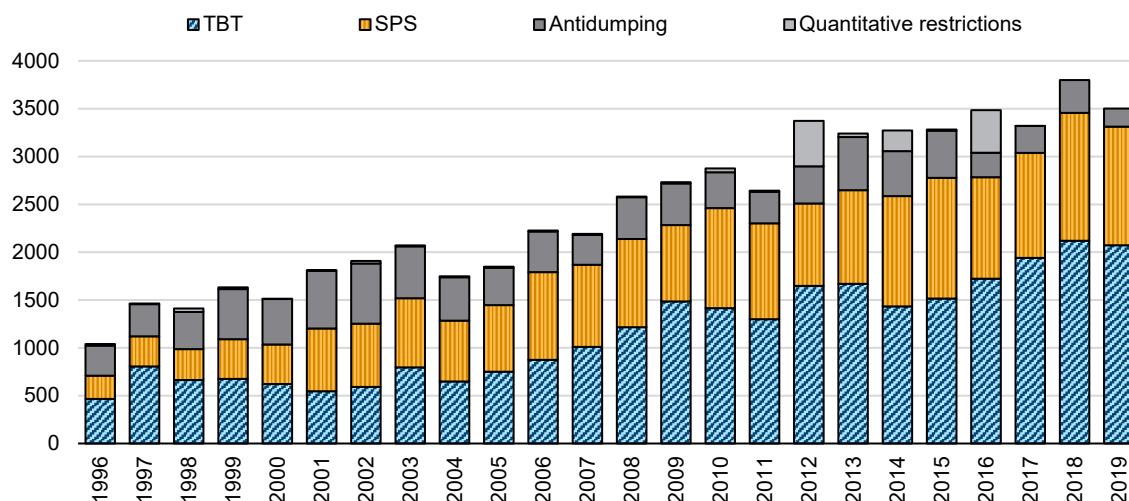
With the exception of the cut in import duties, the measures described above constitute so-called non-tariff measures (NTMs) to trade. As illustrated by the above list of recent trade-related COVID-19 measures imposed by the EU, there are many types of non-tariff measures. These days, export restrictions have received much public attention and have shaken trust in European solidarity. Most non-tariff measures, however, typically target imports. Figure 2 shows the development of notifications of NTMs to the WTO over time, indicating an intensifying tendency for countries to use NTMs as trade policy instruments.

The two most frequently used types of NTMs are technical barriers to trade (TBT) and sanitary and phytosanitary measures (SPS). In 2019, these two accounted for 57% and 34% of all new notifications, respectively. TBT usually aim at products of the manufacturing sector, and are used to enforce certain standards of imported products. SPS, on the other hand, are employed to deal with possible threats to human, animal or plant health and safety, often addressing the agri-food sector.

Other types of notifications include antidumping measures and quantitative restrictions, such as the above-mentioned export restrictions. These types have been used fairly constantly over the years. Antidumping duties are imposed to counter 'unfair' price-dumping activities by an exporting country, while quantitative restrictions represent ceilings on the volume of imports or exports of certain products.

Other non-tariff measures not presented in Figure 2 include inter alia safeguard measures, countervailing duties and pre-shipment inspections.

Figure 2 / Evolution of selected non-tariff measures over time, number of notifications



Source: Ghodsi et al. (2017). Data update January 2020.

It is not always clear whether NTMs are hampering or enhancing trade. Since NTMs enforce product standards, they may be conducive to trade, as they have the potential to upgrade product quality, provide additional information to consumers (e.g. via labelling) and simplify doing business for those producers that are able to fulfil the standards at low cost. NTMs can, of course, also restrict trade: quantitative restrictions do this most obviously, but SPS and TBT can also reduce the volume of certain foreign products or even prevent them from entering domestic markets. An analysis covering more than 100 importers and 5,000 products for the period 1995-2014 by Ghodsi et al. (2017) suggests that about 60% of all NTMs impeded trade flows.

Related to COVID-19, as of 26 May 2020 members of the WTO had notified 134 measures taken (WTO, 2020b). For example, the EU notified an SPS measure regarding animal health certificates. As some members have difficulty in performing official controls that require the physical presence of control staff, the EU is temporarily allowing consignments of animals and germinal products from users of the Trade Control and Expert System to be accompanied not by original, but by electronic certificates (G/SPS/N/EU/380; 1 April 2020).

Most measures target all trading partners alike, e.g. minimum requirements for filtering masks as respiratory protective devices, export authorisations or restrictions of PPE, facilitation of import procedures for medical products, or restrictions on the import of exotic animals, to name a few. So far, the EU has only been explicitly targeted by one COVID-related SPS measure: Mauritius is restricting imports of live animals from China, Iran, South Korea, Switzerland, Réunion and the EU, with the aim of preventing the introduction of the coronavirus (G/SPS/N/MUS/18; 23 March 2020).

CONCLUSION: QUICK TRADE POLICY RESPONSES ARE NEEDED, BUT CARRY RISKS

The spread of the new coronavirus poses multidimensional challenges to essentially all countries in the world. Since human lives are at stake, no time should be wasted in taking supportive measures. The urgency to act has also affected trade policy. Tariffs, predominantly on medical products, have been reduced, while a multitude of new non-tariff measures have been announced at the same time. Export restrictions, in particular, have shown the downside of well-intentioned but short-sighted and uncoordinated trade policy responses, with unintended economic, political and health consequences. As with restrictions on social life, care should be taken to ensure that protectionist non-tariff barriers to trade are dismantled again once the COVID-19 crisis is over.

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A network of free trade agreements

BY OLIVER REITER

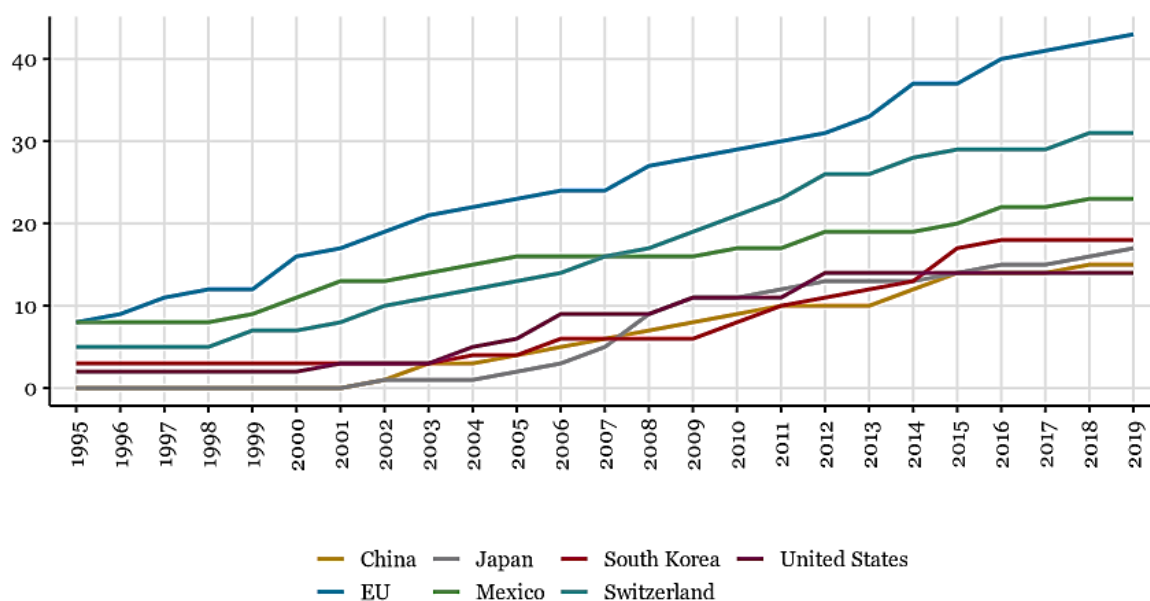
The number of free trade agreements has been steadily increasing over the years. Do overlapping trade agreements have an additional effect, on top of the widely documented positive effect that trade agreements have on their own? In this article, we investigate how measures developed from a network perspective can add to our understanding of how free trade agreements influence trade flows.

INTRODUCTION

Free trade agreements (FTAs) are a constant topic in international research. The EU-Japan Economic Partnership Agreement (EPA) entered into force on 1 February 2019, and the EU and the Mercosur countries reached an 'agreement in principle' on 28 June 2019. Furthermore, EU agreements with Australia, New Zealand, China, Vietnam and Indonesia (among others) are currently being negotiated or await ratification.¹

Figure 1 shows the number of FTAs that the EU and some selected countries have ratified and put into force. The EU, with 43 FTAs, is by far the leader in this comparison. In second place comes Switzerland, with 31, and in third Mexico, with 23 agreements in force.

Figure 1 / Number of free trade agreements



Source: WTO (Regional Trade Agreements Database).

¹ See <https://ec.europa.eu/trade/policy/countries-and-regions/negotiations-and-agreements/> for a full list of ongoing free trade negotiations and agreements.

There is a vast literature on the economic effects of FTAs – see Altenberg et al. (2019) for a recent contribution. This article aims to answer two questions. First, are there effects of overlapping FTAs? Second, do the effects of an FTA also depend on the other FTAs that the participating countries have? To answer these questions, we apply insights from network theory in the field of international economics.

VISUALISING THE NETWORK OF FTAS

We can view all established FTAs as a network in which each country is a node (or vertex) and each FTA that is in force is a link (or edge) between its member countries.

Figure 2 visualises the network of FTAs in 2017. To give some intuition about the countries and their placement, some selected countries have been highlighted. The data on FTAs come from the Design of Trade Agreements (DESTA) Database, described further below. The size of the country's node (as well as its label) is proportional to its importance in the network, measured using the PageRank algorithm.² A graph layout algorithm³ calculates an 'optimal' placement of the nodes, such that nodes with a lot of links are grouped into clusters and nodes with only a few links are pushed towards the outer areas.

We see that the layout algorithm confirms the intuition that the EU Member States obtain a rather central position in the network: they are located in the centre of the graph and are tightly clustered together. The 'old' EU Member States, such as Germany and France, form their own cluster, as do the 'younger' ones, such as Austria, Hungary, Romania and the other CESEE states.⁴ Several Central American countries are connected to the EU countries, as are a large number of African countries. Furthermore, the African countries are connected with each other, and so they form a big cluster. Other American countries such as Argentina, Brazil, the United States and Mexico are placed further away from the centre. The US is a relatively small node in this visualisation as it does not have many FTAs; because this network focuses on FTAs only, the US is considered to be a minor player on that basis. South Korea, Singapore, China, Japan and India can be found in the lower part of the figure.

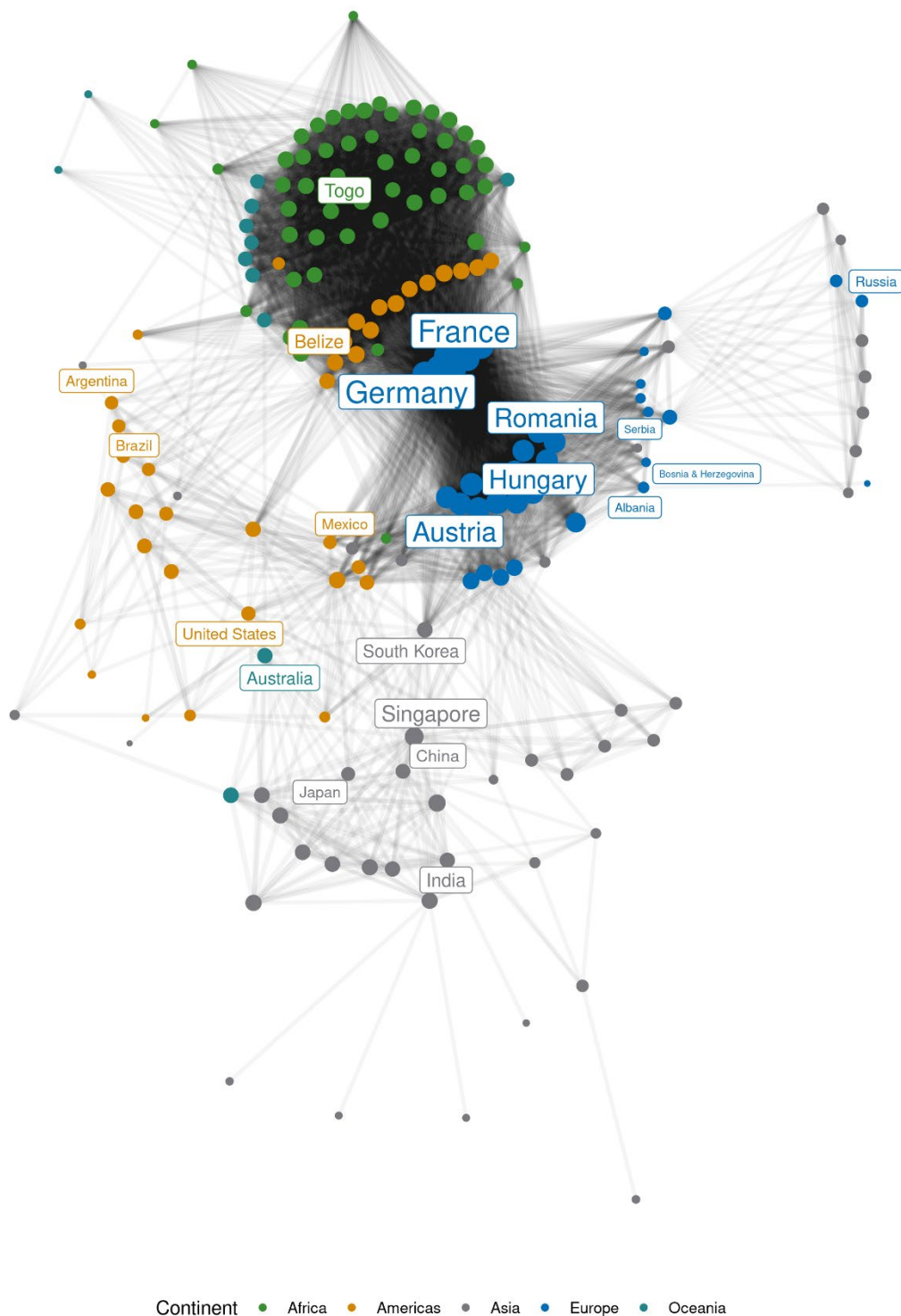
All in all, we can say that the algorithm is able to find geographical clusters and also confirms our intuition that the EU Member States are more tightly integrated with one another than other countries.

² The PageRank algorithm is developed by Google and is used to structure and sort search results. If a lot of hyperlinks link to a certain webpage, it is deemed to be important and is ranked higher in the list of search results. Translated to our free trade agreement setting, this means that countries that have a lot of links to other countries are considered to be more important. See Brin and Page (1998).

³ The layout used here is called 'stress majorisation'. See Gansner, Koren and North (2005) and Schoch (2020) for detailed descriptions.

⁴ The reason is that the old EU Member States have more treaties signed between them. Thus the algorithm separates them from the other EU Members.

Figure 2 / Global network of free trade agreements, 2017



Source: DESTA Database; wiiw visualisation.

This network perspective allows us to calculate and measure certain characteristics of the network that might influence the trade flows between countries. One possibility would be to count the number of FTAs that two countries are *together* part of. For example, Austria and Germany are *directly* connected

through several EU treaties. But they also have together signed FTAs (with non-EU countries, such as the EU-South Korea or EU-Japan treaties). It is not unreasonable to think that signing an FTA such as the EU-South Korea agreement not only increases trade flows to the FTA counterpart (in this case South Korea) but also increases the trade flow between Austria and Germany through, for example, increased intermediate input exports from Austria to Germany.⁵ In the trade policy research, one usually is only interested in the direct effect of an FTA – in this case, the effect on the trade flow between Austria and South Korea or between Germany and South Korea, not the effect on the trade between Austria and Germany.

There are a myriad of other possibilities to quantify the connection of two nodes or the position of a node within the network of FTAs. In a forthcoming wiiw study, we examine how the centrality of a country within the network influences the trade flows with other countries – see Gruebler and Reiter (2019).

DATA AND ESTIMATION

We combine three data sources for this research:

- › Direction of Trade Statistics (DOTS). The DOTS Database is compiled by the IMF⁶ and contains bilateral trade flows for more than 200 countries and over the period from 1948 to 2018. We choose this dataset over the UN Comtrade because of the longer timespan covered (the Comtrade data begin only in 1995).
- › Design of Trade Agreements (DESTA). Similar to the DOTS data, the DESTA⁷ figures cover the years from 1949 to 2017 and almost 600 treaties. The methodology is explained in Dür, Baccini and Elsig (2014). Each treaty indicates the participating countries, and the year the treaty was signed and entered into force. Furthermore, DESTA collects information on whether substantial provisions are made in seven categories (e.g. tariff reductions, intellectual property rights and trade in services). The depth index indicates how many of the seven categories an FTA fulfils. The database is converted to a panel dataset, to be compatible with other two datasets that we use.
- › We compute the ‘common treaties’ indicator as follows: for each treaty covered by the DESTA data, we register all participating country pairs and increase the tally of common treaties of the country pairs by the depth index of that treaty. That is, countries that have a few deep agreements might have a higher common treaties indicator than countries that have a lot of shallow agreements. This gives us a time series of the number of treaties each country pair is together a part of.
- › UNdata. In accordance with the gravity literature, we use data on gross output by country to calculate intranational trade flows⁸. Yotov et al. (2016) argue that intranational trade flows are necessary for an unbiased, theory-complying econometric estimation. Data on gross output differ considerably by country. In all, 157 countries report at least some gross output data. We restrict our data sample to the country-years for which we have information on intranational flows.

⁵ Another explanation could be product standards and economies of scale. A new FTA that includes provisions for standards might allow firms that adhere to these standards to use economies of scale and produce more. This could lead to more exports by these firms to *all* countries that adhere to those standards.

⁶ The DOTS data can be accessed at: <https://data.imf.org/?sk=9D6028D4-F14A-464C-A2F2-59B2CD424B85>

⁷ The DESTA data are available from <https://www.designoftradeagreements.org/>

⁸ The UNdata can be accessed at <http://data.un.org/>

As our data spans a long timeframe, we do not include data on tariffs. Some countries report tariff data from 1995 onwards, but most countries begin even later. Including tariff data would severely restrict the time coverage of our data sample. This means that we do not measure the effect from tariff reductions separately. Instead, the FTA dummy subsumes all trade facilitation effects (such as recognition of standards, abolition of import quotas and also tariff reductions).

With this dataset, we can estimate the effect of an FTA, its depth and the effect of common treaties using a gravity model as is standard in the trade policy literature. Furthermore, we follow the recommendations stated in Yotov et al. (2016), such as using PPML estimations, including intranational flows and using importer-time, exporter-time and bilateral fixed effects.

Table 1 / Quantifying the effects of free trade agreements: Regression results

	Spec 1	Spec 2	Spec 3
FTA dummy	0.684 (0.035)***	0.340 (0.047)***	0.511 (0.049)***
FTA depth		0.060 (0.004)***	0.023 (0.004)***
Common treaties			0.004 (0.000)***
Num. obs.	377551	377551	377551
Num. groups: Exporter-Time FE	3906	3906	3906
Num. groups: Importer-Time FE	3906	3906	3906
Num. groups: Bilateral FE	20220	20220	20220

***p < 0.001; **p < 0.01; *p < 0.05.

Table 1 gives the results of our regression exercise.⁹ We see that the effect of an FTA is strongly positive in all three specifications. In the first specification, a coefficient of 0.68 means that trade flows rise by 97% ($(\exp(0.68) - 1) * 100 = 97\%$) after an FTA comes into force.¹⁰ We should note that this is the 'average effect' over the whole time that the FTA has been in effect.

In specification 2, we take the depth of an agreement into consideration. The depth index ranges from 0 to 7: 0 if the FTA makes no substantial provisions in any of the seven considered dimensions and 7 if the FTA checks all boxes. So, the cumulative effect of a deep agreement like EU-South Korea (with a depth of 7) can be calculated as $40\%^{11} + 52\%^{12} = 92\%$. That means, taking the depth of the treaty into account, the EU-South Korea agreement increased trade flows by 92%. A 'shallow' agreement also has a positive, though lower, effect.

Then, in specification 3, we further include the calculated common treaties indicator. Although the coefficient is very small, we have to note the scale of the variable. The maximal value is 118 in 2017, attained by the three country pairs Belgium - Luxembourg, Belgium - Netherlands and Luxembourg - Netherlands. Thus, the common treaties effect for those countries is 60%.¹³

⁹ The reported standard errors are heteroskedasticity robust standard errors.

¹⁰ The FTA dummy captures the effect of both trade directions. The calculated effect is thus the average of both trade directions.

¹¹ $(\exp(0.34) - 1) * 100 = 40\%$

¹² $(\exp(0.06 * 7) - 1) * 100 = 52\%$

¹³ $(\exp(0.004 * 118) - 1) * 100 = 60\%$

As there is a deep FTA between those countries, we can add the FTA and FTA depth effect: the FTA effect amounts to 67%¹⁴ and the FTA depth effect to 17%.¹⁵ In total, the three effects sum to 144%. For country pairs with a less deep agreement or a lower common treaty indicator, the effects on trade are accordingly lower.

CONCLUSION

Seeing FTAs from a network perspective can lead to new insights in trade policy. The network measure we have derived and employed in our empirical investigation is positive and (statistically and economically) significant. We have seen that the effect of an FTA on trade flows can have three levels. First, a 'direct' effect from the entry into force of an FTA. Second, a 'depth' effect that is higher for deeper agreements and, third, a 'network' effect: country pairs that have signed a lot of free trade treaties together (so they are well integrated) trade more with each other. Taken together, they can make quite a difference: the smaller contribution of the effect of an FTA comes from the depth effect, while for well-integrated countries, the effect from the common treaties indicator can be nearly as high as the effect of the FTA itself.

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¹⁴ $(\exp(0.511) - 1) * 100 = 67\%$

¹⁵ $(\exp(0.023 * 7) - 1) * 100 = 17\%$

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.

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Conventional signs and abbreviations used

%	per cent
ER	exchange rate
GDP	Gross Domestic Product
HICP	Harmonized 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

The following national currencies are used:

ALL	Albanian lek	HRK	Croatian kuna	RON	Romanian leu
BAM	Bosnian convertible mark	HUF	Hungarian forint	RSD	Serbian dinar
BGN	Bulgarian lev	KZT	Kazakh tenge	RUB	Russian rouble
BYN	Belarusian rouble	MKD	Macedonian denar	TRY	Turkish lira
CZK	Czech koruna	PLN	Polish zloty	UAH	Ukrainian hryvnia
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) and Slovenia (from January 2007, euro-fixed before).				

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

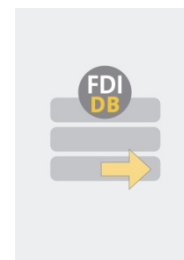
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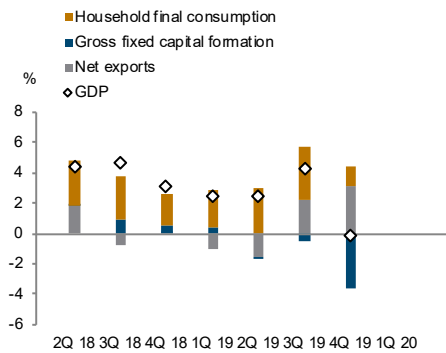
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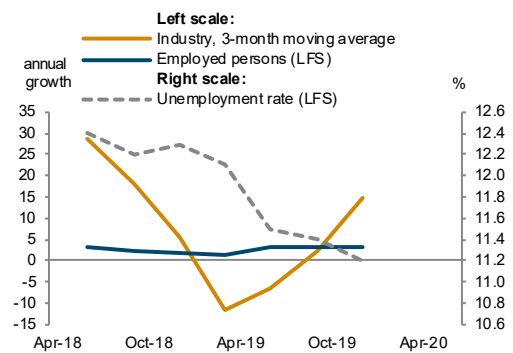
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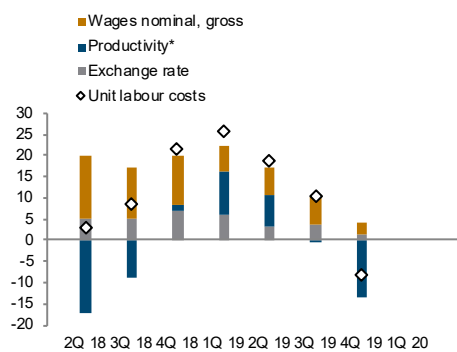
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year-on-year



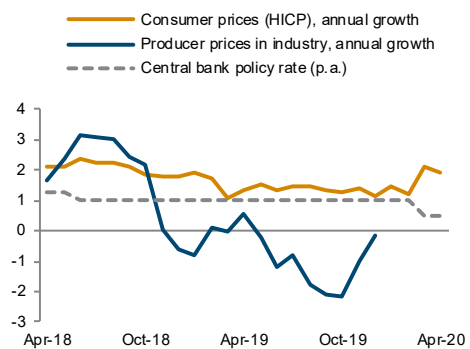
Real sector development
in %



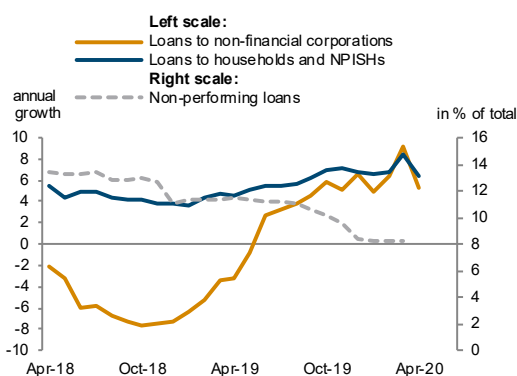
Unit labour costs in industry
annual growth rate in %



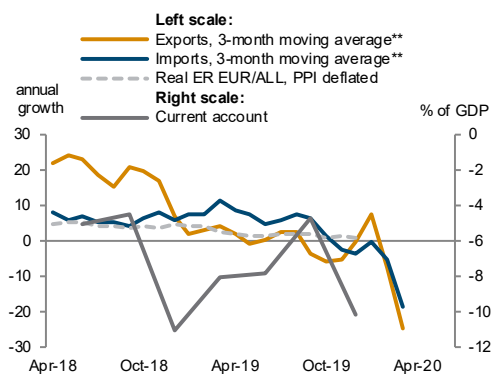
Inflation and policy rate
in %



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.

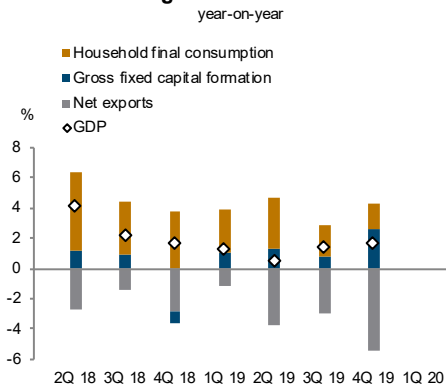
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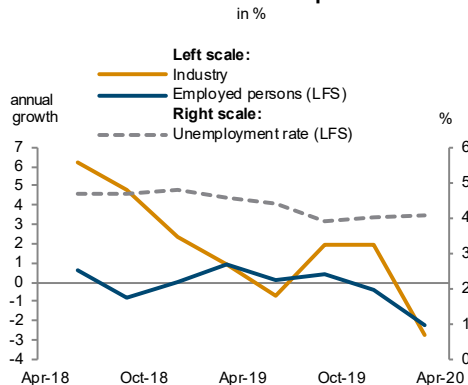
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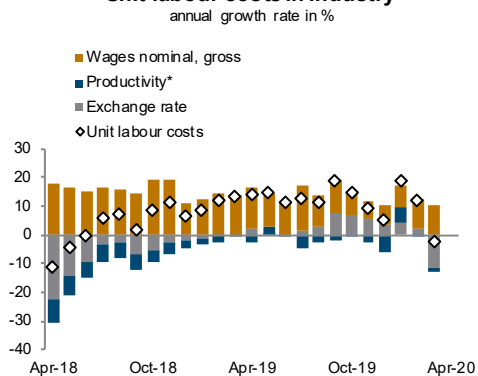
Real GDP growth and contributions



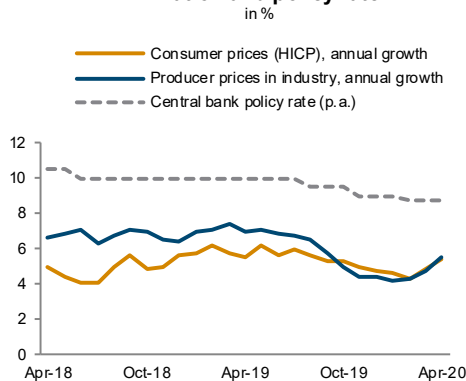
Real sector development



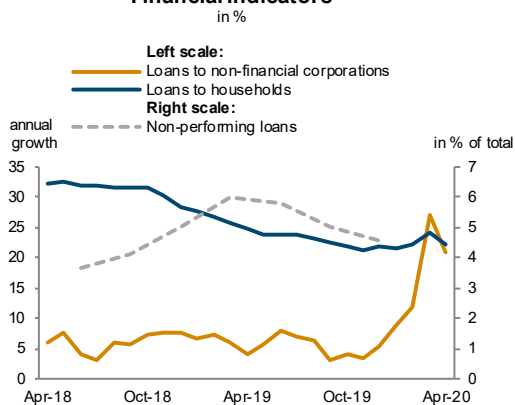
Unit labour costs in industry



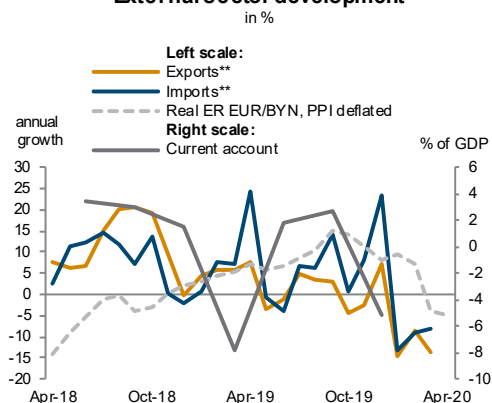
Inflation and policy rate



Financial indicators



External sector development



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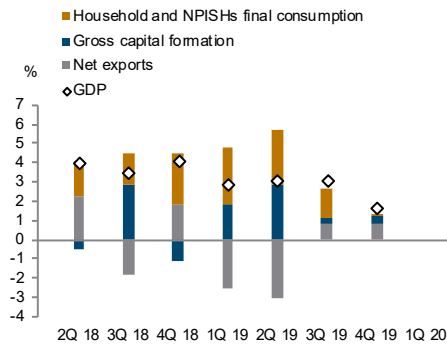
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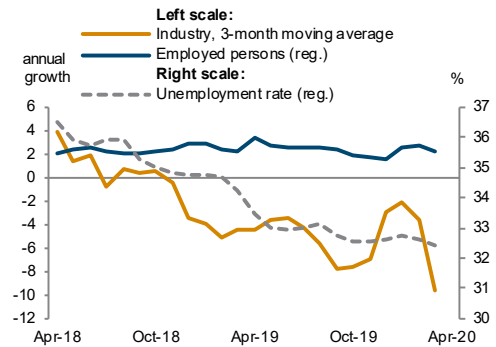
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Bosnia and Herzegovina

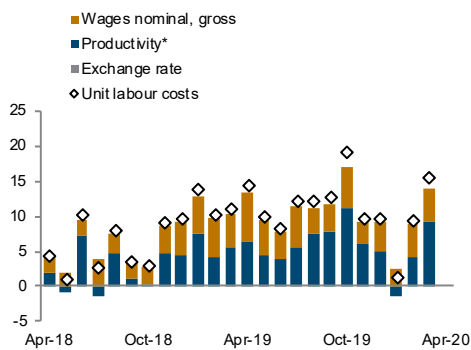
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year-on-year



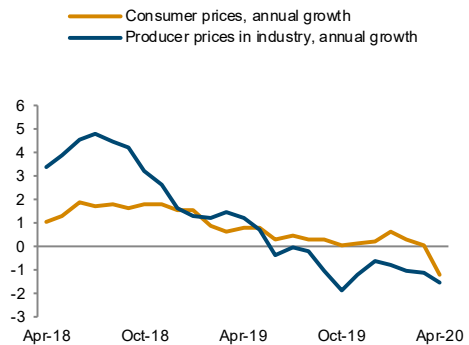
Real sector development
in %



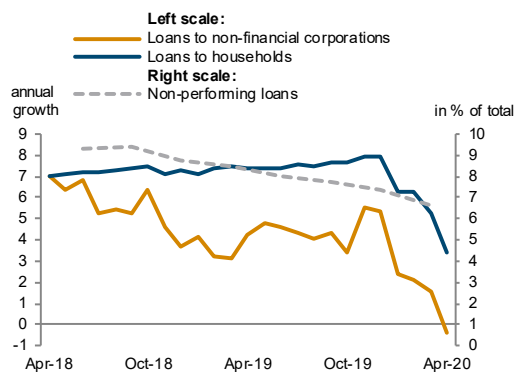
Unit labour costs in industry
annual growth rate in %



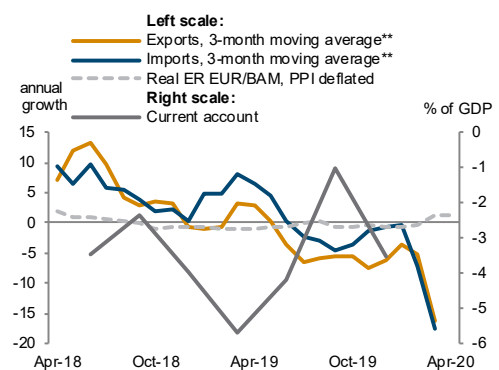
Inflation
in %



Financial indicators
in %



External sector development
in %



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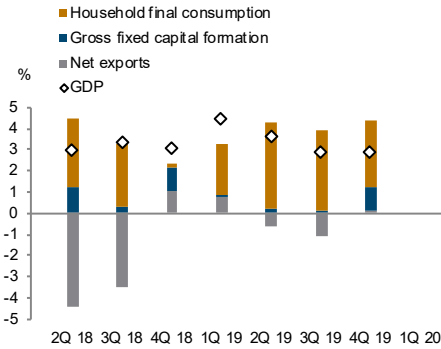
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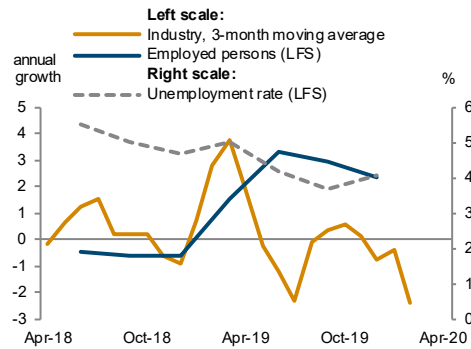
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Bulgaria

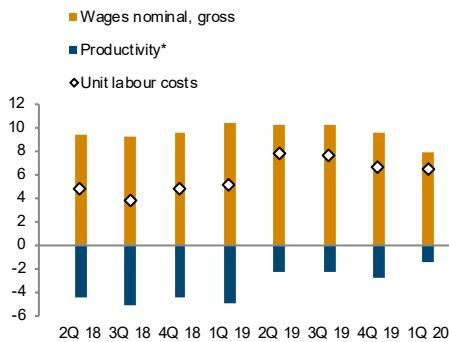
Real GDP growth and contributions
year-on-year



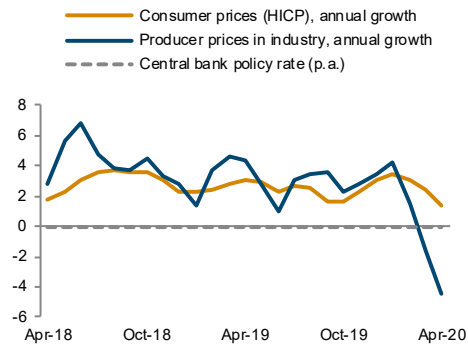
Real sector development
in %



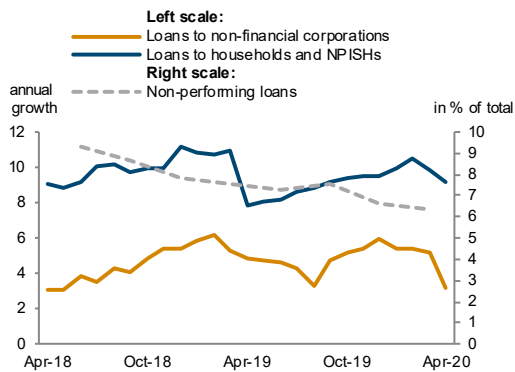
Unit labour costs in industry
annual growth rate in %



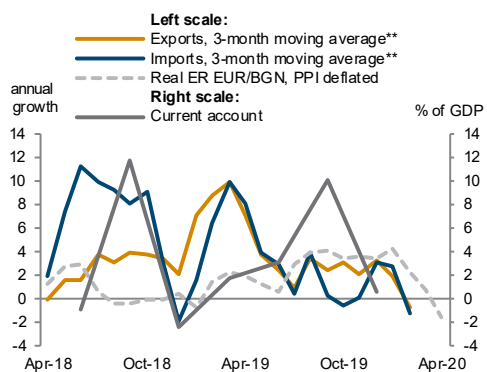
Inflation and policy rate
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Financial indicators
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External sector development
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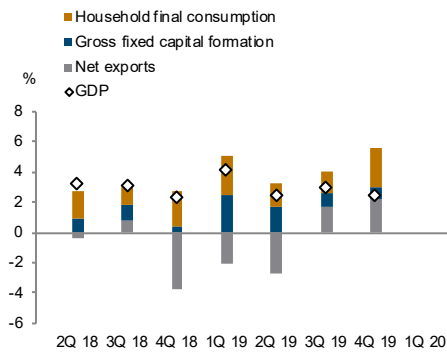
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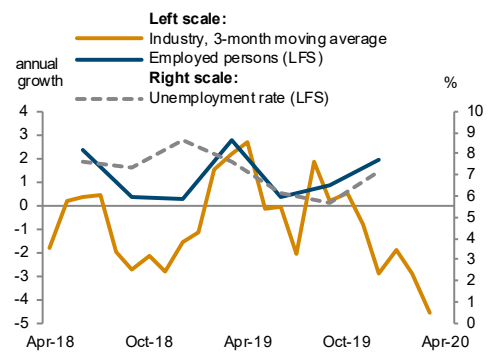
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Croatia

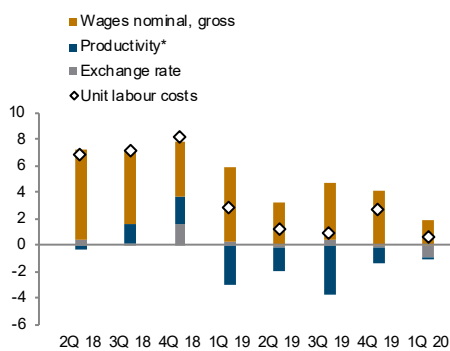
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year-on-year



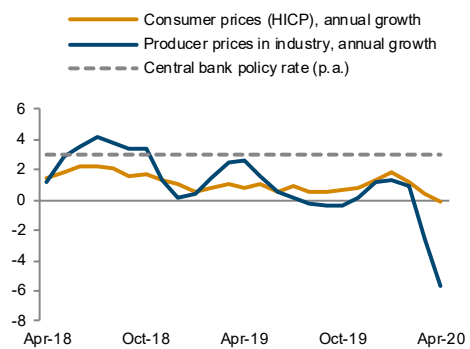
Real sector development
in %



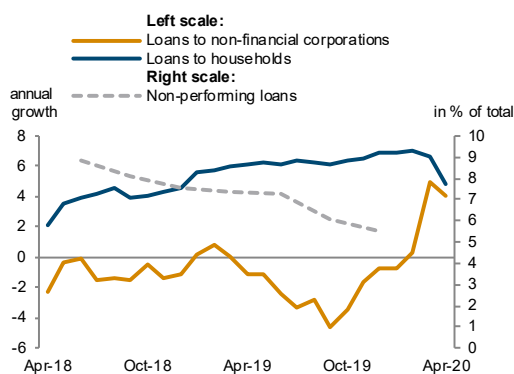
Unit labour costs in industry
annual growth rate in %



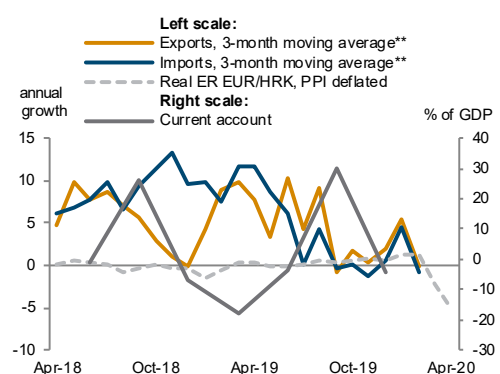
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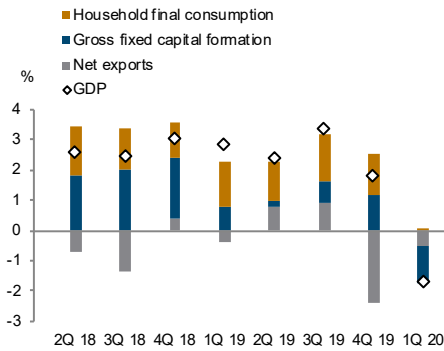
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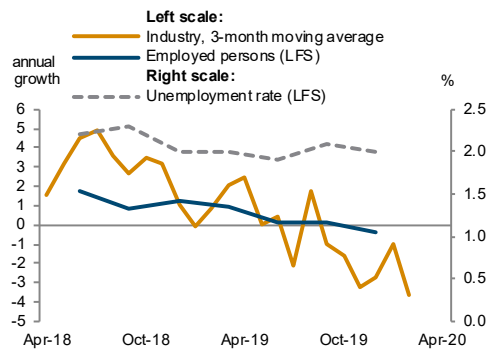
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Czech Republic

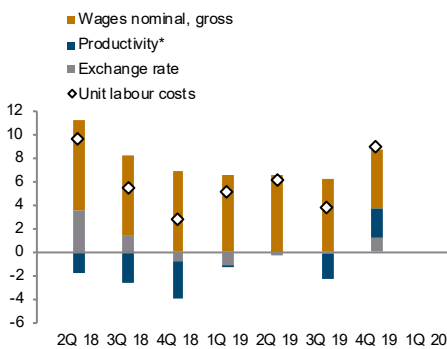
Real GDP growth and contributions
year-on-year



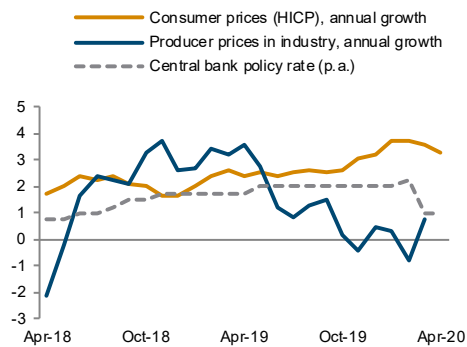
Real sector development
in %



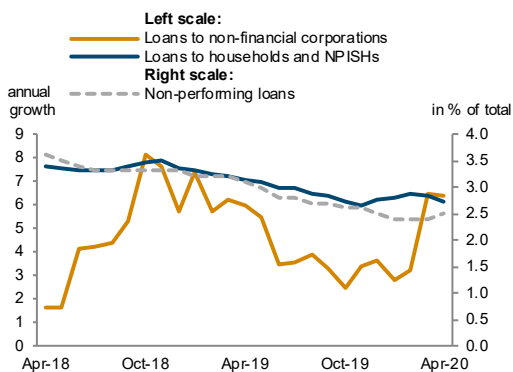
Unit labour costs in industry
annual growth rate in %



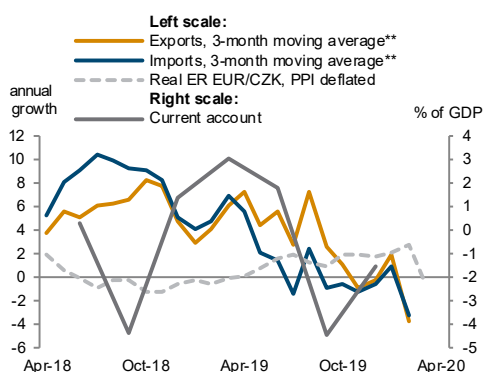
Inflation and policy rate
in %



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.

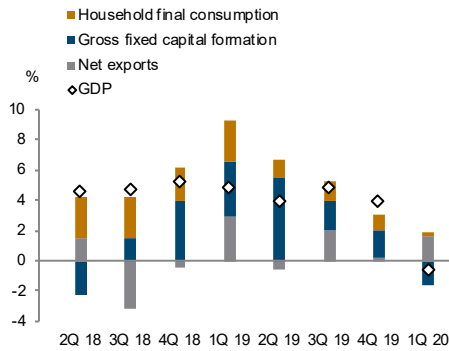
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

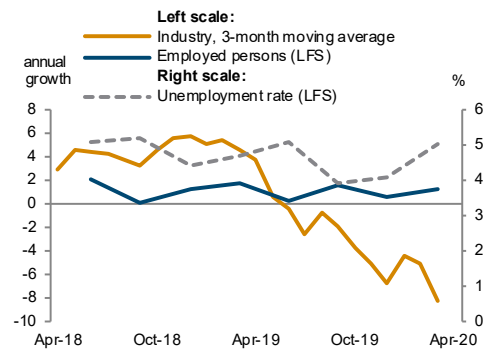
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Estonia

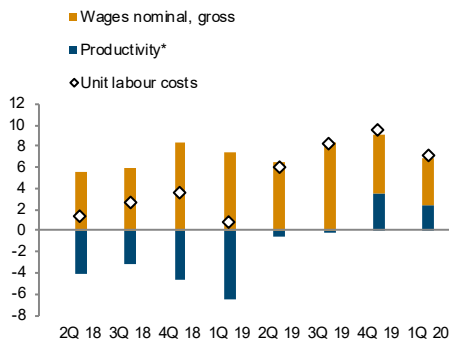
Real GDP growth and contributions
year-on-year



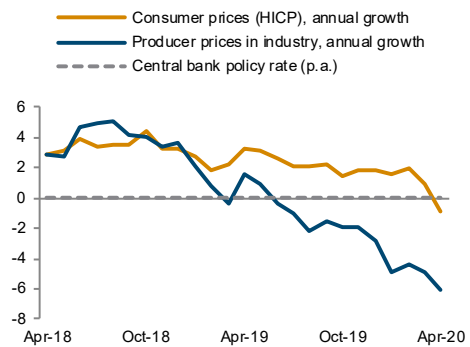
Real sector development
in %



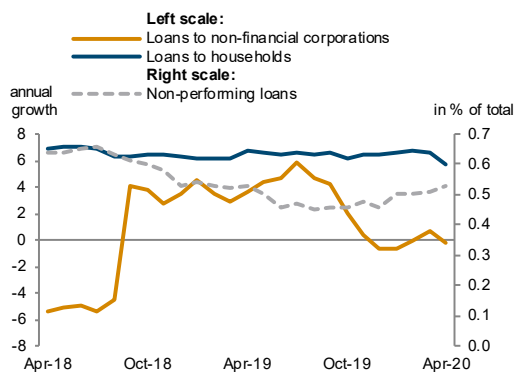
Unit labour costs in industry
annual growth rate in %



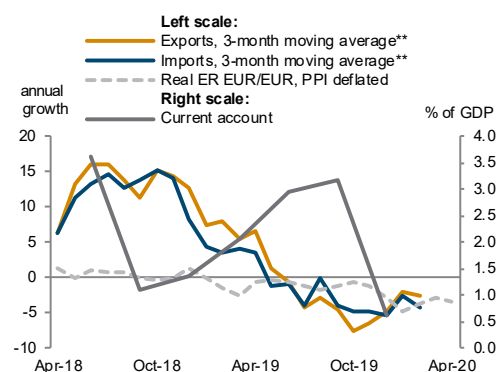
Inflation and policy rate
in %



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.

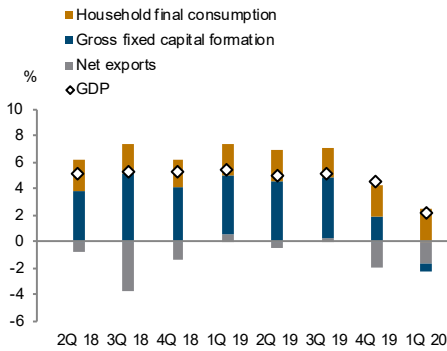
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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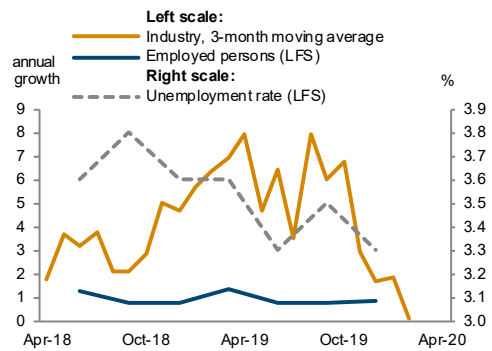
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Hungary

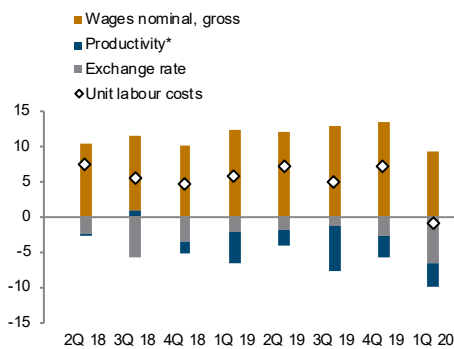
Real GDP growth and contributions
year-on-year



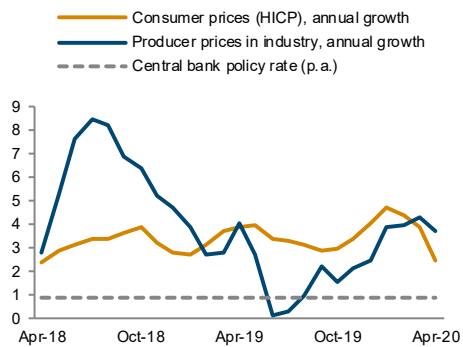
Real sector development
in %



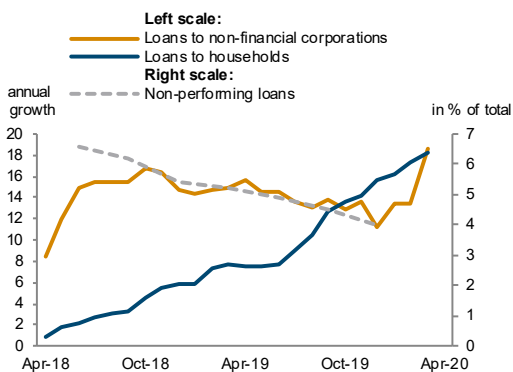
Unit labour costs in industry
annual growth rate in %



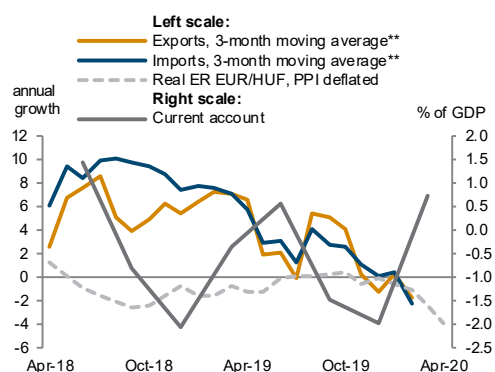
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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**EUR based.

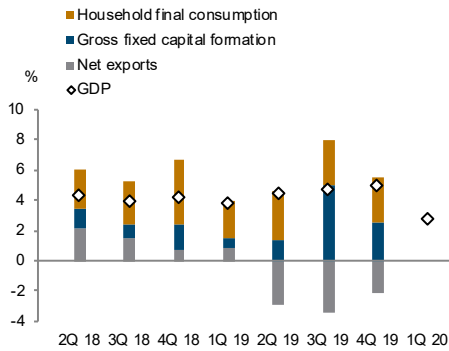
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

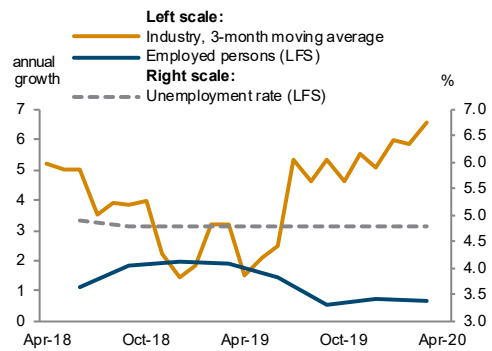
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Kazakhstan

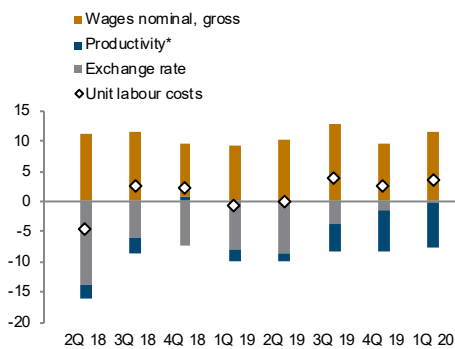
Real GDP growth and contributions
year-on-year



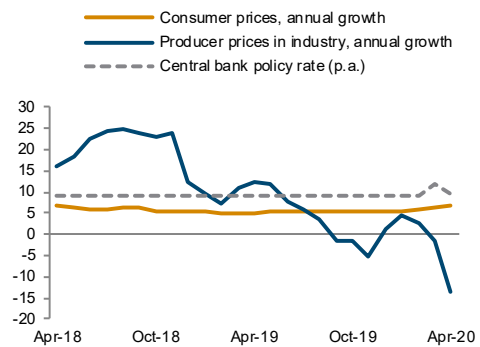
Real sector development
in %



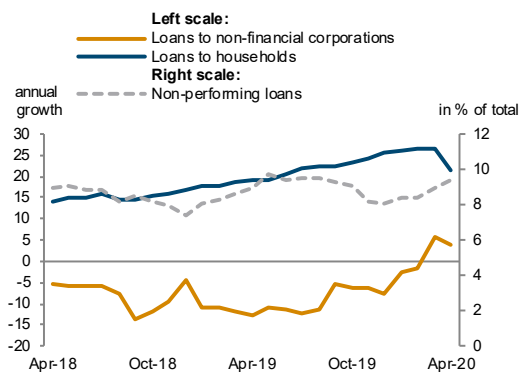
Unit labour costs in industry
annual growth rate in %



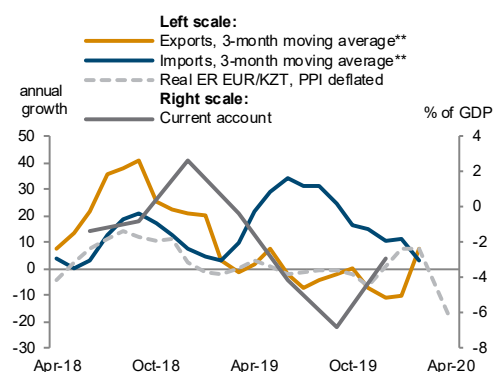
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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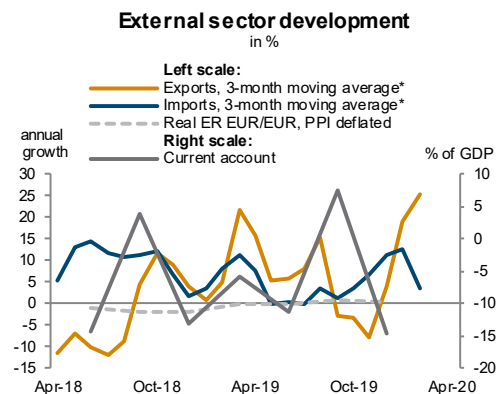
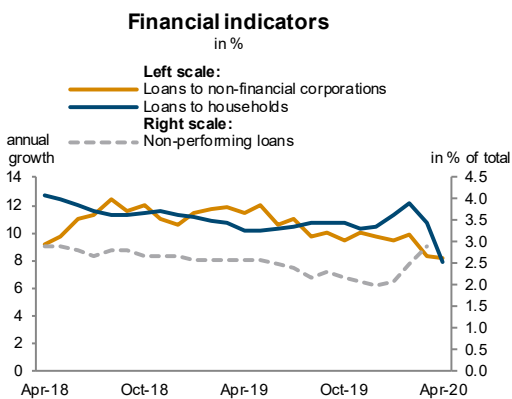
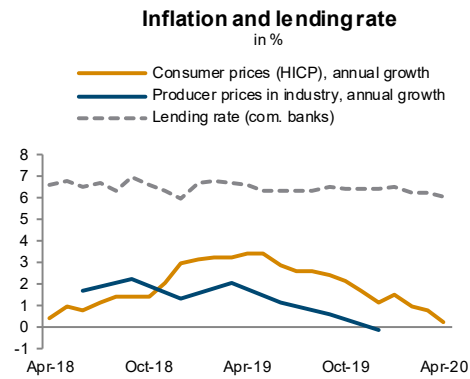
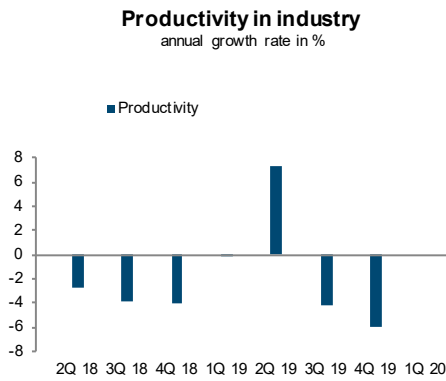
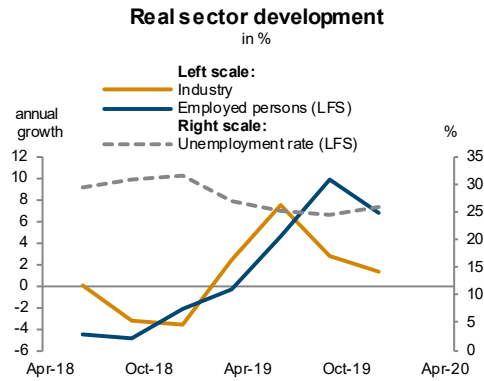
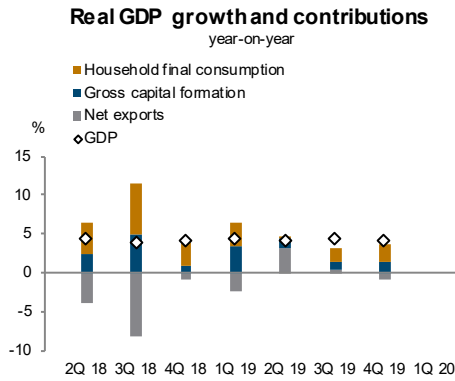
**EUR based.

Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

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

Kosovo



*EUR based.

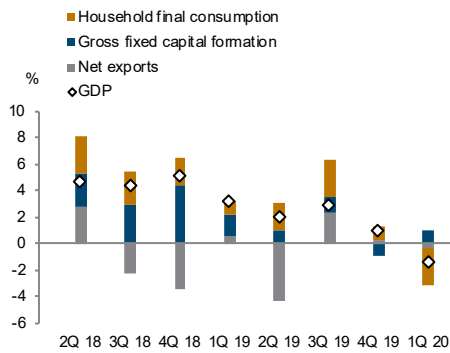
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Baseline data, country-specific definitions and methodological breaks in time series are available under:

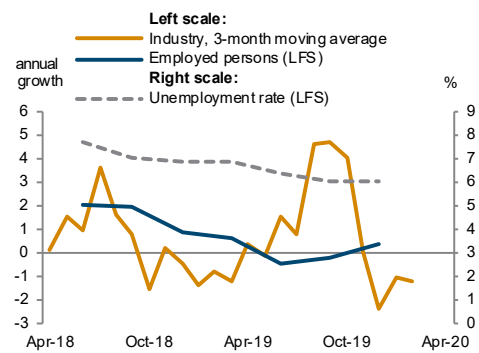
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Latvia

Real GDP growth and contributions
year-on-year



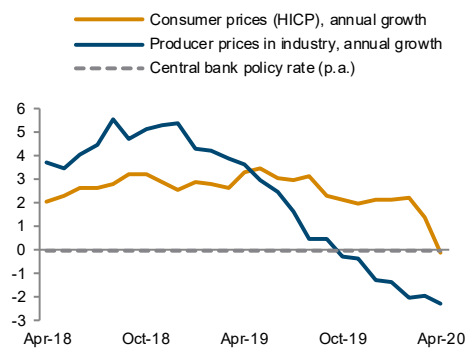
Real sector development
in %



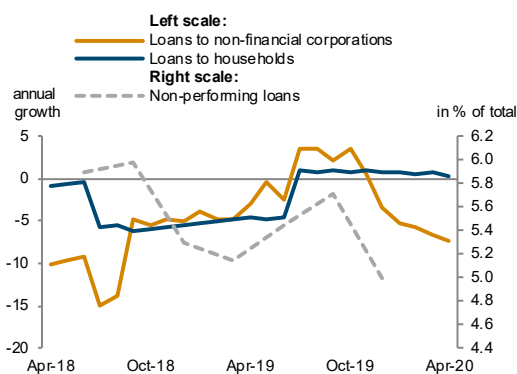
Unit labour costs in industry
annual growth rate in %



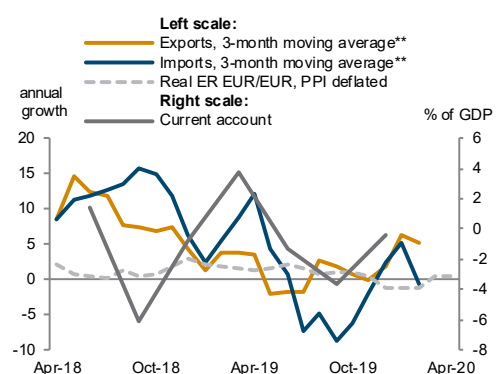
Inflation and policy rate
in %



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.

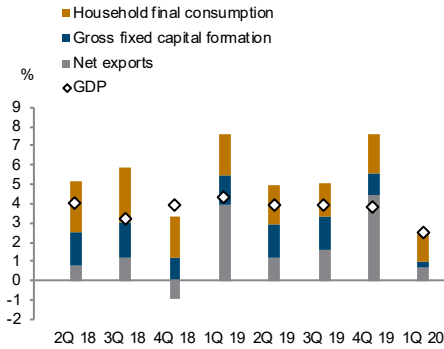
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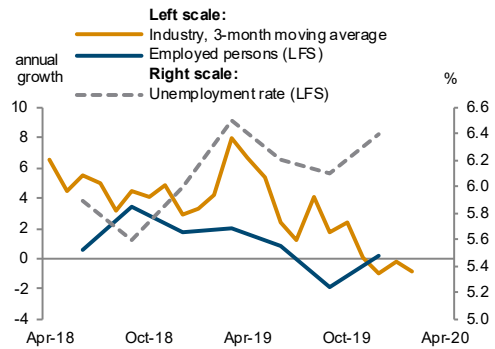
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Lithuania

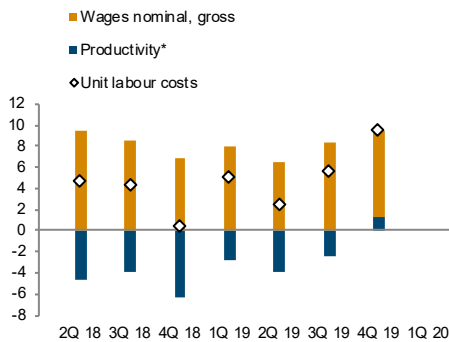
Real GDP growth and contributions
year-on-year



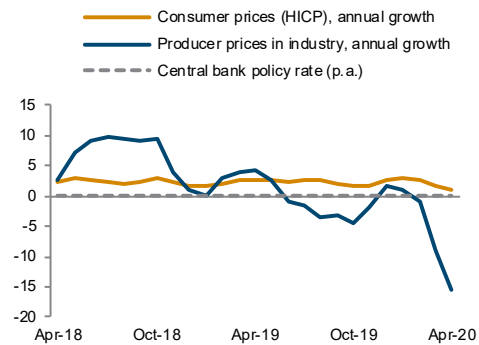
Real sector development
in %



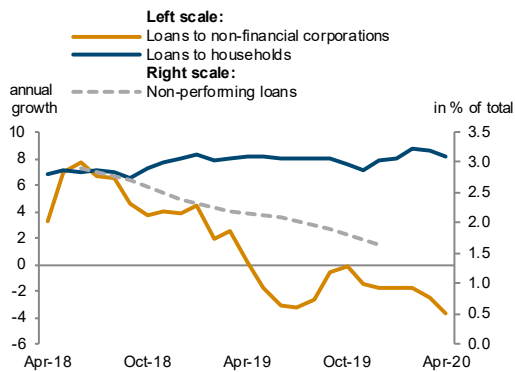
Unit labour costs in industry
annual growth rate in %



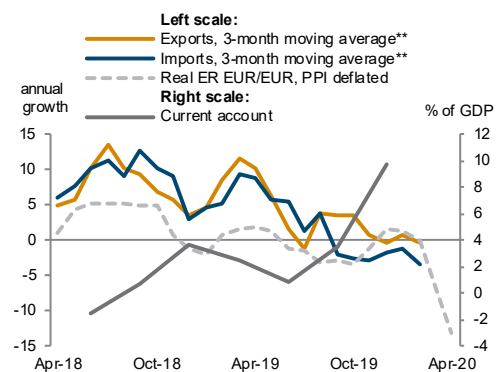
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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**EUR based.

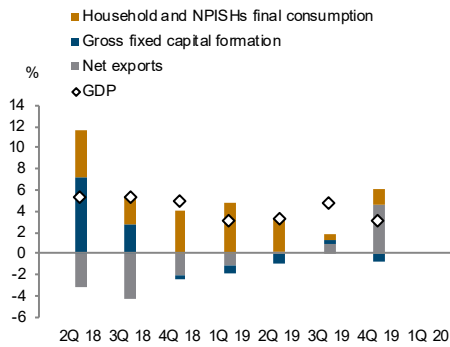
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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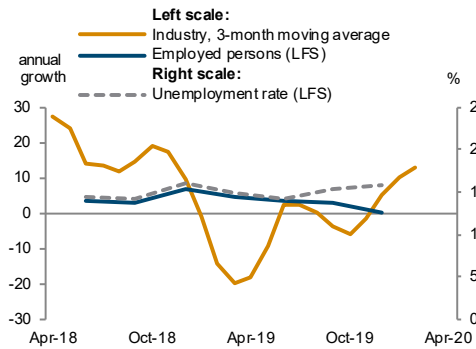
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Montenegro

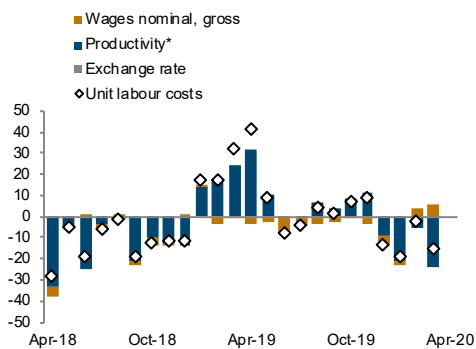
Real GDP growth and contributions
year-on-year



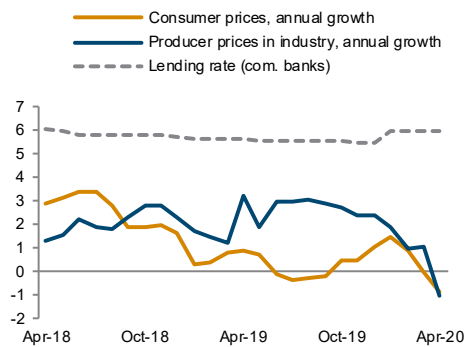
Real sector development
in %



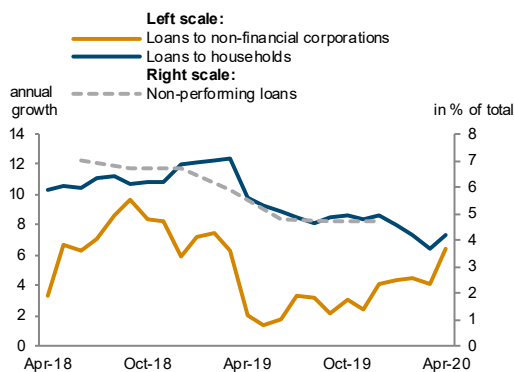
Unit labour costs in industry
annual growth rate in %



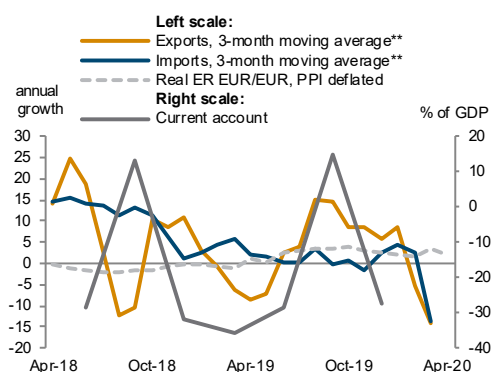
Inflation and lending rate
in %



Financial indicators
in %



External sector development
in %



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**EUR based.

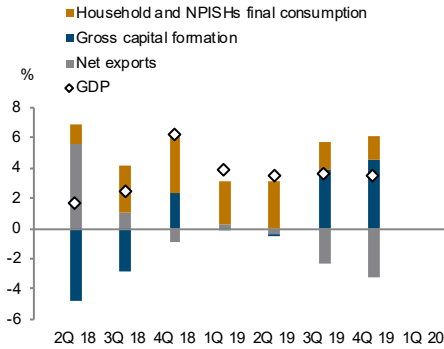
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

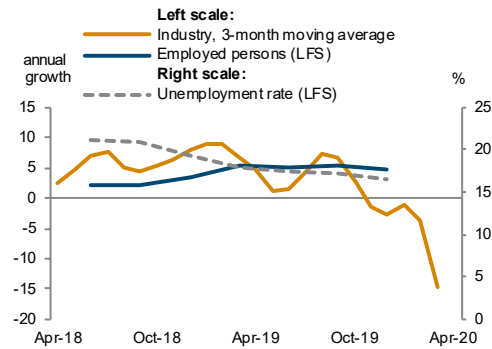
<https://data.wiiw.ac.at/monthly-database.html>

North Macedonia

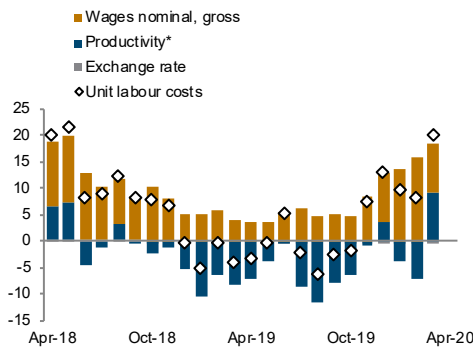
Real GDP growth and contributions
year-on-year



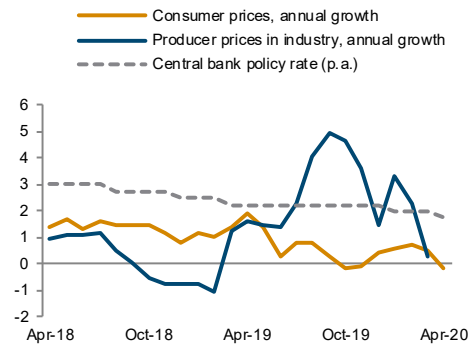
Real sector development
in %



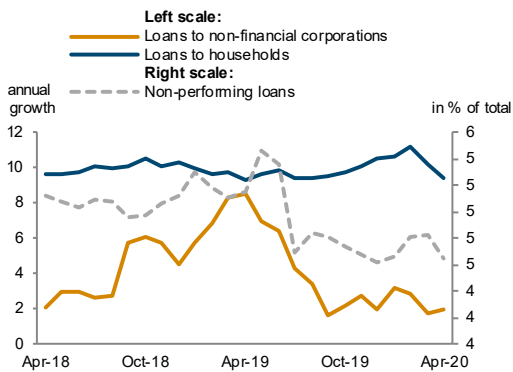
Unit labour costs in industry
annual growth rate in %



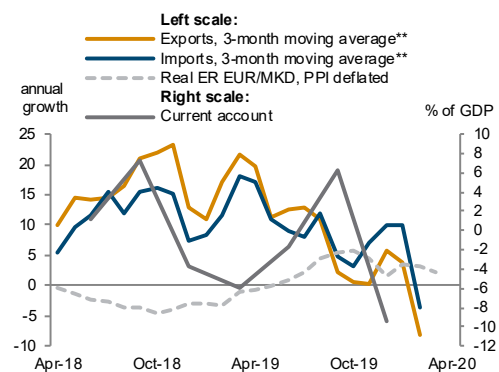
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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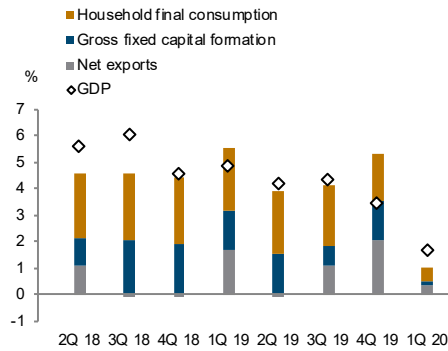
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

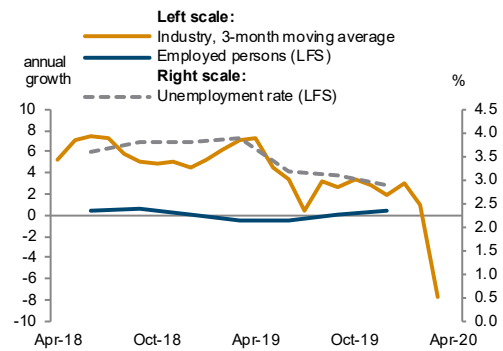
<https://data.wiiw.ac.at/monthly-database.html>

Poland

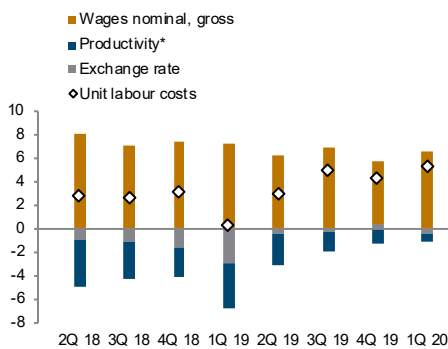
Real GDP growth and contributions
year-on-year



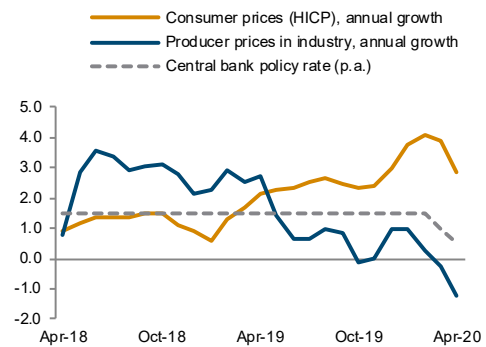
Real sector development
in %



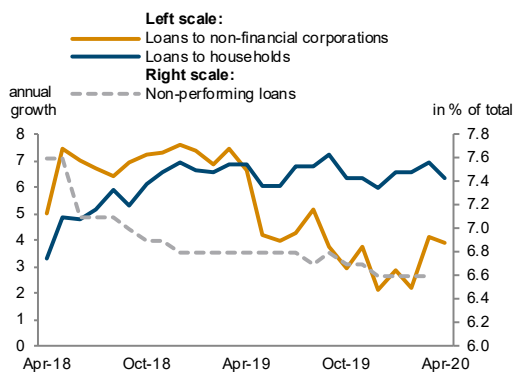
Unit labour costs in industry
annual growth rate in %



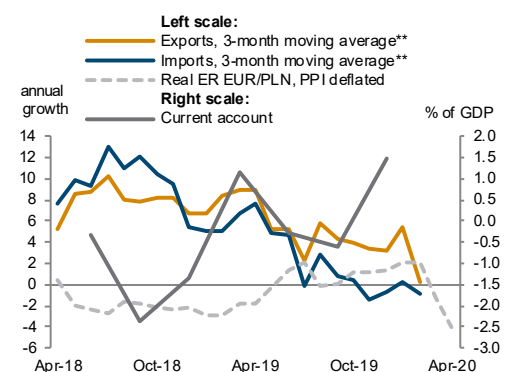
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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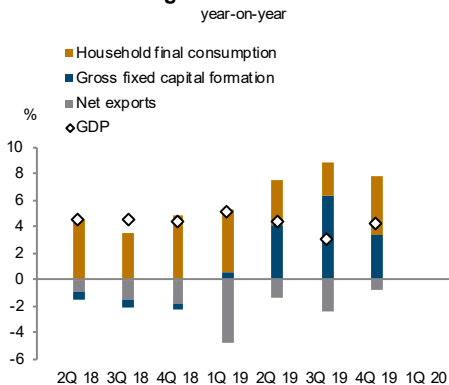
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

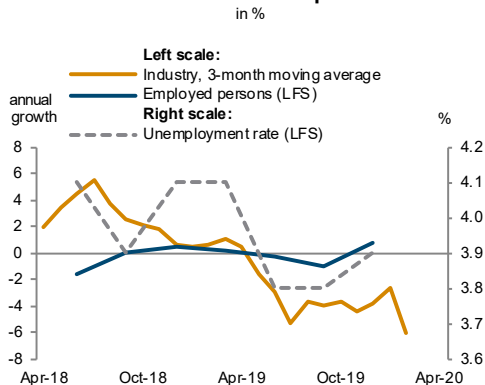
<https://data.wiiw.ac.at/monthly-database.html>

Romania

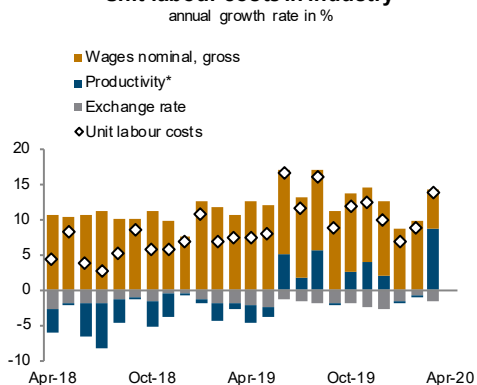
Real GDP growth and contributions



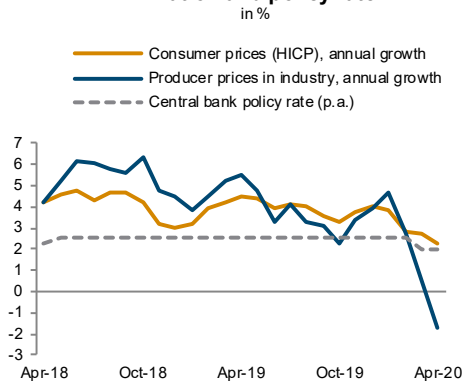
Real sector development



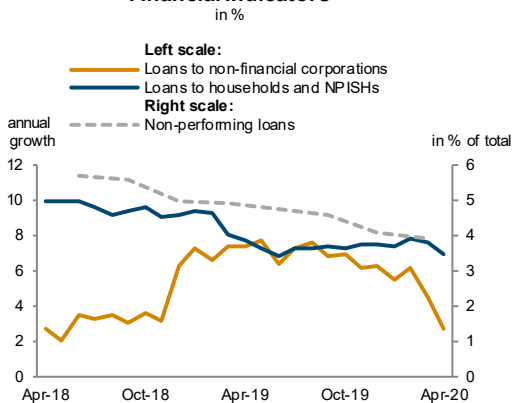
Unit labour costs in industry



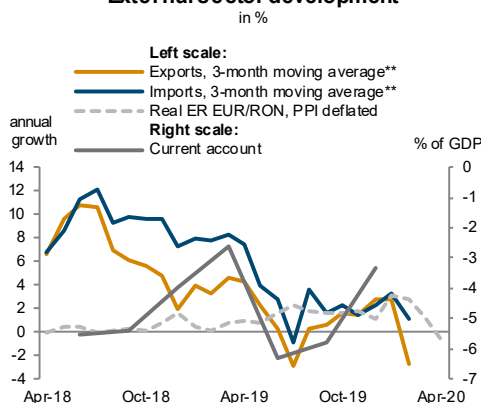
Inflation and policy rate



Financial indicators



External sector development



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**EUR based.

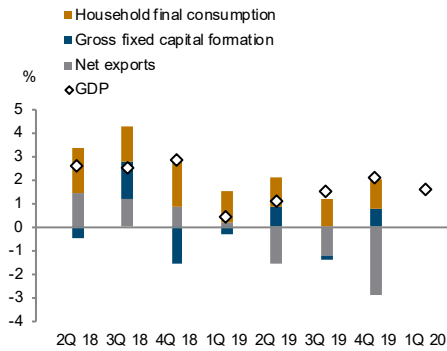
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

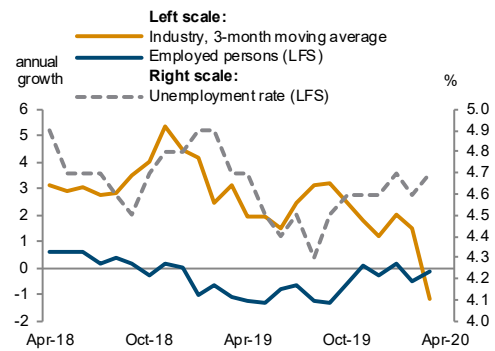
<https://data.wiiw.ac.at/monthly-database.html>

Russia

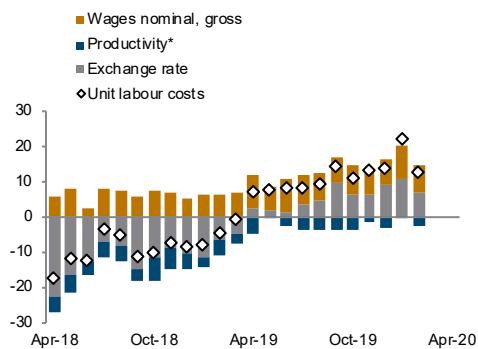
Real GDP growth and contributions
year-on-year



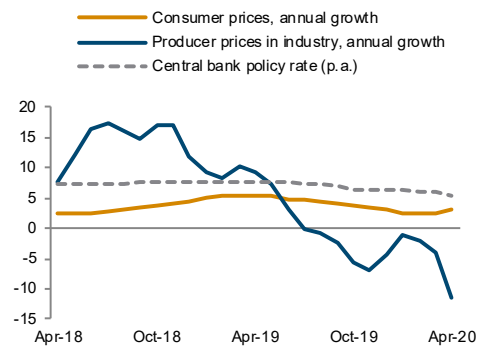
Real sector development
in %



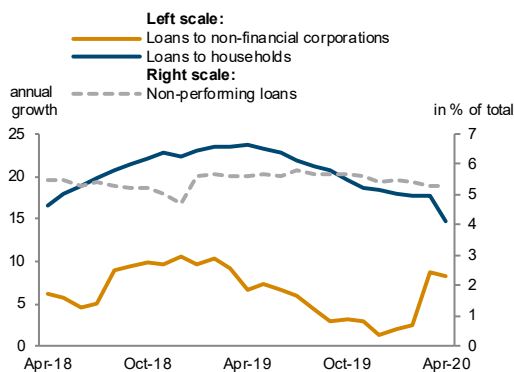
Unit labour costs in industry
annual growth rate in %



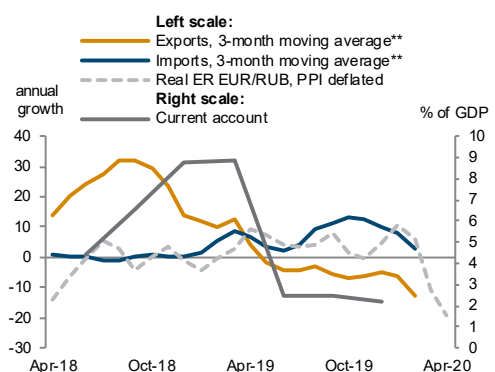
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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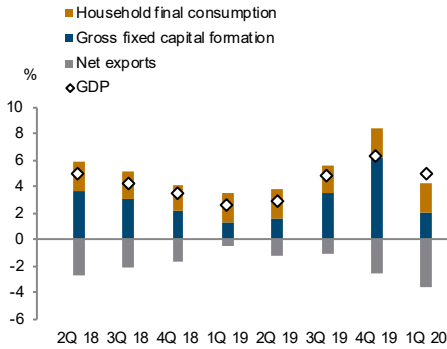
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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

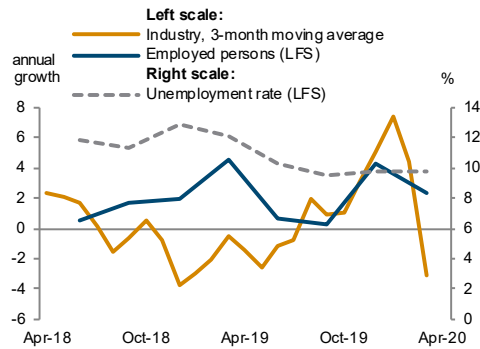
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Serbia

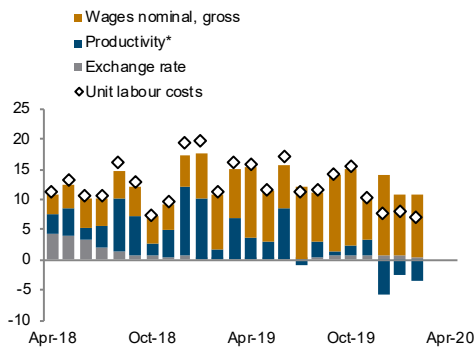
Real GDP growth and contributions
year-on-year



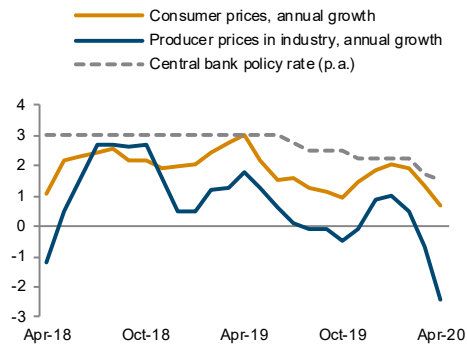
Real sector development
in %



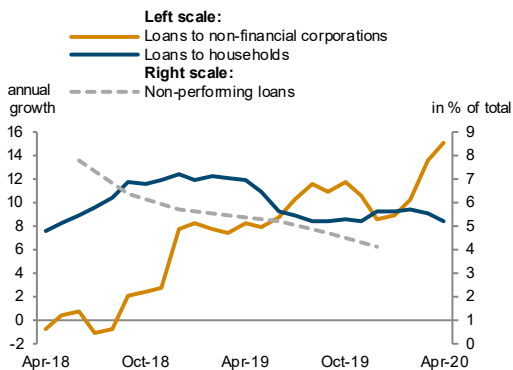
Unit labour costs in industry
annual growth rate in %



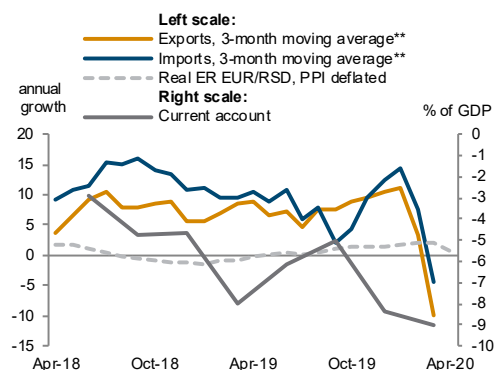
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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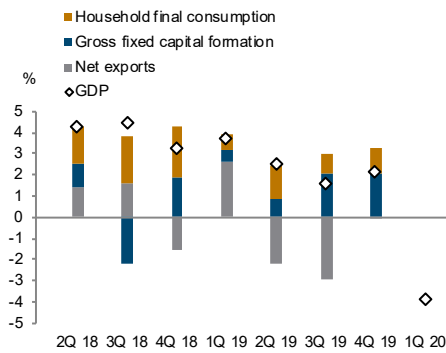
Source: wiiw Monthly Database incorporating Eurostat and national statistics.

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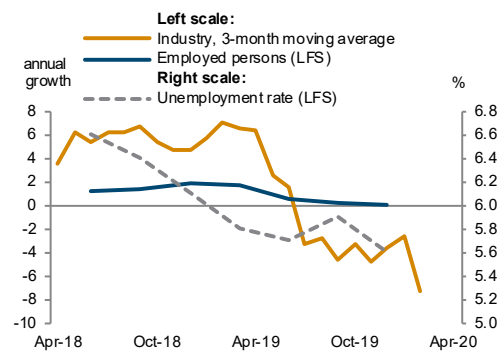
<https://data.wiiw.ac.at/monthly-database.html>

Slovakia

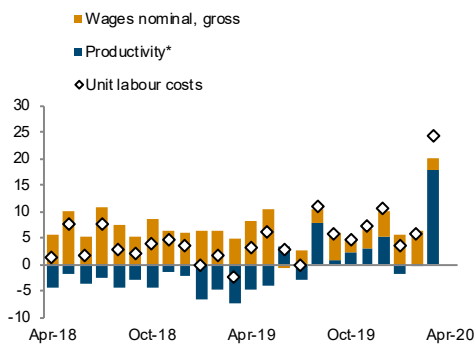
Real GDP growth and contributions
year-on-year



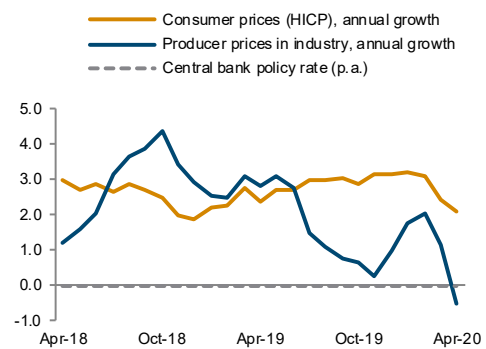
Real sector development
in %



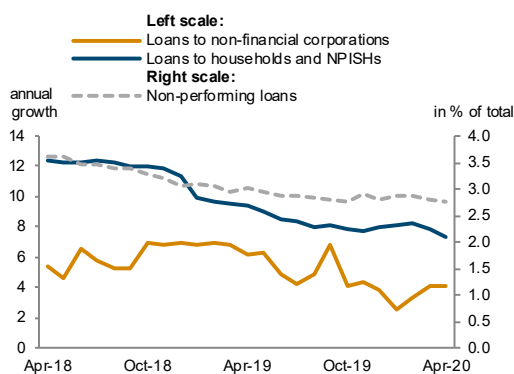
Unit labour costs in industry
annual growth rate in %



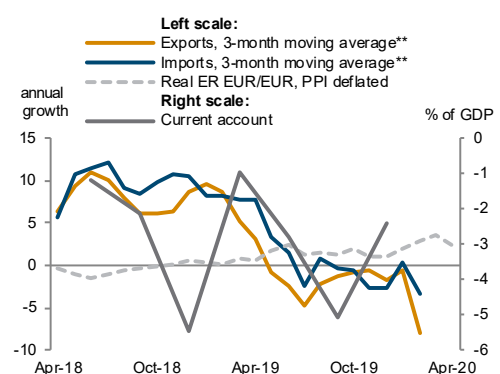
Inflation and policy rate
in %



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.

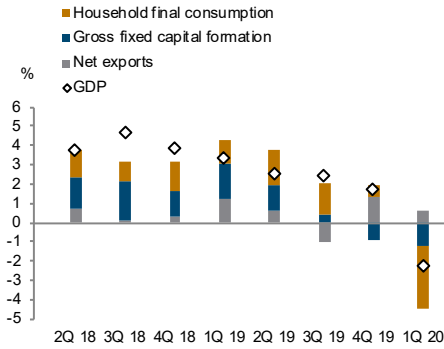
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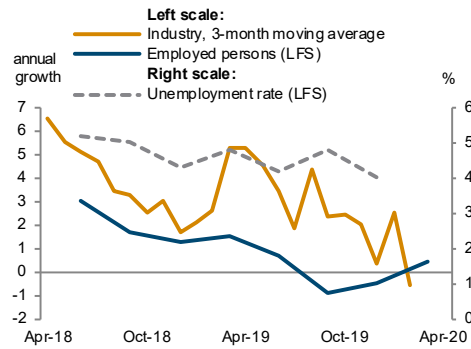
<https://data.wiiw.ac.at/monthly-database.html>

Slovenia

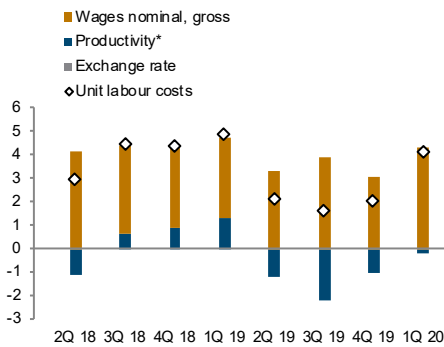
Real GDP growth and contributions
year-on-year



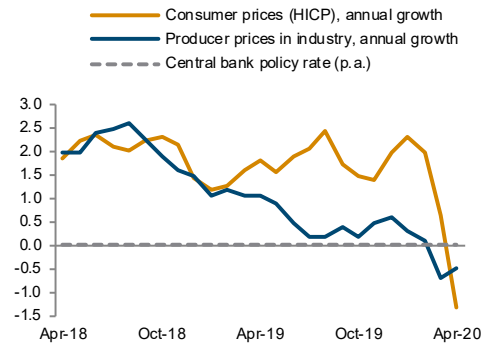
Real sector development
in %



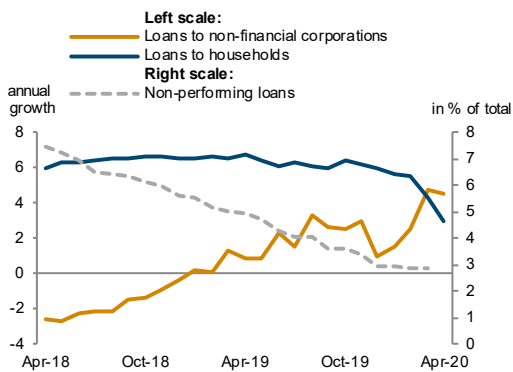
Unit labour costs in industry
annual growth rate in %



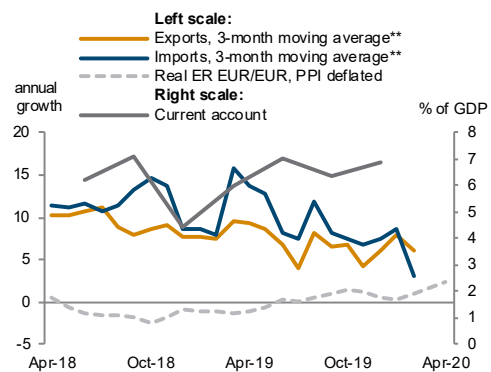
Inflation and policy rate
in %



Financial indicators
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External sector development
in %



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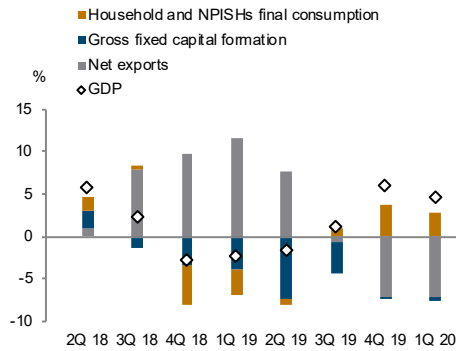
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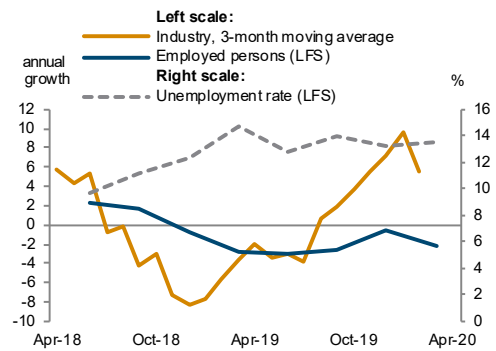
<https://data.wiiw.ac.at/monthly-database.html>

Turkey

Real GDP growth and contributions
year-on-year



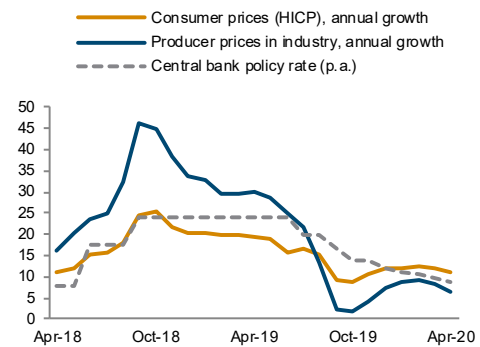
Real sector development
in %



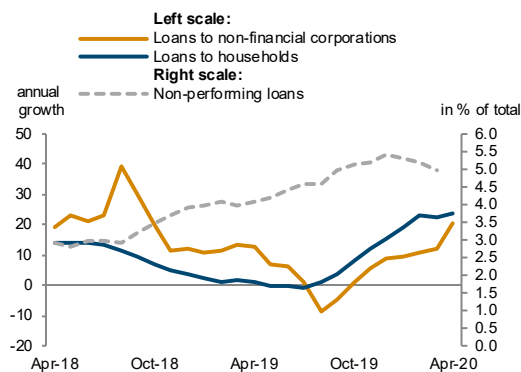
Unit labour costs in industry
annual growth rate in %



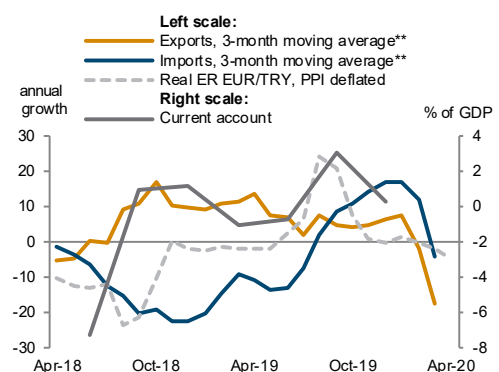
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Financial indicators
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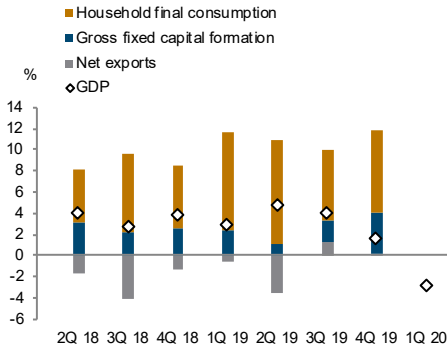
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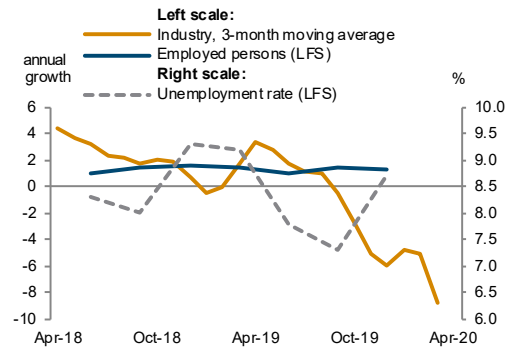
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Ukraine

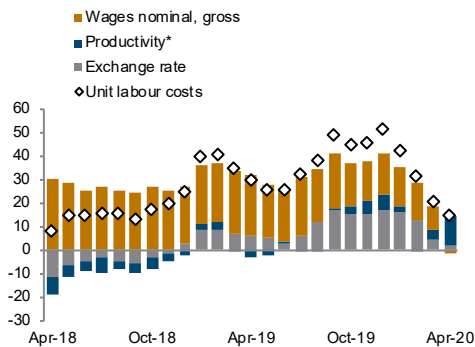
Real GDP growth and contributions
year-on-year



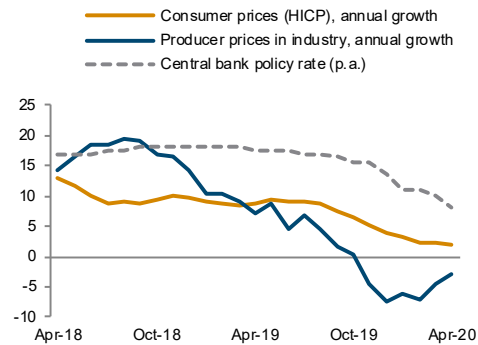
Real sector development
in %



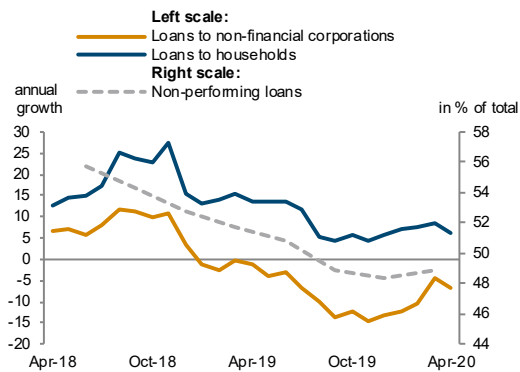
Unit labour costs in industry
annual growth rate in %



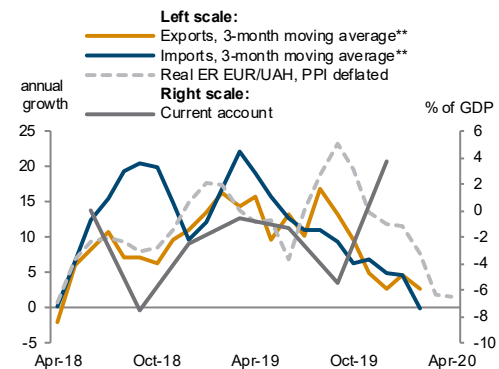
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Index of subjects – June 2019 to June 2020

Albania	economic situation	2019/6, 2020/5
Austria	cross-border cooperation with Slovakia	2019/9
	integration of refugees	2019/7-8
	trade and transport links with CESEE	2019/9
Belarus	economic situation	2019/6, 2020/5
Bosnia and Herzegovina	economic situation	2019/6, 2020/5
Bulgaria	economic situation	2019/6, 2020/5
China	economic development and relations with the US	2019/10
Croatia	economic situation	2019/6, 2020/5
Czech Republic	economic situation	2019/6, 2020/5
Estonia	economic situation	2019/6, 2020/5
Hungary	economic situation	2019/6, 2020/5
Iran	nuclear programme, negotiations with the US	2019/12
Italy	fiscal policy	2019/12
Kazakhstan	economic situation	2019/6, 2020/5
Kosovo	economic situation	2019/6, 2020/5
Latvia	economic situation	2019/6, 2020/5
Lithuania	economic situation	2019/6, 2020/5
Moldova	economic situation	2019/6, 2020/5
Montenegro	economic situation	2019/6, 2020/5
North Macedonia	economic situation	2019/6, 2020/5
Poland	economic and social policy	2020/4
	economic situation	2019/6, 2020/5
	minimum wage	2019/10
Romania	economic situation	2019/6, 2020/5
Russia	economic situation	2019/6, 2020/5
	gross regional product statistics	2020/2
	structural change	2020/2
Serbia	economic situation	2019/6, 2020/5
Slovakia	cross-border cooperation with Austria	2019/9
	economic situation	2019/6, 2020/5
Slovenia	economic situation	2019/6, 2020/5
Turkey	economic conundrum	2019/6, 2020/5
Ukraine	economic situation	2019/6, 2020/5
	re-integration of Donbas	2020/4
United Kingdom	economic model after Brexit	2019/9
	foreign managers and productivity	2020/3

(continued on the next page)

**multi-country articles
and statistical overviews**

connectivity in Europe.....	2019/10
coronavirus impact.....	2020/3
coronavirus and trade policy.....	2020/6
current account imbalances.....	2020/2
current developments: CESEE.....	2020/5
current developments: global overview.....	2020/5
digitisation in CESEE.....	2019/11
free trade agreements: network effects.....	2020/6
globalisation and inequality.....	2019/12
migration, EU policy.....	2019/7-8
migration of medical personnel.....	2019/7-8
oil prices.....	2020/4
robot adoption and employment in CESEE.....	2019/11
wages and productivity in CESEE.....	2020/3
West Balkans: EU accession prospects.....	2020/1
West Balkans, Ukraine and Moldova: social situation.....	2019/11
West Balkans, Ukraine and Moldova: demographics.....	2020/1
West Balkans, Ukraine and Moldova: labour market institutions.....	2020/1

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