Ministry of Finance
of the Czech Republic

Macroeconomic Forecast

of the Czech Republic

November 2022

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Table of Contents

The Macroeconomic Forecast is prepared by the Economic Policy Department of the Czech Ministry of Finance. It contains forecast for the years 2022 and 2023, and for certain indicators an outlook for the 2 following years (i.e. until 2025). It is published on a quarterly basis (in January, April, August and November) and is also available on the website of the Ministry of Finance at:

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Any comments or suggestions that would help us improve the quality of our publication and closer satisfy the needs of its users are welcome. Please send any comments to the following email address:

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List of Tables

List of Graphs

List of Abbreviations

BoP .... balance of payments
const. pr. .... constant prices
CNB .... Czech National Bank
CPI .... consumer price index
CR .... Czech Republic
curr. pr. .... current prices
CZSO .... Czech Statistical Office
EA19 .... euro zone consisting of 19 countries
EC .... European Commission
ECB .... European Central Bank
EU27 .... European Union consisting of 27 countries
Fed .... Federal Reserve System
GDP .... gross domestic product
GFCF .... gross fixed capital formation
GVA .... gross value added
IMF .... International Monetary Fund
LFS .... Labour Force Survey
MoF .... Ministry of Finance
MoLSA .... Ministry of Labour and Social Affairs
NPISHs .... non-profit institutions serving households
OECD .... Organisation for Economic Co-operation and Development
pp .... percentage points
TFP .... total factor productivity
VAT .... value-added tax

Symbols Used in Tables

-	A dash in place of a number indicates that the phenomenon did not occur.
.	A dot in place of a number indicates that we do not forecast that variable, or the figure is unavailable or unreliable.
x, (space)	A cross or space in place of a number indicates that no entry is possible for logical reasons.

Cut-off Date for Data Sources

The Macroeconomic Forecast is based on data known as of 1 November 2022.

Notes

All data in the Macroeconomic Forecast are unadjusted for seasonal and calendar effects, unless stated otherwise. Published aggregate data may not match sums of individual items to the last decimal place due to rounding.

Data from the previous forecast (August 2022) are indicated by italics. Data relating to the years 2024 and 2025 are an extrapolation scenario that indicates only the direction of possible developments, and as such are not commented upon in the following text.

Introduction and Summary

Several shocks have hit the pandemic-weakened global economy this year. The war in Ukraine weighs on global economic growth and intensifies inflationary pressures, especially in the case of food and energy prices. In many countries, inflation rates in the first half of this year were the highest since the 1980s, leading central banks to gradually raise interest rates. In China, prolonged lockdowns of major economic centres continue as a result of the implementation of strict anti-epidemic restrictions, with repercussions for global demand and supply.

According to the preliminary estimate of the Czech Statistical Office, **real gross domestic product** of the Czech Republic, adjusted for seasonal and calendar effects, fell by 0.4% QoQ in Q3 2022 and was 1.6% higher YoY. In Q2 2022, for which detailed data on the growth structure are available, GDP grew by 3.6% YoY (unadjusted).

Household consumption was virtually flat in Q2 2022. A record fall in real disposable income, caused by accelerating inflation, had a negative impact on consumer spending, while a significant decline in the savings rate had the opposite effect. **Government consumption** rose by 1.5%, driven by an increase in public sector employment and purchases of goods and services.

Gross fixed capital formation increased by 8.6%, the fastest growth since the end of 2018. Investment in non-residential construction and transport equipment were the largest contributors, but all major categories showed increases. From a sectoral perspective, privately financed business investment and household investment were the key drivers.

Although the contribution of the **change in inventories** and valuables to GDP growth (1.7 pp) was much lower than in the second half of the previous year, it still contributed significantly to the increase in economic output. Firms probably continued to increase their inventories of production inputs to avoid losses from high inflation and component supply shortages, but stocks of work in progress may also have risen.

By contrast, the **external trade** balance dampened economic growth (contribution of −0.6 pp), not only because of weak exports but also due to a recovery in import-intensive investment activity and continued stock accumulation, which boosted import growth.

While the economy had grown in the first half of this year despite adverse circumstances, it is expected to go through a slight recession in the second half of the year and early next year. Nevertheless, GDP for the full year **2022 could increase** by **2.4%**. Growth should be driven by fixed capital investment and increased inventory accumulation. Despite a range of fiscal stimulus measures, household final consumption expenditure will be dampened by a sharp rise in the cost of living, especially energy prices, and tighter monetary policy.

GDP could be more or less **stagnant** in **2023**. Households will continue to face the impact of high inflation next year, so their real consumption should fall slightly. Government consumption and gross fixed capital formation will continue to be pro-growth, but weaker year-on-year inventory accumulation will slow the economy noticeably. The impact of generally weak domestic demand will be partly offset by the external trade balance.

High **inflation** slows economic growth and lowers living standards. Annual inflation is expected to fall significantly in Q4 thanks to the energy saving package. The average inflation rate should thus reach 15.0% this year. Not only food, fuel, electricity, natural gas and imputed rent, but also other categories of goods and services are contributing significantly to the exceptionally strong consumer price inflation. Domestic demand pressures are also boosting inflation, but these should be dampened by the previous increase in monetary policy rates. Beyond the current foreign exchange interventions, this factor should also contribute to the appreciation of the koruna against the euro over the forecast horizon, which will have an anti-inflationary effect. The average inflation rate could slow to 9.5% in 2023.

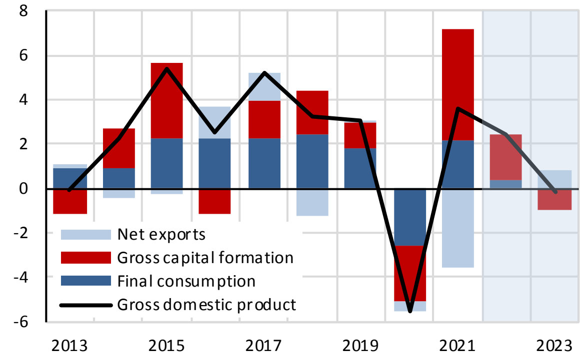
Labour market imbalances related to labour shortages continue to manifest themselves. Thus, despite the expected recession and the generally weak economic dynamics in 2023, the unemployment rate should not increase much, averaging 2.5% in 2022 and rising to 3.1% in 2023. Persistent labour market tightness will push up wage growth, which will lag behind inflation, though. As a result, the average real wage is expected to fall both this year and next.

The current account of the balance of payments showed a deficit of 3.5% of GDP in Q2 2022, mainly reflecting a deterioration in the balance of goods due to high mineral fuel prices. Slowing economic growth abroad and rising input and energy prices are expected to continue contributing to the negative balance of goods this year and next. As a result, the current account deficit is expected to reach 5.4% of GDP in 2022 and narrow slightly to 5.3% of GDP in 2023.

Government sector budget performance in 2022 reflects the economic and financial consequences of the Russian aggression against Ukraine and the related humanitarian crisis, or assistance to households and firms affected by high prices. At the same time, the Czech public finances are burdened by stimulus measures of a long-term nature taken in the past two years during the pandemic. As a result, the budget deficit is likely to reach 4.6% of GDP this year and 4.3% of GDP next year. The fiscal policy stance is expected to lead to a rise in debt to 43.9% of GDP in 2022 and 46.1% of GDP next year.

The economy should contract marginally next year

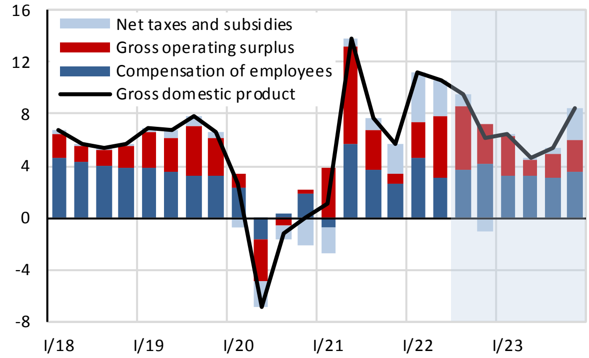
growth rate of real GDP in %, contributions in percentage points



Source: CZSO. Calculations and forecast of the MoF.

Growth of firms' profits should slow next year

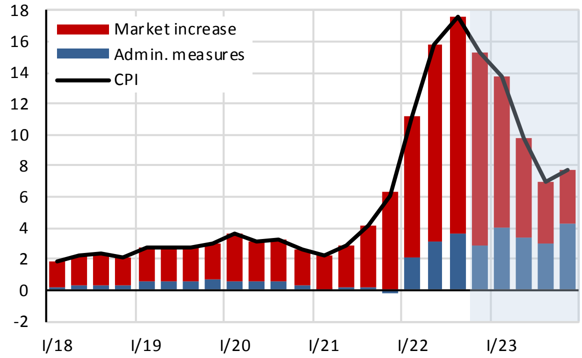
YoY growth of nominal GDP in %, contributions in percentage points



Source: CZSO. Calculations and forecast of the MoF.

Inflation well above the CNB's 2% target also next year

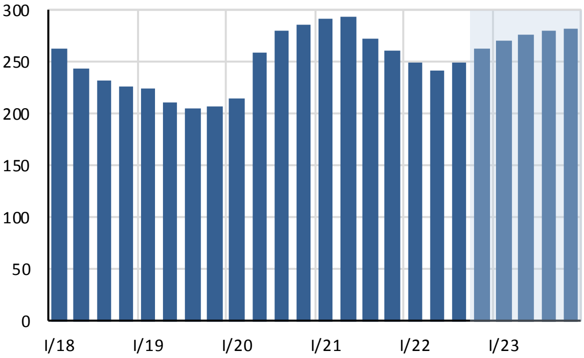
YoY growth rate of CPI in %, contributions in percentage points



Source: CZSO. Calculations and forecast of the MoF.

Unemployment should increase modestly

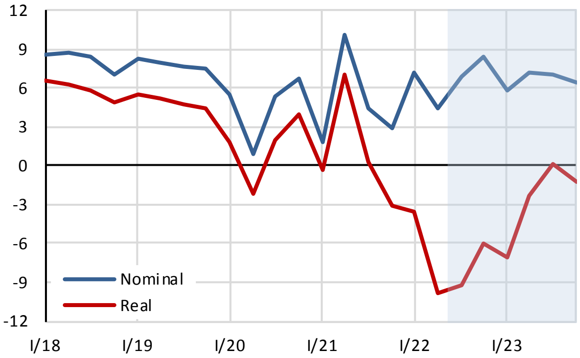
registered unemployment, in thous. of persons, seasonally adjusted



Source: MoLSA. Calc. and forecast of the MoF.

Wage growth should lag behind inflation

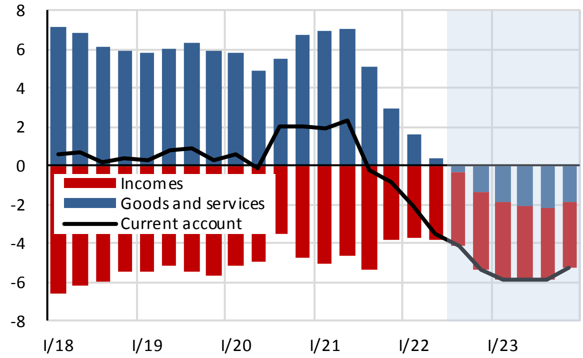
average gross monthly wage, YoY growth rate, in %



Source: CZSO. Calculations and forecast of the MoF.

Current account deficit should widen

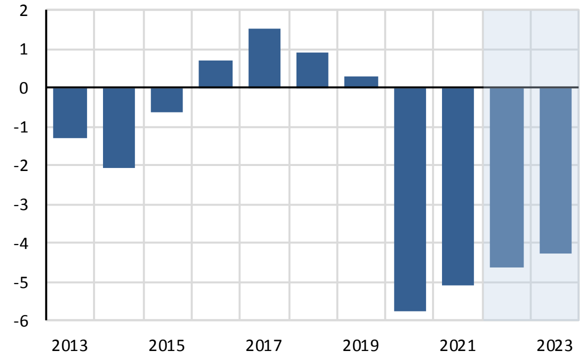
in % of GDP, yearly moving sums



Source: CNB, CZSO. Calculations and forecast of the MoF.

Public finance deficit should narrow gradually

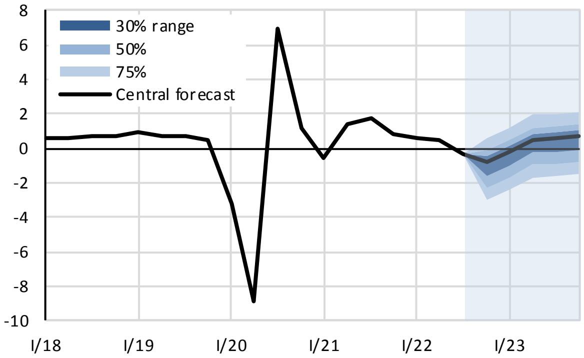
general government net lending/borrowing, in % of GDP



Source: CZSO. Calculations and forecast of the MoF.

Forecast risks are skewed to the downside

QoQ growth of real GDP in %



Source: CZSO. Calculations and forecast of the MoF.

Table: Main Macroeconomic Indicators

		2017	2018	2019	2020	2021	2022	2023	2022	2023
							Current forecast		*Previous forecast*	
Nominal GDP	*bill. CZK*	**5 111**	**5 411**	**5 791**	**5 709**	**6 108**	**6 674**	**7 092**	6 799	7 356
	nominal growth in %	6.5	5.9	7.0	-1.4	7.0	9.3	6.3	11.3	8.2
Gross domestic product	*real growth in %*	**5.2**	**3.2**	**3.0**	**-5.5**	**3.5**	**2.4**	**-0.2**	2.2	1.1
Consumption of households	*real growth in %*	4.0	3.5	2.7	-7.2	4.1	0.2	-0.8	0.5	0.5
Consumption of government	*real growth in %*	1.8	3.9	2.5	4.2	1.5	1.2	1.7	0.8	1.3
Gross fixed capital formation	*real growth in %*	4.9	10.0	5.9	-6.0	0.7	5.1	1.5	6.1	3.4
Contribution of net exports	*pp*	1.2	-1.2	0.0	-0.4	-3.6	0.0	0.8	-1.0	0.9
Contrib. of change in inventories	*pp*	0.5	-0.5	-0.3	-0.9	4.8	0.7	-1.4	1.3	-1.2
GDP deflator	*growth in %*	**1.3**	**2.6**	**3.9**	**4.3**	**3.3**	**6.7**	**6.5**	8.9	7.0
Average inflation rate	*%*	**2.5**	**2.1**	**2.8**	**3.2**	**3.8**	**15.0**	**9.5**	16.2	8.8
Employment *(LFS)*	*growth in %*	**1.6**	**1.4**	**0.2**	**-1.3**	**-0.4**	**-0.9**	**-0.1**	-0.7	0.2
Unemployment rate *(LFS)*	*average in %*	**2.9**	**2.2**	**2.0**	**2.6**	**2.8**	**2.5**	**3.1**	2.5	2.6
Wage bill *(domestic concept)*	*growth in %*	**9.2**	**9.6**	**7.8**	**0.1**	**5.8**	**10.0**	**7.4**	9.8	7.9
Current account balance	*% of GDP*	**1.5**	**0.4**	**0.3**	**2.0**	**-0.8**	**-5.4**	**-5.3**	-4.6	-4.0
General government balance	*% of GDP*	**1.5**	**0.9**	**0.3**	**-5.8**	**-5.1**	**-4.6**	**-4.3**	-3.8	.
Assumptions:										
Exchange rate CZK/EUR		**26.3**	**25.6**	**25.7**	**26.4**	**25.6**	**24.6**	**24.5**	24.6	24.4
Long-term interest rates	*% p.a.*	**1.0**	**2.0**	**1.5**	**1.1**	**1.9**	**4.5**	**5.2**	4.1	4.2
Crude oil Brent	*USD/barrel*	**54**	**71**	**64**	**42**	**71**	**102**	**83**	105	88
GDP in the euro area	*real growth in %*	**2.8**	**1.8**	**1.6**	**-6.3**	**5.3**	**3.3**	**0.3**	3.0	1.2

Source: CNB, CZSO, Eurostat, U. S. Energy Information Administration. Calculations and forecast of the MoF.

Forecast Risks and Uncertainty

The macroeconomic forecast is subject to a number of risks that, taken together, we consider to be **biased to the downside**.

Natural gas supplies from Russia to the European Union are now severely restricted and we do not expect them to be restored to the level before the outbreak of the war in Ukraine. During the coming winter, we assume that the reduced gas demand (price and income effect, precautionary behaviour, savings measures, economic stagnation) can be fully covered by gas imports from other countries (including new LNG terminals) and the use of gas in storage. For future heating seasons, we consider a scenario in which the supply shortfall from Russia is replaced by increased gas imports from other suppliers. At the same time, demand for natural gas is expected to decline as a result of continued high prices, additional energy savings and a switch to alternative technologies. Failure to meet these assumptions, especially in the medium term, is the main downside risk to the forecast.

In the forecast, we also work under the assumption that the next likely waves of the **COVID-19** epidemic can be managed without the need to adopt macroeconomically significant counter-epidemic restrictions. However, a specific problem is China's zero-COVID policy, under which, for example, large-scale lockdowns are imposed due to only a few new cases. Therefore, in the future, it cannot be ruled out that lockdowns will again affect major economic centres, similar to what happened in Q2 and Q3 of this year. This would have repercussions for economic developments in Europe through foreign trade (lower demand from China) and the impact on global supply chains. The emergence and spread of new coronavirus variants against which available vaccines or experienced disease would provide little protection remains a significant risk.

Further developments in inflation and **inflation expectations** are also a risk to the Czech economy. It is crucial that inflation expectations get back to the vicinity of the Czech National Bank's inflation target. Otherwise, a return of inflation to 2% would require even tighter monetary policy, which would entail additional economic costs. The intensity of **fiscal consolidation**, which is complicated by the impact of the Russian aggression in Ukraine, high inflation and the need to ensure sufficient energy supply, will also be crucial.

The available data suggest that the imbalances that had characterised the **labour market** before the outbreak of the epidemic are still present. Staff shortages are evident in almost all sectors of the economy and represent a significant barrier to output growth, particularly in the construction sector. However, some easing of the mismatch between demand and supply in the labour market, and the associated weakening of upward pressure on wages, could be brought about by an influx of refugees from Ukraine. It turns out that due to the high demand for labour by firms and the nature of most vacancies (low-skill jobs), Ukrainian refugees have not had major problems finding employment in the Czech labour market, even though their qualification structure may not match demand. The easier employment of foreigners is also facilitated by legislative changes reducing administrative barriers in this area.

In the medium and long term, in view of demographic developments, it will be crucial to make the **integration of refugees** from Ukraine as successful as possible and to increase **labour productivity**, for example by investing in automation, robotics and digital technologies. Given the high involvement of Czech firms in global supply chains, a strong impetus for productivity growth would also be their shift to higher value-added positions (either towards the initial R&D phase or towards the phase of selling the final product).

The deep fall in real GDP in 2020 was largely determined by the decline in household consumption. The unprecedented increase in the savings rate led to a strong accumulation of financial assets, mainly in the form of currency and deposits. Currently, some households can use these funds **to cushion the impact of high consumer price increases**.

A rise in interest rates and a substantial increase in prices could cause some households and firms to run into repayment problems, leading to a deterioration in the quality of banks' loan portfolios. **Overvaluation of residential property prices** also remains a risk.

Given the importance of **the automotive industry** for the Czech economy, the strong pro-cyclicality of this sector, its export orientation and dependence on supply chains is a risk. The risks in the automotive industry are further exacerbated by structural changes due to the gradual tightening of emission standards and the transition to electromobility. This will require huge investments in the development of technology, machinery and equipment or infrastructure. An impact on employment or supplier-customer relations can also be expected.

1 Forecast Assumptions

1.1 External Environment

The Russian invasion of Ukraine, in addition to the ongoing COVID-19 pandemic, is impacting the global economy this year. The outlook is further weighed down by exceptionally high inflation, which leads to monetary tightening in many countries, the energy crisis in Europe and China's strict anti-epidemic policy, which continues to disrupt supply chains. Against the backdrop of these factors, materializing risks and uncertainties, we estimate that **global economic growth** could reach 3.0% (*vs. 2.8%*) in 2022. Given the expected slowdown in the major economies, the global economy is expected to slow further to 1.7% (*vs. 1.9%*) in 2023.

According to the advance estimate, the economic output of the **United States** increased by 0.6% QoQ (*vs. 0.5%*) in Q3 2022, mainly due to the foreign trade balance and household spending on services.

The labour market remains tight. The unemployment rate returned to its pre-pandemic level of 3.5% in September. The year-on-year growth of consumer prices has been slowing since July to 8.2% in September. The Fed raised the federal funds rate for the fifth time this year in September, to a target range of 3.00%–3.25%, and anticipates its further increase. The Fed also continues to reduce the size of its balance sheet, which it has begun in June this year.

The purchasing managers' indices for services and manufacturing fell again in October after a slight increase in September. While the decline in service sector activity accelerated, performance in the manufacturing sector grew very slowly, despite a slight improvement in conditions. Consumer confidence rose marginally and was the highest in six months. However, high inflation, the continued unwinding of fiscal support and tightening monetary policy will dampen household consumption, which accounts for around 70% of US GDP. The monetary tightening should also have a negative impact on investment activity. The US economy could therefore grow by 1.8% (*unchanged*) this year and by 0.5% (*vs. 1.4%*) next year.

China's GDP grew by 3.9% QoQ (*vs. 3.2%*) in Q3 2022, reflecting government measures to support the economy. However, widespread restrictions due to COVID-19 outbreaks continued to occur, which adversely affected both industry and domestic demand. Consumer confidence approached an all-time low in August. Industrial production and retail sales increased month-on-month in September. According to purchasing managers' indices, activity in services contracted in September and conditions in manufacturing deteriorated further in October. Extreme weather events in major industrial areas resulted in power supply constraints and production interruptions and further worsened the country's economic outlook that remains weighed down not only by the ongoing property market crisis but also by unfavourable developments in external demand. In view of the above factors, we expect Chinese GDP to grow by 3.5% (*vs. 3.3%*) this year and by 4.6% (*vs. 4.9%*) next year.

According to the preliminary estimate, the quarter-on-quarter GDP growth in the third quarter slowed to 0.2% (*in line with the estimate*) in the **European Union**, the same as in the euro area (*vs. 0.0%*).

Annual inflation in the euro area rose to a record 10.7% in October. Energy and food prices were the main contributors to the increase in the price level. Inflation differentials among euro area countries have widened considerably this year – the lowest year-on-year inflation in October was in France (7.1%) and the highest in Estonia (22.4%). The European Central Bank raised its main refinancing rate to 2.0% in response to soaring consumer prices. We expect the ECB to tighten monetary policy further due to persistent inflationary pressures.

Fiscal policy in euro area Member States is slowly moving into a restrictive phase, but the planned fiscal consolidation will be tempered by government measures to mitigate the impact of high energy prices on households and businesses, as well as higher defence spending.

The unemployment rate in the euro area has been at an all-time low of 6.6% since July. Real disposable income of households is likely to fall this year due to the rising price level. However, the impact on household consumption could be partly cushioned by the drawdown of the extraordinary savings accumulated during the pandemic (the seasonally adjusted household savings rate fell by 1.7 pp QoQ to 13.2% in Q2 2022). The declining household purchasing power has already translated into a significant deterioration in sentiment in the services sector. Consumer confidence in the euro area has fallen to an all-time low. The energy crisis, high inflation and subdued demand have led to a fall in new orders and production in manufacturing, where conditions have been deteriorating since the start of Q3, according to the purchasing managers' index.

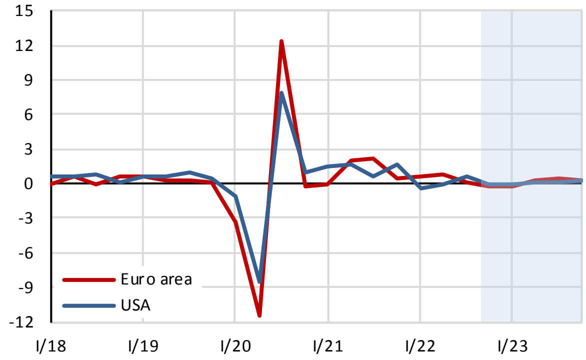
We expect GDP in the EU to increase by 3.4% (*vs. 3.2%*) this year, while growth in the euro area could reach 3.3% (*vs. 3.0%*). Next year, economic growth should slow to 0.5% (*vs. 1.4%*) in the EU and 0.3% (*vs. 1.2%*) in the euro area. The growth will be held back by the energy crisis, unfavourable developments in industry, weakening services sector and by high inflation and the related decrease in confidence across sectors. Monetary and fiscal tightening will also weigh on economic growth.

Germany's GDP grew by 0.3% QoQ (*vs. a decline of 0.7%*) in Q3 2022, according to the preliminary estimate. Weak global demand and high input costs lead to worse industrial conditions, causing firms to cut production and exports. Activity in the services sector has also declined significantly. However, the unemployment rate remains at 3.0%. The slump in consumer and business confidence, high inflation (11.6% in October), the energy crisis, subdued demand and falling industrial production indicate that the German economy will go through a technical recession at the end of this year and the beginning of next year. In response to the energy crisis, the German government has approved a EUR 200 billion package of measures to stabilise energy prices and support companies and households, which should be in place over the period 2023–2024. Thanks to economic growth in the first three quarters and a positive carry-over effect, we expect GDP to grow by 1.7% (*vs. 1.2%*) in 2022. In 2023, the German economy could contract by 0.3% (*vs. 0.9% growth*).

Slovakia's gross domestic product grew by 0.3% QoQ (*in line with the estimate*) in Q2 2022. The positive contribution of household consumption was dampened by a decline in government consumption and net exports. The unemployment rate declined slightly to 6.0% in August. Consumer and business confidence fell significantly. The year-on-year decline in industrial production eased slightly in August due to increased production of transport equipment. Tightening financial conditions combined with high inflation (14.5% in October) will negatively affect household consumption and business investment activity. These effects should be partly offset by investment co-financed by EU funds in 2023. Gross domestic product could grow by 1.3% (*vs. 1.7%*) in 2022. In 2023, it could fall by 0.1% (*vs. 1.8%*) due to the effects of the energy crisis, rising input costs for firms, sharply declining household purchasing power or subdued global demand.

Graph 1.1.1: Real GDP in the euro area and USA

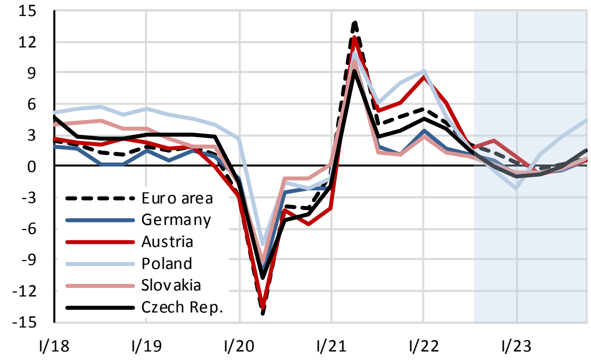
QoQ growth rate in%, seasonally adjusted



Source: Eurostat, OECD. Calculations and forecast of the MoF.

Graph 1.1.2: Real Gross Domestic Product

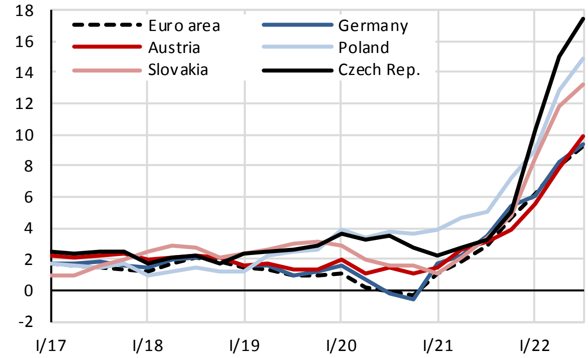
YoY growth in %, seasonally adjusted



Source: CZSO, Eurostat. Calculations and forecast of the MoF.

Graph 1.1.3: HICP

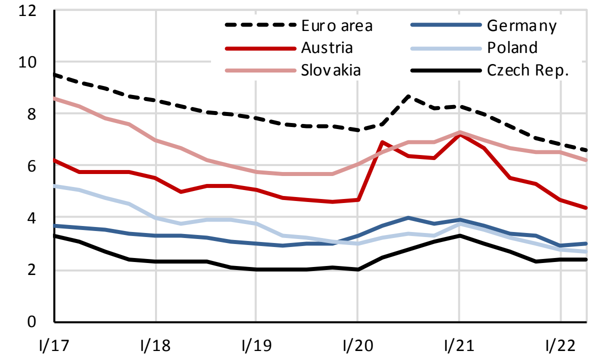
quarterly averages, YoY growth in %



Source: Eurostat. Calculations of the MoF.

Graph 1.1.4: Unemployment Rate

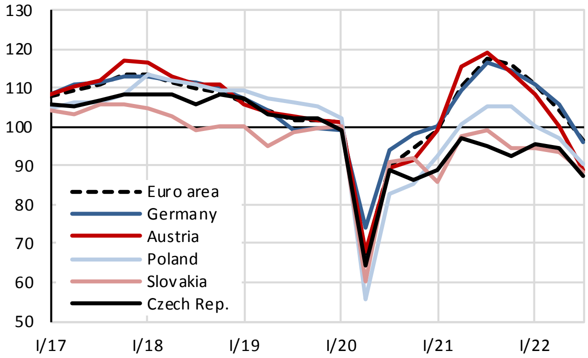
in %, LFS methodology, seasonally adjusted



Source: Eurostat.

Graph 1.1.5: Economic Sentiment Indicator

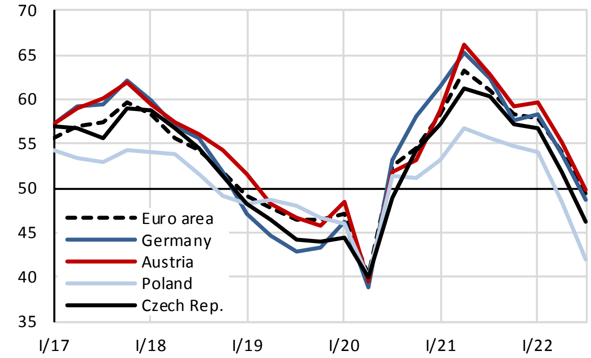
quarterly averages, long-run average = 100



Source: Eurostat. Calculations of the MoF.

Graph 1.1.6: Purchasing Managers' Index

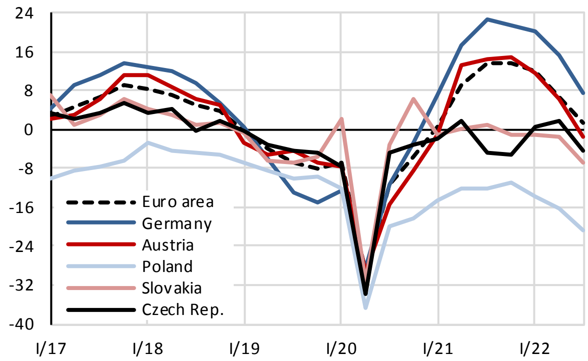
manufacturing, quarterly averages



Source: Markit. Calculations of the MoF.

Graph 1.1.7: Business Tendency

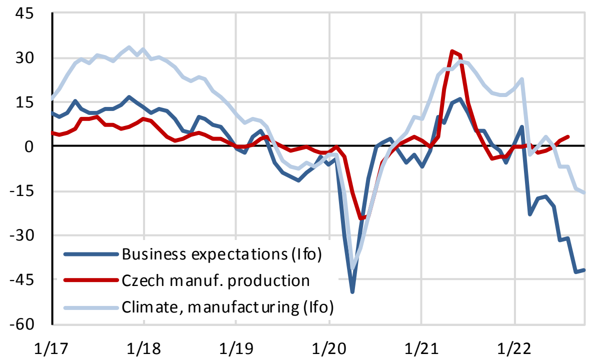
manufacturing, quarterly averages



Source: OECD. Calculations of the MoF.

Graph 1.1.8: Ifo and Czech manufacturing production

balances (Ifo, manufacturing); seas. adjusted industrial production in Czech manufacturing, YoY growth in% (three-month moving avg.)



Source: CESifo, CZSO. Calculations of the MoF.

Table 1.1.1: Gross Domestic Product – yearly

growth rate of real GDP in %

		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
										Forecast	*Forecast*
World	*seasonally adjusted*	**3.5**	**3.4**	**3.3**	**3.7**	**3.6**	**2.9**	**-3.1**	**6.1**	**3.0**	**1.7**
USA	*seasonally adjusted*	**2.3**	**2.7**	**1.7**	**2.2**	**2.9**	**2.3**	**-2.8**	**5.9**	**1.8**	**0.5**
China	*seasonally adjusted*	**7.4**	**7.3**	**6.8**	**7.0**	**6.7**	**6.1**	**1.8**	**8.7**	**3.5**	**4.6**
United Kingdom	*seasonally adjusted*	**3.2**	**2.4**	**2.2**	**2.4**	**1.7**	**1.6**	**-11.0**	**7.5**	**4.2**	**-0.4**
European Union	*seasonally adjusted*	**1.6**	**2.2**	**1.9**	**3.0**	**2.1**	**1.8**	**-5.8**	**5.3**	**3.4**	**0.5**
	unadjusted	1.6	2.3	2.0	2.8	2.1	1.8	-5.7	5.4	.	.
Euro area	*seasonally adjusted*	**1.4**	**1.9**	**1.8**	**2.8**	**1.8**	**1.6**	**-6.3**	**5.3**	**3.3**	**0.3**
	unadjusted	1.4	2.0	1.9	2.6	1.8	1.6	-6.1	5.3	.	.
Germany	*seasonally adjusted*	**2.2**	**1.2**	**2.1**	**3.0**	**1.0**	**1.1**	**-4.1**	**2.6**	**1.7**	**-0.3**
	unadjusted	2.2	1.5	2.2	2.7	1.0	1.1	-3.7	2.6	1.5	-0.6
France	*seasonally adjusted*	**1.0**	**1.1**	**1.0**	**2.4**	**1.8**	**1.9**	**-7.9**	**6.8**	**2.5**	**0.5**
	unadjusted	1.0	1.1	1.1	2.3	1.9	1.8	-7.8	6.8	2.5	0.4
Italy	*seasonally adjusted*	**0.1**	**0.6**	**1.4**	**1.7**	**0.8**	**0.5**	**-9.1**	**6.7**	**3.8**	**0.3**
	unadjusted	0.0	0.8	1.3	1.7	0.9	0.5	-9.0	6.7	3.7	0.2
Austria	*seasonally adjusted*	**0.8**	**1.0**	**2.0**	**2.3**	**2.4**	**1.5**	**-6.6**	**4.7**	**4.7**	**0.1**
	unadjusted	0.7	1.0	2.0	2.3	2.4	1.5	-6.5	4.6	4.7	0.0
Hungary	*seasonally adjusted*	**4.1**	**3.6**	**2.1**	**4.5**	**5.4**	**4.9**	**-4.8**	**7.1**	**4.6**	**1.6**
	unadjusted	4.2	3.7	2.2	4.3	5.4	4.9	-4.5	7.1	4.6	1.5
Poland	*seasonally adjusted*	**3.4**	**4.2**	**3.2**	**4.9**	**5.4**	**4.8**	**-2.1**	**5.8**	**3.7**	**1.5**
	unadjusted	3.4	4.2	3.1	4.8	5.4	4.7	-2.2	5.9	3.7	1.5
Slovakia	*seasonally adjusted*	**2.7**	**5.2**	**1.9**	**2.9**	**4.0**	**2.5**	**-3.4**	**3.0**	**1.3**	**-0.1**
Czech Republic	*seasonally adjusted*	**2.3**	**5.5**	**2.5**	**5.3**	**3.2**	**3.0**	**-5.5**	**3.5**	**2.4**	**0.0**
	unadjusted	2.3	5.4	2.5	5.2	3.2	3.0	-5.5	3.5	2.4	-0.2

Source: CZSO, Eurostat, IMF, OECD, Office for National Statistics. Calculations of the MoF.

Table 1.1.2: Gross Domestic Product – quarterly

growth rate of real GDP in %, data adjusted for seasonal and calendar effects

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3 *Estimate*	Q4 *Forecast*
USA	*QoQ*	**1.5**	**1.7**	**0.7**	**1.7**	**-0.4**	**-0.1**	**0.6**	**-0.1**
	YoY	1.2	12.5	5.0	5.7	3.7	1.8	1.8	0.0
China	*QoQ*	**0.8**	**1.4**	**0.4**	**1.3**	**1.6**	**-2.7**	**3.9**	**1.7**
	YoY	19.1	8.1	5.1	4.0	4.8	0.5	4.0	4.4
United Kingdom	*QoQ*	**-1.2**	**6.5**	**1.8**	**1.6**	**0.7**	**0.2**	**-0.2**	**-1.0**
	YoY	-7.8	24.3	8.5	8.9	10.9	4.4	2.4	-0.3
European Union	*QoQ*	**0.1**	**2.0**	**2.1**	**0.7**	**0.7**	**0.7**	**0.2**	**-0.2**
	YoY	-0.7	13.8	4.2	5.0	5.6	4.3	2.4	1.5
Euro area	*QoQ*	**-0.1**	**2.0**	**2.3**	**0.5**	**0.6**	**0.8**	**0.2**	**-0.3**
	YoY	-0.8	14.2	3.9	4.8	5.5	4.3	2.1	1.3
Germany	*QoQ*	**-1.5**	**1.9**	**0.8**	**0.0**	**0.8**	**0.1**	**0.3**	**-0.5**
	YoY	-2.2	10.2	1.8	1.2	3.5	1.7	1.1	0.6
France	*QoQ*	**0.1**	**1.1**	**3.3**	**0.6**	**-0.2**	**0.5**	**0.2**	**-0.1**
	YoY	1.5	18.6	3.6	5.1	4.7	4.2	1.0	0.4
Italy	*QoQ*	**0.3**	**2.5**	**2.8**	**0.9**	**0.1**	**1.1**	**0.5**	**-0.2**
	YoY	0.1	16.7	4.8	6.5	6.4	4.9	2.6	1.5
Austria	*QoQ*	**-1.0**	**4.2**	**4.2**	**-1.3**	**1.3**	**1.9**	**-0.1**	**-0.5**
	YoY	-4.1	12.5	5.4	6.1	8.6	6.2	1.8	2.5
Hungary	*QoQ*	**1.2**	**2.6**	**1.1**	**2.3**	**1.8**	**1.1**	**-1.5**	**-1.0**
	YoY	-1.6	17.6	6.6	7.4	8.0	6.5	3.7	0.3
Poland	*QoQ*	**1.4**	**2.0**	**2.6**	**1.8**	**2.5**	**-2.1**	**-0.4**	**-0.3**
	YoY	-1.1	11.0	6.1	8.0	9.2	4.7	1.6	-0.5
Slovakia	*QoQ*	**-1.4**	**1.9**	**0.4**	**0.3**	**0.3**	**0.3**	**0.0**	**-0.4**
	YoY	0.1	10.2	1.3	1.1	2.9	1.3	0.9	0.2
Czech Republic	*QoQ*	**-0.5**	**1.4**	**1.7**	**0.8**	**0.6**	**0.5**	**-0.4**	**-0.8**
	YoY	-1.9	9.1	2.8	3.5	4.6	3.7	1.6	-0.1

Source: CZSO, Eurostat, OECD, Office for National Statistics. Calculations and forecast of the MoF.

1.2 Commodity Prices

In Q3 2022, **the price of Brent crude oil** averaged USD 101 (*vs. USD 109*) per barrel. Due to the war in Ukraine and the very low price last year, it has increased by 48% YoY, in koruna terms by 65%.

While the United States is expected to continue gradually increasing its daily oil production, the Organization of Petroleum Exporting Countries and other affiliates have agreed in October 2022 to significantly reduce production. This is because of growing concerns about a decline in oil demand due to expected weaker global economic growth.

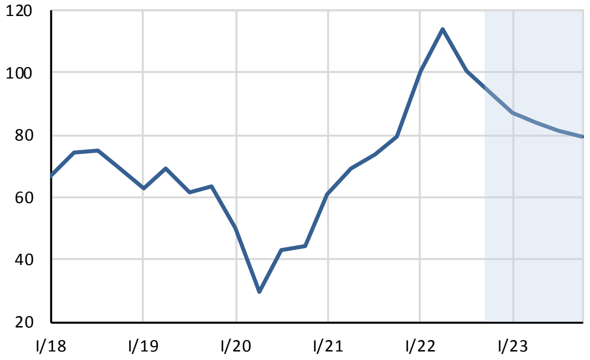
In H1 2022, oil consumption was declining, but there should be a turnaround and return to growth in the second half of the year, with consumption stabilising thereafter. From Q2 2023 onwards, the US Energy Information Administration expects supply and demand to be in an equilibrium. Longer-term balance with replenished stocks should lead to a further decline in the price of oil, but a possible increase in geopolitical tensions and potential higher-than-expected production cuts in response to the downturn in the global economy pose upside risks.

While the oil futures market is highly volatile, oil with later delivery is still trading cheaper than oil with earlier delivery. The expected Brent crude oil price reflects this downward curve in futures prices, which is lower than in the August forecast. This year, the average price of Brent crude oil is expected to increase by 44% YoY to USD 102 (*vs. USD 105*) per barrel; in koruna terms, the increase is expected to be 57% due to the depreciation of the koruna against the dollar. For 2023, we assume an average price of USD 83 (*vs. USD 88*), or a 19% YoY decline.

Prices and volatility in **commodity markets** remain elevated, particularly in the context of a major reduction in natural gas deliveries from the Russian Federation to the EU and the threat of shortages during the upcoming heating season. The wholesale prices of natural gas (and wholesale power prices) in Europe have risen to new record highs in Q3 2022. High commodity prices are largely reflected in firms' costs and consumer prices (see Chapter 3.2).

Graph 1.2.1: Dollar Price of Brent Crude Oil

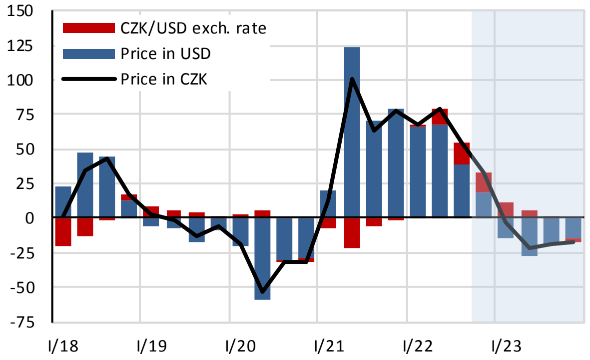
USD/barrel



Source: U. S. EIA. Calculations and forecast of the MoF.

Graph 1.2.2: Koruna Price of Brent Crude Oil

YoY change of the CZK price of Brent crude oil in %, contributions in pp



Source: CNB, U. S. EIA. Calculations and forecast of the MoF.

Table 1.2.1: Prices of Selected Commodities – yearly

spot prices

		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
										Forecast	*Forecast*
Crude oil Brent	*USD/barrel*	**99.0**	**52.4**	**43.6**	**54.2**	**71.4**	**64.3**	**41.8**	**70.8**	**102**	**83**
	growth in %	-8.8	-47.1	-16.9	24.3	31.7	-9.9	-35.0	69.3	44.4	-18.8
Crude oil Brent index *(in CZK)*	*2010=100*	**134.6**	**85.0**	**70.1**	**83.1**	**102.2**	**97.1**	**63.6**	**101.2**	**159**	**134**
	growth in %	-3.8	-36.9	-17.4	18.5	23.0	-5.0	-34.6	59.1	57.2	-15.6
Natural gas (Europe)	*USD/MMBtu*	**10.1**	**6.8**	**4.6**	**5.7**	**7.7**	**4.8**	**3.2**	**16.1**	**.**	**.**
	growth in %	-14.7	-32.1	-33.1	25.3	34.4	-37.5	-32.5	397.1	.	.
Natural gas (Europe) index *(in CZK)*	*2010=100*	**131.7**	**106.2**	**70.7**	**84.2**	**106.0**	**69.6**	**47.1**	**223.0**	**.**	**.**
	growth in %	-9.8	-19.4	-33.4	19.2	25.8	-34.3	-32.4	373.7	.	.

Source: CNB, U. S. Energy Information Administration, World Bank. Calculations and forecast of the MoF.

Table 1.2.2: Prices of Selected Commodities – quarterly

spot prices

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
									Forecast
Crude oil Brent	*USD/barrel*	**61.0**	**69.0**	**73.5**	**79.6**	**100.9**	**113.8**	**100.7**	**93**
	growth in %	21.3	132.3	71.3	79.7	65.4	64.9	37.0	17.3
Crude oil Brent index *(in CZK)*	*2010=100*	**86.9**	**96.6**	**104.7**	**116.3**	**146.1**	**173.6**	**161.8**	**154**
	growth in %	12.9	101.2	63.7	78.3	68.1	79.6	54.5	32.7
Natural gas (Europe)	*USD/MMBtu*	**6.5**	**8.8**	**16.9**	**32.2**	**32.6**	**31.6**	**60.2**	**.**
	growth in %	111.2	383.8	489.4	520.6	400.6	260.2	255.4	.
Natural gas (Europe) index *(in CZK)*	*2010=100*	**89.3**	**118.2**	**231.7**	**452.7**	**454.0**	**463.7**	**928.9**	**.**
	growth in %	96.5	319.0	463.2	515.9	408.6	292.2	300.9	.

Source: CNB, U. S. Energy Information Administration, World Bank. Calculations and forecast of the MoF.

1.3 Fiscal Policy

The general government sector ended **2021** with a deficit of 5.1% of GDP. Revising the 2021 data, the CZSO improved the overall balance by CZK 47.9 billion, due to higher corporate income tax (+ CZK 44.7 billion) and personal income tax (+ CZK 5.6 billion). The balance adjusted for effects of the business cycle and one-off measures reached −3.5% of GDP.

In **2022**, the public finances of the Czech Republic are expected to reach a deficit of 4.6% of GDP (*vs. 3.8% of GDP*), or 3.1% of GDP (*vs. 3.0% of GDP*) in structural terms. The estimate reflects the economic and financial consequences of the Russian aggression against Ukraine and the related humanitarian crisis, aid to households and firms burdened by huge price increases, as well as the fiscal stimulus measures of previous years and the expenditure triggered by the COVID-19 epidemic. In contrast, local governments are likely to show a positive balance again, while social security funds may also achieve a slight surplus.

In addition to the economic forecast for the second half of the year and data from the quarterly national accounts for the first two quarters, the budget estimate for this year (in accrual terms) is also based on the cash performance of key components of the Czech public budgets. In the first 10 months of the year, the state budget recorded a deficit of CZK 286.7 billion, an improvement of CZK 48.2 billion on the corresponding period of 2021. Local governments, with a surplus of CZK 60.3 billion at the end of September, achieved a CZK 15.6 billion better year-on-year balance, while health insurance companies reported a surplus of CZK 4.1 billion for the same period, which represents a positive year-on-year change of almost CZK 11 billion. Compared to the August Macroeconomic Forecast, we expect lower dynamics of total tax revenues. The exceptions are higher growth in personal income tax and social security contributions in relation to the wage bill. The deterioration on the expenditure side is due to higher final consumption expenditure, transfers and a smaller year-on-year decline in subsidies.

Personal income tax revenue should be 3.9% higher year-on-year, as the increase in the basic taxpayer credit with an impact of CZK 12.3 billion works against the estimated volume of wages and salaries in the economy (see section 3.3). **Social security contributions**, with an expected increase of 6.9%, are also linked to earnings developments. The dynamics of employee taxation and social security contributions this year are also reduced by the extraordinary remuneration paid last year to workers in health care, social services and armed forces. The revenue from public health insurance contributions also includes payments for state insured persons. The amendment to the law leaves the average amount of payment for the state insured at the 2021 level, but an increase in the number of state insured persons with temporary protection granted to citizens of Ukraine will raise the revenue of health insurance companies by an estimated CZK 5 billion.

The corporate income tax dynamics should be dampened by the end of the effective change in the method of creating and tax deductibility of technical provisions for insurance companies, the extension of the validity of extraordinary depreciation and the tax exemption of proceeds from government bonds with a total impact of CZK 7.8 billion. Unwinding of the negative impact of the increase in the entry price threshold for depreciation of tangible assets, estimated at CZK 1.6 billion, has the opposite effect. This should result in a 5.3% increase in this tax.

The 17.7% year-on-year increase in **value added tax** revenue is expected to be driven mainly by strong nominal household consumption. For **excise taxes**, excluding subsidies for renewable energy, we estimate a 1.7% increase in revenue. The main influences include a CZK 2.5 billion increase in the tax on tobacco products and CZK 3 billion impact from the solar electricity levy. The abolition of the road tax and the reduction of the tax rate on diesel and petrol in response to the jump in fuel prices will be associated with a revenue shortfall of around CZK 11 billion. The waiving of the renewable energy levy for households and companies this year represents an estimated amount of CZK 4.6 billion.

The growth rate of government **final consumption expenditure** is expected to accelerate to 6.1% YoY. Unlike in the previous few years, it should be driven mainly by intermediate consumption (13.5%), reflecting exceptionally high inflation, EU-funded projects, as well as the migration wave from Ukraine. The 9.2% growth in social benefits in kind reflects spending on health and social services, also used by Ukrainian refugees. In addition, it reflects higher expenditure in the form of housing benefit and housing supplement. The increased base due to exceptional remuneration in the previous year and the moderate indexation of salary scales will increase compensation of employees in the general government sector by 1.7%.

The area of **cash social benefits** is mainly determined by pension benefits. Their standard January indexation, increased by CZK 300 above the standard formula, is reinforced by two extraordinary indexations due to the high inflation rate – by CZK 1,017 on average since June and CZK 700 on average since September. The social benefit system was enhanced by a one-off allowance of CZK 5,000 per child under 18 this year, for a total of CZK 7.8 billion. The higher child benefit, linked to the rising minimum subsistence level, will also require additional spending. In connection with the migration wave of refugees from Ukraine, a humanitarian benefit of an estimated CZK 10.4 billion is being paid and a CZK 5 billion higher transfer from the state budget to the public health insurance system. As a result of economic developments and the discretionary measures mentioned above, cash social benefits are expected to increase by 10.5%.

We expect an increase of 11.5% in fixed asset **investment** expenditure. Investments should be supported by the EU budget, either due to the approaching end of the 2014–2020 programming period or the involvement of new funds from the NextGenerationEU instrument. Their share of total investment should be almost a quarter.

The forecast takes into account measures to help households and firms in a situation of high energy prices. In contrast, anti-epidemic measures and related support programmes have been discontinued. As a result, **subsidies** are expected to decrease by 8.6%, which includes the CZK 30 billion made available to help large firms. This year's 16.6% increase in **current transfers** is mainly due to assistance to households with the payment of energy costs in the form of the so-called savings tariff, estimated at CZK 18.5 billion. The positive effect of the termination of the compensation bonus payment will probably be outweighed by several extraordinary factors: the payment of refunds of deposits of former clients of Sberbank CZ, a. s. from the Financial Market Guarantee System in the amount of CZK 7.8 billion, payments to the Czech Post on account of the net universal service costs for the period 2018–2022 in the aggregate amount of CZK 7.5 billion and the gratuitous transfer of military equipment and material to Ukraine in the order of several billion CZK. As a result, **capital transfers** are expected to grow by 5.7%.

The deficit performance of the general government will be reflected in the level of **debt**, which is expected to reach 43.9% of GDP (*vs. 42.4% of GDP*) at the end of the year. The relatively low increase in the debt quota by 1.8 pp is due to the expected 9.3% growth in nominal GDP. Higher debt and the projected interest rate developments will increase **interest costs** by almost 60%, reaching 1.1% of GDP.

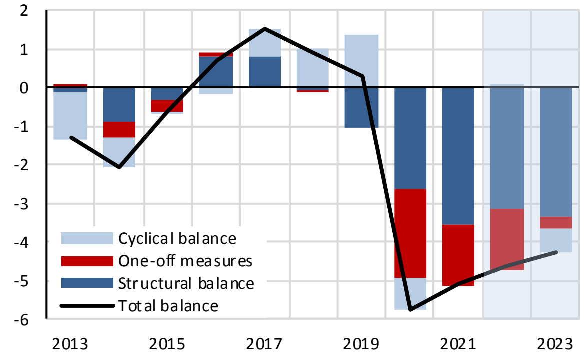
The performance of public finances in **2023** will continue to depend heavily on energy market developments. We expect the general government balance to reach −4.3% of GDP. General government debt is expected to rise further to 46.1% of GDP. However, newly introduced measures and their functioning increase the risks to the forecast considerably.

We expect **general government revenues** to grow by around 10%, with tax revenues, including social security contributions, rising by 9.1%. High nominal consumption as well as higher rates of purchases and investment spending by the general government sector are contributing positively to revenue growth in consumption taxes. **Value-added tax** is expected to grow by 7.2%, with autonomous growth lessened by a revenue shortfall due to the shift in the threshold for tax registration to CZK 2 million with the impact of CZK 10 billion. **Excise taxes** will be boosted by the increase in rates on tobacco products, while the reduced rate on diesel, effective until the end of 2023, will have a negative impact. In addition to the growth in wage bill in the economy, the dynamics of income taxes will be significantly affected by measures under wind-fall taxation. **Personal income tax** is expected to grow by 8% in line with the macroeconomic base. **Social security contributions** should follow a similar trend, but will be negatively affected by the reduced contribution rate for employees working part-time. By contrast, the 36.4% increase in **corporate income tax** is driven by higher profits which will be taxed at an extraordinary rate from the set threshold in the case of selected industries and firms.

General government expenditure is expected to grow by 9%. We estimate that **final consumption** will accelerate slightly year-on-year, driven by still relatively high rates for purchases, health spending and growth in compensation of employees of around 6.5%. **Subsidies** and **capital transfers** are then expected to show a significant year-on-year decline, with negative dynamics reflecting the expiry of support measures for large enterprises due to high energy prices or one-off expenditures related to Sberbank or Czech Post in 2022. In contrast, **cash social benefits**, **interest expenses, current transfers** and **investment** are exerting a stronger upward pressure on spending. In the area of cash social benefits, it is mainly the growth of pension benefits, which will be determined both by the indexation from January and, very likely, by an extraordinary indexation due to higher inflation. Interest costs reflect both the rising debt ratio and the evolution of yields on issued assets. The increase in current transfers will be mainly determined by the compensation costs resulting from the introduced caps on energy prices. Investments should be significantly supported by funds from the EU budget, whether it is due to the approaching end of the 2014–2020 programming period or funds from the NextGenerationEU instrument.

Graph 1.3.1: General Government Balance

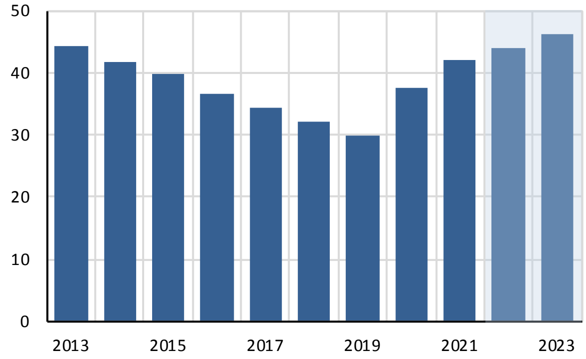
in % of GDP



Source: CZSO. Calculations and forecast of the MoF.

Graph 1.3.2: General Government Debt

in % of GDP



Source: CZSO. Calculations and forecast of the MoF.

Table 1.3.1: Net Lending/Borrowing and Debt

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
								Forecast	*Forecast*	*Outlook*	*Outlook*
General government balance	*% GDP*	**0.7**	**1.5**	**0.9**	**0.3**	**-5.8**	**-5.1**	**-4.6**	**-4.3**	**-2.5**	**-2.3**
	bill. CZK	34	77	48	17	-329	-312	-307	-303	-192	-185
Cyclical balance	*% GDP*	**-0.2**	**0.7**	**1.0**	**1.3**	**-0.8**	**0.0**	**0.1**	**-0.6**	**-0.2**	**0.2**
Cyclically adjusted balance	*% GDP*	**0.9**	**0.8**	**-0.1**	**-1.1**	**-4.9**	**-5.1**	**-4.7**	**-3.6**	**-2.3**	**-2.5**
One-off measures [1]	*% GDP*	**0.1**	**0.0**	**-0.1**	**0.0**	**-2.3**	**-1.6**	**-1.6**	**-0.3**	**0.6**	**0.4**
Structural balance	*% GDP*	**0.8**	**0.8**	**0.0**	**-1.1**	**-2.6**	**-3.5**	**-3.1**	**-3.3**	**-3.0**	**-2.9**
Fiscal effort [2]	*pp*	**1.2**	**0.0**	**-0.8**	**-1.0**	**-1.6**	**-0.9**	**0.4**	**-0.2**	**0.4**	**0.0**
Interest expenditure	*% GDP*	**0.9**	**0.7**	**0.7**	**0.7**	**0.8**	**0.8**	**1.1**	**1.1**	**1.1**	**1.2**
Primary balance	*% GDP*	**1.6**	**2.2**	**1.6**	**1.0**	**-5.0**	**-4.3**	**-3.5**	**-3.2**	**-1.4**	**-1.1**
Cyclically adjusted primary balance	*% GDP*	**1.8**	**1.5**	**0.6**	**-0.4**	**-4.2**	**-4.4**	**-3.6**	**-2.6**	**-1.2**	**-1.4**
General government debt	*% GDP*	**36.6**	**34.2**	**32.1**	**30.0**	**37.7**	**42.0**	**43.9**	**46.1**	**46.2**	**46.7**
	bill. CZK	1 755	1 750	1 735	1 740	2 150	2 567	2 927	3 270	3 504	3 726
Change in debt-to-GDP ratio	*pp*	**-3.1**	**-2.3**	**-2.2**	**-2.0**	**7.6**	**4.4**	**1.8**	**2.3**	**0.1**	**0.4**

[1] One-off and temporary measures are such measures that have only a temporary impact on public budgets. Besides their temporary impact on overall balance, these measures are usually of non-recurring nature and very often result from the events that are beyond the direct power of the government.

[2] Change in structural balance.

Source: CZSO. Calculations and forecast of the MoF.

1.4 Monetary Policy, Financial Sector and Exchange Rates

In H1 2022, the Czech National Bank gradually increased the **two-week repo rate** by a total of 325 basis points to 7.00%. In its renewed composition, the CNB Bank Board decided to keep rates at the current level at its monetary policy meetings in August and September. The reason for monetary policy tightening in the first half of the year was the sharp rise in current and expected inflation, which is still well above the 2% target. Consumer prices are affected not only by cost shocks of a global nature, but also by domestic demand factors, such as the lagged effects of monetary and fiscal expansion, and upward pressure on wages caused by a shortage of employees.

In view of the forecasted inflation developments (see Section 3.2), we expect that the CNB will not raise primary interest rates any further and the two-week repo rate could remain at its current level for most of 2023. In the second half of next year, inflationary pressures should be weaker and the CNB could therefore start gradually reducing monetary policy interest rates.

Given the increase in primary interest rates of the CNB, the **three-month PRIBOR rate** reached 7.3% (*vs. 7.6%*) in Q3 2022. Under the assumed monetary policy stance, it could average 6.3% (*vs. 6.5%*) for the whole of 2022 and rise further to 6.9% (*vs. 7.1%*) in 2023.

The **yield to maturity on 10-year government bonds** rose to 4.4% (*vs. 4.3%*) on average in the third quarter, and could reach 4.5% (*vs. 4.1%*) for the full year 2022. Given the expected monetary policy stance and rising inflation expectations, long-term interest rates could average 5.2% (*vs. 4.2%*) in 2023.

Annual growth in total **loans to households** slowed further to 7.4% in Q3 2022, but net new loans fell by more than half year-on-year. The tightening of macroprudential indicators for mortgage lending from April 2022 appears to be playing a role, as is the rise in interest rates. The average customer interest rate on new mortgage loans reached 4.6% in September 2022 (up 2.2 pp YoY).

By contrast, growth in **loans to non-financial corporations** accelerated to almost 10% in the third quarter, driven exclusively by foreign currency loans. This can be explained mainly by the high interest rate differential vis-à-vis koruna loans and the expected appreciation of the koruna. The average customer interest rate on total loans to non-financial corporations rose to 7.2% in the third quarter (up 4.5 pp YoY).

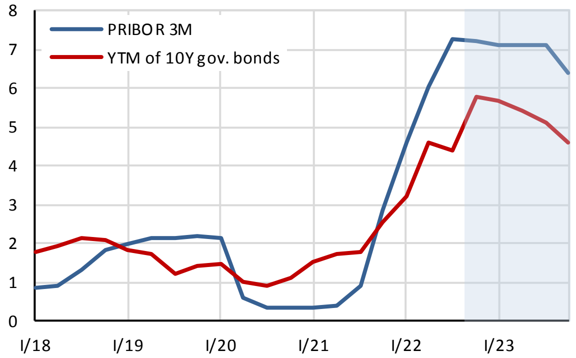
The **share of non-performing loans** in total loans to households and non-financial corporations has continued to decline slowly. Although the financial situation of some economic agents deteriorated as a result of the coronavirus pandemic, the impact on the quality of banks' loan portfolios was minimal. However, the sharp rise in interest rates and the worsening macroeconomic situation now pose a risk.

The **exchange rate of the koruna against the euro** averaged CZK 24.6/EUR (*vs. CZK 24.5/EUR*) in Q3 2022, an appreciation of 3.8% YoY (*vs. 3.9%*). The exchange rate continued to be negatively affected by uncertainties related to the Russian invasion of Ukraine, but the CNB largely offset their impact by foreign exchange interventions in favour of the domestic currency.

The expected reduction in the positive interest rate differential will exert downward pressure on the koruna, which should be counteracted by the CNB's foreign exchange interventions. Towards the end of the forecast horizon, renewed real convergence of the Czech economy should also help. On average, the exchange rate should reach CZK 24.6/EUR (*unchanged*) in 2022 and CZK 24.5/EUR (*vs. CZK 24.4/EUR*) in 2023.

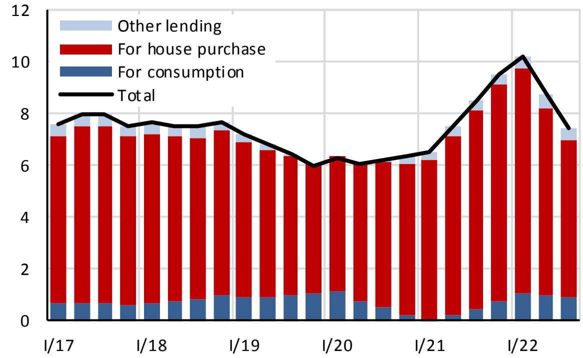
The forecast for the USD/EUR exchange rate is based on the average of the forward rates for the last 10 days before the input data cut-off date. We thus estimate the USD/EUR exchange rate at 1.04 (*vs. 1.06*) for this year and 1.00 (*vs. 1.03*) for 2023. The USD/EUR exchange rate then implies the expected development of the koruna against the US dollar.

Graph 1.4.1: Interest Rates
in % p.a.



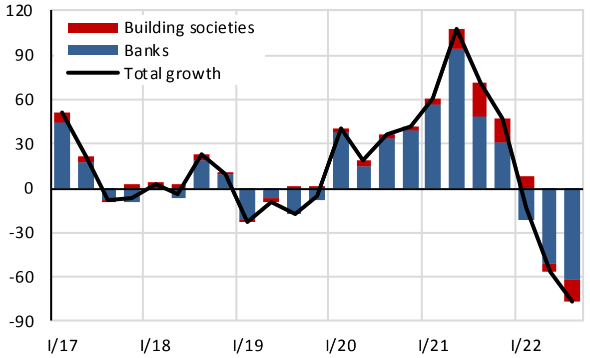
Source: CNB. Calculations and forecast of the MoF.

Graph 1.4.2: Loans to Households
YoY growth rate in%, contributions in percentage points



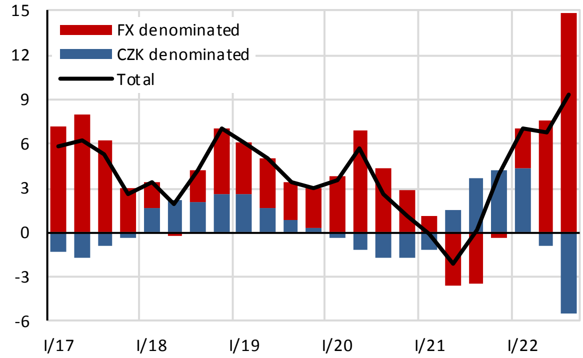
Source: CNB. Calculations of the MoF.

Graph 1.4.3: New Mortgage Loans
for purchase of residential property, YoY growth in %, contributions in pp



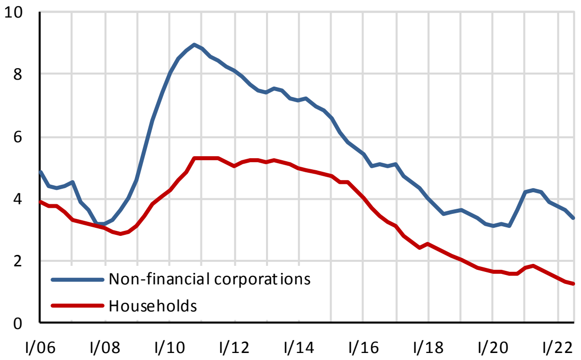
Source: CNB. Calculations of the MoF.

Graph 1.4.4: Loans to Non-financial Corporations
YoY growth rate in%, contributions in percentage points



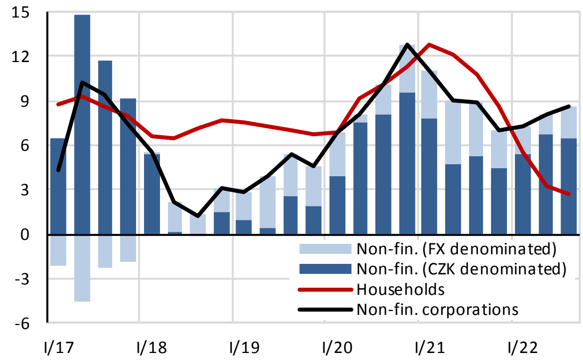
Source: CNB. Calculations of the MoF.

Graph 1.4.5: Non-performing Loans
ratio of non-performing to total loans, in%



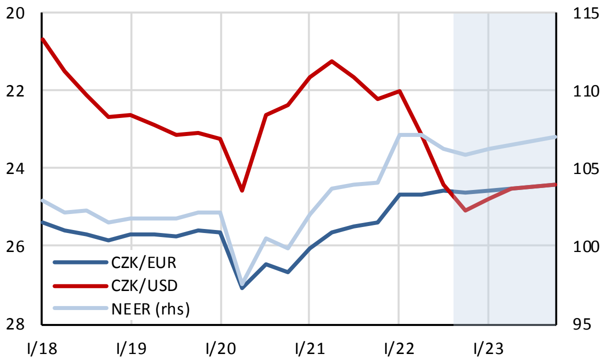
Source: CNB. Calculations of the MoF.

Graph 1.4.6: Deposits
YoY growth rate in%, contributions in percentage points



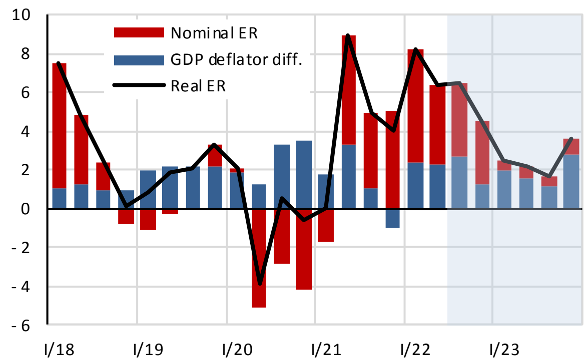
Source: CNB. Calculations of the MoF.

Graph 1.4.7: Nominal Exchange Rates
quarterly averages, average 2015=100 (rhs)



Source: CNB. Calculations and forecast of the MoF.

Graph 1.4.8: Real Exchange Rate to the EA19
deflated by GDP deflators, YoY growth rate in %, contributions in pp



Source: CNB, CZSO, Eurostat. Calculations and forecast of the MoF.

Table 1.4.1: Interest Rates – yearly

average of period, unless stated otherwise

		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
										Forecast	*Forecast*
Repo 2W rate CNB (*end of period*)	*in % p.a.*	0.05	0.05	0.05	0.50	1.75	2.00	0.25	3.75	.	.
Main refinancing rate ECB (*end of period*)	*in % p.a.*	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	.	.
Federal funds rate (*end of period*)	*in % p.a.*	0.25	0.50	0.75	1.50	2.50	1.75	0.25	0.25	.	.
PRIBOR 3M	*in % p.a.*	0.36	0.31	0.29	0.41	1.23	2.12	0.86	1.13	6.3	6.9
YTM of 10Y government bonds	*in % p.a.*	1.58	0.58	0.43	0.98	1.98	1.55	1.13	1.90	4.5	5.2
Client interest rates											
Loans to households	*in % p.a.*	5.59	5.15	4.65	4.10	3.76	3.66	3.53	3.31	.	.
Loans to non-financial corporations	*in % p.a.*	3.01	2.78	2.59	2.57	3.05	3.75	2.96	2.86	.	.
Deposits of households	*in % p.a.*	0.85	0.65	0.47	0.36	0.33	0.39	0.35	0.26	.	.
Deposits of non-financial corporations	*in % p.a.*	0.29	0.19	0.10	0.05	0.11	0.37	0.20	0.11	.	.

Source: CNB, ECB, Fed. Calculations and forecast of the MoF.

Table 1.4.2: Interest Rates – quarterly

average of period, unless stated otherwise

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
									Forecast
Repo 2W rate CNB (*end of period*)	*in % p.a.*	0.25	0.50	0.75	3.75	4.50	7.00	7.00	.
Main refinancing rate ECB (*end of period*)	*in % p.a.*	0.00	0.00	0.00	0.00	0.00	0.00	1.25	.
Federal funds rate (*end of period*)	*in % p.a.*	0.25	0.25	0.25	0.25	0.50	1.75	3.25	.
PRIBOR 3M	*in % p.a.*	0.36	0.40	0.91	2.86	4.59	6.03	7.27	7.2
YTM of 10Y government bonds	*in % p.a.*	1.55	1.76	1.79	2.53	3.23	4.58	4.41	5.8
Client interest rates									
Loans to households	*in % p.a.*	3.39	3.32	3.28	3.26	3.29	3.36	3.46	.
Loans to non-financial corporations	*in % p.a.*	2.55	2.54	2.74	3.62	5.12	6.07	7.20	.
Deposits of households	*in % p.a.*	0.25	0.23	0.23	0.32	0.62	0.92	1.31	.
Deposits of non-financial corporations	*in % p.a.*	0.06	0.05	0.07	0.27	0.86	1.65	2.48	.

Source: CNB, ECB, Fed. Calculations and forecast of the MoF.

Table 1.4.3: Loans and Deposits – yearly averages

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Households											
Loans	*growth in %*	**5.0**	**4.0**	**3.4**	**4.8**	**7.2**	**7.8**	**7.6**	**6.6**	**6.3**	**8.0**
For consumption	*growth in %*	-1.0	-0.1	-0.9	3.4	6.0	4.3	5.4	6.4	4.4	2.6
For house purchase	*growth in %*	6.4	5.5	4.5	5.6	8.1	9.0	8.5	7.4	7.3	9.5
Other lending	*growth in %*	6.0	1.2	2.9	1.0	3.0	4.2	4.3	1.1	0.9	4.2
CZK denominated	*growth in %*	4.9	4.0	3.4	4.7	7.2	7.7	7.6	6.6	6.3	8.0
FX denominated	*growth in %*	30.8	-1.3	0.0	12.7	8.5	36.3	1.7	9.0	6.1	16.9
Deposits	*growth in %*	**4.5**	**3.3**	**2.9**	**4.8**	**7.0**	**8.7**	**7.0**	**7.2**	**9.4**	**11.1**
CZK denominated	*growth in %*	4.7	3.3	2.7	4.1	6.9	9.7	7.1	6.9	9.2	10.9
FX denominated	*growth in %*	-2.1	2.3	8.5	22.5	7.3	-13.9	3.5	15.2	14.5	16.6
Non-performing loans *(banking statistics)*	*share, in %*	**5.2**	**5.2**	**4.9**	**4.5**	**3.6**	**2.7**	**2.4**	**1.9**	**1.6**	**1.7**
Loans to deposits ratio	*in %*	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**61**	**59**
Non-financial corporations											
Loans	*growth in %*	**3.5**	**1.3**	**1.9**	**6.5**	**6.6**	**5.0**	**4.2**	**4.3**	**3.2**	**0.5**
CZK denominated	*growth in %*	2.6	0.3	-1.0	5.9	2.8	-1.4	3.0	1.9	-1.8	3.2
FX denominated	*growth in %*	7.8	5.7	13.7	9.0	20.5	24.4	6.9	10.0	14.0	-4.6
Deposits	*growth in %*	**8.9**	**4.9**	**7.6**	**10.3**	**4.6**	**7.8**	**3.0**	**4.2**	**9.5**	**9.0**
CZK denominated	*growth in %*	8.2	4.2	5.6	6.7	4.5	13.9	2.1	1.9	9.4	7.1
FX denominated	*growth in %*	11.8	8.0	15.2	23.2	4.8	-11.1	6.6	13.0	9.9	15.3
Non-performing loans *(banking statistics)*	*share, in %*	**7.8**	**7.4**	**7.0**	**6.0**	**5.2**	**4.7**	**3.7**	**3.4**	**3.3**	**4.2**
Loans to deposits ratio	*in %*	**120**	**116**	**110**	**106**	**108**	**105**	**106**	**106**	**100**	**92**

Note: All indicators, except for the share of non-performing loans, are from the monetary statistics.
Source: CNB, ECB. Calculations of the MoF.

Table 1.4.4: Loans and Deposits – quarterly averages

		2020	2021				2022		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Households									
Loans	*growth in %*	**6.4**	**6.5**	**7.5**	**8.5**	**9.5**	**10.2**	**8.7**	**7.4**
For consumption	*growth in %*	1.6	0.0	1.7	3.3	5.5	7.8	7.1	6.5
For house purchase	*growth in %*	7.7	8.1	9.0	10.0	10.8	11.2	9.4	7.9
Other lending	*growth in %*	3.7	3.8	4.1	4.5	4.4	5.2	5.5	5.0
CZK denominated	*growth in %*	6.4	6.5	7.5	8.5	9.5	10.2	8.6	7.3
FX denominated	*growth in %*	15.5	15.8	11.7	21.6	18.3	22.8	43.1	50.8
Deposits	*growth in %*	**11.3**	**12.8**	**12.1**	**10.8**	**8.6**	**5.6**	**3.2**	**2.8**
CZK denominated	*growth in %*	11.2	12.9	11.9	10.5	8.4	5.3	2.8	2.2
FX denominated	*growth in %*	14.1	12.6	18.2	20.3	15.2	13.2	15.2	17.6
Non-performing loans *(banking statistics)*	*share, in %*	**1.6**	**1.8**	**1.8**	**1.7**	**1.6**	**1.5**	**1.4**	**1.3**
Loans to deposits ratio	*in %*	**60**	**59**	**58**	**59**	**61**	**62**	**62**	**62**
Non-financial corporations									
Loans	*growth in %*	**1.2**	**-0.1**	**-2.1**	**0.2**	**3.9**	**7.1**	**6.7**	**9.3**
CZK denominated	*growth in %*	-2.5	-1.7	2.3	5.7	6.6	6.6	-1.3	-8.1
FX denominated	*growth in %*	8.7	3.1	-10.0	-9.9	-0.9	8.0	22.8	46.5
Deposits	*growth in %*	**12.9**	**11.1**	**9.0**	**8.9**	**7.0**	**7.2**	**8.1**	**8.6**
CZK denominated	*growth in %*	12.4	10.2	6.0	6.7	5.8	7.1	9.0	8.6
FX denominated	*growth in %*	14.5	14.2	20.1	16.5	10.8	7.6	5.6	8.9
Non-performing loans *(banking statistics)*	*share, in %*	**3.7**	**4.2**	**4.3**	**4.2**	**3.9**	**3.8**	**3.6**	**3.4**
Loans to deposits ratio	*in %*	**96**	**93**	**92**	**92**	**93**	**93**	**91**	**92**

Note: All indicators, except for the share of non-performing loans, are from the monetary statistics.
Source: CNB, ECB. Calculations of the MoF.

Table 1.4.5: Exchange Rates – yearly

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
								Forecast	*Forecast*	*Outlook*	*Outlook*
Nominal exchange rates											
CZK / EUR	*average*	**27.03**	**26.33**	**25.65**	**25.67**	**26.44**	**25.65**	**24.6**	**24.5**	**24.3**	**24.1**
	appreciation in %	0.9	2.7	2.7	-0.1	-2.9	3.1	4.2	0.6	0.8	0.8
CZK / USD	*average*	**24.43**	**23.39**	**21.74**	**22.94**	**23.19**	**21.68**	**23.7**	**24.5**	**23.9**	**23.4**
	appreciation in %	0.7	4.5	7.6	-5.2	-1.1	7.0	-8.2	-3.5	2.6	2.3
NEER	*average of 2015=100*	**102.3**	**105.2**	**109.1**	**108.7**	**106.7**	**110.4**	**114**	**114**	**115**	**116**
	appreciation in %	2.3	2.8	3.7	-0.3	-1.9	3.4	3.0	0.0	1.0	1.0
Real exchange rate to EA19 [1]	*average of 2015=100*	**101.2**	**104.0**	**107.9**	**110.1**	**109.6**	**114.4**	**122**	**125**	**126**	**128**
	appreciation in %	1.2	2.8	3.7	2.0	-0.5	4.4	6.4	2.5	1.4	1.2
REER [2]	*average of 2015=100*	**102.6**	**106.6**	**111.1**	**111.5**	**112.4**	**116.6**	**.**	**.**	**.**	**.**
	appreciation in %	2.6	3.9	4.3	0.3	0.8	3.8	.	.	.	.

[1] *Deflated by GDP deflators.*
[2] *Eurostat calculations, deflated by CPI, versus 42 countries.*
Source: CNB, Eurostat. Calculations and forecast of the MoF.

Table 1.4.6: Exchange Rates – quarterly

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
								Estimate	*Forecast*
Nominal exchange rates									
CZK / EUR	*average*	**26.07**	**25.64**	**25.50**	**25.38**	**24.65**	**24.65**	**24.57**	**24.6**
	appreciation in %	-1.7	5.5	3.8	5.1	5.7	4.0	3.8	3.2
CZK / USD	*average*	**21.64**	**21.27**	**21.63**	**22.19**	**21.99**	**23.16**	**24.40**	**25.1**
	appreciation in %	7.4	15.5	4.6	0.8	-1.6	-8.2	-11.3	-11.6
NEER	*average of 2015=100*	**108.8**	**110.5**	**110.8**	**110.9**	**114.3**	**114.2**	**113.3**	**113**
	appreciation in %	-0.1	6.3	3.5	4.2	5.0	3.4	2.3	1.8
Real exchange rate to EA19 [1]	*average of 2015=100*	**111.8**	**115.2**	**116.0**	**114.7**	**121.0**	**122.5**	**124**	**120**
	appreciation in %	0.0	8.9	4.9	4.1	8.2	6.4	6.5	4.5
REER [2]	*average of 2015=100*	**115.3**	**116.7**	**117.4**	**117.2**	**123.2**	**127.1**	**.**	**.**
	appreciation in %	1.1	6.9	3.4	4.0	6.9	8.9	.	.

[1] *Deflated by GDP deflators.*
[2] *Eurostat calculations, deflated by CPI, versus 42 countries.*
Source: CNB, Eurostat. Calculations and forecast of the MoF.

1.5 Demographic Trends

During H1 2022, the population of the Czech Republic rose by 9.0 thousand to 10.526 million. The growth was driven by positive net migration (18.7 thousand), while the natural increase was negative (−9.7 thousand).

During the first half of the year, 50.0 thousand children **were born** alive, which was a decrease of 5.8 thousand (10.3%) compared to the same period of the previous year. A lower number of live births in the first half of the year was last recorded in 2004.

The number of **deaths** from January to June this year reached 59.7 thousand. Compared to H1 2021, it was a decrease of 17.0 thousand or 22.2%, respectively. According to the data of the Ministry of Health, the number of deaths related to the COVID-19 fell significantly (from 18.4 thousand in H1 2021 to 4.0 thousand). Still, the number of deaths was 2.5 thousand higher than the 2015–2019 average.

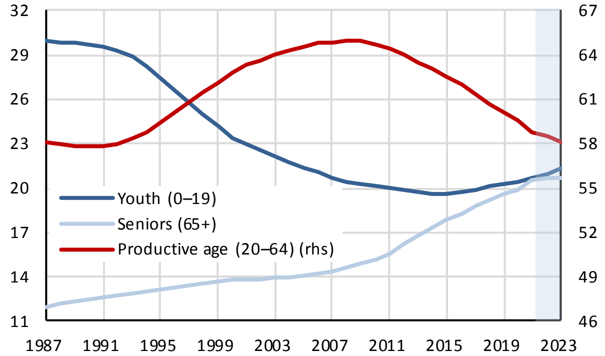
The positive **balance of international migration** fell by 8.3 thousand year-on-year in the first half of the year. The number of immigrants decreased to 33.8 thousand (down by 1.1 thousand, or 3.2%), but the number of emigrants surged by almost 90% to 15.2 thousand. The data on international migration in the first half of the year do not include persons granted temporary protection in connection with the war in Ukraine.

The intensity of migration flows this year will be fundamentally affected by the war in Ukraine. We assume that the positive net migration will be higher by 325 thousand people compared to the medium variant of the CZSO's demographic projection, i.e. it will reach 351 thousand people. Approximately 63% of refugees from Ukraine should be in the working age group of 20–64 years (70% of them women), 33% should be children and young people up to 19 years and the remaining 4% should be seniors. While some refugees may return to Ukraine in the coming years, increased immigration from Ukraine can be expected at the same time. We therefore keep the migration balance in line with the CZSO's projection.

At the end of September 2022, the Czech Social Security Administration registered 2.368 million **old-age pensioners**, which corresponded to 22.5% of the Czech population. The extension of the statutory retirement age combined with increased mortality led to a decline in the number of old-age pensioners by 14.7 thousand YoY, i.e. by 0.6%.

Graph 1.5.1: Age Groups

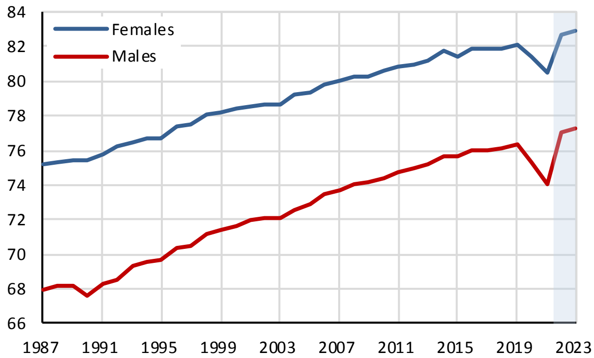
as of 1 January of the given year, shares in total population, in %



Source: CZSO. Calculations of the MoF.

Graph 1.5.2: Life Expectancy at Birth

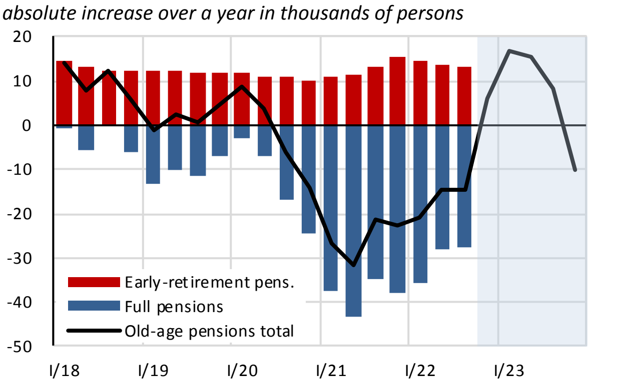
in years



Source: CZSO.

Graph 1.5.3: Old-Age Pensioners

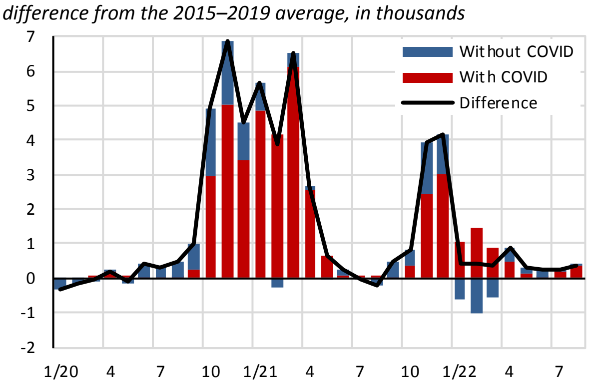
absolute increase over a year in thousands of persons



Source: Czech Social Security Administration. Calculations and forecast of the MoF.

Graph 1.5.4: Number of Deaths

difference from the 2015–2019 average, in thousands



Source: CZSO, Ministry of Health. Calculations of the MoF.

Table 1.5.1: Demographics

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
								Forecast	*Forecast*	*Outlook*	*Outlook*
Population (as of 1 January)	*thous. persons*	**10 554**	**10 579**	**10 610**	**10 650**	**10 694**	**10 495**	**10 517**	**10 857**	**10 872**	**10 884**
	growth in %	0.1	0.2	0.3	0.4	0.4	-1.9	0.2	3.2	0.1	0.1
0–19 years	*thous. persons*	2 082	2 106	2 133	2 160	2 188	2 171	2 197	2 312	2 324	2 331
	growth in %	0.9	1.2	1.3	1.3	1.3	-0.8	1.2	5.3	0.5	0.3
20–64 years	*thous. persons*	6 540	6 484	6 437	6 403	6 374	6 172	6 151	6 306	6 284	6 275
	growth in %	-0.8	-0.9	-0.7	-0.5	-0.4	-3.2	-0.3	2.5	-0.3	-0.1
65 and more years	*thous. persons*	1 932	1 989	2 040	2 087	2 132	2 152	2 169	2 239	2 264	2 279
	growth in %	2.8	2.9	2.6	2.3	2.2	0.9	0.8	3.2	1.1	0.6
Old-age pensioners (as of 1 January) [1]	*thous. persons*	**2 377**	**2 395**	**2 404**	**2 410**	**2 415**	**2 400**	**2 378**	**2 384**	**2 374**	**2 364**
	growth in %	0.9	0.8	0.4	0.3	0.2	-0.6	-0.9	0.2	-0.4	-0.4
Old-age dependency ratios (as of 1 January)											
Demographic [2]	*%*	29.5	30.7	31.7	32.6	33.4	34.9	35.3	35.5	36.0	36.3
Under current legislation [3]	*%*	39.8	40.1	40.4	40.4	40.5	41.2	40.6	39.8	39.6	39.3
Effective [4]	*%*	46.8	46.2	45.7	45.2	45.5	46.0	45.2	46.0	45.8	45.4
Fertility rate	*children*	**1.630**	**1.687**	**1.708**	**1.709**	**1.707**	**1.827**	**1.70**	**1.70**	**1.70**	**1.71**
Population increase	*thous. persons*	**25**	**31**	**40**	**44**	**8**	**22**	**341**	**15**	**12**	**9**
Natural increase	*thous. persons*	**5**	**3**	**1**	**0**	**-19**	**-28**	**-9**	**-11**	**-14**	**-17**
Live births	*thous. persons*	113	114	114	112	110	112	105	103	101	99
Deaths	*thous. persons*	108	111	113	112	129	140	114	114	115	116
Net migration	*thous. persons*	**20**	**28**	**39**	**44**	**27**	**50**	**351**	**26**	**26**	**26**
Immigration	*thous. persons*	38	46	58	66	56	69	.	.	.	.
Emigration	*thous. persons*	17	18	20	21	29	19	.	.	.	.
Census difference	*thous. persons*	**x**	**x**	**x**	**x**	**x**	**-207**	**x**	**x**	**x**	**x**

Note: Between 2020 and 2021, there is a break in the population time series resulting from the 2021 Census.
[1] In 2010 disability pensions of pensioners over 64 were transferred into old-age pensions.
[2] Demographic dependency: ratio of people in senior ages (65 and more) to people in productive age (20–64).
[3] Dependency under current legislation: ratio of people above the official retirement age to the people over 19 below the official retirement age.
[4] Effective dependency: ratio of old-age pensioners to working people (LFS methodology).
Source: Czech Social Security Administration, CZSO. Calculations and forecast of the MoF.

1.6 Other Assumptions

Apart from the factors mentioned in the previous chapters, the forecast is based on the following assumptions:

– the ongoing war in Ukraine will not have a lasting impact on commodity prices in world markets;
– households and businesses will reduce their consumption of natural gas in response to higher gas prices;
– the shortfall in gas supplies from Russia to the EU can be compensated by a combination of increased gas imports from other countries (including LNG), savings, switching to alternative technologies and, in this heating season, the use of gas from storage;
– problems in supply chains will continue to hamper global economic growth over the next year, but their intensity will gradually diminish – along with upward pressures on the price level;
– thanks to the vaccination, high number of people who have had COVID-19 and wider treatment options, it won't be necessary to adopt macroeconomically significant restrictions in the future if the epidemic situation worsens;
– a temporary windfall profits tax will be introduced between 2023 and 2025 for exceptionally profitable companies in the energy production and trading, banking, petroleum and fossil fuel mining sectors;
– as part of the support for part-time work, social security contributions on the employer's side will be reduced when specific groups of employees are employed;
– rates of major types of taxes and compulsory levies (value added tax, personal and corporate income tax, social and health insurance contributions) will otherwise remain unchanged;
– the minimum wage and the lowest levels of the guaranteed wage will be increased in the coming years in line with the forecast growth of the average nominal wage.

2 Economic Cycle

2.1 Position within the Economic Cycle

The coronavirus epidemic and related measures have led to the deepest ever fall in the economy below its potential level, with the **output gap** falling to −8.3% in Q2 2020. However, the subsequent economic recovery has resulted in a moderation of the downturn. For the full year 2020, the output gap was −2.3% (*unchanged*), less negative than in both the 2009 and 2013 recessions. Over the past year, the negative output gap closed due to improved economic growth, reaching 0.0% (*vs. 0.1%*) of potential output.

In Q4 2022, the expected decline in economic activity could result in the output gap returning to negative territory, where it is expected to remain until the end of 2024. However, given the persistent uncertainties and volatility of economic developments, the results should be treated with caution.

The narrowing of the output gap in 2020–21 was dampened by slower growth of **potential output** due to the epidemic. However, it could reach 1.8% this year (*unchanged*) thanks to more favourable developments in the labour factor of production and should hover around this value in subsequent years.

In the long run, the trend component of **total factor productivity** is the main factor of potential growth. Its contribution could stagnate at 0.7 pp (*vs. 0.6 pp*) in 2022 and then increase very slowly in the following years.

A slump in investment activity in 2020 followed by a small recovery in 2021 led to a slowdown in the pace of **capital stock** accumulation. In the context of the forecasted acceleration in gross fixed capital formation, this factor could support potential growth by 0.7 pp (*unchanged*) this year.

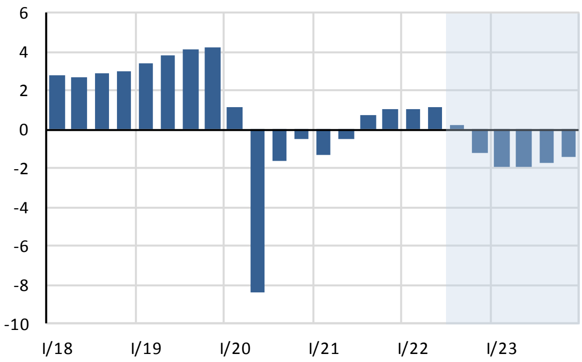
Labour supply is affected by the gradual ageing of the population (see Chapter 1.5), which is reflected, among other things, in the long-term decline in the working-age population aged 20–64. On the other hand, the arrival of refugees from Ukraine is expected to contribute positively over the forecast horizon. The time series of the employed, unemployed and working-age population already incorporate the results of the 2021 Population and Housing Census. Demographic developments should thus have a neutral (*unchanged*) effect on potential growth this year and should support it by 1.0 pp (*vs. 0.9 pp*) in 2023.

Unitl 2018, the growing demand for labour was reflected in a strong increase in the **participation rate**. After a temporary interruption of this trend during the coronavirus epidemic, renewed labour demand could translate into an increase in the participation rate this year. Its contribution should reach 0.5 pp (*vs. 0.6 pp*) in 2022.

The average number of **hours usually worked**, which has been on a long-term downward trend, was in a narrow range of 39.9–40.2 hours between 2017 and 2020. However, in the following quarters, values around 39.4 hours were published. This has created a significant break in the time series (see Graph 2.1.4), which has no economic justification and is most likely due to methodological changes in the LFS. The contribution of the number of hours usually worked, which was −0.4 pp (*unchanged*) last year, could narrow to −0.1 pp (*unchanged*) in 2022.

Graph 2.1.1: Output Gap

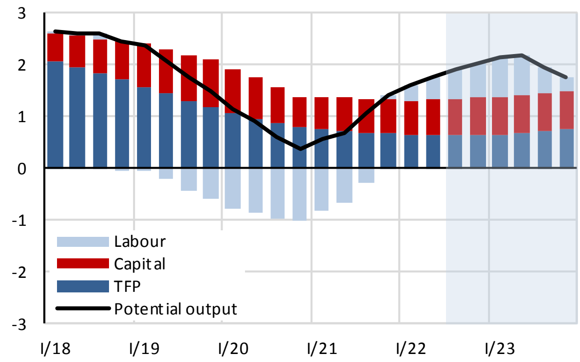
in % of potential product



Source: CZSO. Calculations and forecast of the MoF.

Graph 2.1.2: Potential Output

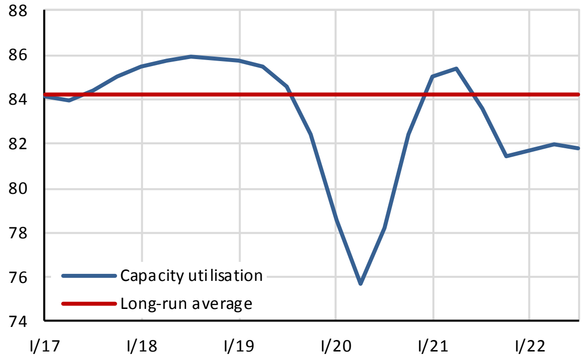
YoY growth rate in %, contributions in percentage points



Source: CZSO. Calculations and forecast of the MoF.

Graph 2.1.3: Capacity Utilisation in Industry

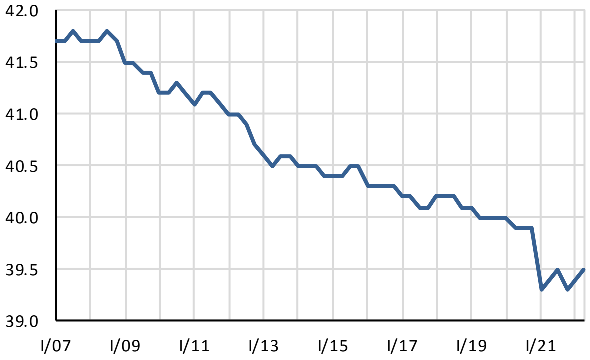
smoothed by Hodrick-Prescott filter, in %



Source: CZSO.

Graph 2.1.4: Hours Usually Worked

number of hours usually worked per week



Source: Eurostat.

Table 2.1.1: Output Gap and Potential Product

		2016	2017	2018	2019	2020	2021	2022 *Forecast*	2023 *Forecast*	2024 *Outlook*	2025 *Outlook*
Output gap	*%*	**-0.5**	**2.1**	**2.9**	**3.9**	**-2.3**	**0.0**	**0.3**	**-1.7**	**-0.6**	**0.7**
Potential product	*growth in %*	**2.9**	**2.7**	**2.6**	**1.9**	**0.7**	**0.9**	**1.8**	**2.0**	**1.6**	**1.5**
Contributions											
Trend total factor productivity	*pp*	2.2	2.2	1.9	1.4	0.9	0.7	0.7	0.7	0.8	0.9
Fixed assets	*pp*	0.6	0.5	0.6	0.9	0.7	0.6	0.7	0.7	0.7	0.6
Population 20–64 years	*pp*	-0.6	-0.6	-0.5	-0.4	-0.4	-0.2	0.0	1.0	-0.1	-0.1
Participation rate	*pp*	0.7	0.7	0.7	0.2	-0.2	0.2	0.5	-0.5	0.2	0.1
Usually worked hours	*pp*	-0.1	-0.2	-0.1	-0.1	-0.3	-0.4	-0.1	0.1	0.0	0.0

Source: CZSO. Calculations and forecast of the MoF.

2.2 Business Cycle Indicators

The development of confidence indicators in Q3 2022 points to a significant quarter-on-quarter decline in gross value added in industry as well as in trade and services. It also signals a slowdown in the year-on-year growth of gross value added in the construction sector. However, the correlation between the evolution of confidence and gross value added in the construction sector is very low.

The composite indicator of exports of goods, compiled by the Ministry of Finance from individual questions of the CZSO's business cycle survey and German business confidence, continues to indicate a year-on-year decline in exports of goods.

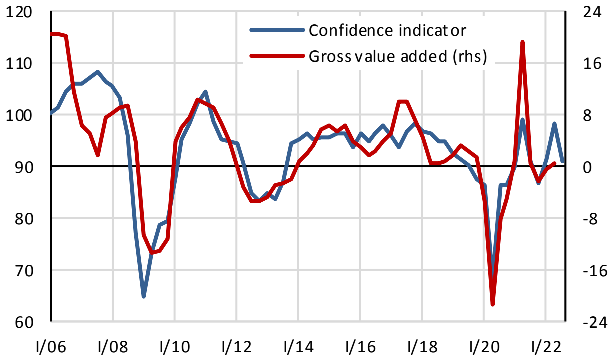
The CZSO's consumer confidence indicator continued to slump in Q3 2022, signalling a year-on-year reduction in household final consumption expenditure in H2 2022 (the confidence indicator shows a lead of 1–2 quarters). The consumer confidence indicator compiled by the Ministry of Finance from sub-questions of the European Commission's consumer survey also declined noticeably in Q3 2022 compared to the previous period. Consumer pessimism stemmed mainly from a significantly negative assessment of the economic situation, but financial situation of households and their ability to make purchases also deteriorated.

As a result, the composite confidence indicator signals a significant slowdown in the year-on-year growth of total gross value added in Q3 2022.

According to the composite leading indicator, the Czech economy should be below potential output in H2 2022 in response to the ongoing energy crisis and persistent inflationary pressures. This is in line with our current estimate of the economy's position in the business cycle (see Chapter 2.1).

Graph 2.2.1: Confidence and GVA in Industry

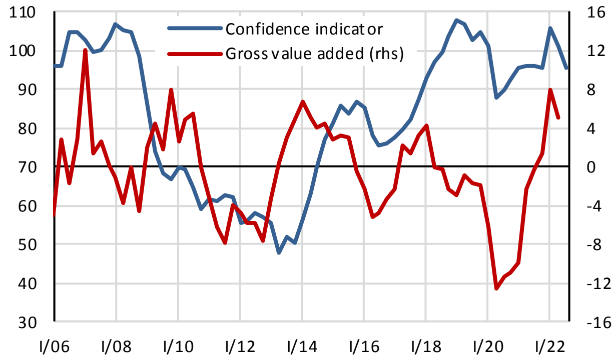
2005=100 (lhs), YoY growth in % (rhs)



Source: CZSO.

Graph 2.2.2: Confidence and GVA in Construction

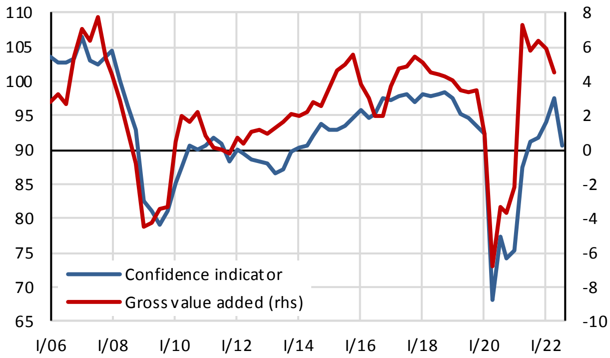
2005=100 (lhs), YoY growth in % (rhs)



Source: CZSO.

Graph 2.2.3: Confidence and GVA in Trade and Services

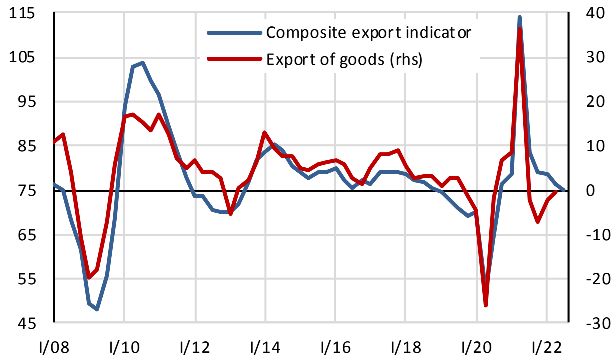
2005=100 (lhs), YoY growth in % (rhs)



Source: CZSO. Calculations of the MoF.

Graph 2.2.4: Composite Export Indicator

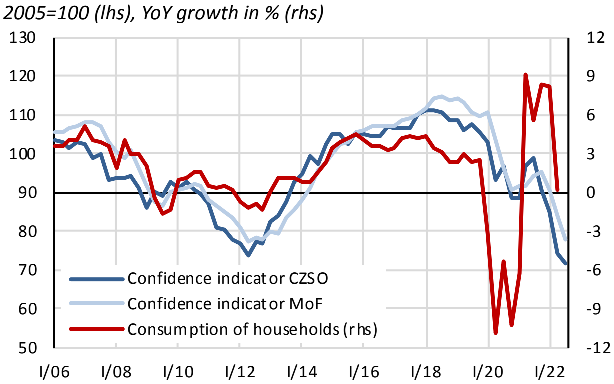
2010=100 (lhs), YoY growth in % (rhs)



Source: CESifo, CZSO. Calculations of the MoF.

Graph 2.2.5: Consumer Confidence and Consumption

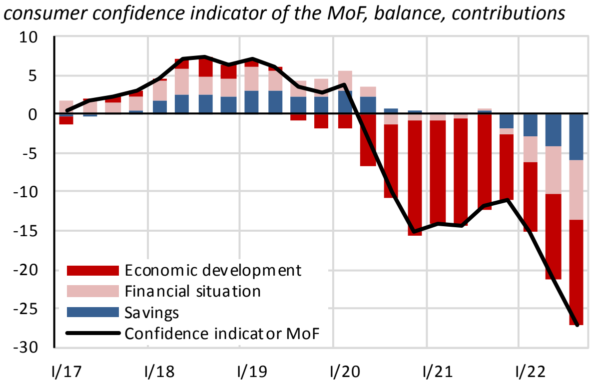
2005=100 (lhs), YoY growth in % (rhs)



Source: CZSO, European Commission. Calculations of the MoF.

Graph 2.2.6: Decomposition of Consumer Sentiment

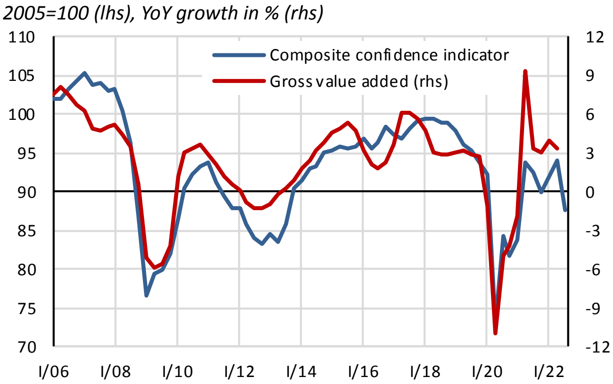
consumer confidence indicator of the MoF, balance, contributions



Source: European Commission. Calculations of the MoF.

Graph 2.2.7: Composite Confidence Indicator and GVA

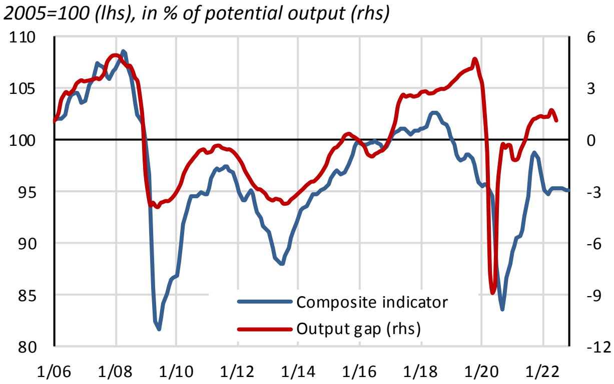
2005=100 (lhs), YoY growth in % (rhs)



Source: CZSO.

Graph 2.2.8: Composite Leading Indicator

2005=100 (lhs), in % of potential output (rhs)



Source: CZSO. Calculations of the MoF.

3 Forecast of Macroeconomic Developments in the CR

3.1 Economic Output

The Czech economy grew by 3.6% YoY (*vs. 3.7%*) in **Q2 2022**. The quarter-on-quarter growth in seasonally adjusted **GDP** slowed slightly to 0.5% (*vs. 0.2%*). Economic activity was strongly supported by selected service sectors (professional, scientific, technical and administrative activities; information and communication services). The CZSO revised the quarter-on-quarter real GDP growth in Q1 2022 down by 0.3 pp, but raised the dynamics in the second quarter by the same extent compared to the preliminary estimate.

Household consumption was virtually stagnant year-on-year. Its marginal growth of 0.1% (*vs. 1.3%*) was supported by a continued reduction in the savings rate, while a slump in real disposable income acted in the opposite direction. Due to tighter budgets, households cut spending mainly on durable goods, but purchases of non-durable and semi-durable goods also fell. By contrast, spending on services recovered further, probably in relation to the relaxation of anti-epidemic restrictions.

Government consumption rose by 1.5% (*vs. 0.9%*), driven by positive momentum in public sector employment and purchases of goods and services. The purchases were driven by social transfers in kind due to the migration wave, and intermediate consumption by public research institutions, universities and local governments.

Gross fixed capital formation grew by 8.6% (*vs. 6.7%*), mainly due to investment in non-residential construction and transport equipment. Machinery and equipment, as well as dwellings, also contributed positively. Investment activity was driven predominantly by the private sector. Firms' investment was supported by the lagged effect of easy monetary conditions and the recovery of export markets. Growth momentum of general government investment was strongly influenced by nationally financed projects.

The significantly positive contribution of the **change in inventories** to GDP growth of 1.7 pp was behind the 13.1% (*vs. 15.6%*) increase in gross capital formation. Firms were apparently building up inventories to avoid supply shortages of components and losses resulting from high inflation. Inventories of work in progress may have increased, too.

The **foreign trade balance** contributed negatively to GDP growth by 0.6 pp. The easing of supply chain disruptions and economic growth abroad affected exports of goods and services, which grew by 1.7% (*vs. a decline of 1.5%*) in Q2 2022. Imports of goods and services strengthened by 2.7% (vs. *0.8%*) thanks to export growth, exceptional inventory accumulation and higher fixed capital investment.

According to the flash estimate, seasonally adjusted GDP fell by 0.4% QoQ (vs. *1.0%*) in Q3 2022, dragged down by domestic demand, especially household consumption. In H2 2022 and early next year, the economy should experience a mild recession due to deterioration in main export markets, supply shortfalls of key components for manufacturing and construction, and a jump in energy prices. The baseline scenario of the forecast assumes that gas supplies are secured from storage facilities and gradually also from new LNG terminals. As a result, economic growth could slow to 2.4% (*vs. 2.2%*) **in 2022**. The economy should be driven by domestic demand, with the external trade balance having a neutral effect. In 2023, with a positive contribution from net exports and a negative impact of domestic demand, real GDP could fall slightly by 0.2% (*vs. growth of 1.1%*).

Household final consumption expenditure should be negatively affected this year by a decline in real disposable income and tighter monetary policy. The increase in the cost of living will mainly affect low-income households, while the effect of the rising price level on middle- and especially high-income households could be cushioned by savings, including the drawdown of exceptional savings accumulated during the epidemic. Lower taxation of labour and government measures limiting the impact of rising energy prices should have a positive impact on the annual dynamics. Concerns about further price increases may have motivated households to undertake some spending earlier in the year, but the drop in consumer confidence should become fully apparent in the second half of the year. In view of the above strongly negative factors, real household consumption could grow by only 0.2% (*vs. 0.5%*) this year. Given the ongoing decline in real disposable income due to increased inflationary pressures and the tight financial situation of households, consumption is expected to decrease in 2023, though it should be supported by spending by refugees from Ukraine. As a result, household consumption could fall by 0.8% (*vs. growth of 0.5%*) in 2023.

We expect **general government consumption** to grow by 1.2% (*vs. 0.8%*) in 2022. There has been an increase in staff – especially in education – related to the migration wave from Ukraine, which will be reflected in employment growth. Purchases and spending in the health sector should weaken as the epidemic fades, but this will still be offset to some extent by humanitarian needs. In 2023, general government consumption should also be supported by spending on goods and services, supported by current subsidies from EU funds as the end of the 2014–2020 financial perspective approaches. Its growth could therefore accelerate to 1.7% (*vs. 1.3%*).

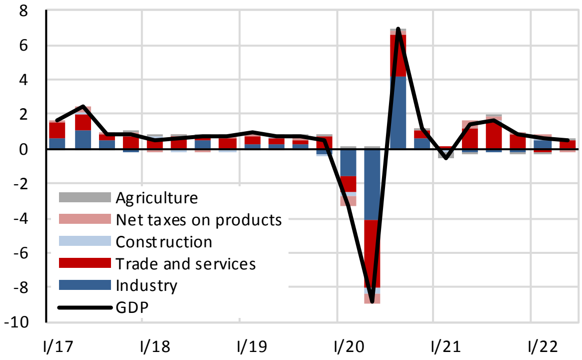
Gross fixed capital formation should recover strongly in 2022 thanks to economic growth abroad and high production capacity utilization. Government spending, supported by projects co-financed by EU funds, should have a moderately positive effect on investment activity. Monetary conditions, which were highly accommodative in the previous year, will have a substantially stimulative effect; given the length of the transmission mechanism, their positive impact is felt in 2022. However, private investment in the second half of the year may be weighed down by economic problems in euro area countries, higher prices of capital goods and a substantial increase in uncertainty about Russian gas supplies and rising energy prices. The anticipated easing of these difficulties, together with purchases of military equipment and the use of expiring EU funds from the previous financial perspective, should cushion the impact of the marked slowdown in the euro area economy and the restrictive monetary policy in the coming year. Gross fixed capital formation could therefore increase by 5.1% (*vs. 6.1%*) in 2022 and slow to 1.5% (*vs. 3.4%*) in 2023.

In the first half of this year, companies accumulated **inventories** to a greater extent to avoid losses resulting from high inflation and shortages in component supplies. Thus, the change in inventories should have a positive impact on GDP growth in 2022 of 0.7 pp (*vs. 1.3 pp*), while in subsequent years the contribution should be negative. Nevertheless, the extent of stock accumulation will remain exceptionally high. As a result, gross capital formation could rise by 6.8% (*vs. 9.4%*) this year and fall by 3.0% (*vs. 0.7%*) in 2023.

Exports of goods and services could grow by 2.7% (*vs. 1.0%*) this year, thanks to the recovery of export markets (see Chapter 3.4) and consumer spending by immigrants from Ukraine. However, a decline in export performance will dampen momentum due to problems in supply chains. The slowdown in export growth to 2.1% (*vs. 3.2%*) in 2023 reflects the fading supply-side frictions and the completion of work-in-progress inventories, but there will be a negative effect stemming from the projected slowdown in economic activity in the countries of major trading partners. The dynamism of exports and import-intensive investment demand is then reflected in the pace of **imports of goods and services**, which could rise by 2.8% (*vs. 2.5%*) in 2022. The slowdown in growth in 2023 to 1.0% (*vs. 2.0%*) mainly reflects the decrease in gross capital formation.

Graph 3.1.1: Resources of Gross Domestic Product

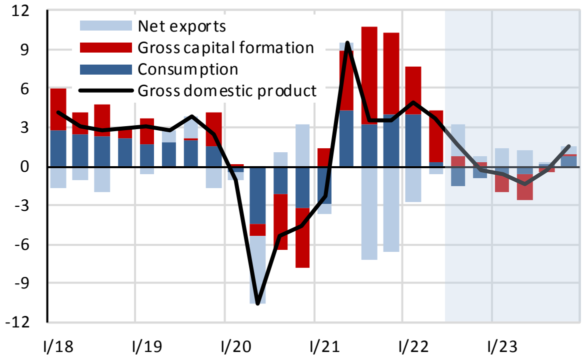
QoQ growth rate of real GDP in %, contrib. in pp, season. adjusted



Source: CZSO. Calculations of the MoF.

Graph 3.1.2: GDP by Type of Expenditure

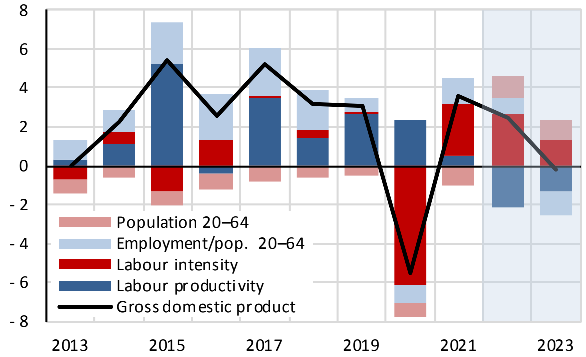
YoY growth rate of real GDP in %, contributions in pp



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.1.3: Real Gross Domestic Product

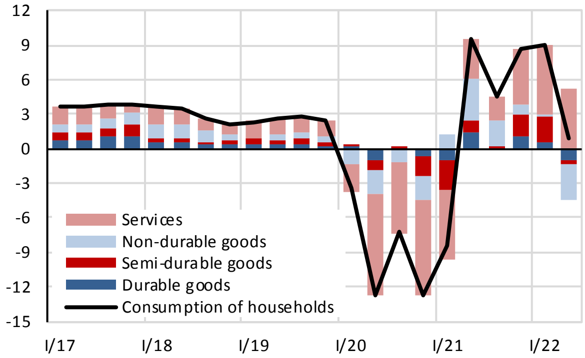
growth in %, contributions in percentage points



Note: Labour intensity gauges the number of hours worked per worker.
Source: CZSO. Calculations and forecast of the MoF.

Graph 3.1.4: Real Consumption of Households

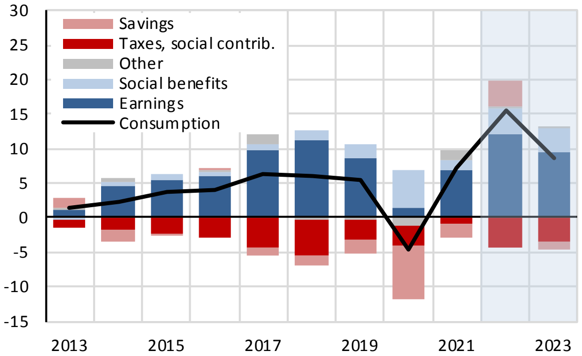
domestic concept, YoY growth rate in %, contributions in pp



Source: CZSO. Calculations of the MoF.

Graph 3.1.5: Nominal Consumption of Households

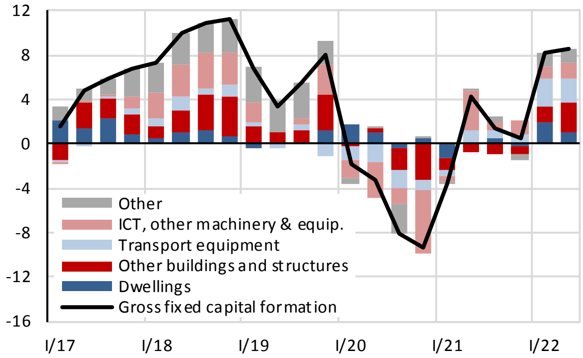
national concept, YoY growth rate in %, contributions in pp



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.1.6: Investment by Type of Expenditure

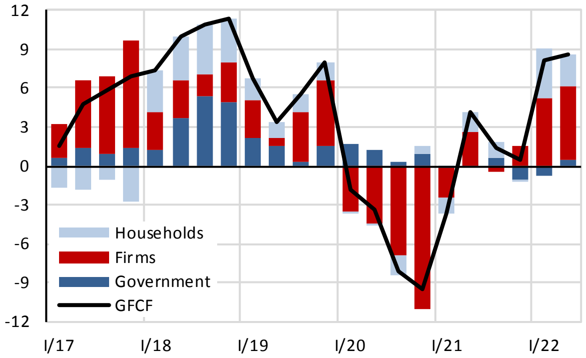
YoY growth rate of real GFCF in %, contributions in pp



Source: CZSO. Calculations of the MoF.

Graph 3.1.7: Investment by Sector

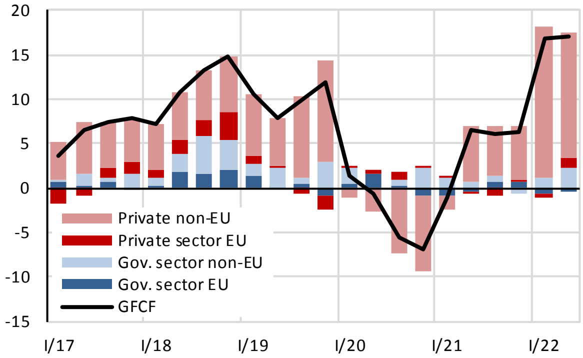
YoY growth rate of real GFCF in %, contributions in percentage points



Source: CZSO. Calculations of the MoF.

Graph 3.1.8: Sources of Investment Financing

YoY growth rate of nominal GFCF in %, contributions in pp



Source: CZSO. Calculations of the MoF.

Table 3.1.1: Real GDP by Type of Expenditure – yearly
chained volumes, reference year 2015

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
								Forecast	*Forecast*	*Outlook*	*Outlook*
Gross domestic product	*bill. CZK 2015*	**4 743**	**4 988**	**5 148**	**5 304**	**5 013**	**5 190**	**5 315**	**5 305**	**5 463**	**5 611**
	growth in %	2.5	5.2	3.2	3.0	-5.5	3.5	2.4	-0.2	3.0	2.7
	growth in % [1]	2.5	5.3	3.2	3.0	-5.5	3.5	2.4	0.0	2.8	2.8
Private consumption expenditure [2]	*bill. CZK 2015*	**2 264**	**2 355**	**2 438**	**2 504**	**2 322**	**2 417**	**2 422**	**2 403**	**2 495**	**2 575**
	growth in %	3.8	4.0	3.5	2.7	-7.2	4.1	0.2	-0.8	3.8	3.2
Government consumption exp.	*bill. CZK 2015*	**897**	**913**	**949**	**973**	**1 014**	**1 029**	**1 042**	**1 060**	**1 074**	**1 092**
	growth in %	2.5	1.8	3.9	2.5	4.2	1.5	1.2	1.7	1.4	1.7
Gross capital formation	*bill. CZK 2015*	**1 243**	**1 323**	**1 425**	**1 489**	**1 351**	**1 607**	**1 717**	**1 666**	**1 654**	**1 660**
	growth in %	-4.0	6.5	7.7	4.5	-9.3	19.0	6.8	-3.0	-0.7	0.4
Gross fixed capital formation	*bill. CZK 2015*	1 190	1 248	1 374	1 455	1 368	1 377	1 448	1 469	1 471	1 498
	growth in %	-3.0	4.9	10.0	5.9	-6.0	0.7	5.1	1.5	0.1	1.8
Change in stocks and valuables	*bill. CZK 2015*	53	75	51	34	-16	230	269	196	182	162
Exports of goods and services	*bill. CZK 2015*	**3 888**	**4 168**	**4 322**	**4 386**	**4 034**	**4 312**	**4 428**	**4 519**	**4 711**	**4 856**
	growth in %	4.3	7.2	3.7	1.5	-8.0	6.9	2.7	2.1	4.3	3.1
Imports of goods and services	*bill. CZK 2015*	**3 549**	**3 771**	**3 989**	**4 051**	**3 719**	**4 214**	**4 333**	**4 374**	**4 500**	**4 600**
	growth in %	2.8	6.3	5.8	1.5	-8.2	13.3	2.8	1.0	2.9	2.2
Gross domestic expenditure	*bill. CZK 2015*	**4 404**	**4 592**	**4 811**	**4 964**	**4 693**	**5 053**	**5 179**	**5 128**	**5 225**	**5 332**
	growth in %	1.2	4.3	4.8	3.2	-5.5	7.7	2.5	-1.0	1.9	2.0
Methodological discrepancy [3]	*bill. CZK 2015*	0	-1	3	3	10	39	39	32	29	28
Real gross domestic income	*bill. CZK 2015*	**4 780**	**4 988**	**5 149**	**5 324**	**5 083**	**5 258**	**5 166**	**5 092**	**5 270**	**5 433**
	growth in %	3.4	4.3	3.2	3.4	-4.5	3.4	-1.8	-1.4	3.5	3.1
Contributions to GDP growth [4]											
Gross domestic expenditure	*pp*	**1.2**	**3.9**	**4.4**	**3.0**	**-5.1**	**7.1**	**2.4**	**-1.0**	**1.9**	**2.1**
Consumption	*pp*	**2.3**	**2.3**	**2.4**	**1.8**	**-2.6**	**2.2**	**0.4**	**0.0**	**2.2**	**1.9**
Household expenditure	*pp*	1.8	1.9	1.7	1.3	-3.4	1.8	0.1	-0.4	1.9	1.6
Government expenditure	*pp*	0.5	0.3	0.7	0.5	0.8	0.3	0.3	0.4	0.3	0.4
Gross capital formation	*pp*	**-1.1**	**1.7**	**2.0**	**1.2**	**-2.6**	**5.0**	**2.1**	**-1.0**	**-0.2**	**0.1**
Gross fixed capital formation	*pp*	-0.8	1.2	2.5	1.6	-1.6	0.2	1.3	0.4	0.0	0.5
Change in stocks	*pp*	-0.3	0.5	-0.5	-0.3	-0.9	4.8	0.7	-1.4	-0.3	-0.4
Foreign balance	*pp*	**1.4**	**1.2**	**-1.2**	**0.0**	**-0.4**	**-3.6**	**0.0**	**0.8**	**1.0**	**0.7**
External balance of goods	*pp*	1.0	0.9	-1.0	0.4	-0.3	-3.6	0.3	0.7	0.9	0.6
External balance of services	*pp*	0.4	0.3	-0.2	-0.4	-0.1	0.0	-0.3	0.1	0.1	0.1
Gross value added	*bill. CZK 2015*	**4 269**	**4 491**	**4 644**	**4 784**	**4 532**	**4 687**	**.**	**.**	**.**	**.**
	growth in %	2.5	5.2	3.4	3.0	-5.3	3.4	.	.	.	.
Net taxes and subsidies on products	*bill. CZK 2015*	**474**	**497**	**504**	**521**	**480**	**504**	**.**	**.**	**.**	**.**

[1] *From working day adjusted data.*
[2] *Including consumption of non-profit institutions serving households (NPISH).*
[3] *Deterministic impact of using prices and structure of the previous year for calculation of y-o-y growth.*
[4] *Calculated on the basis of prices and structure of the previous year with perfectly additive contributions.*
Source: CZSO. Calculations and forecast of the MoF.

Table 3.1.2: Real GDP by Type of Expenditure – quarterly

chained volumes, reference year 2015

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
								Estimate	*Forecast*
Gross domestic product	*bill. CZK 2015*	**1 201**	**1 308**	**1 329**	**1 351**	**1 260**	**1 356**	**1 352**	**1 348**
	growth in %	-2.3	9.5	3.5	3.6	4.9	3.6	1.7	-0.2
	growth in % [1]	-1.9	9.1	3.8	3.5	4.6	3.7	1.6	-0.1
	QoQ in % [1]	-0.5	1.4	1.7	0.8	0.6	0.5	-0.4	-0.8
Private consumption expenditure [2]	*bill. CZK 2015*	**544**	**612**	**630**	**631**	**589**	**613**	**605**	**615**
	growth in %	-6.2	9.3	4.8	8.5	8.4	0.1	-4.0	-2.6
Government consumption exp.	*bill. CZK 2015*	**238**	**245**	**255**	**291**	**241**	**249**	**258**	**293**
	growth in %	-0.3	0.4	5.4	0.8	1.4	1.5	1.2	1.0
Gross capital formation	*bill. CZK 2015*	**334**	**401**	**450**	**422**	**379**	**454**	**460**	**425**
	growth in %	5.4	16.0	28.0	25.3	13.3	13.1	2.1	0.8
Gross fixed capital formation	*bill. CZK 2015*	296	344	352	385	320	373	363	391
	growth in %	-3.7	4.2	1.5	0.5	8.2	8.6	3.1	1.6
Change in stocks and valuables	*bill. CZK 2015*	39	57	98	36	59	80	97	34
Exports of goods and services	*bill. CZK 2015*	**1 091**	**1 130**	**989**	**1 101**	**1 104**	**1 150**	**1 048**	**1 126**
	growth in %	4.0	34.8	-1.7	-3.4	1.1	1.7	5.9	2.3
Imports of goods and services	*bill. CZK 2015*	**1 009**	**1 088**	**1 008**	**1 109**	**1 061**	**1 117**	**1 027**	**1 127**
	growth in %	5.6	36.0	9.8	6.1	5.1	2.7	2.0	1.6
Gross domestic expenditure	*bill. CZK 2015*	**1 117**	**1 257**	**1 333**	**1 345**	**1 209**	**1 313**	**1 321**	**1 335**
	growth in %	-1.7	9.2	11.5	11.1	8.2	4.4	-0.9	-0.7
Methodological discrepancy [3]	*bill. CZK 2015*	**3**	**7**	**12**	**16**	**7**	**7**	**8**	**16**
Real gross domestic income	*bill. CZK 2015*	**1 226**	**1 332**	**1 345**	**1 355**	**1 247**	**1 323**	**1 302**	**1 293**
	growth in %	-1.0	9.9	3.1	2.0	1.7	-0.6	-3.1	-4.6
Gross value added	*bill. CZK 2015*	**1 097**	**1 182**	**1 196**	**1 212**	**1 143**	**1 221**	**.**	**.**
	growth in %	-2.2	9.8	3.2	3.2	4.2	3.3	.	.
	growth in % [1]	-1.8	9.4	3.4	3.0	4.0	3.4	.	.
	QoQ in % [1]	-0.5	1.1	1.6	0.8	0.4	0.5	.	.
Net taxes and subsidies on products	*bill. CZK 2015*	**104**	**126**	**134**	**140**	**116**	**134**	**.**	**.**

[1] From seasonally and working day adjusted data
[2] Including consumption of non-profit institutions serving households (NPISH).
[3] Deterministic impact of using prices and structure of the previous year for calculation of y-o-y growth.
Source: CZSO. Calculations and forecast of the MoF.

Table 3.1.3: Nominal GDP by Type of Expenditure – yearly

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
								Forecast	*Forecast*	*Outlook*	*Outlook*
Gross domestic product	*bill. CZK*	**4 797**	**5 111**	**5 411**	**5 791**	**5 709**	**6 108**	**6 674**	**7 092**	**7 577**	**7 987**
	growth in %	3.7	6.5	5.9	7.0	-1.4	7.0	9.3	6.3	6.8	5.4
Private consumption expenditure [1)]	*bill. CZK*	**2 273**	**2 420**	**2 568**	**2 711**	**2 588**	**2 771**	**3 198**	**3 473**	**3 732**	**3 946**
	growth in %	4.2	6.5	6.1	5.6	-4.5	7.1	15.4	8.6	7.5	5.8
Government consumption exp.	*bill. CZK*	**910**	**959**	**1 050**	**1 134**	**1 243**	**1 313**	**1 394**	**1 496**	**1 556**	**1 611**
	growth in %	4.0	5.4	9.5	8.0	9.5	5.7	6.1	7.3	4.0	3.5
Gross capital formation	*bill. CZK*	**1 248**	**1 348**	**1 472**	**1 599**	**1 493**	**1 844**	**2 173**	**2 253**	**2 310**	**2 371**
	growth in %	-3.6	8.0	9.2	8.7	-6.6	23.5	17.8	3.7	2.5	2.6
Gross fixed capital formation	*bill. CZK*	1 196	1 273	1 423	1 568	1 516	1 586	1 798	1 931	1 989	2 068
	growth in %	-2.5	6.4	11.7	10.2	-3.3	4.7	13.4	7.4	3.0	4.0
Change in stocks and valuables	*bill. CZK*	52	74	49	31	-22	257	375	323	321	302
External balance	*bill. CZK*	**366**	**384**	**321**	**347**	**385**	**181**	**-90**	**-130**	**-21**	**59**
Exports of goods and services	*bill. CZK*	3 795	4 039	4 163	4 279	3 993	4 443	5 009	5 567	6 049	6 401
	growth in %	1.8	6.4	3.1	2.8	-6.7	11.3	12.7	11.1	8.7	5.8
Imports of goods and services	*bill. CZK*	3 429	3 654	3 842	3 932	3 608	4 262	5 099	5 697	6 069	6 341
	growth in %	-0.7	6.6	5.1	2.3	-8.2	18.1	19.6	11.7	6.5	4.5
Gross national income	*bill. CZK*	**4 473**	**4 821**	**5 114**	**5 441**	**5 424**	**5 835**	**6 378**	**6 807**	**7 288**	**7 684**
	growth in %	3.8	7.8	6.1	6.4	-0.3	7.6	9.3	6.7	7.1	5.4
Primary income balance	*bill. CZK*	**-324**	**-289**	**-297**	**-350**	**-285**	**-273**	**-296**	**-285**	**-289**	**-303**

[1)] *Including consumption of non-profit institutions serving households (NPISH).*
Source: CZSO. Calculations and forecast of the MoF.

Table 3.1.4: Nominal GDP by Type of Expenditure – quarterly

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
								Estimate	*Forecast*
Gross domestic product	*bill. CZK*	**1 384**	**1 537**	**1 577**	**1 611**	**1 539**	**1 699**	**1 727**	**1 709**
	growth in %	1.0	13.8	7.7	5.7	11.2	10.5	9.6	6.1
Private consumption expenditure [1]	*bill. CZK*	**610**	**697**	**727**	**737**	**740**	**808**	**822**	**828**
	growth in %	-5.2	11.7	8.3	13.4	21.4	15.9	13.0	12.4
Government consumption exp.	*bill. CZK*	**286**	**316**	**326**	**386**	**304**	**324**	**354**	**412**
	growth in %	2.0	8.8	10.5	2.2	6.4	2.7	8.5	6.8
Gross capital formation	*bill. CZK*	**374**	**451**	**526**	**492**	**462**	**570**	**596**	**545**
	growth in %	8.3	18.8	34.8	30.4	23.3	26.3	13.3	10.8
Gross fixed capital formation	*bill. CZK*	332	389	410	456	388	455	456	499
	growth in %	-1.1	6.6	6.0	6.3	16.9	17.0	11.3	9.5
Change in stocks and valuables	*bill. CZK*	43	62	116	36	74	115	140	46
External balance	*bill. CZK*	**114**	**73**	**-2**	**-4**	**33**	**-4**	**-44**	**-76**
Exports of goods and services	*bill. CZK*	1 096	1 153	1 035	1 159	1 186	1 294	1 218	1 311
	growth in %	6.9	37.2	4.5	2.0	8.2	12.2	17.7	13.1
Imports of goods and services	*bill. CZK*	982	1 080	1 037	1 163	1 152	1 297	1 262	1 387
	growth in %	6.2	37.7	17.5	14.4	17.4	20.1	21.7	19.3

[1)] *Including consumption of non-profit institutions serving households (NPISH).*
Source: CZSO. Calculations and forecast of the MoF.

Table 3.1.5: GDP by Type of Income – yearly

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
								Forecast	*Forecast*	*Outlook*	*Outlook*
GDP	*bill. CZK*	**4 797**	**5 111**	**5 411**	**5 791**	**5 709**	**6 108**	**6 674**	**7 092**	**7 577**	**7 987**
	growth in %	3.7	6.5	5.9	7.0	-1.4	7.0	9.3	6.3	6.8	5.4
Balance of taxes and subsidies	*bill. CZK*	**454**	**493**	**504**	**534**	**449**	**477**	**568**	**625**	**714**	**768**
	% of GDP	9.5	9.7	9.3	9.2	7.9	7.8	8.5	8.8	9.4	9.6
	growth in %	4.8	8.6	2.2	6.0	-16.0	6.2	19.2	10.0	14.3	7.5
Taxes on production and imports	*bill. CZK*	595	635	656	696	660	713	.	.	.	.
	growth in %	4.4	6.6	3.3	6.2	-5.3	8.1	.	.	.	.
Subsidies on production	*bill. CZK*	141	142	152	162	211	236	.	.	.	.
	growth in %	3.2	0.4	7.2	6.7	30.3	12.0	.	.	.	.
Compensation of employees	*bill. CZK*	**2 003**	**2 185**	**2 399**	**2 586**	**2 625**	**2 786**	**3 019**	**3 237**	**3 421**	**3 564**
(domestic concept)	*% of GDP*	41.7	42.8	44.3	44.6	46.0	45.6	45.2	45.6	45.2	44.6
	growth in %	5.9	9.1	9.8	7.8	1.5	6.1	8.4	7.2	5.7	4.2
Wages and salaries	*bill. CZK*	1 538	1 680	1 842	1 986	1 989	2 105	2 315	2 486	2 628	2 737
	growth in %	5.7	9.2	9.6	7.8	0.1	5.8	10.0	7.4	5.7	4.2
Social security contributions	*bill. CZK*	464	505	557	599	636	681	705	751	794	827
	growth in %	6.4	8.7	10.3	7.6	6.2	7.0	3.5	6.6	5.7	4.2
Gross operating surplus	*bill. CZK*	**2 340**	**2 432**	**2 507**	**2 671**	**2 635**	**2 846**	**3 087**	**3 230**	**3 441**	**3 655**
	% of GDP	48.8	47.6	46.3	46.1	46.2	46.6	46.3	45.5	45.4	45.8
	growth in %	1.7	4.0	3.1	6.5	-1.4	8.0	8.5	4.6	6.6	6.2
Consumption of capital	*bill. CZK*	988	1 022	1 074	1 153	1 229	1 303	1 418	1 504	1 588	1 692
	growth in %	3.2	3.5	5.0	7.4	6.5	6.0	8.9	6.0	5.6	6.5
Net operating surplus	*bill. CZK*	1 352	1 410	1 434	1 518	1 406	1 543	1 669	1 726	1 853	1 964
	growth in %	0.6	4.3	1.7	5.9	-7.4	9.8	8.1	3.4	7.4	6.0

Source: CZSO. Calculations and forecast of the MoF.

Table 3.1.6: GDP by Type of Income – quarterly

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
								Estimate	*Forecast*
GDP	*bill. CZK*	**1 384**	**1 537**	**1 577**	**1 611**	**1 539**	**1 699**	**1 727**	**1 709**
	growth in %	1.0	13.8	7.7	5.7	11.2	10.5	9.6	6.1
Balance of taxes and subsidies	*bill. CZK*	**72**	**117**	**147**	**141**	**125**	**158**	**162**	**123**
	growth in %	-28.6	6.8	10.2	33.7	73.6	35.7	10.3	-12.8
Compensation of employees	*bill. CZK*	**640**	**699**	**697**	**750**	**703**	**746**	**755**	**816**
(domestic concept)	*growth in %*	-1.4	12.2	8.3	5.6	9.9	6.7	8.2	8.8
Wages and salaries	*bill. CZK*	480	526	530	569	537	571	580	627
	growth in %	-2.3	13.2	6.7	6.1	11.8	8.6	9.5	10.1
Social security contributions	*bill. CZK*	160	172	168	181	166	174	175	189
	growth in %	1.4	9.3	13.8	4.2	4.0	1.2	4.3	4.7
Gross operating surplus	*bill. CZK*	**672**	**722**	**732**	**719**	**711**	**795**	**811**	**770**
	growth in %	8.4	16.7	6.6	1.5	5.8	10.1	10.7	7.0

Source: CZSO. Calculations and forecast of the MoF.

3.2 Prices

The **consumer price index** rose by 18.0% YoY (*vs. 19.1%*) in September 2022. The forecast error was caused mainly by a significant decline in fuel prices. In terms of the consumer basket divisions, the main driver of the September annual inflation was the housing division (6.7 pp contribution). The growth dynamics of imputed rents are starting to show signs of slowing down, which may be caused by both high house prices (see Graph 3.2.8) and lower availability of mortgages. The food and non-alcoholic beverages division also contributed significantly (3.7 pp), especially because of bakery and dairy products, meat or oils and fats. Within the transport division (contribution of 1.8 pp), the prices of cars and fuels rose rapidly, but fuels prices fell sharply for the second month in a row, mainly due to cheaper oil. Administrative measures added 4.0 pp to inflation, of which administered prices accounted for 3.9 pp and changes in indirect taxes for 0.1 pp. The contribution of tax changes was positive due to the January increase in excise duty on tobacco products; however, the temporary reduction in excise duty on fuel effective from June 2022 slightly reduced annual inflation.

The deviation between actual and forecasted inflation is one of the reasons for the downward revision to the forecast for the average inflation rate this year. The major reduction in gas deliveries from Russia has further increased energy prices for this year and next, but after a temporary very high volatility towards the end of the summer, the situation on wholesale energy markets has gradually calmed down. This was helped by the filling of European gas storage ahead of the heating season and ongoing negotiations with potential new gas suppliers. Food commodity prices have continued to fall in recent months, but the risk of renewed upward pressure is nevertheless posed by the highly uncertain future of the Black Sea Grain Initiative addressing Ukrainian grain exports.

The monetary restriction implemented through the previous interest rate hikes will have a real effect with at least a one-year lag. It should therefore take full effect during the next year. Since March 2022, the CNB has also been active on the foreign exchange market, intervening to dampen excessive exchange rate fluctuations and depreciation pressures on the koruna, which would otherwise be inflationary.

A significant uncertainty in the forecast is the methodological treatment of the approved framework of support with energy prices (energy tariff and renewable energy fee waiver), effective from October 2022, in the consumer price statistics. The funding for this year, increased by 60%, has been paid in a lump sum to distributors, but is intended for electricity consumption in October, November and December. In the forecast, the primary impact of the energy tariff on consumer electricity prices is therefore spread out evenly across these 3 months. Then, in 2023, in addition to the waiver of the renewable energy charge, a price cap on electricity and gas will be effective from January 2023. There will be an immediate drop in energy prices for those consumers whose electricity and gas prices are going to be above the price cap by January 2023. The measure will create an upper limit on any future price increases for the rest of consumers for the remainder of 2023.

Inflation will increase significantly in 2022 compared to the previous year. Administrative measures are likely to contribute to the average inflation rate by 2.9 pp (*vs. 3.1 pp*). Energy prices remain the dominant factor. The increase in the price of energy futures contracts with delivery at the end of 2022 will be reflected in consumer prices continuously and with a lag, and is thus unlikely to have an effect this year. According to our estimate, electricity prices are expected to increase by 17% (*vs. 28%*) this year compared to last year and gas prices by 61% (*vs. 62%*). The change in the forecast for electricity is mainly due to the increase in funds allocated to the energy tariff.

The slightly positive contribution of the change in indirect taxes reflects a further increase in excise duty on tobacco products. From June 2022, excise duty on fuel was reduced by CZK 1.5 per litre, with a small impact in the direction of lower inflation. In the case of gasoline, this tax measure was valid until September 2022, while for diesel it was extended until the end of 2023.

Inflation this year is predominantly determined by market factors. On the supply side, they reflect high prices of energy, food, oil and some materials (lithium, zinc, titanium), which stem from supply frictions and considerable global uncertainty. Costs for firms are rising, largely due to high import prices for energy and industrial inputs, but increasing unit labour costs are also playing a role, with higher inflation expectations already being priced in.

The expected appreciation of the koruna against the euro, which is anti-inflationary, is occurring to a lesser extent. Conversely, the continued depreciation of the currency against the dollar this year represents an additional inflationary factor through an increase in import prices, such as those of oil and electronics.

The effect of the economy's position in the business cycle on inflation should be slightly anti-inflationary from the end of the year onwards, mainly due to a reduction in household consumption as a result of a significant decline in real incomes. The tight labour market is increasing upward pressures on nominal wages and is thus inflationary.

Annual inflation should be close to 15% at the end of the year. We expect the **average inflation rate** to reach 15.0% (*vs. 16.2%*) **in 2022**.

The lower forecast for the average inflation rate in 2022 as measured by the **HICP** compared to the national CPI (see Tables 3.2.1 and 3.2.2) is due to the rapid growth in imputed rents, which are not included in the HICP. About 77% of imputed rents is made up of the cost of increasing the owners' housing stock, which includes the market price of new apartments and houses, the cost of individual construction, as well as renovations and rebuilding. Prices of new flats in the Czech Republic increased by 22.9% YoY in Q3 2022, with an increase of 18.5% in Prague and 28.1% outside Prague. Realised prices of older flats rose by 27.6% YoY in Q2 2022, with an increase of 16.7% in Prague and 30.8% in the rest of the country. In contrast to apartment prices, rents grew by only 5.2% YoY. Steeper rise can be expected in the coming quarters due to the decreasing affordability of owner-occupied housing and higher demand from Ukrainian refugees.

A period of evelated inflation will continue in **2023**. Inflationary pressures will be driven mainly by market factors and continued energy price increases.

The contribution of regulated prices to the average inflation rate should be highly positive, mainly due to energy price increases. In 2023, average electricity prices should rise by 25% (*vs. 8%*) and gas prices by 14% (*vs. 43%*). Factors towards the higher energy prices are presented by the increase in current spot and forward wholesale prices and, specifically for electricity prices, also by the abolition of the energy tariff for 2023 (the original assumption, based on the information available at the time, was that the measure will affect solely the prices of electricity). On the other hand, the approved price cap limits the expected increase in energy prices. As part of the changes to indirect taxes, we expect an increase in excise duties on tobacco products. Overall, the contribution of administrative measures to the average inflation rate in 2023 should be 3.7 pp (*vs. 1.9 pp*).

Problems in the supply of production inputs should gradually subside over the course of the year. Growth in unit labour costs should continue, but real wages should fall further. Given the decline in living standards due to high inflation, upward pressures on wages can be expected to increase gradually (see Section 3.3).

The oil price should be anti-inflationary in 2023. However, given the sanctions on imports of Russian oil products and reduced global refinery capacity due to the coronavirus pandemic, lower oil prices will not necessarily lead to a more significant decline in gasoline and diesel prices (the current shortage of its supplies in, for example, the US and France, poses an upside risk to inflation as well). The effect of the exchange rate of the koruna against the main world currencies should be rather neutral.

Inflation in 2023 should already be partly dampened by the transmission mechanism of higher monetary policy rates. The risk to the CNB's monetary policy is mainly the threat of inflation expectations becoming unanchored from the inflation target and a loss of credibility, the implications of which for inflation in the coming years would be highly inflationary.

In line with the above, we expect the **average inflation rate** to reach 9.5% (*vs. 8.8%*) **in 2023**, with annual inflation around 7.5% at the end of the year.

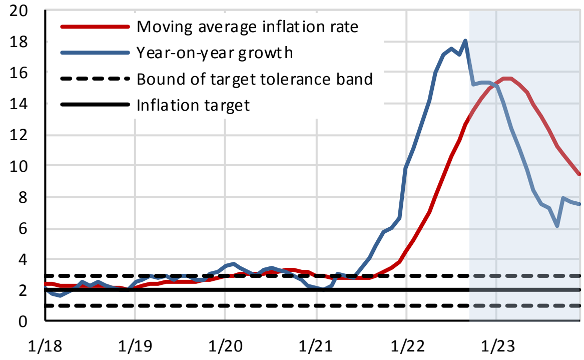
In Q2 2022, **GDP deflator** increased by 6.0% (*vs. 8.3%*) amid an 11.3% (*vs. 11.5%*) increase in the gross domestic expenditure deflator and a 5.7% (*vs. 4.0%*) deterioration of terms of trade. The evolution of the gross domestic expenditure deflator reflected mainly consumer price inflation and prices of investment products. The weaker terms of trade performance was mainly due to high import prices of minerals and production inputs.

In 2022, GDP deflator could increase by 6.7% (*vs. 8.9%*). The strong growth in dynamics against 2021 will be due to the acceleration of the gross domestic expenditure deflator, but the deterioration in terms of trade will work in the opposite direction. Within domestic demand, the main factor will be the growth of the household consumption deflator. GDP deflator growth could reach 6.5% (*vs. 7.0%*) in 2023. The lower dynamics of the domestic expenditure deflator, especially of household consumption, will be partly offset by a more moderate deterioration of terms of trade (see Graph 3.2.5).

Export and import prices will be strongly affected in 2022 not only by the increase in the prices of energy commodities and other production inputs, but also by the appreciation of the effective exchange rate. As a result, the terms of trade could deteriorate by 5.6% (*vs. 4.0%*). In 2023, the trend should continue, leading to a decline of 1.6% (*vs. 0.6%*). This should be not only due to the base effect from H2 2022 but also because of a further increase in input prices.

Graph 3.2.1: Consumer Prices

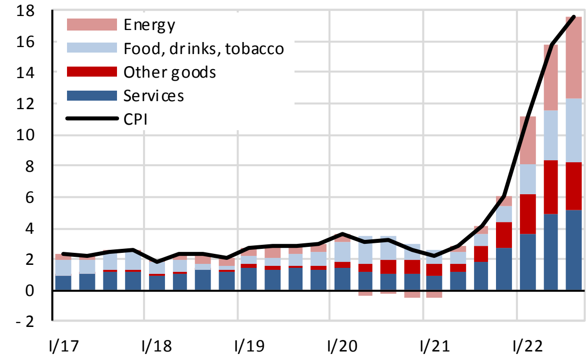
YoY growth rate in %



Source: CNB, CZSO. Calculations and forecast of the MoF.

Graph 3.2.2: Consumer Prices in Main Divisions

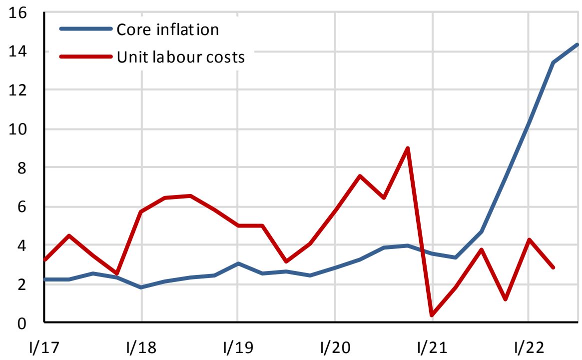
YoY growth of consumer price index in %, contributions in pp



Source: CZSO. Calculations of the MoF.

Graph 3.2.3: Core Inflation and Unit Labour Costs

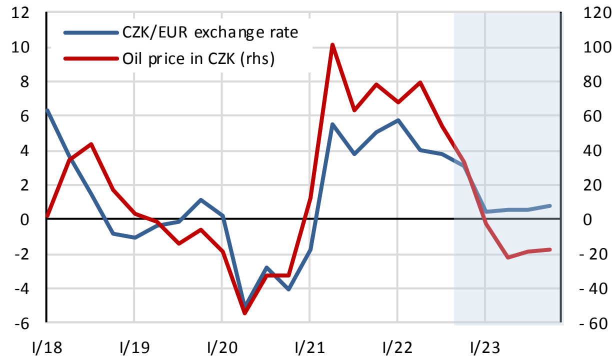
YoY growth rate in %



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.2.4: CZK/EUR and Koruna Price of Oil

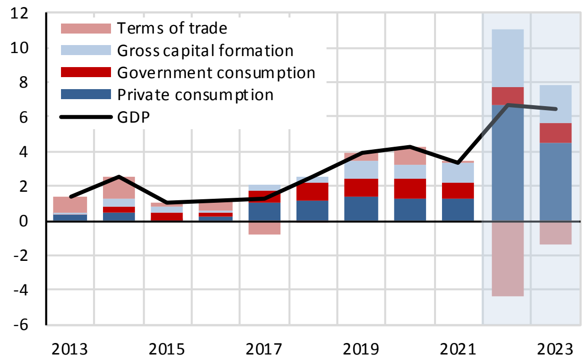
CZK/EUR appreciation, YoY change in CZK price of oil, in %



Source: CNB, U.S. EIA. Calculations and forecast of the MoF.

Graph 3.2.5: Gross Domestic Product Deflator

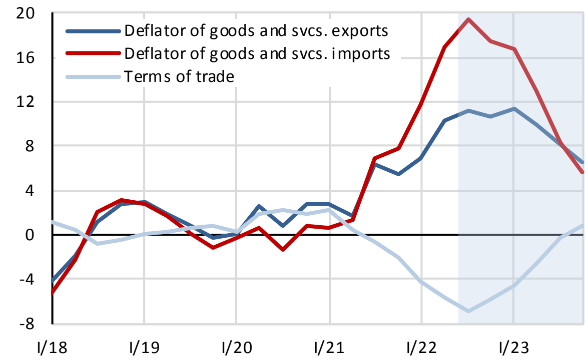
growth rate in %, contributions in percentage points



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.2.6: Terms of Trade

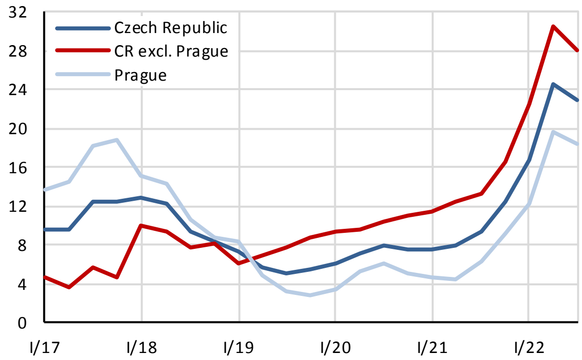
YoY growth rate in %



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.2.7: Offering Prices of Flats

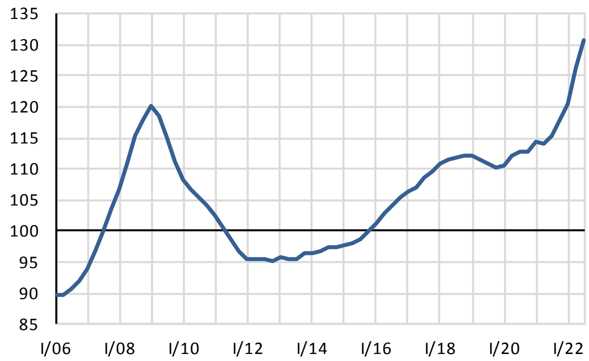
YoY growth rate in %



Source: CZSO.

Graph 3.2.8: Prices of Flats Relative to Average Wage

ratio of index of offering prices of flats to index of average wage, annual moving totals, 2015=100



Source: CZSO. Calculations and forecast of the MoF.

Table 3.2.1: Prices – yearly

		2016	2017	2018	2019	2020	2021	2022 *Forecast*	2023 *Forecast*	2024 *Outlook*	2025 *Outlook*
Consumer Price Index											
Level	*average 2015=100*	**100.7**	**103.1**	**105.3**	**108.3**	**111.8**	**116.1**	**133.5**	**146.1**	**151.2**	**154.9**
Average inflation rate	*%*	**0.7**	**2.5**	**2.1**	**2.8**	**3.2**	**3.8**	**15.0**	**9.5**	**3.5**	**2.4**
Administrative measures [1]	*percentage points*	0.2	-0.1	0.3	0.6	0.5	0.0	2.9	3.7	0.7	0.2
Market increase	*percentage points*	0.5	2.6	1.8	2.2	2.7	3.8	12.1	5.8	2.8	2.3
Harmonized index of consumer prices											
Level	*average 2015=100*	**100.7**	**103.1**	**105.1**	**107.8**	**111.4**	**115.1**	**131.7**	**144.2**	**149.3**	**152.9**
Average inflation rate	*growth in %*	**0.6**	**2.4**	**2.0**	**2.6**	**3.3**	**3.3**	**14.4**	**9.5**	**3.5**	**2.4**
Deflators											
GDP	*average 2015=100*	**101.1**	**102.5**	**105.1**	**109.2**	**113.9**	**117.7**	**125.6**	**133.7**	**138.7**	**142.3**
	growth in %	1.1	1.3	2.6	3.9	4.3	3.3	6.7	6.5	3.8	2.6
Gross domestic expenditure	*average 2015=100*	**100.6**	**102.9**	**105.8**	**109.7**	**113.4**	**117.3**	**130.6**	**140.8**	**145.4**	**148.7**
	growth in %	0.6	2.3	2.8	3.7	3.4	3.4	11.3	7.8	3.2	2.3
Consumption of households	*average 2015=100*	**100.4**	**102.7**	**105.3**	**108.3**	**111.4**	**114.6**	**132.0**	**144.5**	**149.6**	**153.2**
	growth in %	0.4	2.3	2.5	2.8	2.9	2.9	15.2	9.5	3.5	2.4
Consumption of government	*average 2015=100*	**101.4**	**105.0**	**110.6**	**116.6**	**122.6**	**127.6**	**133.8**	**141.2**	**144.9**	**147.5**
	growth in %	1.4	3.5	5.4	5.4	5.2	4.1	4.8	5.5	2.6	1.8
Fixed capital formation	*average 2015=100*	**100.5**	**102.0**	**103.6**	**107.7**	**110.8**	**115.2**	**124.2**	**131.4**	**135.2**	**138.1**
	growth in %	0.5	1.5	1.6	4.0	2.9	3.9	7.8	5.8	2.9	2.1
Exports of goods and services	*average 2015=100*	**97.6**	**96.9**	**96.3**	**97.5**	**99.0**	**103.0**	**113.1**	**123.2**	**128.4**	**131.8**
	growth in %	-2.4	-0.7	-0.6	1.3	1.5	4.1	9.8	8.9	4.2	2.7
Imports of goods and services	*average 2015=100*	**96.6**	**96.9**	**96.3**	**97.1**	**97.0**	**101.1**	**117.7**	**130.2**	**134.9**	**137.9**
	growth in %	-3.4	0.3	-0.6	0.8	0.0	4.2	16.4	10.7	3.6	2.2
Terms of trade	*average 2015=100*	**101.0**	**100.0**	**100.0**	**100.5**	**102.0**	**101.9**	**96.1**	**94.6**	**95.2**	**95.6**
	growth in %	1.0	-1.0	0.0	0.5	1.5	-0.1	-5.6	-1.6	0.6	0.5

[1] *The contribution of change in regulated prices and indirect taxes to the average inflation rate.*
Source: CZSO, Eurostat. Calculations and forecast of the MoF.

Table 3.2.2: Prices – quarterly

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
								Estimate	*Forecast*
Consumer Price Index	*average 2015=100*	**113.6**	**114.7**	**117.0**	**118.9**	**126.4**	**132.8**	**137.6**	**137.1**
	growth in %	2.2	2.9	4.1	6.1	11.2	15.8	17.6	15.3
Of which the contribution of:									
Administrative measures [1)]	*percentage points*	0.0	0.1	0.1	-0.2	2.2	3.1	3.6	2.9
Market increase	*percentage points*	2.2	2.8	4.0	6.3	9.0	12.7	14.0	12.4
Harmonized index of consumer prices	*average 2015=100*	**113.1**	**114.2**	**115.7**	**117.2**	**124.7**	**131.4**	**135.9**	**135.0**
	growth in %	2.2	2.8	3.3	5.0	10.2	15.0	17.4	15.2
Deflators									
GDP	*average 2015=100*	**115.2**	**117.5**	**118.6**	**119.2**	**122.2**	**125.3**	**127.8**	**126.8**
	growth in %	3.4	3.9	4.1	2.0	6.0	6.7	7.7	6.4
Gross domestic expenditure	*average 2015=100*	**113.7**	**116.5**	**118.4**	**120.0**	**124.5**	**129.7**	**134.0**	**133.7**
	growth in %	1.8	3.6	4.3	3.5	9.6	11.3	13.2	11.4
Consumption of households	*average 2015=100*	**112.2**	**113.9**	**115.5**	**116.7**	**125.6**	**131.9**	**135.8**	**134.6**
	growth in %	1.0	2.2	3.4	4.6	11.9	15.9	17.7	15.4
Consumption of government	*average 2015=100*	**119.9**	**128.7**	**127.8**	**132.7**	**125.9**	**130.2**	**137.1**	**140.3**
	growth in %	2.4	8.4	4.8	1.4	5.0	1.2	7.2	5.8
Fixed capital formation	*average 2015=100*	**112.3**	**113.0**	**116.3**	**118.4**	**121.3**	**121.8**	**125.6**	**127.6**
	growth in %	2.7	2.3	4.5	5.8	8.1	7.7	8.0	7.7
Exports of goods and services	*average 2015=100*	**100.4**	**102.0**	**104.6**	**105.3**	**107.4**	**112.5**	**116.2**	**116.4**
	growth in %	2.8	1.7	6.3	5.5	6.9	10.3	11.1	10.6
Imports of goods and services	*average 2015=100*	**97.3**	**99.3**	**102.9**	**104.8**	**108.6**	**116.1**	**122.8**	**123.1**
	growth in %	0.6	1.3	7.0	7.8	11.6	17.0	19.3	17.4
Terms of trade	*average 2015=100*	**103.2**	**102.7**	**101.6**	**100.4**	**98.9**	**96.9**	**94.6**	**94.6**
	growth in %	2.1	0.4	-0.6	-2.1	-4.2	-5.7	-6.9	-5.8

[1)] The contribution of change in regulated prices and indirect taxes.
Source: CZSO, Eurostat. Calculations and forecast of the MoF.

3.3 Labour Market

The deterioration in the macroeconomic situation has so far had only limited impact on the labour market. Unemployment rate has not shown significant increase, which is reflected in continued strong dynamics of wages and salaries.

Following the 2021 Population and Housing Census, new demographic weights were applied in the LFS statistics starting in Q1 2022. As a result, the numbers of employed, unemployed and economically inactive persons have decreased significantly year-on-year. Thus, there is a break in the time series and the data are therefore not comparable. However, relative indicators (e.g. the unemployment rate) were not affected by this change.

When converted to the same population structure, **employment** (LFS) rose by 2.4% YoY in Q2 2022. The number of employees increased by 2.3%, while the total number of entrepreneurs was 3.1% higher. The number of self-employed persons grew by 4.1% YoY. The number of employers fell by 4.3%, the number of contributing family members rose by 22.8% (these indicators are highly volatile, though).

According to the Ministry of Labour and Social Affairs' data on job vacancies, a shortage of employees was evident in most sectors and regions even in the third quarter of this year. In September, more vacancies than registered unemployed were reported in 38 districts and 7 regions, respectively. However, far from all vacancies registered by the labour offices can be considered active. Of the vacancies offered on the websites of labour offices, around 39% were active at the forecast cut-off date (job offers with last change after 1 May 2022 and start date on or after 1 August 2022). Meanwhile, according to the CZSO's business cycle survey, the shortage of employees remains the main barrier to output growth in the construction sector and is also not negligible in industry.

Demand for foreign workers remains very strong. According to data from the Ministry of Labour and Social Affairs, the number of such workers rose by 65,000 YoY to 785,000 in September. Workers from Slovakia and Ukraine have been predominating for a long time, and the increase in the number of Ukrainian workers continues.

For methodological reasons, the arrival of refugees from Ukraine will be captured in the number of economically active persons (either employed or unemployed) in the LFS only marginally. This is due to the fact that the survey is conducted only in dwellings and, moreover, a high non-response rate can be expected for these persons. Thus, the LFS employment indicator is likely to be significantly underestimated compared to reality. This is evidenced, for example, by the different quarter-on-quarter evolution of seasonally adjusted employment in Q2 2022. While the national accounts methodology, which is expected to capture the majority of workers from Ukraine, shows a quarter-on-quarter increase of 1.6% in employment in Q2 2022, employment according to the LFS has stagnated.

Employment is expected to decline slightly quarter-on-quarter in the second half of this year and in early 2023 on the back of rising business costs and the expected economic recession. From the middle of next year, however, it should resume growing, albeit only slightly, thanks to a gradual recovery in economic activity. For the whole of 2022, employment is expected to fall by 0.9% (*vs. 0.7%*), largely due to the above-mentioned break in the LFS time series. In 2023, it could fall by 0.1% (*vs. growth of 0.2%*).

The **unemployment rate** (LFS) averaged 2.4% in H1 2022. The high number of job vacancies and employed foreigners may dampen any significant increase in unemployment in the future. The unemployment rate could reach 2.5% (*unchanged*) on average in 2022, and we forecast a rise to 3.1% (*vs. 2.6%*) next year as the macroeconomic situation deteriorates.

The **share of unemployed persons** (MoLSA) in the labour office registers has been declining year-on-year since the middle of last year, but only slightly in recent months. In 2022, it could fall to 3.4% on average (*unchanged*), but next year it could rise to 3.9% (vs. *3.5%*), given the factors already mentioned.

The **participation rate** (20–64 years), which rose to 83.2% (*vs. 82.8%*) in Q2 2022, could average 82.8% (*vs. 82.9%*) for the whole of 2022 and then fall to 81.4% (*unchanged*) next year. Over the forecast horizon, the increase in the statutory retirement age and demographic aspects in the form of a growing share of age groups with a naturally high economic activity rate (especially 45–54 years) will play a dominant role. An influx of refugees from Ukraine, whose labour market participation rate could, at least initially, lag behind the current level of participation, could have a negative impact.

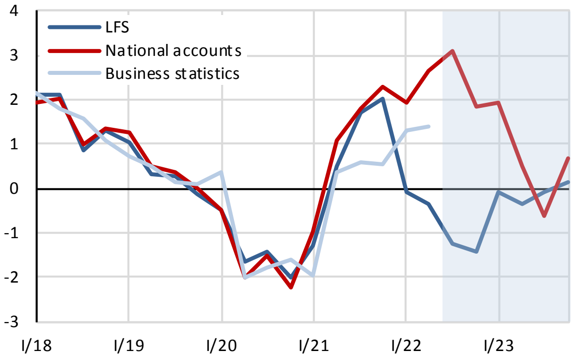
The **volume of wages and salaries** increased by 8.6% (*vs. 7.3%*) in Q2 2022, with wages and salaries in trade, transport, accommodation and food services registering strong growth (growth of 21.1%). On the other hand, public administration, defence, education, health and social care contributed negatively to the overall growth, with wages and salaries decreasing by 4.7% due to extraordinary bonuses paid in Q2 last year. In the macroeconomically most important sector – manufacturing – earnings increased by 9.3%, while the number of employees rose by 2.0%.

We expect that the noticeable labour market frictions, reflected in the continued low unemployment rate and still high number of vacancies, will continue to support wage and salary dynamics in H2 2022. The annual increase in minimum and guaranteed wages of 6.6% from January 2022 should act in the same direction. Developments in the public sector will be supported by an increase in pay scales for a significant share of employees from September. This year, wages and salaries could grow by 10.0% (*vs. 9.8%*). Persistent labour shortages, increased inflationary expectations of employees and, to some extent, the arrival of refugees from Ukraine should translate into strong wage growth in 2023. On the other hand, its dynamics should be dampened by rising input prices (especially energy) and weak economic output. Despite the increase in the salaries of security force members from January 2023, the pace of earnings growth should be driven by the private sector throughout the forecast horizon. In aggregate, wages and salaries could increase by 7.4% (*vs. 7.9%*) next year.

The average wage (business statistics, full-time equivalent) increased by 4.4% (*vs. 5.4%*) in Q2 2022. While the tightness in the labour market is supporting the dynamics of the average wage, the immigration wave from Ukraine, due to the relatively higher representation of Ukrainian workers in lower-paid sectors and professions, is working in the opposite direction. Taking into account the factors mentioned above, we expect that the average wage could increase by 6.7% (*vs. 7.4%*) in 2022, and then slow slightly to 6.6% (*vs. 6.5%*) next year.

Graph 3.3.1: Employees in Different Statistics

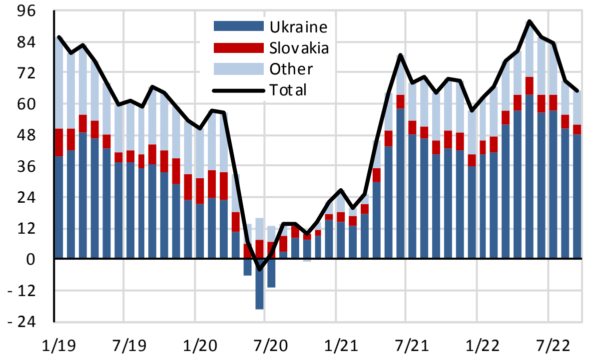
YoY growth rate in%



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.3.2: Number of Foreign Employees in the CR

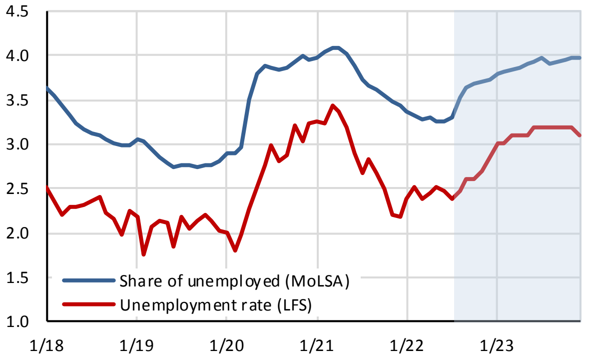
YoY change in thousands of persons



Source: MoLSA. Calculations of the MoF.

Graph 3.3.3: Indicators of Unemployment

seasonally adjusted data, in%



Source: CZSO, MoLSA. Calculations and forecast of the MoF.

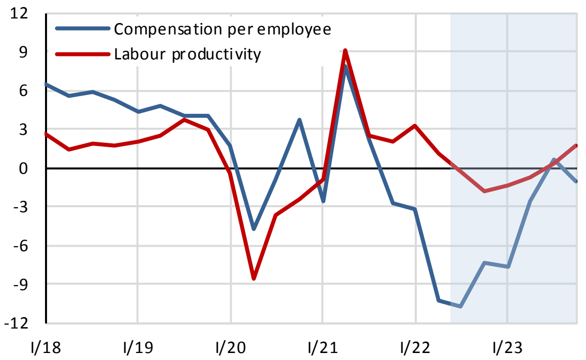
Graph 3.3.4: Social Security Contributions and Earnings

YoY growth rate in%

Source: CZSO, MoF. Calculations and forecast of the MoF.

Graph 3.3.5: Compens. per Employee and Productivity

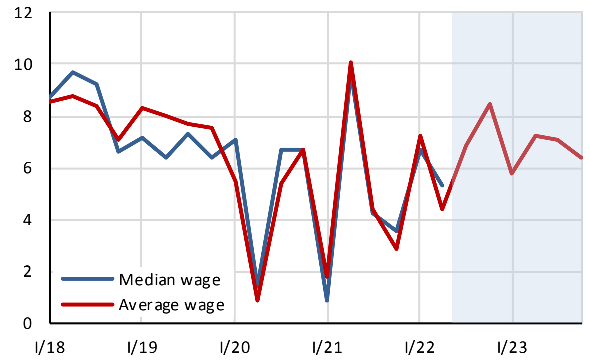
YoY growth rate in %



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.3.6: Nominal Monthly Wages

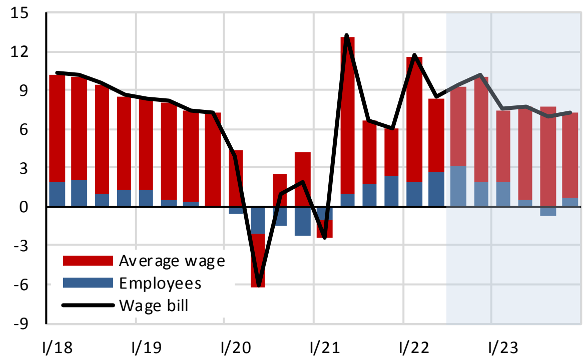
YoY growth rate in%



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.3.7: Nominal Wage Bill

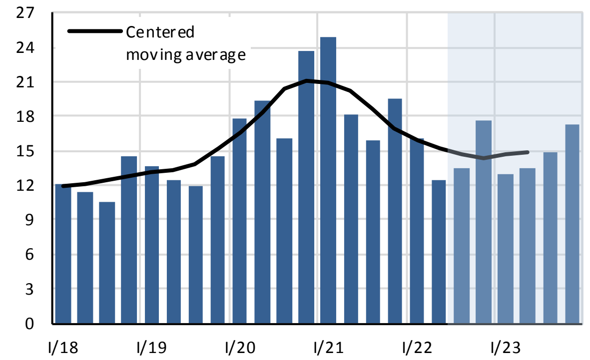
YoY growth rate in %, domestic concept of the wage bill



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.3.8: Gross Savings Rate of Households

in % of disposable income



Source: CZSO. Calculations and forecast of the MoF.

Table 3.3.1: Labour Market – yearly

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
								Forecast	*Forecast*	*Outlook*	*Outlook*
Labour Force Survey											
Employment	*av. in thous.persons*	**5 139**	**5 222**	**5 294**	**5 303**	**5 235**	**5 213**	**5 168**	**5 162**	**5 180**	**5 193**
	growth in %	1.9	1.6	1.4	0.2	-1.3	-0.4	-0.9	-0.1	0.4	0.2
Employees	*av. in thous.persons*	4 257	4 327	4 396	4 412	4 351	4 383	4 348	4 344	4 360	4 371
	growth in %	2.1	1.7	1.6	0.4	-1.4	0.7	-0.8	-0.1	0.4	0.2
Entrepreneurs and	*av. in thous.persons*	882	894	897	891	884	831	820	817	820	822
self-employed	*growth in %*	1.0	1.4	0.4	-0.8	-0.7	-6.0	-1.3	-0.3	0.3	0.2
Unemployment	*av. in thous.persons*	**211**	**156**	**122**	**109**	**137**	**150**	**135**	**167**	**162**	**149**
Unemployment rate	*average in %*	**4.0**	**2.9**	**2.2**	**2.0**	**2.6**	**2.8**	**2.5**	**3.1**	**3.0**	**2.8**
Long-term unemployment [1)]	*av. in thous.persons*	**89**	**54**	**37**	**33**	**30**	**41**	**.**	**.**	**.**	**.**
Labour force	*av. in thous.persons*	**5 350**	**5 377**	**5 415**	**5 412**	**5 372**	**5 364**	**5 303**	**5 329**	**5 343**	**5 342**
	growth in %	0.8	0.5	0.7	-0.1	-0.7	-0.2	-1.1	0.5	0.3	0.0
Population aged 20–64	*av. in thous.persons*	**6 496**	**6 445**	**6 407**	**6 376**	**6 345**	**6 266**	**6 166**	**6 298**	**6 281**	**6 273**
	growth in %	-0.9	-0.8	-0.6	-0.5	-0.5	-1.2	-1.6	2.1	-0.3	-0.1
Employment/Pop. 20–64	*average in %*	**79.1**	**81.0**	**82.6**	**83.2**	**82.5**	**83.2**	**83.8**	**82.0**	**82.5**	**82.8**
Employment rate 20–64 [2)]	*average in %*	**76.9**	**78.7**	**80.0**	**80.4**	**79.8**	**80.6**	**80.9**	**79.3**	**79.8**	**79.9**
Labour force/Pop. 20–64	*average in %*	**82.4**	**83.4**	**84.5**	**84.9**	**84.7**	**85.6**	**86.0**	**84.6**	**85.1**	**85.1**
Participation rate 20–64 [3)]	*average in %*	**79.9**	**80.9**	**81.7**	**82.0**	**81.8**	**82.3**	**82.8**	**81.4**	**81.9**	**81.9**
Participation rate 15–64 [3)]	*average in %*	**75.0**	**75.9**	**76.6**	**76.7**	**76.4**	**76.6**	**76.9**	**75.2**	**75.3**	**75.0**
Registered unemployment											
Unemployment	*av. in thous.persons*	**406**	**318**	**242**	**212**	**259**	**280**	**251**	**277**	**280**	**274**
Share of unemployed [4)]	*average in %*	**5.6**	**4.3**	**3.2**	**2.8**	**3.5**	**3.8**	**3.4**	**3.9**	**3.9**	**3.8**
Wages and salaries											
Average monthly wage [5)]											
Nominal	*CZK monthly*	27 764	29 638	32 051	34 578	36 176	37 903	40 455	43 140	45 674	47 488
	growth in %	4.4	6.7	8.1	7.9	4.6	4.8	6.7	6.6	5.9	4.0
Real	*CZK 2015*	27 571	28 747	30 438	31 928	32 358	32 647	30 308	29 524	30 200	30 649
	growth in %	3.7	4.3	5.9	4.9	1.3	0.9	-7.2	-2.6	2.3	1.5
Median monthly wage	*CZK monthly*	**23 692**	**25 398**	**27 561**	**29 439**	**31 049**	**32 454**	**.**	**.**	**.**	**.**
	growth in %	5.7	7.2	8.5	6.8	5.5	4.5	.	.	.	.
Wage bill	*growth in %*	**5.7**	**9.2**	**9.6**	**7.8**	**0.1**	**5.8**	**10.0**	**7.4**	**5.7**	**4.2**
Labour productivity	*growth in %*	**0.9**	**3.6**	**1.9**	**2.8**	**-3.9**	**3.2**	**0.5**	**0.0**	**2.6**	**2.5**
Unit labour costs [6)]	*growth in %*	**3.0**	**3.5**	**6.1**	**4.3**	**7.3**	**1.8**	**5.3**	**6.6**	**2.8**	**1.5**
Compens. of employees / GDP	*%*	**41.7**	**42.8**	**44.3**	**44.6**	**46.0**	**45.6**	**45.2**	**45.6**	**45.2**	**44.6**

Note: Following the 2021 Census, new demographic weights have been applied in the LFS since Q1 2022. This results in a break in time series.

[1)] Persons in unemployment for longer than 12 months.

[2)] The indicator does not include employment over 64 years.

[3)] The indicator does not include labour force over 64 years.

[4)] Share of available job seekers aged 15 to 64 years in the population of the same age.

[5)] Derived from full-time-equivalent employers in the entire economy.

[6)] Ratio of nominal compensation per employee to real productivity of labour.

Source: CZSO, MoLSA. Calculations and forecast of the MoF.

Table 3.3.2: Labour Market – quarterly

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
								Estimate	*Forecast*
Labour Force Survey									
Employment	*av. in thous. persons*	**5 166**	**5 171**	**5 257**	**5 259**	**5 141**	**5 160**	**5 189**	**5 182**
	YoY growth in %	-2.1	-0.8	0.5	0.8	-0.5	-0.2	-1.3	-1.5
	QoQ growth in %	-0.6	0.2	1.1	0.1	-1.5	0.3	-0.2	-0.1
Employees	*av. in thous. persons*	4 333	4 352	4 422	4 423	4 330	4 336	4 367	4 361
	growth in %	-1.3	0.5	1.7	2.0	-0.1	-0.4	-1.2	-1.4
Entrepreneurs and	*av. in thous. persons*	833	819	836	836	811	824	823	822
self-employed	*growth in %*	-6.2	-7.2	-5.7	-5.0	-2.6	0.6	-1.6	-1.7
Unemployment	*av. in thous.persons*	**179**	**159**	**146**	**118**	**130**	**126**	**137**	**146**
Unemployment rate	*average in %*	**3.4**	**3.0**	**2.7**	**2.2**	**2.5**	**2.4**	**2.6**	**2.7**
Long-term unemployment [1)]	*av. in thous.persons*	**40**	**45**	**42**	**38**	**37**	**32**	**.**	**.**
Labour force	*av. in thous. persons*	**5 345**	**5 330**	**5 403**	**5 378**	**5 271**	**5 286**	**5 326**	**5 328**
	growth in %	-0.7	-0.2	0.3	0.0	-1.4	-0.8	-1.4	-0.9
Population aged 20–64	*av. in thous. persons*	**6 321**	**6 310**	**6 281**	**6 151**	**6 139**	**6 139**	**6 156**	**6 231**
	growth in %	-0.5	-0.7	-0.8	-2.9	-2.9	-2.7	-2.0	1.3
Employment/Pop. 20–64	*average in %*	**81.7**	**81.9**	**83.7**	**85.5**	**83.7**	**84.1**	**84.3**	**83.2**
	increase over a year	-1.3	0.0	1.1	3.1	2.0	2.1	0.6	-2.3
Employment rate 20–64 [2)]	*average in %*	**79.2**	**79.4**	**80.9**	**82.7**	**80.9**	**81.3**	**81.1**	**80.4**
	increase over a year	-1.1	0.0	0.9	3.0	1.7	1.9	0.2	-2.3
Labour force/Pop. 20–64	*average in %*	**84.6**	**84.5**	**86.0**	**87.4**	**85.9**	**86.1**	**86.5**	**85.5**
	increase over a year	-0.1	0.5	1.0	2.5	1.3	1.6	0.5	-1.9
Participation rate 20–64 [3)]	*average in %*	**81.8**	**81.7**	**82.7**	**82.8**	**82.8**	**83.2**	**83.2**	**82.2**
	increase over a year	0.1	0.4	0.7	0.7	1.0	1.5	0.5	-0.6
Participation rate 15–64 [3)]	*average in %*	**76.2**	**76.0**	**77.1**	**77.1**	**77.0**	**77.1**	**77.4**	**76.3**
	increase over a year	-0.1	0.1	0.5	0.4	0.7	1.1	0.3	-0.8
Registered unemployment									
Unemployment	*av. in thous. persons*	**307**	**291**	**269**	**252**	**262**	**240**	**245**	**255**
Share of unemployed [4)]	*average in %*	**4.2**	**4.0**	**3.7**	**3.4**	**3.5**	**3.3**	**3.3**	**3.6**
Wages and salaries									
Average monthly wage [5)]									
Nominal	*CZK monthly*	35 396	38 390	37 563	40 224	37 969	40 086	40 127	43 636
	growth in %	1.8	10.1	4.4	2.9	7.3	4.4	6.8	8.5
Real	*CZK 2015*	31 158	33 470	32 105	33 830	30 039	30 185	29 162	31 824
	growth in %	-0.3	7.0	0.3	-3.1	-3.6	-9.8	-9.2	-5.9
Median monthly wage	*CZK monthly*	**29 949**	**32 394**	**33 035**	**34 436**	**31 956**	**34 111**	**.**	**.**
	growth in %	0.8	9.7	4.2	3.6	6.7	5.3	.	.
Wage bill	*growth in %*	**-2.3**	**13.2**	**6.7**	**6.1**	**11.8**	**8.6**	**9.5**	**10.1**

Note: Following the 2021 Census, new demographic weights have been applied in the LFS since Q1 2022. This results in a break in time series.

1) Persons in unemployment for longer than 12 months.

2) The indicator does not include employment over 64 years.

3) The indicator does not include labour force over 64 years.

4) Share of available job seekers aged 15 to 64 years in the population of the same age.

5) Derived from full-time-equivalent employers in the entire economy.

Source: CZSO, MoLSA. Calculations and forecast of the MoF.

Table 3.3.3: Income and Expenditures of Households – yearly

		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
										Forecast	*Forecast*
Current income											
Compensation of employees	*bill.CZK*	**1 825**	**1 923**	**2 038**	**2 223**	**2 430**	**2 599**	**2 650**	**2 799**	**3 016**	**3 241**
	growth in %	4.2	5.4	6.0	9.1	9.3	7.0	1.9	5.6	7.7	7.5
Gross operating surplus	*bill.CZK*	**674**	**691**	**703**	**740**	**801**	**845**	**833**	**855**	**970**	**1 043**
and mixed income	*growth in %*	3.0	2.4	1.7	5.2	8.3	5.5	-1.4	2.6	13.4	7.6
Property income received	*bill.CZK*	**133**	**127**	**133**	**162**	**162**	**163**	**129**	**171**	**182**	**188**
	growth in %	0.0	-4.3	4.1	21.9	0.2	0.5	-20.9	32.5	6.5	3.3
Social benefits not-in-kind	*bill.CZK*	**596**	**613**	**630**	**650**	**685**	**738**	**885**	**924**	**1 021**	**1 129**
	growth in %	2.2	2.8	2.8	3.2	5.4	7.7	19.9	4.4	10.5	10.6
Other current transfers received	*bill.CZK*	**160**	**181**	**217**	**244**	**281**	**338**	**363**	**472**	**586**	**617**
	growth in %	9.2	13.3	19.4	12.8	15.1	20.4	7.3	29.8	24.3	5.3
Current expenditure											
Property income paid	*bill.CZK*	**16**	**14**	**14**	**13**	**19**	**28**	**27**	**26**	**36**	**37**
	growth in %	-24.3	-10.7	0.2	-7.4	43.2	44.8	-2.7	-2.3	35.1	2.9
Curr. taxes on income and property	*bill.CZK*	**197**	**205**	**227**	**264**	**309**	**316**	**342**	**260**	**297**	**321**
	growth in %	6.5	3.9	10.8	16.3	16.9	2.3	8.3	-23.9	14.1	8.0
Social contributions	*bill.CZK*	**696**	**732**	**775**	**836**	**911**	**976**	**1028**	**1129**	**1 206**	**1 290**
	growth in %	3.8	5.3	5.8	7.9	9.0	7.1	5.3	9.9	6.9	7.0
Other current transfers paid	*bill.CZK*	**150**	**169**	**207**	**238**	**278**	**335**	**358**	**468**	**574**	**604**
	growth in %	7.3	12.5	22.4	15.3	16.5	20.6	6.7	30.8	22.7	5.2
Gross disposable income	*bill.CZK*	**2 328**	**2 414**	**2 497**	**2 666**	**2 842**	**3 029**	**3 106**	**3 337**	**3 661**	**3 966**
	growth in %	3.4	3.7	3.4	6.8	6.6	6.6	2.5	7.4	9.7	8.3
Final consumption	*bill.CZK*	**2 072**	**2 152**	**2 241**	**2 383**	**2 524**	**2 663**	**2 536**	**2 715**	**3 138**	**3 408**
	growth in %	2.2	3.9	4.1	6.4	5.9	5.5	-4.8	7.0	15.6	8.6
Change in share in pension funds	*bill.CZK*	**35**	**33**	**31**	**32**	**33**	**37**	**38**	**38**	**29**	**31**
Gross savings	*bill.CZK*	**292**	**295**	**286**	**315**	**350**	**404**	**607**	**660**	**551**	**589**
Capital transfers											
(income (-) / expenditure (+))	*bill.CZK*	**-32**	**-12**	**-14**	**-11**	**-12**	**-13**	**-41**	**-35**	**-24**	**-25**
Gross capital formation	*bill.CZK*	**214**	**220**	**237**	**216**	**261**	**297**	**300**	**316**	**353**	**367**
	growth in %	5.2	2.9	7.9	-9.2	21.2	13.7	0.9	5.4	11.6	4.2
Change in financial assets and liab.	*bill.CZK*	**108**	**85**	**61**	**110**	**101**	**116**	**348**	**380**	**223**	**247**
Real disposable income	*growth in %*	**2.6**	**3.7**	**3.0**	**4.4**	**4.0**	**3.7**	**-0.4**	**4.5**	**-4.8**	**-1.1**
Gross savings rate	*%*	**12.4**	**12.1**	**11.3**	**11.7**	**12.2**	**13.2**	**19.3**	**19.5**	**14.9**	**14.7**

Source: CZSO. Calculations of the MoF.

3.4 External Relations

The year-on-year growth of **export markets** reached 4.1% (*vs. 3.5%*) in Q2 2022. The better-than-estimated development was due to stronger dynamics of import intensity (by 0.5 p.p.), mainly owing to higher imports in Germany and Poland. GDP growth of the Czech Republic's main trading partners also slightly exceeded expectations (by 0.2 pp). In view of the more favourable development of economic activity abroad in H1 2022, we thus expect export markets to increase by 3.8% (*vs. 3.4%*) this year. Due to the expected stagnation of the economies of main trading partners, however, their growth should slow to 1.2% (*vs. 2.2%*) in 2023.

Export performance fell by 4.5% (*vs. 6.7%*) in Q2 2022. The lower decline was driven by a rebound in automotive production as problems in global supply chains eased. Export performance could fall by 3.0% (*vs. 3.8%*) this year, while it could rise by 0.7% (*vs. 1.1%*) in 2023. The deterioration in the forecast for next year reflects persistently high raw material and energy prices and the projected lower export order volumes.

The **current account of the balance of payments** reached a deficit of 3.5% of GDP (*vs. 3.0% of GDP*) in Q2 2022[1]. The 5.9% year-on-year deterioration in the balance was entirely due to a sizeable decline in the balance of goods.

The **balance of goods** deteriorated by 6.8% YoY to −1.4% of GDP (*vs. 1.3% of GDP*) in Q2 2022*,* and remained in negative territory for the second consecutive quarter. The deterioration reflects solely strong import dynamics influenced by high energy commodity prices. Renewed growth in motor vehicle production and export slightly corrected the overall negative trade balance.

Mineral fuel prices continue to be an important factor influencing the **terms of trade**. The deficit in the fuel part of the balance was 4.0% of GDP (*vs. 3.1% of GDP*) in Q2 2022. Given the projected oil price (see Chapter 1.2) and the evolution of prices of other energy commodities (electricity, natural gas), we expect the deficit to widen to 4.3% of GDP (*vs. 3.4% of GDP*) this year. In 2023, the deficit could narrow to 3.5% of GDP (*vs. 2.8% of GDP*).

We expect the balance of goods to end this year with a deficit of 3.0% of GDP (*vs. 2.6% of GDP*). The deterioration in the forecast reflects the evolution of the trade balance in the summer months (foreign trade in goods ended with a CZK 11.6 billion higher year-on-year deficit in July and August) and a significant decline in the terms of trade due to high energy and other input prices. For 2023, we project a widening of the deficit to 3.5% of GDP (*vs. 2.2% of GDP*), due to a further deterioration in the terms of trade (energy commodity prices, base effect of H2 2022). The overall balance will also be negatively affected by a marked slowdown in economic developments abroad, while exports of previously accumulated inventories and weaker corporate investment activity should, on the contrary, contribute positively to it.

The **balance of services** posted a surplus of 1.8% of GDP (*vs. 1.7% of GDP*) in Q2 2022. The year-on-year increase in the surplus by 0.2% of GDP was driven by higher revenues in telecommunication services and tourism. This was partially offset by higher costs in the transport sector. This year and next, the services surplus is expected to be 1.6% of GDP (*unchanged in both years*). The services asset will be constrained by weaker economic activity in the euro area (see Chapter 1.1) and rising costs in the transport sector due to high fuel prices.

The **primary income** deficit narrowed by 0.9% of GDP year-on-year to 3.2% of GDP (*vs. 3.0% of GDP)* in Q2 2022 due to lower outflows of direct investment income (in the form of dividends). Given the forecast of gross operating surplus and rising profits of financial institutions, we estimate that the primary income deficit will reach 3.5% of GDP (*vs. 3.2% of GDP*) this year. The deterioration of the compensation of employees balance due to the labour market participation of refugees from Ukraine will contribute to the higher deficit, as immigrants will initially be classified as non-residents. Conversely, rising costs of energy and other production inputs for businesses should reduce the profitability of firms under foreign control. For 2023, we forecast the deficit to narrow to 3.1% of GDP (*vs. 3.2% of GDP*). The lower deficit reflects a slowdown in the growth of profitability of non-resident-owned firms in the context of the decline in domestic economic activity.

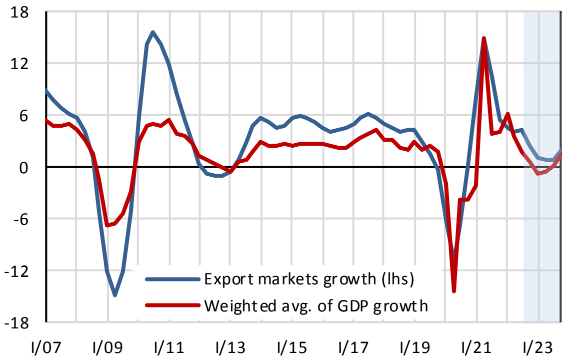
Against this background, we expect the **current account of the balance of payments** to be in significant deficit over the forecast horizon. This year, the deficit could reach 5.4% of GDP (vs. *4.6% of GDP*), which would be the highest deficit relative to GDP since 2003. In 2023, the deficit could narrow slightly to 5.3% of GDP (vs. *4.0% of GDP*). In absolute terms, this would be the highest deficit ever.

The current external balance (national accounts methodology) reached a deficit of 5.0% of GDP in Q2 2022 (see Graph 3.4.8). While household savings exceeded their investment by 3.4% of GDP, the relationship between savings and investment was reversed in the non-financial corporations and general government sectors, with gross capital formation higher by 5.6% and 3.7% of GDP, respectively, than gross savings.

[1] All quarterly data relative to GDP are reported in annual moving totals.

Graph 3.4.1: GDP and Goods Imports of Partner Countries

YoY growth rate in %, seasonally adjusted



Source: Eurostat. Calculations and forecast of the MoF.

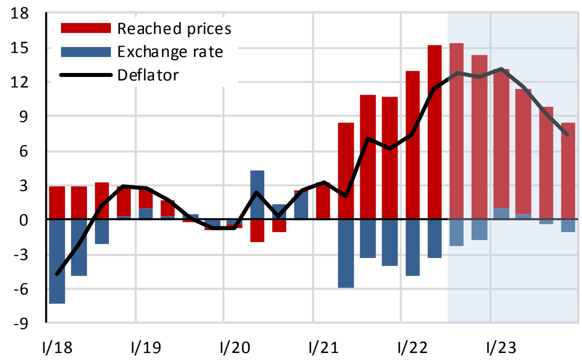
Graph 3.4.2: Real Exports of Goods

YoY growth in %, contributions in pp, seasonally adjusted

Source: CZSO, Eurostat. Calculations and forecast of the MoF.

Graph 3.4.3: Deflator of Exports of Goods

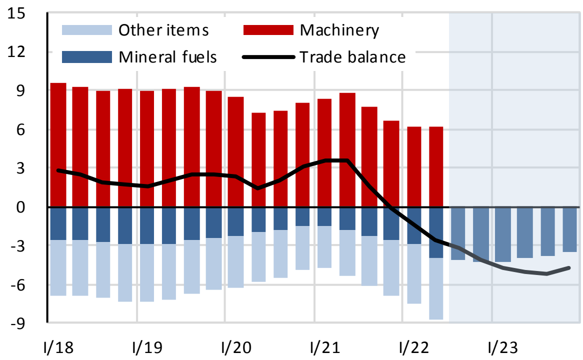
YoY growth in %, contributions in percentage points



Source: CNB, CZSO. Calculations and forecast of the MoF.

Graph 3.4.4: Balance of Trade

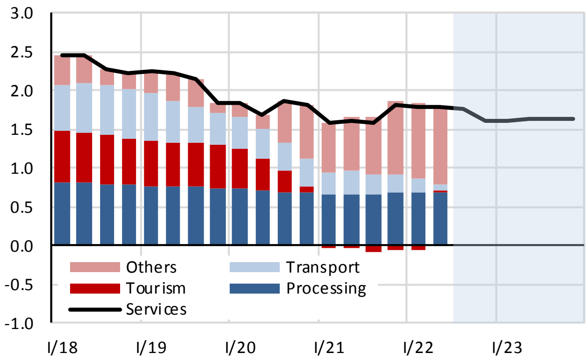
four-quarter moving totals, in % of GDP, change of ownership concept



Source: CZSO. Calculations and forecast of the MoF.

Graph 3.4.5: Balance of Services

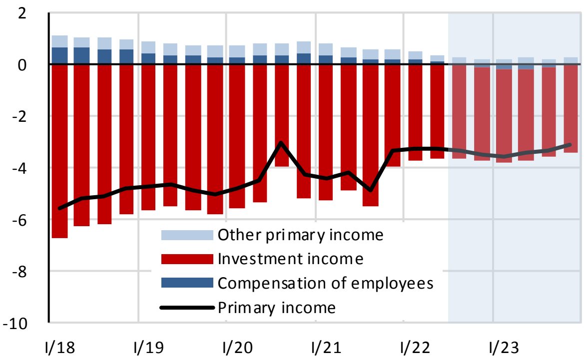
four-quarter moving totals, in % of GDP



Source: CNB, CZSO. Calculations and forecast of the MoF.

Graph 3.4.6: Balance of Primary Income

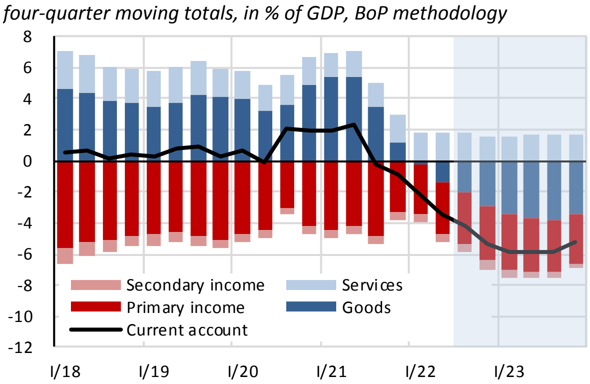
four-quarter moving totals, in % of GDP



Source: CNB, CZSO. Calculations and forecast of the MoF.

Graph 3.4.7: Current Account

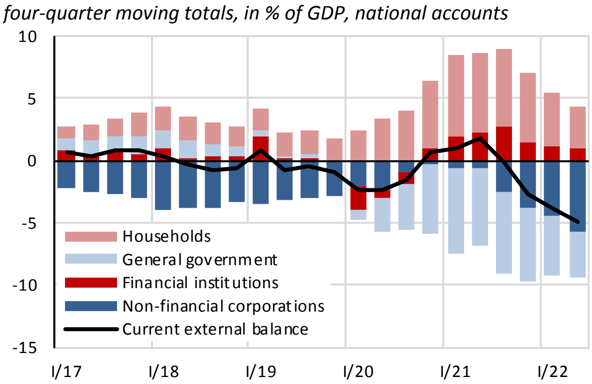
four-quarter moving totals, in % of GDP, BoP methodology



Source: CNB, CZSO. Calculations and forecast of the MoF.

Graph 3.4.8: Current External Balance

four-quarter moving totals, in % of GDP, national accounts



Source: CZSO. Calculations of the MoF.

Table 3.4.1: Decomposition of Exports of Goods (National Accounts Methodology) – yearly
seasonally adjusted

		2014	2015	2016	2017	2018	2019	2020	2021	2022 Forecast	2023 Forecast
GDP [1]	average of 2010=100	**106.8**	**109.1**	**111.4**	**114.8**	**117.3**	**119.5**	**113.7**	**118.4**	**121**	**122**
	growth in %	2.2	2.2	2.1	3.0	2.2	1.9	-4.9	4.2	2.5	0.1
Import intensity [2]	average of 2010=100	**106.8**	**110.3**	**112.8**	**115.8**	**118.4**	**118.6**	**117.4**	**123.5**	**125**	**126**
	growth in %	2.7	3.3	2.3	2.6	2.3	0.2	-1.0	5.2	1.3	1.1
Export markets [3]	average of 2010=100	**114.0**	**120.4**	**125.7**	**132.9**	**138.9**	**141.8**	**133.5**	**146.3**	**152**	**154**
	growth in %	5.0	5.6	4.4	5.7	4.5	2.1	-5.9	9.6	3.8	1.2
Export performance	average of 2010=100	**111.0**	**110.8**	**110.5**	**112.6**	**111.5**	**110.5**	**109.9**	**107.0**	**104**	**105**
	growth in %	4.1	-0.2	-0.3	1.8	-0.9	-0.9	-0.5	-2.6	-3.0	0.7
Real exports	average of 2010=100	**126.6**	**133.4**	**138.9**	**149.6**	**154.8**	**156.7**	**146.7**	**156.5**	**158**	**161**
	growth in %	9.3	5.4	4.1	7.6	3.5	1.2	-6.4	6.7	0.7	1.9
1 / NEER	average of 2010=100	**108.4**	**109.1**	**106.8**	**103.9**	**100.2**	**100.5**	**102.4**	**99.0**	**96**	**96**
	growth in %	5.4	0.6	-2.1	-2.8	-3.6	0.3	1.9	-3.3	-3.0	0.0
Prices on foreign markets	average of 2010=100	**101.0**	**98.9**	**98.2**	**100.3**	**103.2**	**103.9**	**103.1**	**111.6**	**128**	**141**
	growth in %	-1.6	-2.0	-0.7	2.1	2.9	0.7	-0.8	8.3	14.5	10.3
Exports deflator	average of 2010=100	**109.5**	**108.0**	**104.9**	**104.1**	**103.4**	**104.4**	**105.5**	**110.5**	**123**	**135**
	growth in %	3.7	-1.4	-2.8	-0.8	-0.7	1.0	1.1	4.7	11.0	10.3
Nominal exports	average of 2010=100	**138.6**	**144.0**	**145.8**	**155.7**	**160.0**	**163.5**	**154.7**	**172.9**	**193**	**217**
	growth in %	13.4	3.9	1.2	6.8	2.8	2.2	-5.4	11.8	11.9	12.4

[1] Weighted average of GDP of eight most important partners – Germany, Slovakia, Austria, the United Kingdom, Poland, France, Italy and Hungary.
[2] Index of ratio of real imports of goods to real GDP.
[3] Weighted average of imports of goods of main partners.
Source: CNB, CZSO, Eurostat. Calculations and forecast of the MoF.

Table 3.4.2: Decomposition of Exports of Goods (National Accounts Methodology) – quarterly
seasonally adjusted

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3 Estimate	Q4 Forecast
GDP [1]	average of 2010=100	**115.4**	**118.1**	**119.9**	**120.4**	**121.4**	**121.6**	**122**	**121**
	growth in %	-1.7	12.5	3.3	3.5	5.2	3.0	1.5	0.5
Import intensity [2]	average of 2010=100	**125.0**	**123.4**	**122.2**	**123.5**	**124.2**	**124.7**	**126**	**126**
	growth in %	9.8	2.2	7.0	1.9	-0.7	1.1	2.7	1.9
Export markets [3]	average of 2010=100	**144.3**	**145.8**	**146.5**	**148.6**	**150.8**	**151.7**	**153**	**152**
	growth in %	8.0	15.0	10.6	5.5	4.5	4.1	4.3	2.5
Export performance	average of 2010=100	**111.7**	**109.4**	**103.8**	**103.3**	**104.6**	**104.5**	**104**	**102**
	growth in %	0.3	18.6	-11.8	-11.9	-6.4	-4.5	-0.1	-0.8
Real exports	average of 2010=100	**161.2**	**159.4**	**152.0**	**153.5**	**157.7**	**158.5**	**158**	**156**
	growth in %	8.3	36.4	-2.5	-7.0	-2.2	-0.6	4.2	1.7
1 / NEER	average of 2010=100	**100.3**	**98.8**	**98.5**	**98.4**	**95.5**	**95.6**	**96**	**97**
	growth in %	0.1	-5.9	-3.4	-4.0	-4.8	-3.2	-2.2	-1.8
Prices on foreign markets	average of 2010=100	**107.2**	**111.0**	**113.5**	**114.8**	**121.0**	**127.8**	**131**	**131**
	growth in %	3.2	8.5	10.8	10.7	12.9	15.2	15.3	14.4
Exports deflator	average of 2010=100	**107.5**	**109.6**	**111.8**	**113.0**	**115.5**	**122.2**	**126**	**127**
	growth in %	3.3	2.1	7.1	6.3	7.5	11.4	12.8	12.4
Nominal exports	average of 2010=100	**173.3**	**174.8**	**170.0**	**173.5**	**182.2**	**193.6**	**200**	**198**
	growth in %	11.9	39.3	4.5	-1.2	5.2	10.8	17.4	14.2

[1] Weighted average of GDP of eight most important partners – Germany, Slovakia, Austria, the United Kingdom, Poland, France, Italy and Hungary.
[2] Index of ratio of real imports of goods to real GDP.
[3] Weighted average of imports of goods of main partners.
Source: CNB, CZSO, Eurostat. Calculations and forecast of the MoF.

Table 3.4.3: Balance of Payments – yearly

international investment position and gross external debt – end of period

		2014	2015	2016	2017	2018	2019	2020	2021	2022 Forecast	2023 Forecast
Goods and services	*bill.CZK*	**276**	**274**	**365**	**384**	**321**	**346**	**384**	**183**	**-90**	**-131**
	% GDP	6.3	5.9	7.6	7.5	5.9	6.0	6.7	3.0	-1.4	-1.8
Goods	*bill.CZK*	220	188	259	259	201	240	280	73	-197	-247
	% GDP	5.1	4.1	5.4	5.1	3.7	4.1	4.9	1.2	-3.0	-3.5
Services	*bill.CZK*	56	87	107	125	120	106	104	110	107	116
	% GDP	1.3	1.9	2.2	2.4	2.2	1.8	1.8	1.8	1.6	1.6
Primary income	*bill.CZK*	**-261**	**-255**	**-253**	**-255**	**-260**	**-292**	**-242**	**-204**	**-231**	**-219**
	% GDP	-6.0	-5.5	-5.3	-5.0	-4.8	-5.0	-4.2	-3.3	-3.5	-3.1
Secondary income	*bill.CZK*	**-7**	**1**	**-27**	**-50**	**-37**	**-34**	**-28**	**-31**	**-36**	**-24**
	% GDP	-0.2	0.0	-0.6	-1.0	-0.7	-0.6	-0.5	-0.5	-0.5	-0.3
Current account	*bill.CZK*	**8**	**21**	**85**	**79**	**24**	**19**	**114**	**-51**	**-357**	**-375**
	% GDP	0.2	0.4	1.8	1.5	0.4	0.3	2.0	-0.8	-5.4	-5.3
Capital account	*bill.CZK*	**32**	**99**	**52**	**45**	**13**	**24**	**67**	**95**	**89**	**113**
	% GDP	0.7	2.1	1.1	0.9	0.2	0.4	1.2	1.6	1.3	1.6
Net lending/borrowing	*bill.CZK*	**40**	**120**	**137**	**124**	**37**	**44**	**180**	**44**	**-269**	**-262**
	% GDP	0.9	2.6	2.9	2.4	0.7	0.8	3.2	0.7	-4.0	-3.7
Financial account	*bill.CZK*	**64**	**173**	**122**	**116**	**61**	**8**	**163**	**11**	**.**	**.**
Direct investments	*bill.CZK*	-80	50	-187	-46	-51	-137	-149	-5	.	.
Portfolio investments	*bill.CZK*	90	-164	-170	-268	30	-105	-136	75	.	.
Financial derivatives	*bill.CZK*	-6	-5	11	-14	-15	1	11	-58	.	.
Other investments	*bill.CZK*	-13	-59	-97	-802	47	139	389	-297	.	.
Reserve assets	*bill.CZK*	73	351	564	1 246	50	110	48	296	.	.
International investment position	*bill.CZK*	**-1 577**	**-1 523**	**-1 304**	**-1 273**	**-1 320**	**-1 147**	**-929**	**-952**	**.**	**.**
	% GDP	-36.3	-32.9	-27.2	-24.9	-24.4	-19.8	-16.3	-15.6	.	.
Gross external debt	*bill.CZK*	**2 947**	**3 119**	**3 499**	**4 370**	**4 413**	**4 384**	**4 321**	**4 471**	**.**	**.**
	% GDP	67.8	67.4	72.9	85.5	81.6	75.7	75.7	73.2	.	.

Source: CNB, CZSO. Calculations and forecast of the MoF.

Table 3.4.4: Balance of Payments – quarterly

four-quarter moving totals, international investment position and gross external debt – end of period

		2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
								Estimate	*Forecast*
Goods and services	*bill.CZK*	**398**	**415**	**306**	**183**	**100**	**23**	**-18**	**-90**
	% GDP	7.0	7.0	5.1	3.0	1.6	0.4	-0.3	-1.4
Goods	*bill.CZK*	307	319	210	73	-11	-93	-134	-197
	% GDP	5.4	5.4	3.5	1.2	-0.2	-1.4	-2.0	-3.0
Services	*bill.CZK*	90	95	96	110	112	115	116	107
	% GDP	1.6	1.6	1.6	1.8	1.8	1.8	1.8	1.6
Primary income	*bill.CZK*	**-253**	**-245**	**-292**	**-204**	**-201**	**-207**	**-216**	**-231**
	% GDP	-4.4	-4.1	-4.9	-3.3	-3.2	-3.2	-3.3	-3.5
Secondary income	*bill.CZK*	**-35**	**-30**	**-28**	**-31**	**-30**	**-39**	**-38**	**-36**
	% GDP	-0.6	-0.5	-0.5	-0.5	-0.5	-0.6	-0.6	-0.5
Current account	*bill.CZK*	**110**	**140**	**-14**	**-51**	**-131**	**-224**	**-273**	**-357**
	% GDP	1.9	2.4	-0.2	-0.8	-2.1	-3.5	-4.2	-5.4
Capital account	*bill.CZK*	**46**	**51**	**72**	**95**	**91**	**79**	**84**	**89**
	% GDP	0.8	0.9	1.2	1.6	1.5	1.2	1.3	1.3
Net lending/borrowing	*bill.CZK*	**157**	**191**	**58**	**44**	**-40**	**-145**	**-189**	**-269**
	% GDP	2.7	3.2	1.0	0.7	-0.6	-2.3	-2.9	-4.0
Financial account	*bill.CZK*	**142**	**177**	**1**	**11**	**-77**	**-205**	**.**	**.**
Direct investments	*bill.CZK*	-103	-81	-95	-4.8	-54.7	-62.7	.	.
Portfolio investments	*bill.CZK*	-33	58	112	75	137	337	.	.
Financial derivatives	*bill.CZK*	-14	-33	-40	-58	-65	-75	.	.
Other investments	*bill.CZK*	205	157	-150	-297	-480	-688	.	.
Reserve assets	*bill.CZK*	86	76	173	296	386	283	.	.
International investment position	*stock in bill.CZK*	**-733**	**-849**	**-956**	**-952**	**-1 070**	**-1 127**	**.**	**.**
	% GDP	-12.8	-14.4	-15.9	-15.6	-17.1	-17.5	.	.
Gross external debt	*stock in bill.CZK*	**4 314**	**4 229**	**4 366**	**4 471**	**4 631**	**4 567**	**.**	**.**
	% GDP	75.4	71.6	72.5	73.2	73.9	71.1	.	.

Source: CNB, CZSO. Calculations and forecast of the MoF.

4 Survey of Other Institutions' Forecasts

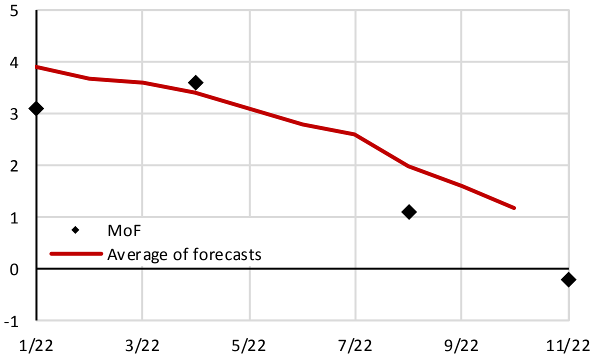
On average, the institutions surveyed expect the Czech economy to grow by 2.2% in 2022 and to slow to 1.2% in 2023. According to their forecasts, the average inflation rate should reach 15.6% this year, but could slow to 8.4% in 2023. Average wage growth could be 6.6% this year and accelerate to 8.5% next year. The current account of the balance of payments is expected to reach a deficit of 4.2% and 2.8% of GDP in 2022 and 2023, respectively.

However, when assessing the differences between the current forecast of the MoF and the average of the projections of individual institutions, it is necessary to take into account the date of preparation of individual forecasts and the information available to their authors.

Despite the unfavourable economic developments related to the impact of the ongoing war in Ukraine and the exceptionally strong growth in the cost of living, the MoF expects the Czech economy to grow slightly faster in 2022 than the average of the institutions surveyed. For 2023, it expects a decline in economic performance of the Czech economy. The inflation rate forecast for 2022 differs little from the average of the forecasts surveyed. In view of new information on the possible development of inflationary factors within the Czech economy, the MoF expects a higher inflation rate for 2023 (see Chapter 3.2). It should remain well above the CNB's inflation target throughout the monitored period. The way government measures in the area of energy prices are captured in official price statistics is a major uncertainty. While average wage growth for this year is almost in line with the average of the forecasts of the monitored institutions, the MoF expects a slower growth rate next year. The forecast of a significant deficit on the current account of the balance of payments is based mainly on the current and expected evolution of the balance of goods, which is affected by the persistent problems of export-oriented industry and, in particular, high prices of imported commodities.

Graph 4.1: Forecasts for Real GDP Growth in 2023

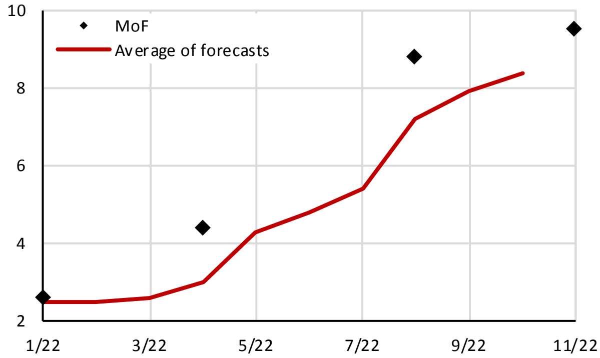
in %; the month, in which the survey was made on the horizontal axis



Source: Forecasts of individual institutions. Calculations of the MoF.

Graph 4.2: Forecasts for Average Inflation Rate in 2023

in %; the month, in which the survey was made on the horizontal axis



Source: Forecasts of individual institutions. Calculations of the MoF.

Table 4.1: Summary of the Surveyed Forecasts

		October 2022			November 2022
		min.	*max.*	*average*	*MoF forecast*
Gross domestic product (2022)	*growth in %, const.pr.*	1.8	2.5	2.2	2.4
Gross domestic product (2023)	*growth in %, const.pr.*	-0.3	2.0	1.2	-0.2
Average inflation rate (2022)	*%*	13.0	16.8	15.6	15.0
Average inflation rate (2023)	*%*	5.6	11.2	8.4	9.5
Average monthly wage (2022)	*growth in %*	4.5	8.1	6.6	6.7
Average monthly wage (2023)	*growth in %*	5.3	13.0	8.5	6.6
Current account / GDP (2022)	*%*	-5.6	-3.7	-4.2	-5.4
Current account / GDP (2023)	*%*	-4.9	-1.9	-2.8	-5.3

Note: The survey is based on publicly available forecasts of 11 institutions, of which 7 institutions are domestic (Czech Banking Association, CNB, Ministry of Labour and Social Affairs, domestic banks) and the remaining are foreign entities (European Commission, OECD, IMF, The Economist). In the case of GDP, no difference is being made between working-day adjusted and unadjusted forecasts.
Source: Forecasts of individual institutions. Calculations and forecast of the MoF.

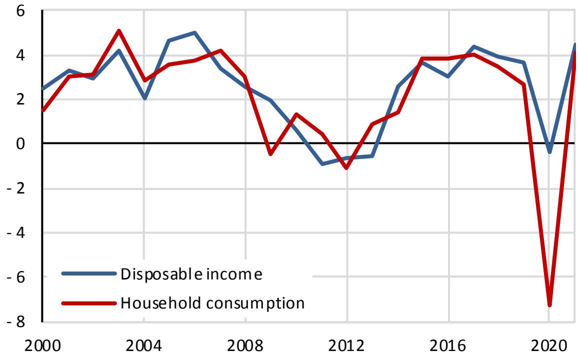
5 Response of Household Consumption to Rising Energy Prices

Household consumption remains the most important expenditure component of domestic GDP, but over the long run its weight is slowly declining. Government support measures during the pandemic, together with the initial labour market shortages, have helped to maintain employment and, to a large extent, personal income. As a result, real disposable income fell by only 0.4% in 2020, less than during the 2011–2013 recession (see Graph 5.1). Until then, the relatively simultaneous trend in disposable income and expenditure was significantly disrupted in 2020 by the coronavirus epidemic, during which the behavioural change and the adopted restrictive measures hit the expenditure side of the households' account much harder. The result was a 7.2% fall in real household consumption and an unprecedented rise in the savings rate to 19.3%. The latter reflected not only households' limitations in some expenditures (mainly on services), but also savings for precautionary reasons (MoF, 2021).

As the strength of the epidemic wanes, households face the additional shock of a huge increase in the cost of living. Initially, the main causes of the price acceleration were supply chain problems (Giovanni et al., 2022; Santacreu and LaBelle, 2022), the inflationary effects of fiscal stimulus packages and loose monetary policy, and a virtually synchronous upsurge in global demand. The subsequent Russian invasion of Ukraine has led to a rapid increase in natural gas prices due to supply constraints from the Russian Federation over the course of this year, increased demand for alternative supplies, and growing concerns about critical shortages. The significant share of natural gas in EU energy production, reinforced by the direction of energy policy in recent years, is also reflected in electricity prices. Despite the long-term decline in the share of household expenditure on natural gas (Graph 5.2), its price is an important cost factor. Electricity accounted for more than 27% of housing-related expenditure in 2021, but a significant increase can only be expected in 2022 and 2023. Increases in energy prices will also be reflected in other consumption categories and in demand for alternative fuels, such as coal or wood. The period of relatively stable electricity prices for households in the Czech Republic between 2008 and 2019, which was also observed in other EU economies (Rokicki et al., 2021), will thus be at least temporarily interrupted.

Graph 5.1: Real Income and Consumption of Households

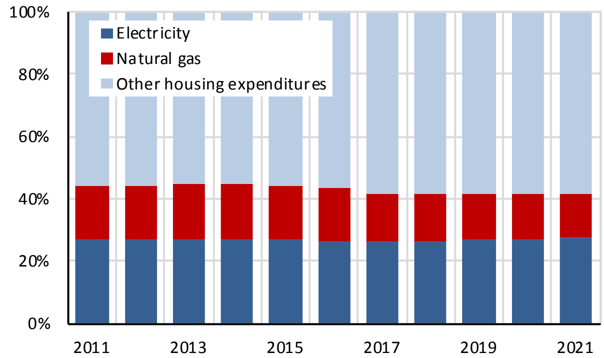
growth in %



Note: Disposable income deflated by household consumption deflator.
Source: CZSO. Calculations of the MoF.

Graph 5.2: Share of Energy in Housing Costs

in % of total housing costs of the average household



Source: CZSO. Calculations of the MoF.

5.1 Methodology

In addition to housing-related costs, energy also enters into the costs of companies, which is ultimately reflected in consumer prices. According to the ECB (2022), energy use for intermediate consumption is more than twice as high as household final consumption, but estimating the cost effects on consumer prices is complicated. Indeed, the degree of pass-through of energy input prices to final prices is highly dependent on the sector, the production process, the size and market position of the firm and other factors and cannot be reliably quantified from available data. This analysis therefore focuses only on the effects of the increase in final consumer prices of energy for households alone, while keeping the prices of other goods and services unchanged.

Most studies base their analysis of the relationship between price and quantity demanded on standard microeconomic theory of consumer demand. The main differences between them lie in the specific functional form of the demand function, the fulfilment of the theoretical assumptions and the method of estimation. The most commonly used tools include the *AIDS* (*Almost Ideal Demand System)* model introduced by Deaton and Muellbauer (1980). The advantage of their approach is that, in addition to being consistent with the assumptions of economic theory, it maintains sufficient flexibility in the estimated parameters. The response variables are the shares of expenditure on a group of goods in total expenditure, which depend on prices and the ratio of total household expenditure to the aggregate price index. The latter is in its basic form a function of prices, their ratios and a constant. The model as presented is non-linear, but there are alternative specifications of the index (e.g. a weighted sum of prices), which may be associated with additional complications (e.g. endogeneity problem). In this case, the use of instrumental variables and a multi-step least squares method is required. Another way of linearization is to specify prices based on an index related to the average household. For example, the generalized method of moments or the maximum likelihood method can be used for estimation in the original non-linear form, but these involve the risk of terminating iterations without achieving parameter convergence. Instead, one can apply an iterative procedure based on the least squares criterion, a formal description of which is given by Blundell and Robin (1999). In the first step, a certain level of the price index is chosen (e.g. the result of the linear approximation above) and, with this level, the model is estimated by the standard least squares method. The resulting parameters are then used to estimate the coefficients of the price index and its value, respectively. The whole process is iteratively repeated until the convergence of the parameters is achieved (their change is negligible in the last iteration).

In later years, more general versions of this model have emerged, e.g. Banks et al. (1997) propose a quadratic extension of the demand function, which was also used by Dybczak et al. (2014). When individual demanded quantity data are available, the demand model can be supplemented with equations explaining unit prices of products or product categories, see Crawford et al. (2002) for details. In this analysis, we used a quadratic model, which, in contrast to the linear form (Dybczak et al., 2014) allows for a more flexible and realistic estimation of the demand function, with the following equations (see Banks et al., 1997 for derivation):

$$w_i = \alpha_i + \sum_{j=1}^{n} \gamma_{ij} \ln p_j + \beta_i^* \ln\left(\frac{m}{a(\boldsymbol{p})}\right) + \frac{\lambda_i}{b(\boldsymbol{p})}\left[\ln\left(\frac{m}{a(\boldsymbol{p})}\right)\right]^2,$$

$$\beta_i^* = \beta_i + \sum_{j=1}^{k} \eta_{ij} z_j,$$

$$\ln a(\boldsymbol{p}) = \alpha_0 + \sum_{i=1}^{n} \alpha_i \ln p_i + \frac{1}{2}\sum_{i=1}^{n}\sum_{j=1}^{n} \gamma_{ij} \ln p_i \ln p_j,$$

$$b(\boldsymbol{p}) = \prod_{i=1}^{n} p_i^{\beta_i^*}.$$

The variable w_i denotes the share of expenditures for the *i-th* category in total consumption; p_j is the average price in that group; $\boldsymbol{p}$ is the vector of all prices p_i; m is the total consumption expenditure of the household; $a(\boldsymbol{p})$ is the price index and $b(\boldsymbol{p})$ is a Cobb-Douglas type price aggregate. The individual z_j are additional exogenous variables – in our case, the number of persons, children, age and gender of the household head, income quintile, municipality size category, and household group by the household head (according to his/her education and economic status). The other variables denote unknown parameters. The model was estimated using an iterative nonlinear least squares method, taking as initial parameter values the outcome of the above iterations under the linear model (the latter being a special case of the quadratic variant, where all λ_i s are zero).

In addition to the effects on the quantity demanded of the chosen good, price and income elasticities of demand can be derived from the estimated parameters, which correspond to the particular partial derivatives (Green and Alston, 1990). At the same time, the results can also be used to analyze other types of consumer price shocks (e.g., changes in indirect tax rates), see, e.g., Janský (2014) or Tóth et al. (2021). In what follows, we consider effects on the average household, or on households in total. From a socio-economic perspective, however, the impact of increased energy costs on low-income households is also substantial (see MoF, 2022).

5.2 Dataset

The main data source was household data from the *Household Budget Survey*. The survey contains the expenditure of household units in a detailed breakdown (at the four-digit level of the classification of individual consumption by purpose). While until 2016 the survey was a separate quota sampling, since 2017 it has been integrated into the *Statistics on Income and Living Conditions* survey. Given this methodological change and the availability of data, the period 2017–2021 was chosen and within it the respective months in which the household reported its expenditure. Combining the data into a multi-year period increased the sample size and variability of the variables, while suppressing the impact of any one-off factors in a particular year. The resulting dataset was then linked to monthly data on the evolution of consumer prices of individual items. Subsequent application of weights to the household consumption basket yielded both price and quantity demanded data for a given month at the item level. For the purpose of analysis, the data were further aggregated into 8 homogeneous groups (see Table 5.1). The estimated elasticities within the defined categories then allow the resulting impact on total household consumption to be calculated. This can then be used as input to other economic models including effects on GDP, employment, etc.

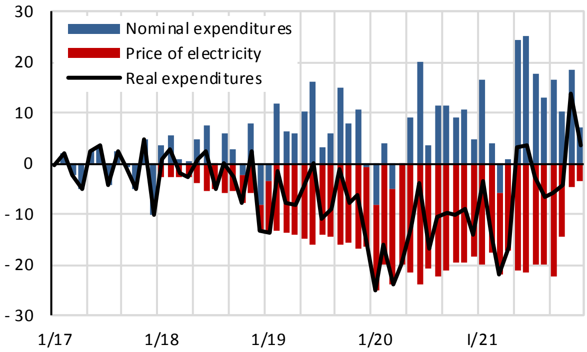
Using the calculated data, we can compare the evolution of total consumption expenditure in relation to the price of electricity, which is the most important energy commodity. Graph 5.3 shows the evolution of the maximum amount of electricity that an average household could consume for its total monetary expenditure. This evolution can be decomposed into the change in nominal expenditure (which may reflect income trends and/or a change in the savings rate) and the effect of the electricity price itself. The result is then a profile of real household expenditure adjusted not by the commonly used overall consumer price index but by electricity prices alone. Until H1 2018, the dynamics of real expenditure in this sense virtually followed the nominal path. However, the effect of rising electricity prices gradually asserted itself, thus contributing significantly to the decline in real expenditure from 2019 onwards.

Table 5.1: Categories of Household Expenditure
structure of expenditure in %, 2017–2021 average

	Share
Household expenditures	**100.0**
Food and non-alcoholic beverages	24.2
Alcoholic beverages and tobacco	3.6
Clothing and footwear	4.3
Housing	18.1
Transport and communication	11.0
Education and leisure activities	9.3
Miscellaneous goods and services	15.0
Energy	14.5

Note: Energy consists of electricity, gas, heating and solid fuels. Housing excludes expenditure on energy.
Source: CZSO. Calculations of the MoF.

Graph 5.3: Real Spending Adjusted by Electricity Price
growth in spending in %, against H1 2017, contributions in pp



Source: CZSO. Calculations of the MoF.

5.3 Price and Income Elasticities

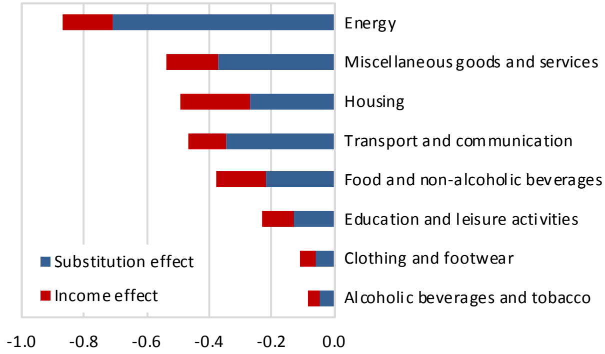
When the price of a given good rises, the household responds both to the new price ratios (the good is now relatively more expensive compared to other goods and services) and to the decline in real income. Although both effects operate simultaneously in practice, their effects can be quantified separately. The first behavioural change mentioned above is called the *substitution effect*, and it indicates the percentage change in the quantity demanded of good *X* with a percentage change in the price of good *Y* while maintaining the real income level. Thus, when the price of good *Y* increases, there must be a corresponding increase in nominal income, while when it decreases, there must be a corresponding decrease. The second component is the *income effect*, which, in contrast to the substitution effect, “adjusts” the level of nominal income back to the previous level, thus capturing only the effect of a change in real income, not price ratios.

In the case of a comparison of prices and demand for a given good or group of goods (*X* = *Y*), we speak of the own price elasticity of demand. The contributions of substitution and income effects when the price of the relevant category of expenditure increases by 1% are shown in Graph 5.4. All own price elasticities are negative as expected, which means that increase in price of the category leads to a decline in quantity demanded, other things being equal. In absolute terms, alcoholic beverages and tobacco and clothing and footwear are the least elastic; goods with relatively lower price elasticities include also education and food. In addition to energy, less essential categories such as household equipment and miscellaneous goods and services show higher price sensitivity, which allows for an easier optimization of the time profile of consumption.

Income elasticity refers to the percentage change in quantity demanded when income increases by one percent (other things being equal). In the case of a positive value less than one, we speak of a necessary good, while luxury goods have an elasticity greater than one. Less common are so-called inferior goods with a negative elasticity.

In the chosen aggregation of expenditures, households respond to the increase in income by increasing the quantity demanded in all cases (see Table 5.2). Consistent with the findings of the literature applied to data for the Czech Republic (e.g. Jánský, 2014 or Dybczak et al., 2014), the goods with the lowest income elasticity include *Food and non-alcoholic beverages*. This is an essential part of consumption, which is moreover necessary to some extent regardless of income level. Moreover, some middle and high income households are more likely to change their consumption pattern within the food category in response to the additional income, spending more on higher quality and/or more expensive products. Other groups of expenditure also show low elasticities, partly depending on other circumstances, such as commuting in the transport category or longer-term consumption patterns in the case of alcohol and tobacco. At the other end of the spectrum is spending on medium- and long-term consumption items such as clothing and footwear or housing products, which increase disproportionately more as income increases.

Graph 5.4: Substitution and Income Effect
contributions to price elasticity in percentage points



Note: Effects correspond to a 1% increase in the price of given expenditure group.
Source: CZSO. Calculations of the MoF.

Table 5.2: Income Elasticity of Demand
in %

	Elasticity
Food and non-alcoholic beverages	0.60
Transport and communication	0.88
Alcoholic beverages and tobacco	0.89
Miscellaneous goods and services	1.15
Education and leisure activities	1.18
Energy	1.21
Clothing and footwear	1.27
Housing	1.38

Source: CZSO. Calculations of the MoF.

5.4 Macroeconomic Impacts

A price shock in the energy group will change the expenditure structure of the average household, and the calculated price elasticities are used to estimate it. In the case of energy, the impact on expenditure is obtained by multiplying the change in quantity demanded by the price increase, while for the other sections only by the resulting change in demand (their prices are assumed constant). The new weighting of expenditure, together with the adjusted composition of demand, then leads to an overall change in the quantity demanded, which can be interpreted as the impact on household consumption at constant prices.

The main assumption of the analysis is the expected increase in consumer prices of electricity and gas in 2023 according to the current Macroeconomic Forecast (see Chapter 3.2), which assumes a 25% increase in electricity and 14% increase in gas prices. For the other items in the energy category (the weight of them in the energy category is 25%, mainly heating and solid fuels) we have assumed an average price increase of 20%. The resulting increase in energy prices is 20.4%. In this case, households would reduce their energy consumption by around 16%, but their total energy expenditure would increase by 1.4% (compared to the baseline scenario without energy price increases).

Through a reduction in household energy consumption and adjusted demand for other goods and services, the energy price shock could reduce real household consumption growth by 2.5 pp compared to the baseline scenario (see Table 5.3), of which 2.3 pp is attributable to lower energy demand. According to the CNB (2022), a 19% increase in energy prices would subtract 2.4 pp from the dynamics of household consumption (our calculations assume the same value under the circumstances). Given the import intensity of household consumption, GDP growth would then be about 1.0 pp lower than in the baseline scenario. It should be pointed out that price increases in other items of the consumption basket are likely to occur (see Chapter 3.2). Thus, in the light of the analysis carried out here, while the substitution effect of higher electricity prices will be weakened (other items will be relatively more expensive), the fall in consumption will be significantly deeper due to the substitution and income effects of higher prices for other goods. These effects cannot be quantified with the tools used because elasticities capture the effects of only partial price increase in otherwise identical circumstances.

Lower energy demand from households implies secondary economic impacts through supplier-customer relations. Based on symmetric input-output tables of domestic output (CZSO, 2022), we estimate the effects of lower demand on gross value added, GDP, employment and wages and salaries in a model closed with respect to households. The share of energy production and distribution in total value added in the economy is relatively low (3.4% in 2015). Natural gas and important input commodities for electricity generation (nuclear fuel, coal) are largely imported, so the secondary impact of higher household energy prices on economic output is significantly lower compared to the direct effect. Economic activity would thus fall by an additional 0.3 pp in 2023 (see Table 5.4), with only a small negative impact on the labour market. Although the model is closed with respect to households, and thus includes households' final use of products, it cannot estimate secondary effects on household consumption. This is due to the different classification in the input-output tables from prices and consumption expenditure in the micro-data.

Table 5.3: Effect of Higher Energy Prices for Households
impact on growth in percentage points

	2023
Impact on household consumption	**-2.5**
Contribution of energy	-2.3
Contribution of other goods and services	-0.2
Impact on GDP	**-1.0**

Note: The impact on GDP includes the estimated 19% import content of household consumption (based on input-output tables).
Source: CZSO. Calculations of the MoF.

Table 5.4: Lower Demand of Households for Energy
impact on growth in percentage points

	2023
Gross value added	-0.3
Wage bill	-0.2
Employment	-0.2
GDP	**-0.3**

Note: The impact on GDP corresponds to the impact on gross value added and net taxes on products. Employment in the national accounts methodology.
Source: CZSO. Calculations of the MoF.

5.5 Conclusion

The coronavirus epidemic and the measures taken led to a change in the structure of the consumption basket and a rapid increase in the savings rate for both forced and precautionary reasons. The gradual return of the economy to normal and the stabilisation of the consumption structure was disrupted by high price increases, especially in the energy section. In contrast to the earlier across-the-board suspension of consumer spending, there has been a marked decline in real disposable income and a need to reduce spending on inessential goods and services. Particularly for high-income households, the impact on real consumption may be cushioned by drawing on savings accumulated in previous years, but the financial situation of vulnerable groups will deteriorate markedly.

In addition to technical possibilities, the extent of the energy reduction will also depend on the final price for individual households, which will include measures under the so-called savings tariff, the waiving of renewable energy charges and the price cap. In addition to the reduction in the volume of energy used, which could be around 16% due to price increases, according to the estimated elasticities, the situation will also have a negative impact on the overall consumption of other goods. In total, these factors (including second-round effects) could take around 1.3 pp off economic growth. Together with the (probably even more significant) cost shock to other entities (especially businesses), the rise in energy prices will thus have very adverse macroeconomic effects.

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