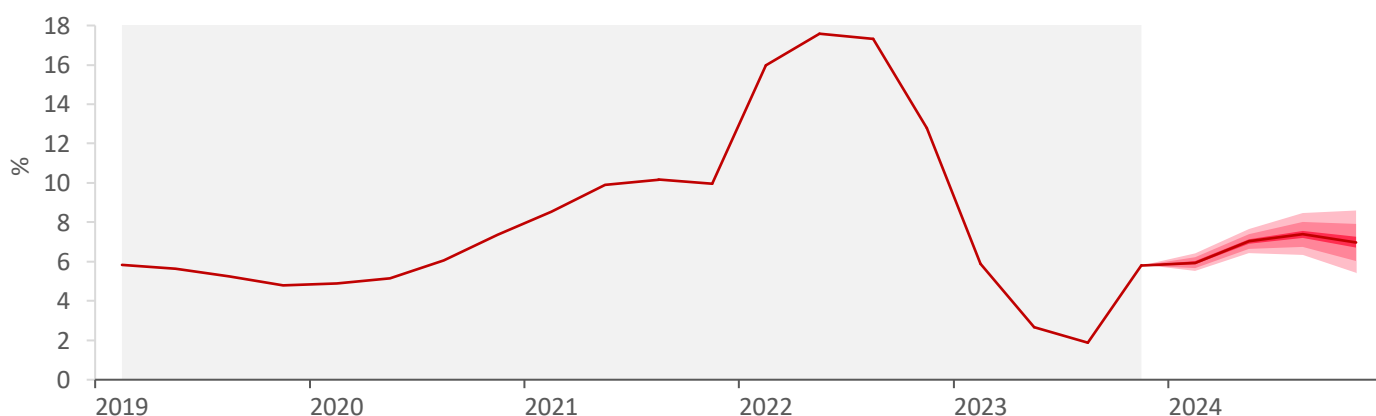


## **Inflation accelerated noticeably at the end of 2023, and its containment may become an economic policy priority in 2024**

Annual inflation increased from 2.0% YoY in September to 5.8% YoY in December 2023. A directive price reduction of October-November 2022 exited the annual rate calculation. However, a more important factor was the increase in pro-inflationary pressure in an environment of overheated economy and shortage of workers. Subsequently, the annualized quarterly increase in consumer prices (seasonally adjusted) rose to 8.6% QoQ in Q4-2023. Increased costs passed on to prices even under strict price controls, but on a limited scale, which led to the inflation overhang expansion to at least 5% in late 2023.

Cumulative price pressure could lead to inflation accelerating to 8–10% YoY in 2024 in a business-as-usual scenario. At the same time, due to the increased social and political costs of high price growth and low chances of maintaining high GDP growth rates, curbing inflation — largely through administrative methods — may become a priority of economic policy, and price growth will be limited to 5–7% YoY in 2024 (Figure 1). The situationality and voluntarism of economic policy are powerful factors of forecast uncertainty.

**Figure 1. Dynamics and forecast of consumer inflation in Belarus, % YoY**



**Source:** The BEROC's calculations are based on the BEROC's Quarterly Projection Model (QPM) for Belarus.

**Note:** The figure shows a seasonally adjusted indicator. The X13 procedure in the JDemetra+ app was applied to make a seasonal adjustment. As new data are published, the indicator dynamics can be updated. The ranges in the figure correspond to the 15%, 50% and 75% confidence intervals.

The Inflation Review Bulletin is an expert analysis of inflationary processes in the consumer market. The bulletin depicts the dynamics of price indices, analyzes the drivers of inflationary processes, assesses the nature of monetary conditions, and provides a short-term inflation forecast. The methodological basis for the analysis is the Quarterly Projection Model (QPM) for the Belarusian economy. See: WP BEROC no. 82: [Quarterly Projection Model for Belarus: Methodological Aspects and Practical Applications](#).

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# 1 Dynamics of inflationary processes

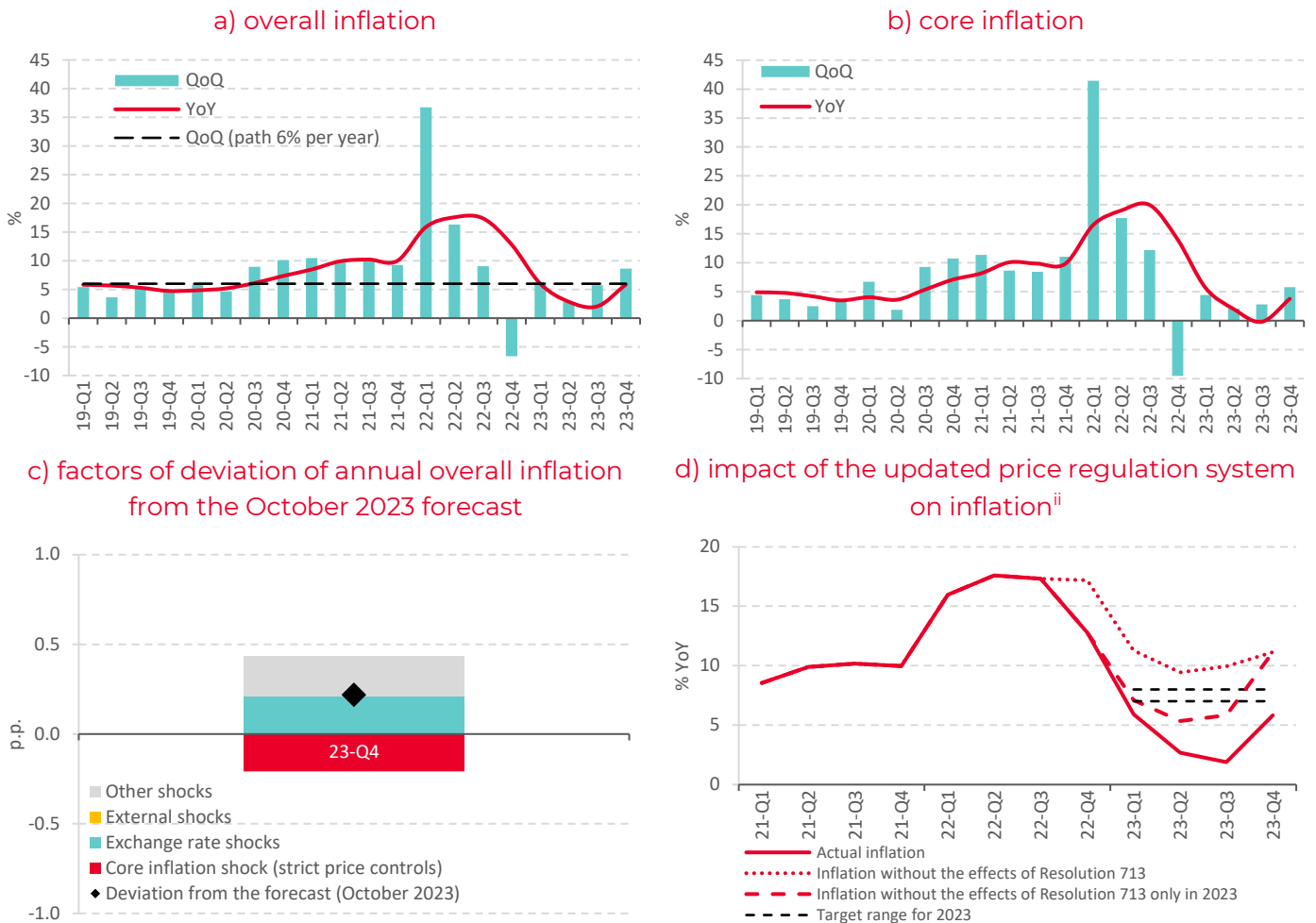
## Inflation accelerated noticeably in Q4-2023

Consumer prices increased by 8.6% (annualized and seasonally adjusted) (hereinafter referred to as “% QoQ”) in Q4-2023.<sup>i</sup> The quarterly price increase was the highest since Q3-2022. (Figure 2.a). The strengthening price impulse manifested in an annual inflation increase (under the Consumer Price Index (CPI)) from 2.0% in September 2023 to 5.8% in December 2023 (hereinafter referred to as “% YoY”). The annual indicator sharply increased in Q4-2023 also because the price decline in Q4-2022 triggered by tightening price controls exited this calculation.

## Annual inflation deviated by ≈0.2 p.p. upward versus the October 2023 forecast

The deviation from the forecast is explained by a greater contribution of the exchange rate to inflation than predicted in October 2023 due to a greater weakening of the Belarusian ruble against the Russian ruble (Figure 2.c), as well as with an extremely high increase in volatile prices for fruits and vegetables.

Figure 2. Dynamics of consumer and producer inflation



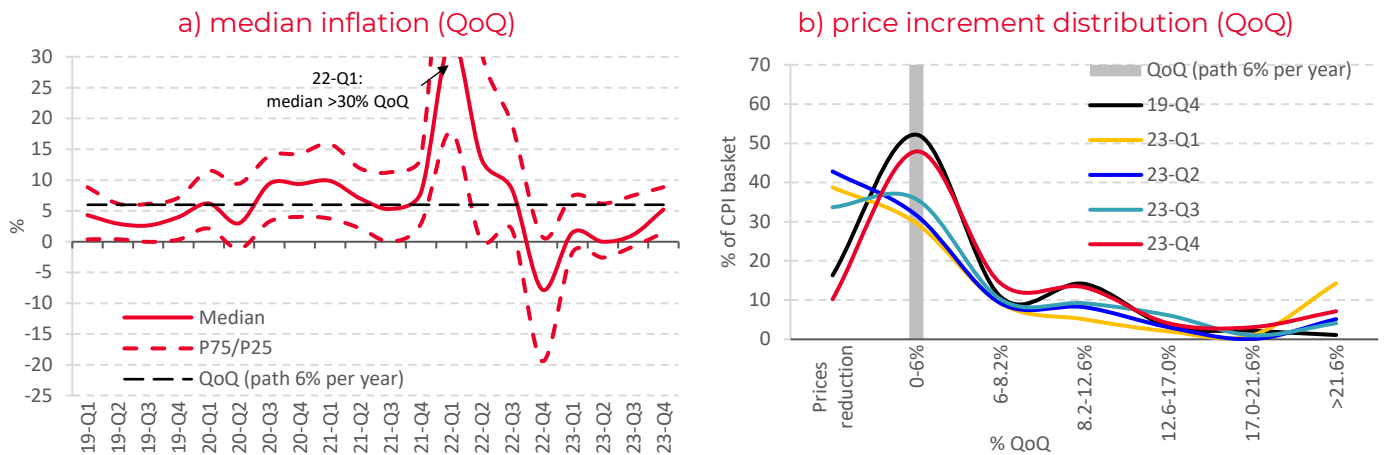
**Source:** The BEROC’s calculations based on the data from Belstat, QPM BEROC.

**Note:** Hereinafter, YoY is the growth rate in the last month of the quarter versus the last month of the corresponding quarter of the previous year; QoQ is the annualized growth rate in the last month of the quarter versus the last month of the previous quarter, seasonally adjusted.

### Core inflation doubled in Q4-2023, and median inflation grew five-fold

In Q4-2023, core inflation rose to 5.8% QoQ, and median inflation rose to 5.2% QoQ (Figure 2.b; Figure 3.a). The distribution of changes in the prices of the components of the consumer basket got closer to the distribution typical for Belarus (Figure 3.b). The share of cheaper items decreased from  $\approx 34\text{--}43\%$  in Q1–Q3-2023 to  $\approx 10\%$  in Q4-2023, and the share of moderately increased prices (up to 6% QoQ) grew from  $\approx 30\text{--}36\%$  to  $\approx 48\%$  respectively. The share of goods and services whose prices grew at a high rate (faster than 6% QoQ) increased to 42% in Q4-2023, while it was  $\approx 25\text{--}32\%$  in Q1–Q3-2023, and it was  $\approx 32\%$  on average in 2018–2019, when price stability was ensured. The dynamics of core and median inflation, as well as the distribution of price increases, indicate increased price pressure across most of the consumer basket observed in the end of 2023.

Figure 3. Dynamics of median inflation and distribution of relative price growth



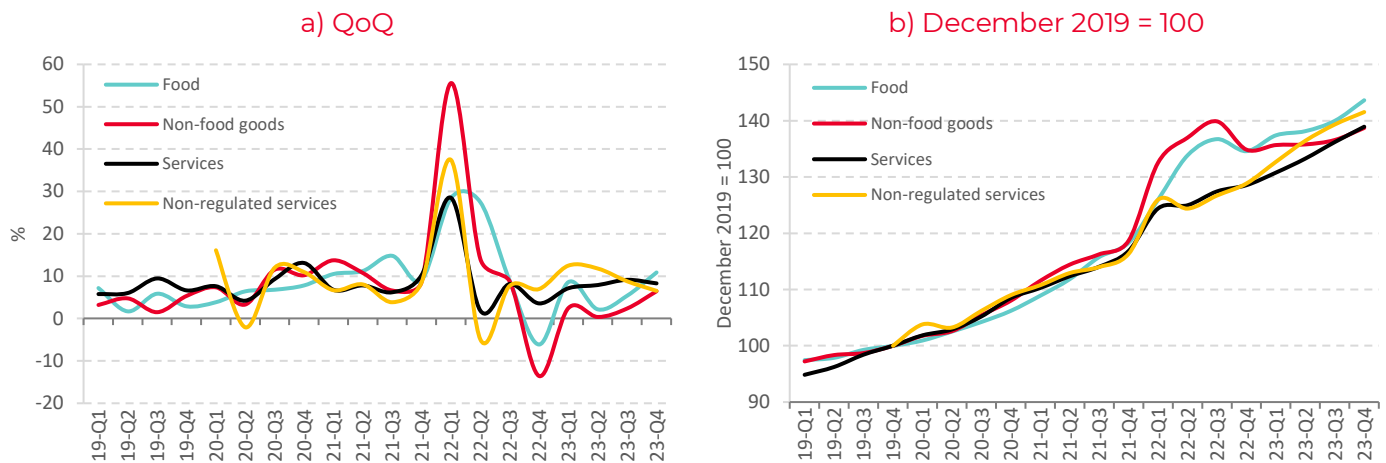
**Source:** BEROC’s calculations based on the Belstat data.

**Note:** Median inflation and price increment distribution are calculated using data from 98 aggregated commodities in the CPI basket. P75 and P25 are the 75<sup>th</sup> and 25<sup>th</sup> percentiles, respectively (prices for 25% of goods rise faster than the inflation of the 75<sup>th</sup> percentile, and prices for another 25% of goods rise slower than the inflation of the 25<sup>th</sup> percentile).

### Food price acceleration was the largest contributor to rising inflation in Q4-2023

In Q4-2023, food inflation accelerated twofold compared to the previous quarter: it grew to 10.9% QoQ (Figure 4.a). Seasonally adjusted prices in this segment of the consumer basket increased by 24 consolidated positions out of 28, and the median growth was estimated at 7% QoQ following 2% QoQ in Q3-2023. Tobacco products remained to be the price growth leader ( $\approx 80\%$  QoQ in Q4-2023) amid increased excise taxes, as well as fruits and vegetables ( $\approx 40\%$  QoQ). In the case of vegetables and fruits, prices could be affected by a smaller harvest in 2023. It is also impossible to exclude the influence of the weakening of the Belarusian ruble against the US dollar and euro and the prioritization of exports over domestic sales in an environment of strict price controls, which may limit the supply of fruits and vegetables in the Belarusian market. The growth in prices for cereals, flour, bread and confectionery accelerated noticeably in Q4-2023, which could be due to a lower grain harvest in Belarus in 2023 compared to 2022. The harvest factor could also affect the acceleration of price dynamics for dairy and meat products (Figure 5.a).

Figure 4. Dynamics of inflation and prices of aggregated CPI components (seasonally adjusted)



**Source:** BEROC's calculations based on the Belstat data.

**Note:** QoQ (quarter-on-quarter) is the annualized growth rate in the last month of the quarter vs the last month of the previous quarter, seasonally adjusted.

### Inflation in the non-food segment accelerated sharply in Q4-2023

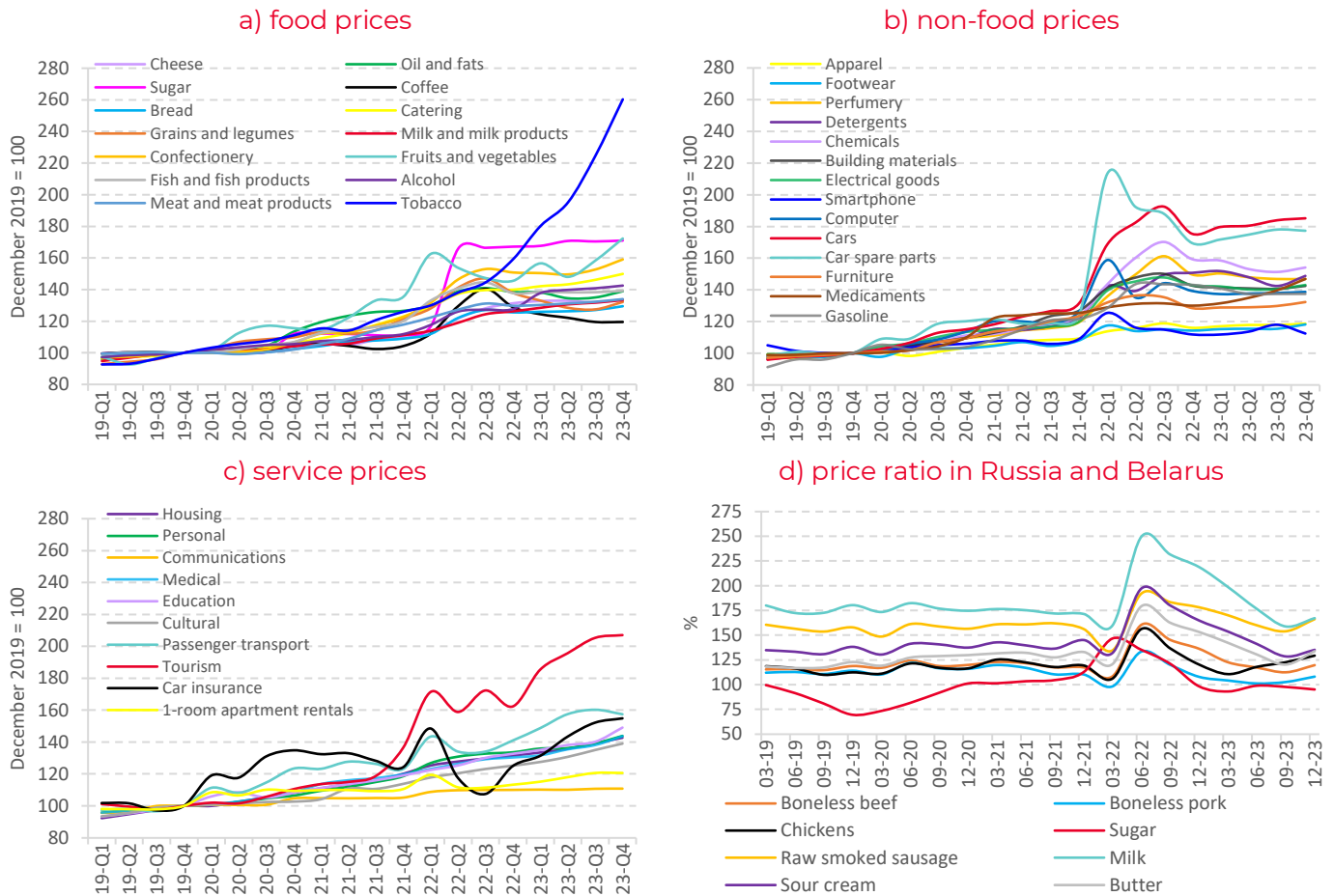
Prices for non-food products increased by 6.4% QoQ in Q4-2023 (Figure 4.a). Inflation in this segment accelerated almost threefold compared to the previous quarter. Seasonally adjusted prices of 41 consolidated positions out of 48 increased (prices for 24 positions increased in Q3-2023); this resulted in the increase of a median inflation for non-foods from 0% in Q3-2023 to 4.8% in Q4-2023 (Figure 5.b). The acceleration of non-food inflation and the rise in prices for most goods indicate an increased pressure of producers' costs on prices in an environment of excess demand and production constraints.

### Services continued to rise in price at a high rate in Q4-2023

Service inflation is estimated at 8.3% QoQ in Q4-2023 (Figure 4.a). High price growth rates persisted in the services associated with a high share of wages in their costs: in-home services, cultural and sports services, medical services, unregulated utility services, and training courses (Figure 5.c). This indicates pro-inflationary pressure from the tight labor market.

In Q4-2023, service inflation was restrained by a strong slowdown in the growth of the cost of tourism services and a decrease in prices for air travel (seasonally adjusted). The dynamics of these extremely volatile positions led to a slowdown in inflation in the segment of unregulated services to ≈6.5% QoQ in Q4-2023 (Figure 4.a). The deviation of prices of unregulated services from the prices of non-food products remained significant at the end of 2023 (Figure 4.b); this may indicate an inflation overhang (a potential accelerated inflation in the future) due to strict price controls in the goods segment.

Figure 5. Price dynamics for individual consumer basket items (seasonally adjusted)

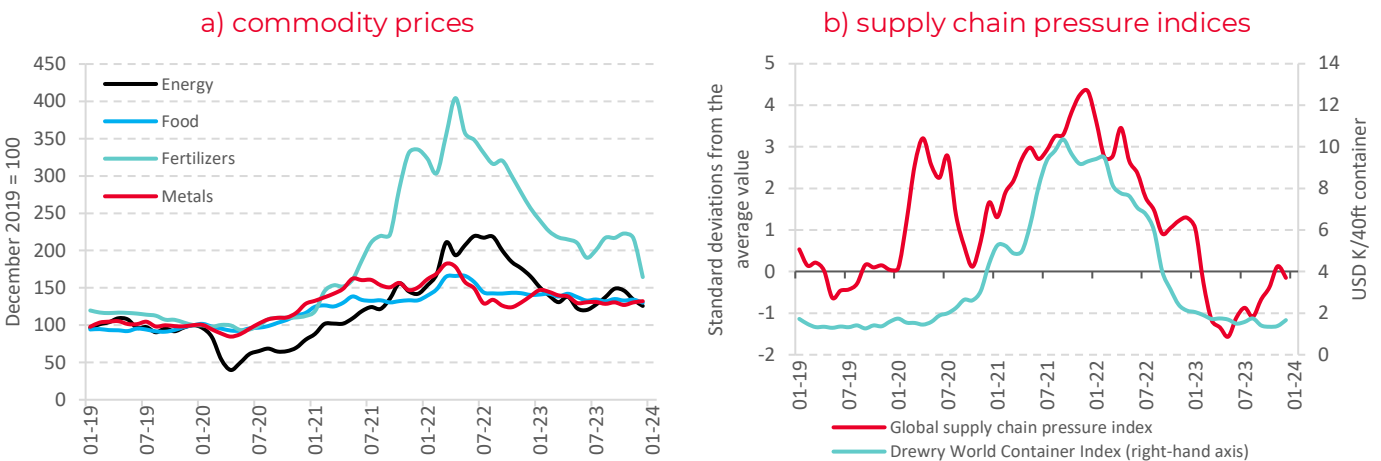


**Source:** The BEROC’s calculations are based on the data by Belstat, the National Bank of Belarus, and Rosstat.  
**Note:** The ratio of prices in Russia and Belarus has been calculated as the ratio of the average price in Russia — recalculated at the average official foreign exchange rate of the Belarusian ruble to the Russian ruble — to the average price of goods in Belarus, multiplied by 100.

## 2 Inflation drivers

**The dynamics of commodities prices and the global supply situation had almost a neutral impact on inflation in Belarus in Q4-2023**

Figure 6. Global commodity prices and price pressures in supply chains

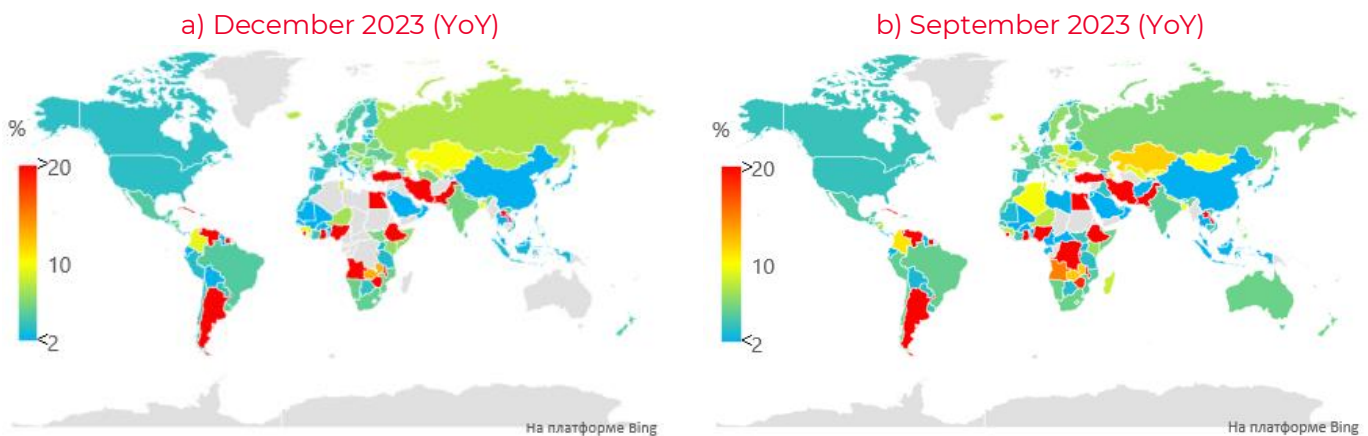


**Source:** World Bank, Federal Reserve Bank of New York, Drewry World Container Index, Drewry Supply Chain Advisors.  
**Note:** The World Container Index is for the last week of the month.

The World Bank US dollar Commodity Price Index decreased by 1.4% in Q4-2023 versus Q3-2023, and it was at the level observed in the middle of 2021. In Q4-2023, prices for both energy and non-energy commodities, including food, decreased (Figure 6.a). Weakening global demand for goods, along with expectations of low global economic growth, limited global inflation rates (Figure 7).

In Q4-2023, there was no pro-inflationary pressure from global supply chains (Figure 6.b). At that, already in January 2024, the cost of maritime container transportations more than tripled compared to December 2023 due to the aggravating situation in the Red Sea and the low throughput capacity of the Panama Canal. **If the threat of an escalating conflict in the Middle East cannot be stopped quickly, the cost of maritime transportation may steadily increase and the risks of rising prices for raw materials will greatly increase globally, which will generate pro-inflationary pressure in the Belarusian market.**

Figure 7. Global inflation



Source: Trading Economics, national statistical agencies.

Note: YoY (year-on-year) is the growth rate in the last month of the quarter vs the last month of the corresponding quarter of the previous year.

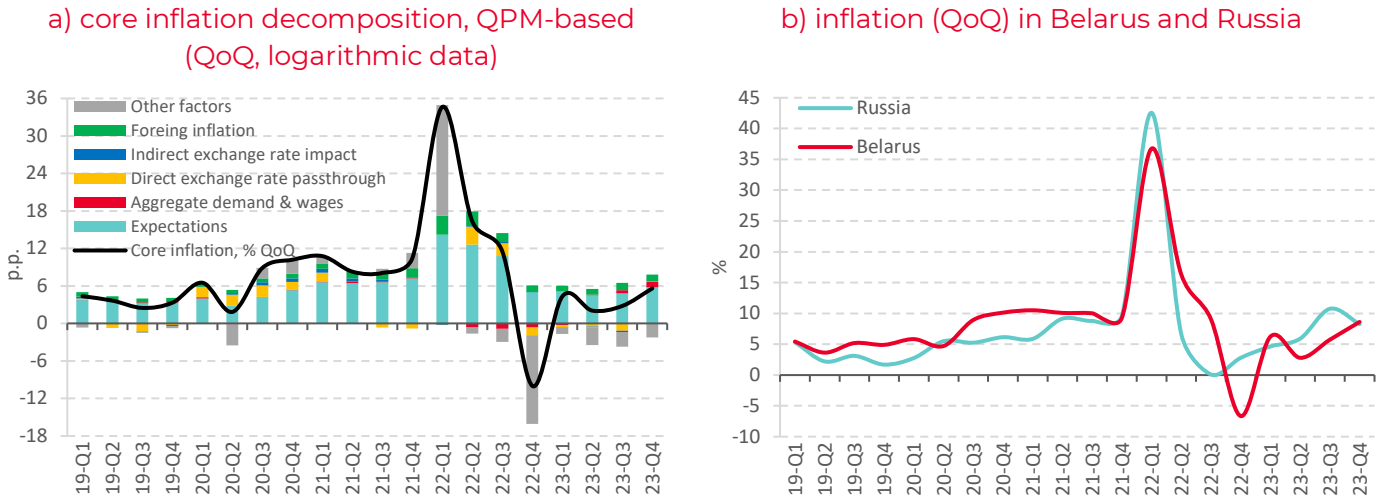
**High price growth in Russia was a pro-inflationary factor for Belarus in Q4-2023**

Inflation in Russia is estimated at ≈8.2% QoQ in Q4-2023 (Figure 8.b). This is lower than in the previous quarter, but this is twice the Bank of Russia's target of 4%. Price pressure in Russia continued due to an overheated labor market and domestic demand. Given the weakening of the Belarusian ruble against the Russian ruble, increased growth rates in Russia had a pro-inflationary impact on the Belarusian market in Q4-2023. (Figure 8.a).

**Pro-inflationary pressure from excess demand remained high in the Belarusian economy at the end of 2023**

In Q4-2023, GDP was almost 2.5% higher than the equilibrium (or inflation-neutral) level (QPM-based; Figure 9.a). This magnitude of a positive output gap signals a moderate overheating of the economy. Economy overheating was the consequence of active stimulating domestic economic policies in 2022–2023 and the limited capacity of producers of goods and services to adjust to excess demand.<sup>iii</sup> As a result, producer costs rise and translate into prices (albeit to a limited extent) even under a strict price control system.

Figure 8. Decomposition of core inflation in Belarus and inflation in Russia



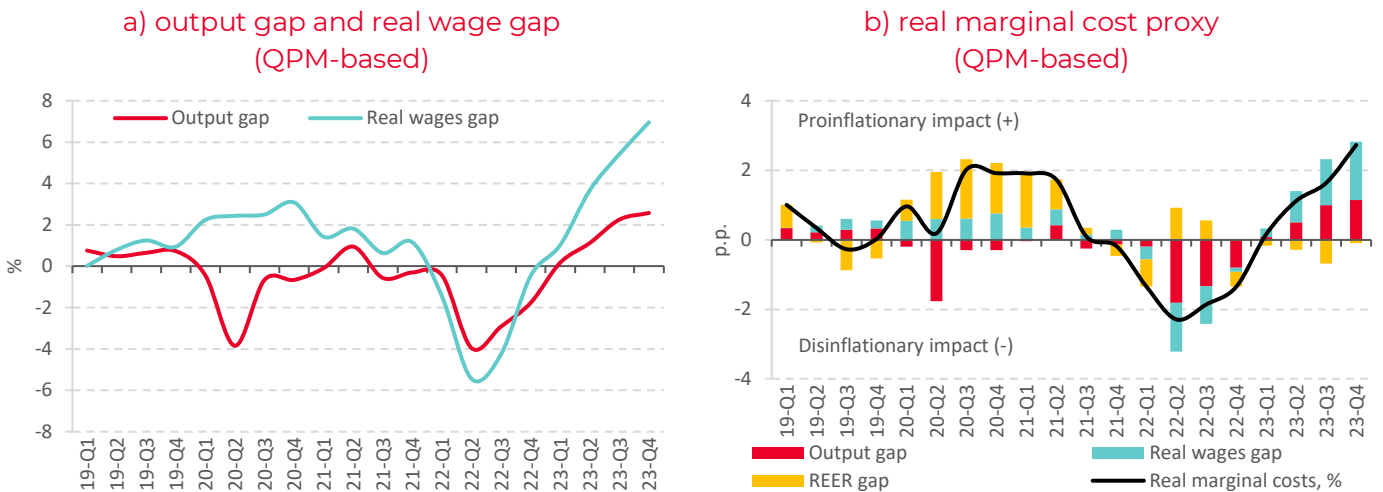
**Source:** The BEROC’s calculations based on QPM BEROC, the data from Belstat and Rosstat.

**Note:** The contributions of the factors are calculated considering persistency; QoQ (quarter-on-quarter) is the annualized growth rate in the last month of the quarter vs the last month of the previous quarter, seasonally adjusted.

**The shortage of workers is the most critical limiter to the extensive growth of the Belarusian economy and a factor of a significant increase in labor costs**

Excess aggregate demand superimposed on reducing employed population due to demographic trends and emigration manifested in a noticeable increase in the labor market tension in 2023, which persisted in Q4-2023. The ratio of the number of unemployed (according to Belstat) to the number of job vacancies (according to the Ministry of Labor and Social Protection) dropped to 1.2 unemployed per vacancy (seasonality adjusted) in Q4-2023: it was the lowest value for the entire evaluated period since 2017. In the context of a shortage of workers, real wages had high growth rates in 2023, and their size in Q4-2023 deviated even more upward versus its equilibrium (or its inflation-neutral) level (Figure 9.a), thus increasing inflationary pressure (Figure 9.b).

Figure 9. Dynamics of indicators of internal inflationary pressure



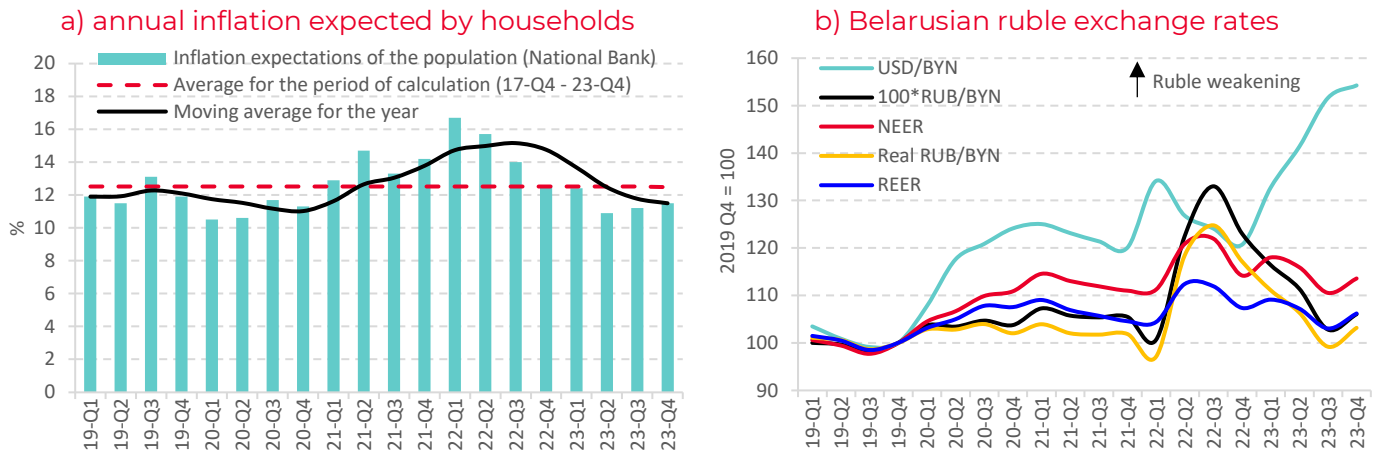
**Source:** The BEROC’s calculations are based on the BEROC’s Quarterly Projection Model (QPM) for Belarus.

**Note:** The gaps are re-evaluated once data are available. The real effective exchange rate gap (REER gap) is adjusted for the deviation of relative prices (the ratio of the core CPI to the composite CPI) from the trend.

### The foreign exchange rate ceased to contain inflation in Q4-2023

The Belarusian ruble in nominal terms (measured through the nominal effective exchange rate) weakened by 2.8% versus Q3-2023 (Figure 9.b); and in terms of the foreign currency basket, it weakened by 2.6%. The weakening of the Belarusian ruble manifested in the neutralization of the national currency overvaluation versus the equilibrium level of the real effective exchange rate in Q4-2023 (Figure 9.b), and the ratio of prices for traded goods in Russia and Belarus approached average values of 2019–2021 (Figure 5.d).

Figure 10. Household inflation expectations and dynamics of the Belarusian ruble exchange rates



**Source:** The BEROC’s calculations are based on the data by the National Bank of Belarus.

**Note:** These are the Nominal Effective Exchange Rate (NEER) and the Real Effective Exchange Rate (REER) of the Belarusian ruble.

### Inflation expectations continued elevating in Q4-2023

The annual price increase expectation of households was 11.5% in December 2023 versus 11.2% in September 2023. Growing expectations may reflect an acceleration in food price growth in Q4-2023, which are daily consumer goods. At the same time, inflation expectations remained below their 2021–2022 levels (Figure 10.a). QPM produced similar estimates (Figure 8.a).

### Blanket price controls continued being the main inflation limiter

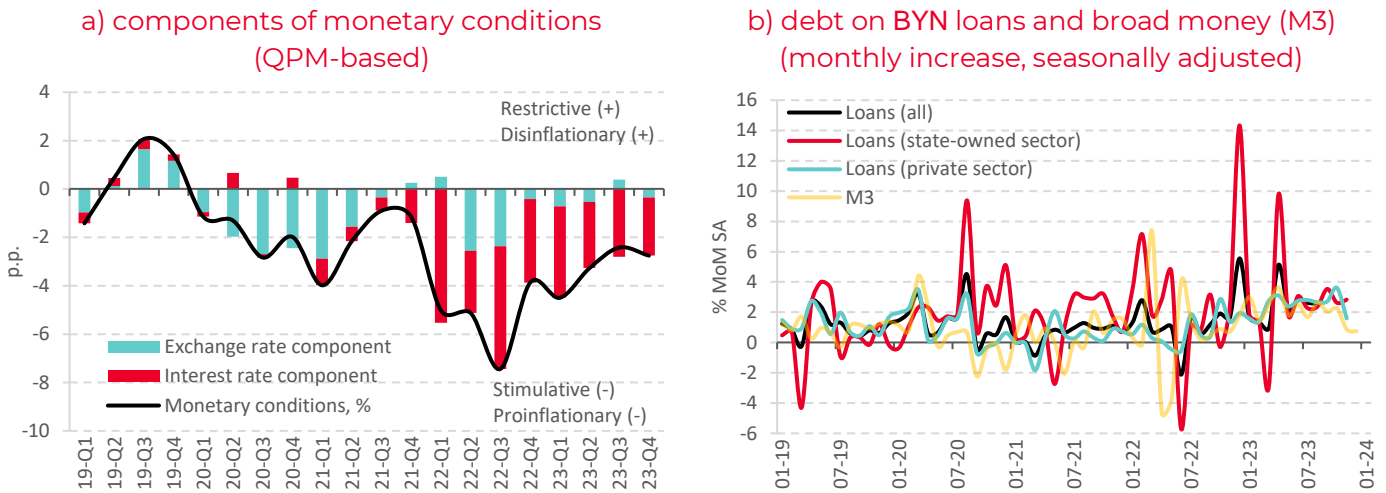
The decomposition of core inflation (QPM-based) indicates that the negative contribution of the factors not explained by the model (which considers the state price regulation impact) to core inflation dynamics remained significant in Q4-2023 (Figure 8.a). Strict government regulation significantly suppressed the transfer of price pressure into actual price increases, and its direct contribution to curbing reduction is estimated at about 5 p.p. in 2023 (Figure 2.d). This value is close to the minimum estimate of the inflation overhang, which is the potential for an accelerated increase in prices if Resolution 713 is repealed. It should be noted that despite the statements made by some National Bank experts about a non-existing inflation overhang,<sup>iv</sup> **the decomposition of core inflation presented by Sergei V. Kalechits at an extended meeting of the Board of the National Bank on January 25, 2024 contains a large-scale contribution of the factors — not considered in the National Bank’s model — to the inflation dynamics in Q4-2022 through to Q4-2023.**<sup>v</sup> This indicates either that the National Bank’s toolkit records the size of the inflation overhang comparable to the estimates based on QPM BEROC or that the National Bank’s core model cannot adequately explain the inflation dynamics.



### 3 Monetary conditions

#### Monetary conditions remained loose in Q4-2023

Figure 11. Monetary conditions



**Source:** The BEROC’s calculations based on QPM (BEROS), data from the National Bank of Belarus.

**Note:** The dynamics of monetary conditions may change once new data are available.

Average nominal interest rates on term Belarusian ruble deposits and Belarusian ruble market loans moved away from their historical lows and began to grow starting from September-October 2023 amid accelerating inflation and increasing estimated values of standard risk started by the National Bank in December 2023. The increase of nominal interest rates in an environment of growing inflation expectations transformed into real interest rates on a limited scale: **on average, they remained below their equilibrium levels estimated through QPM (Figure 11.a).**<sup>vi</sup>

An additional channel for maintaining loose monetary conditions was the increase in the National Bank’s issuance operations in Q4-2023 related to its purchases of government bonds on the secondary market for ca. Br0.8 billion. Active practice of directed lending amid the measures taken by the National Bank at the end of 2023 aimed at tightening market monetary conditions (in January 2024, the National Bank restored access of banks to constantly available liquidity regulation operations and increased reserve requirements and the estimated values of standard risks) indicates the inconsistency of the macroeconomic policy design.

Loose monetary conditions and directed financing supported the growth of lending in Belarusian rubles (Figure 11.b). At the same time, in an environment of high uncertainty about the prospects of the Belarusian economy and when producers of goods and services reached maximum capacity utilization, the rate of expansion of credit activity and money supply slowed down in Q4-2023. In the context of overheating economy, monetary incentives cannot ensure sustainable output expansion.

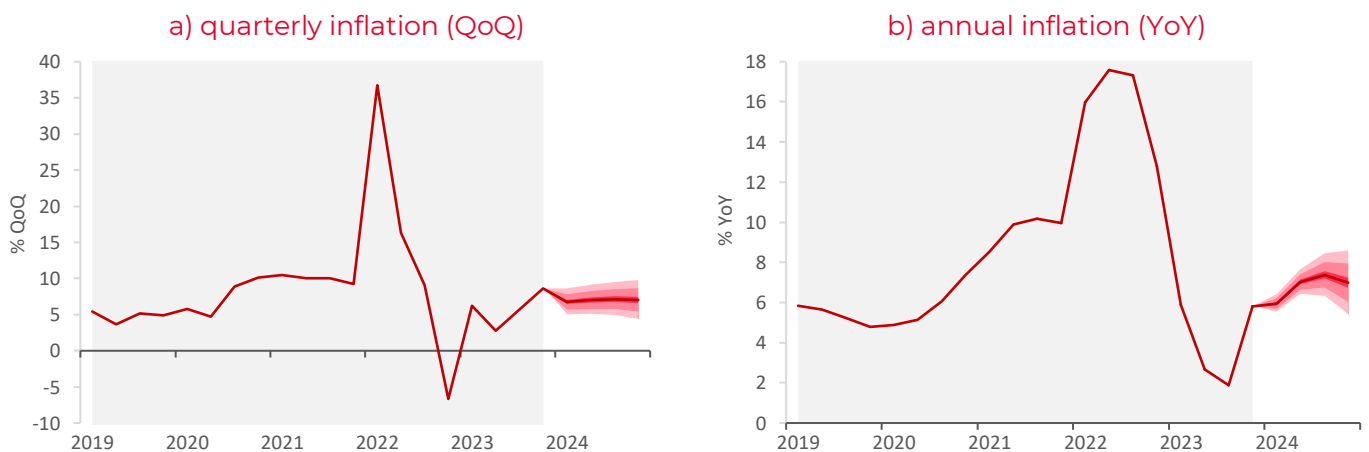
**The impact of the exchange rate on monetary conditions was almost neutral in Q4-2023: the overvaluation of the Belarusian ruble was neutralized due to the weakening of the Belarusian currency (Figure 11.a)**

## 4 Short-term forecast

**Excess demand and a significant increase in labor costs, combined with the inflationary overhang accumulated by the beginning of 2024, create conditions for a serious acceleration of inflation in 2024**

In 2024, inflation could accelerate to 8–10% YoY if the Belarusian GDP increased by  $\approx 1\text{--}2\%$  (this corresponds to the preservation of excess demand on a moderate scale) and if the growth rate of administratively regulated prices and tariffs maintained at its 2023 level (8.9% YoY), and if government agencies were more willing to agree (versus 2023) to increase prices for goods in an environment of declining financial performance of companies. Nonetheless, the government’s rhetoric and changes introduced in the price regulation system at the end of December 2023 significantly increased the uncertainty of the forecast and lowered the likelihood of such a scenario.

Figure 12. Inflation forecast for Belarus



**Source:** The BEROC’s calculations are based on the BEROC’s Quarterly Projection Model (QPM) for Belarus.

**Note:** YoY (year-on-year) is the growth rate in the last month of the quarter versus the last month of the corresponding quarter of the previous year; QoQ (quarter-on-quarter) is the annualized growth rate in the last month of the quarter versus the last month of the previous quarter, seasonally adjusted. The Figure shows seasonally adjusted indicators. The ranges in the figure correspond to the 15%, 50% and 75% confidence intervals.

**Curbing inflation may become an economic policy priority in 2024 due to the significant social and political costs of high price increases and low chances to maintain GDP growth in the range of 3–4%**

The limits for price increases stipulated in the updated price regulation system, which do not require approval from government agencies, correspond to their increase of slightly less than 4% per year. Statements made by Belarusian officials also indicate their intentions to limit the 2024 inflation not to 6% (as indicated as the authorities’ targets), but, probably, to 4–5%. In this regard, there is a higher likelihood of a scenario where the authorities restrain the growth of certain administratively regulated prices and tariffs, and the National Bank leverages indirect tools (estimated values of standard risk, reserve requirements, higher interest rates on overnight deposits) aimed at increasing interest rates on Belarusian ruble market loans and bank deposits to cool down domestic demand.

**If the increase in administratively regulated prices and tariffs is limited to 5%, prices for other goods remain inflexible due to strict price controls, the National Bank ensures that interest rates gradually reach their neutral values, and there are no shocks in the Russian market and in the global economy, then inflation may be in the range of 5–7% by the end of 2024, which is rather closer to its ceiling (Figure 12.b).** A slowdown in price growth below 5% looks unlikely due to the extremely negative impact of price inflexibility on the financial standing of firms in the context of an inflationary overhang accumulated by the beginning of 2024 and amid the projected persistence of a shortage of workers and excess demand. The latter is explained by the fact that even if market lending conditions are tightened, the authorities are highly likely to continue to actively apply directed lending to state-owned enterprises and fiscal policy to camouflage structural problems in the economy and to tackle output decline.

**Tightening market lending conditions and strict price controls alongside the active practice of directed lending would lead to lowering economic efficiency and elevate the risk of growing goods deficit**

If the authorities primarily use strict price controls to curb inflation, this may result in a gradually narrowing product range and deteriorating quality of goods. Enterprises will have more incentives to maximize exports of goods while neglecting the saturation of the domestic market, since the upper price limit in foreign markets is limited primarily by competition rather than by administrative levers. If excess demand is maintained through non-market tools and if tensions in the labor market continue, regulatory containment of price growth will be accompanied by the further accumulation of an inflationary overhang, which means potential accelerated price growth in the future. Long-term negative consequences of price controls may be associated with weakening incentives for investment and innovation in those sectors of the economy whose products are subject to regulation.

## 5 Forecasting risks

**The situationality and voluntarism of the economic policy in Belarus are powerful uncertainty factors in macroeconomic forecasting**

The horizon for forecasting and planning economic policy measures has narrowed to several months / quarters. Policy priorities and quantitative targets, especially those regarding inflation, have been constantly adjusted, and they are not always communicated clearly and unambiguously. Therefore, the government takes ad hoc decisions depending on the current economic situation and voluntaristic attitudes. This poses high risks to macroeconomic forecasting in general and to inflation in particular. One should not rule out both extremely strict price controls and a noticeable tightening of market lending conditions in an attempt to limit inflation to 4-5% in 2024, as well as softening price controls and expanding directed lending.

The first option looks more likely due to the lack of foreseeable prospects for maintaining a high rate of GDP growth due to its low potential (no more than 1% per year) and the exhausted space for recovery growth, as well as the high costs of increased inflation for the authorities during election years.

Price controls softening is possible in the event of a significant deterioration in the financial standing of Belarusian enterprises and organizations, heavy pro-inflationary pressure from the external sector, as well as in the event of complications in foreign trade operations or if the economic policy keeps focusing on achieving the GDP growth rate target of 3.8% in 2024 by any means. In the latter case, economy overheating will exceed 5% by the end of 2024, which will significantly reduce its resilience to shocks and increase the likelihood of a price surge and a large-scale output decline in 2025–2026.

### **Disruptions in export and import chains, as well as in their financing, will have pro-inflationary consequences**

Tightening US/EU pressures on intermediary countries in foreign trade and financial transactions of Belarus and Russia may disrupt supply chains that have been rebuilt after February 2022. Deterioration of the financial standing of Belarusian organizations, including due to strict price controls inside the country, staff shortages and increased competition in the Russian market, can also become a trigger for disrupting supply chains. Materialization of this risk will put significant pro-inflationary pressure on the Belarusian market, which will be associated with a weakening economic activity.

### **The threat of another round of rising global inflation remains tangible**

The aggravation of the situation in the Red Sea in late 2023 — early 2024 has already led to a multifold increase in the cost of maritime transportation, especially in the China-Europe routes. The tense situation in the Middle East underpins commodity prices, especially energy commodities, despite the expected weakening of the global economy in 2024. The escalation of tensions in the Middle East into a large-scale military conflict will lead to higher prices for raw materials and an even greater increase in the cost of maritime transportations, which may also lead to imbalances in goods supply and demand. An aggravation of the situation around Taiwan cannot be ruled out, which could have extremely negative consequences for the global economy. Heavy external inflation shocks will significantly limit the ability of the Belarusian authorities to curb inflation by administrative levers.

### **Pro-inflationary risks from Russia remain relevant**

The threat of a smaller growth of Russian budget revenues rather than in the budget projections remains significant due to their strong dependence on oil prices and volumes of hydrocarbon production and exports. Tightening US/EU oversight of the price ceiling for supplies of Russian oil and petroleum products and/or challenged financial transactions for the supplies of Russian commodities may greatly limit Russian budget revenues. At the same time, spending will remain elevated due to financing military and social expenditures, which may result in an expansion of the budget deficit and in a heavier pro-inflationary pressure. This development will lead to wider price pressure in Belarus and to weakening of the Belarusian ruble in 2024.

## Explainers

### Quarterly Projection Model (QPM)

This is a semi-structural macroeconomic model based on the principles of new Keynesianism; it belongs to the class of dynamic stochastic general equilibrium models. The QPM has been widely used for macroeconomic analysis, forecasting and monetary policy designs in central banks, including [the National Bank of the Republic of Belarus](#). The QPM used in the preparation of this material has been developed by the BEROC experts. See: [Quarterly Projection Model for Belarus: Methodological Aspects and Practical Applications](#).

### QPM indicators

#### Monetary conditions

This is an indicator of the state of monetary conditions. It is a combination of gaps between the real effective exchange rate (with the opposite sign) and real interest rates. Positive values of monetary conditions indicate their constraining nature for economic activity, and their negative values indicate their stimulating nature for economic activity.

#### Output gap

This is a deviation of a real GDP from its potential value. A potential GDP is such a GDP value that leads neither to additional inflationary nor disinflationary pressures. A positive output gap indicates excess demand in the economy, and it is an indicator of inflationary pressure. The opposite is true for a negative output gap.

#### Wage gap

This is deviation of real wages from their equilibrium level. A positive gap indicates that wages are above the level corresponding to the potential GDP, and it is an indicator of inflationary pressure. The opposite is true for a negative gap.

#### Interest rate gap

This is a deviation of the real interest rate from its neutral level. A positive gap in the interest rate indicates that the nature of the interest rate policy is restraining to economic activity, while a negative gap in the interest rate indicates that the nature of the interest rate policy is stimulating to economic activity.

#### Real effective exchange rate gap (REER gap)

This is a deviation of the real effective exchange rate of the Belarusian ruble from its equilibrium level. A positive real effective exchange rate gap indicates an undervaluation of the Belarusian ruble, while a negative real effective exchange rate gap indicates an overvaluation of the Belarusian ruble.

#### Real marginal costs

This is approximation of the incremental costs of producing an additional unit of output. Real marginal costs are a combination of output, wages, and real effective exchange rate gaps. Output and wage gaps approximate the costs of domestic producers, while the real effective exchange rate gap approximates the costs of importers. Positive values indicate a pro-inflationary pressure, and negative values indicate a disinflationary pressure.

## Notes

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<sup>i</sup> The X13 procedure in the JDemetra+ app has been applied to make a seasonal adjustment. As new data are published, the indicator dynamics in previous periods can be updated. The annualized price increase is calculated as a seasonally adjusted price increase per quarter raised to the fourth power (an annual inflation equivalent). All quarterly inflation values in the Bulletin (unless indicated otherwise) are presented as annualized (annual equivalent).

<sup>ii</sup> The BEROC Quarterly Projection Model (QPM) was used to estimate the impact of the price regulation system (updated in October 2022) on inflation. A historical decomposition of inflation was based on the model: the dynamics of the indicator were decomposed into the contributions of shocks. The values of actual and synthetic inflation were compared. In the latter case, the indicator was calculated by subtracting the contribution of the core inflation shock (which approximated the impact of tightening price regulation) from the actual inflation value. It is noteworthy that the core inflation shock includes not only the impact of price controls, but also other factors not considered in the model directly. However, the magnitude of the core inflation shock is usually small (except the periods of strong shocks), while a large negative shock was identified in Q4-2022, which continued throughout 2023.

<sup>iii</sup> According to the Ministry of Economy of Belarus, production capacity utilization in the industrial production sector in September 2023 reached its highest level since 2013 (70%) and remained at this level in autumn. The ratio of the number of unemployed (according to Belstat) to the number of vacancies (according to the Ministry of Labor and Social Protection) dropped to 1.2 unemployed per vacancy (seasonality adjusted) in Q4-2023. Until 2022, the indicator sustainably exceeded 2.0 unemployed persons per vacancy.

<sup>iv</sup> See details: [https://vk.com/video-55173999\\_456239164](https://vk.com/video-55173999_456239164).

<sup>v</sup> See details: <https://www.youtube.com/watch?v=l01ZocMfKq4>.

<sup>vi</sup> Expert opinions were introduced into QPM in Q4-2022 and in Q1–Q3-2023 to correctly assess the deviation of real interest rates from their equilibrium (neutral) levels. This is because the introduction of a new price control system led to ad-hoc price reductions in Q4-2022, which significantly reduced rational inflation expectations estimated in QPM directly. Since rational expectations are used in the model to calculate real interest rates, their sharp decline has sharply increased the real interest rate estimates. Nonetheless, nominal interest rates on Belarusian ruble loans and deposits in the period under review rewrote their historical lows several times: lending was growing rapidly, and the share of “fast” money in the money supply structure reached its maximum for the first time in more than twenty years. To eliminate the ad-hoc impact of price declines on the estimates of the monetary conditions, the impact of the core inflation shock on the change in rational inflationary expectations in the period under review was evaluated and the estimates of the deviation of real interest rates from their equilibrium (neutral) levels were adjusted for the scale of this impact.