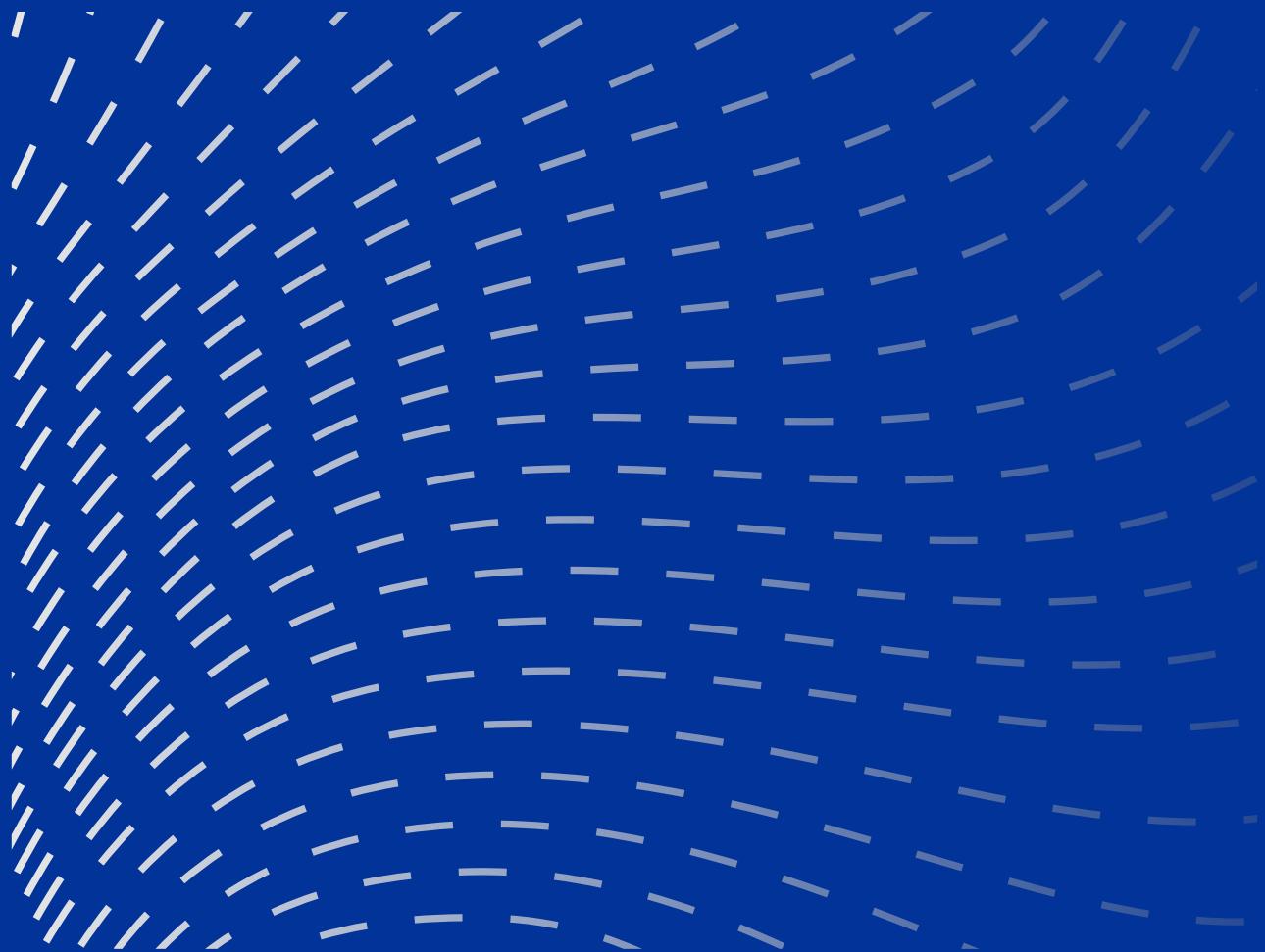




NARODOWY
BANK POLSKI



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Impact of Russia's Invasion in Ukraine:
**An Analysis on Poland's
Macroeconomic Situation**

ESC 2026 Data Challenge

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Abstract

This submission examines whether Russia's full-scale invasion of Ukraine on 24 February 2022 coincided with discernible shifts in Poland's key macroeconomic indicators and whether Poland's trajectory diverged from a euro area benchmark. The topic is policy-relevant because the shock combined an energy-price surge with an abrupt trade reallocation and increased uncertainty, creating simultaneous pressures on inflation and output in an economy with meaningful energy-import exposure.

This analysis uses an event-based comparative structure from publicly available data from the ECB Data Portal and BIS. Price stability is assessed by decomposing petroleum import dynamics into value, volume, and an implied unit price; breaking down Poland's and the euro area's headline HICP inflation into energy, food, and core contributions; and observing the connection between Poland's and the euro area's NEER with Poland's energy HICP. Economic activity is evaluated through distributional evidence on quarterly GDP growth during the immediate post-invasion window (2022Q2-2022Q4) relative to a pre-invasion benchmark, complemented by an expenditure-component decomposition and a cumulative GDP index comparison with the euro area. External adjustment is analyzed through a goods-balance decomposition, which isolates trade with Russia from trade with other partners, and by comparing the current account with the goods balance.

The results indicate that the shock is most clearly transmitted through energy prices; the import bill rises primarily via unit prices, while Poland's inflation initially reflects energy and later remains high through persistent core and food contributions. Output outcomes shift downward in the quarters closest to the invasion, yet medium-run performance is broad-based across demand components, and cumulative GDP subsequently outpaces the euro area path. External balances deteriorate sharply in 2022, with a Russia-linked component prominent early on, while later movements reflect broader goods-trade dynamics; current account movements closely track the goods balance.

Introduction

Russia's full-scale invasion of Ukraine on the 24th of February 2022 marked the beginning of an external economic shock for Europe that targeted energy markets and expectations across the continent. For Poland, the timing mattered because the economy entered 2022 with solid momentum but also meaningful exposure through energy imports and cross-border trade. The core question is simple: did the invasion coincide with clear shifts in Poland's macro indicators, and if so, did those shifts differ from the euro area path that serves as a natural benchmark?

The report explores the changes in inflation, economic growth, and current account of the balance of payments stability—the 3 main macroeconomic objectives of an economy—of Poland and the euro area subsequent to Russia's full-scale invasion of Ukraine.

In addition to the data analysis report, this submission is supplemented by an interactive data dashboard that visualizes the main results. The dashboard consists of two sections: the “Overview” page summarizes the key findings, while the “Detailed analysis” page provides the figures along with selected analyses from the sections Price Stability, Economic Growth, and Current Account presented in this report. Details on how to access this dashboard can be found in the appendix. The succeeding paragraphs will provide a detailed explanation of our methodology and data sources.

Methodology

Identification is event-based rather than causal in a structural sense: the invasion data defines a reference point, and "discernible change" is seen through (i) visible breaks in level or trend, (ii) changes in volatility, and (iii) deviations from the euro area benchmark.

A note on figure convention: all Figures, except Figures 4, 5, and 6, contain a dashed vertical line indicating the start of the invasion. Moreover, Figures 1, 3, and 5 have been rebased to January 2022 = 100. Finally, most Figures had their datasets restricted to January 2019 to the present; an important exception is Figure 4.

We commence our report by discussing the apparent correlation between Poland's price instability and the beginning of the Russian-Ukrainian conflict. Moreover, we compare these outcomes with how the euro area responded.

Figure 1, Petroleum Imports: EA with Extra EA - Value vs Volume, shows that inflation pertaining to Petroleum and related materials was mainly driven by price rather than volume. Two Eurostat External Trade Statistics data sets were used: Petroleum, petroleum products and related materials—Extra EA trade, Value, Import, Euro area 20, Monthly, and Petroleum, petroleum products and related materials—Extra EA trade, Volume index, Import, Euro area 20, Monthly. On top of the value and volume datasets, a unit price proxy trace was also plotted, which aims to demonstrate that the inflation was driven by value, not volume. The mechanism of this relies on the simple equation Value = Price x Volume; therefore, the unit price proxy trace isolates the price component. Consequently, an increase in this variable indicates that the spike was price-driven rather than volume-driven.

Figure 2, Headline HICP YoY Contribution—Poland and Euro area, shows, firstly, that the energy contribution to HICP was substantial and, secondly, that the potential impact of the conflict propagates further into the economy: food prices were also impacted, and even their proxy, all items excluding food and energy. Twelve datasets were used in this figure; for both Poland and the euro area, each of the following components was considered: core contribution (all items excluding energy and food), food contribution, and energy contribution. Moreover, each value was weighted with its corresponding significance in the headline HICP. The following contribution formula was used: $\text{contribution}_{\{k,t\}} = (\text{INW}_{\{k, \text{year}(t)\}} / 1000) \times \text{YoY}_{\{k,t\}}$, where the monthly contribution (in percentage points) of component k to headline HICP equals the component's annual weight (INW in per mille, scaled by 1/1000) times its YoY inflation rate. A stacked bar chart was used to visualize the data: positive contributions are plotted above zero, while negative contributions are plotted below zero.

Figure 3, Exchange Rate and Energy Inflation, aims to demonstrate that the 2022 conflict was concurrent with a dip in Poland's NEER and a substantial increase in Poland's Energy HICP, potentially alluding to the fact that the depreciation in Poland's exchange rate created cost-push inflation. This figure uses Poland HICP Energy inflation (YoY, monthly), Poland NEER (monthly), broad basket, and the Euro area NEER, broad basket (monthly).

The next section about methodology—economic growth—assesses whether a discernible change occurred in Poland's economic growth following the start of the invasion.

Figure 4, GDP Growth Distribution, aims to show that the quarters preceding and succeeding the start of the invasion exhibit substantially different growth rates. This graph uses the Gross domestic product at market prices, Poland, Quarterly, from the ECB's Main National Accounts (MNA) dataset. To complement the picture, a box plot is located above the figure to summarize the dispersion. To illustrate the difference in growth rates before and after the invasion, the quarter before the invasion (2021 Q4) was used as a benchmark, and the mean of the three quarters immediately after the invasion (2022 Q2, Q3, and Q4) was used to mark the average GDP growth rate after the shock.

Figure 5: Poland vs Euro Area: Cumulative GDP Growth aims to show the initial volatility of Poland's GDP but eventual divergence in regard to the euro area's GDP. Datasets for Poland's and the euro area's real GDP are taken from the ECB's MNA. The chart compares real GDP levels for Poland and the euro area by rebasing both series to Q4 2021 = 100, and then plots indexed paths to compare cumulative output performance.

Figure 6, Drivers of GDP Change (Volume), shows that all components contributed positively to a change in GDP before and after the shock. Data for consumption (households), investment, government spending, exports, and imports are taken from the ECB's Main National Accounts (MNA) dataset. The GDP component levels before (average of 2019-2021) and after the shock (average of 2022-2024) are calculated as the difference between components, with net exports calculated as X-M. The total shift is the sum of all changes in components.

The current account section of the report examines how the conflict correlated with a change in Poland's trade balance with Russia. Moreover, this section also explores how significant a contribution the goods balance of the trade account makes to the overall current account.

Figure 7 manifests the impact of the conflict on Poland's trade with Russia. The figure uses 2 datasets taken from the ECB Data Portal's BPS dataset: Balance of goods, Poland, Quarterly, and Balance of goods with Russia, Poland, Quarterly. A stacked bar chart is used, where each bar is split into Poland's balance with the world, excluding Russia, and Poland's balance with Russia.

Figure 8, Current Account vs. Goods Balance, indicates that the current account is driven mainly by the trade account within it, as corroborated by the 0.88 correlation coefficient. The infographic uses two datasets from the ECB Data Portal's BPS catalogue: Current account balance, Poland, Monthly, and Goods balance, Poland, Quarterly.

Price stability

The first step is to document the common external impulse facing European economies post February 2022.

Figure 1 plots the euro area petroleum value, volume, and an implied unit price. This decomposition distinguishes a deterioration driven by quantities from one driven primarily by prices. In the months immediately following the invasion (red dotted line), import values rise sharply and reach a clear peak in mid-2022 (A), while import volumes increase more gradually and never display a comparable spike. In parallel, the implied unit price rises steeply through 2022 and then reverses into 2023 (B). The joint pattern is consistent with a terms-of-trade shock in which the import bill is driven mainly by higher energy prices rather than by a large expansion in imported quantities. This is significant for macroeconomic change because a price-led increase in the import bill can weaken the external balance and raise domestic production costs even if physical volumes do not surge.

The second figure compares inflation dynamics within Poland and the euro area by decomposing the headline HICP year-on-year into contributions from energy, food, and the core component (all items excluding energy and food). In both economies, the post-invasion surge is initially led by energy—especially for the euro area—consistent with the energy-price shock documented earlier. However, the magnitude, composition, and persistence differ. Poland exhibits a substantially larger inflation buildup, with all components rising sharply and with core inflation increasing to a much higher peak. This indicates a stronger pass-through from the initial energy shock into broader prices and a more persistent underlying inflation process. In the euro area, headline inflation reached a notably lower peak subsequent to the invasion. Moreover, the succeeding disinflation is far more prominent for Poland as both economies reach approximately the same level of headline HICP in early 2024. Nevertheless, energy HICP for the euro area shows a substantially higher level of deflation in early 2024 and late 2023. By contrast, for Poland, the decline in energy prices is not material enough to normalize headline HICP rapidly because core and food remain positive for longer. Overall, the figure implies that while both economies were exposed to the same external effect, Poland's inflation response was much larger in magnitude, reflecting broader contributions from non-energy components.

Lastly, for price stability, there is Figure 3, linking energy-driven inflation shocks to the exchange rate. The graph plots Poland's energy HICP alongside nominal effective exchange rate (NEER) indices for Poland and the euro area, indexed to January 2022 = 100, with the invasion date marked by the vertical dashed line.

There are two interpretations of this figure. First, the figure is consistent with an imported-inflation mechanism in which the initial energy shock is reinforced by currency movements. In the months following February 2022, Poland's NEER weakens relative to its baseline while energy inflation rises sharply and reaches a pronounced peak during 2022. A depreciation of the effective exchange rate increases the domestic-currency cost of energy imports, raising retail energy prices directly and intensifying cost pressures for firms. This is a plausible reason why Poland's inflation response, documented earlier through the HICP contribution decomposition, is larger and more persistent than the euro area.

Second, the subsequent period underscores the asymmetry between shock propagation and disinflation. From 2023 onward, Poland's NEER strengthens materially, and the euro area NEER also appreciates; however, energy inflation falls rapidly largely because the underlying energy price shock unwinds, not because exchange rates alone offset it. There is a later appreciation also; a stronger currency tends to dampen imported inflation and can support the broader disinflation process by reducing pressure on tradeables and energy-intensive inputs. Comparatively, the euro area's exchange rate path reflects conditions faced by a currency union, whereas Poland's independent currency introduced an additional adjustment margin that can either amplify inflation when it weakens or support disinflation when it strengthens.

Economic growth

The growth analysis is structured to separate (i) quarterly dynamics around the invasion period, (ii) the composition of the post-invasion level shift, and (iii) cumulative performance relative to a common baseline. The three figures are complementary; the first highlights timing and volatility, the second identifies which expenditure components account for the post-invasion change in activity levels, and the third summarizes the net effect in an index that is comparable across economies.

Figure 4 reframes the growth evidence by focusing on the distribution of Poland's quarterly real GDP growth outcomes. The histogram summarizes realized quarter-on-quarter growth rates over the full sample, while the vertical markers isolate the contrast between a pre-invasion benchmark (Q4 2021) and the immediate post-invasion shock window (2022Q2-2022Q4). The central result is a clear downward shift in average growth. The shock-period mean is approximately -0.7%, compared with a pre-invasion benchmark of roughly 2.0%. This difference implies that, in the quarters closest to the invasion, Poland moved from an environment consistent with quick expansion to one in which the typical quarterly outcome was contractionary.

The presence of negative realizations in the shock window indicates that the adjustment was not limited to slower growth but included quarters in which output fell outright. Macroeconomically, this pattern is consistent with a disturbance that operates through real income compression and uncertainty, where higher energy costs and disrupted trade conditions reduce purchasing power and lead firms to postpone production and investment-related decisions. The implication is that the invasion coincides with a discernible break in Poland's growth process—not only a change in the level of growth but also a reweighting of outcomes toward the downside during the immediate post-invasion period.

Figure 5 summarizes the economic significance of the preceding patterns by rebasing both economies to a common pre-invasion level and tracking cumulative growth. Poland's cumulative real GDP index rises above the euro area path, and the distance widens over time. The invasion shock, while disruptive in the short run, did not push Poland onto a persistently lower relative output path. Instead, the medium-run pattern is consistent with a faster return to expansion and stronger cumulative growth than in the euro benchmark. Figure 5 is the clearest evidence that the post-invasion period is associated with relative outperformance in levels, which is the relevant metric when assessing whether the shock coincided with a lasting macro divergence rather than a temporary quarterly fluctuation.

To explain why this cumulative divergence emerges, Figure 6 decomposes the post-invasion change in GDP into its main expenditure components and assesses whether the recovery reflects broad-based demand or a narrow offsetting driver. The decomposition compares average levels across two multi-year windows and shows positive contributions from private consumption, investment, government spending, and net exports. The implication is that Poland's post-invasion expansion is not consistent with a single compensating factor masking weakness elsewhere, but rather the economy appears to have adjusted along multiple margins. This matters, as an energy-driven external shock would ordinarily be expected to compress real incomes and discourage investment, especially when accompanied by tighter monetary conditions. A positive contribution from several components, including investment and net exports, is therefore indicative of reallocation and adoption. Domestic demand remained sufficiently supported to lift average consumption, policy and public expenditure likely played a stabilizing role, and the external sector did not act as a persistent drag on growth. The net exports contribution is particularly informative; it is compatible with an adjustment in which imports are constrained by high energy costs and substitution away from certain suppliers, while exports continue to find demand, limiting the extent to which the shock translates into a sustained output loss.

Current account

The external balance is central to the invasion shock because it links three mechanisms in a single accounting identity: higher import prices (especially energy), forced trade reorientation away from Russia, and the speed at which exports and domestic absorption adjust. The break in 2022 is visible, and the subsequent path reflects a shift from a Russia-linked trade toward a broader goods-balance dynamic.

The goods-balance decomposition in Figure 7 separates Poland's goods balance into trade with Russia and trade with other partners. After a short time lag, Russia's contribution to Poland's goods balance declines quarter by quarter, consistent with an adjustment phase shaped by pre-existing trade contracts and gradual trade reorientation. The deterioration around 2022 is concentrated in quarters immediately following the invasion, with the Russia component accounting for a large share of the initial swing, consistent with an adverse terms-of-trade shock in which import values rose relative to exports during the adjustment phase. From 2023 to 2024, the Russia-related component compresses noticeably, and the overall goods balance temporarily improves, even turning positive at one point. This improvement should not be interpreted as a positive, however. A mechanically “better” balance can reflect forced substitution, import compression, or disrupted supply relationships rather than higher welfare or stronger competitiveness.

The post-2023 pattern is therefore better characterized as an adjustment phase; the external position stabilizes as Russia-linked trade shrinks, while the underlying sensitivity of the balance to energy and broader import-export conditions remains present. The weakening from late 2024 onward, despite the diminished Russia component, reinforces this interpretation; the Russia shock did not create the external vulnerability but rather exposed it, after which the balance continued to be shaped primarily by trade dynamics with non-Russian partners.

Figure 8 shows how the current account closely tracks the goods balance, implying the invasion's external impact operated primarily through trade rather than through offsets from other current account components. This relationship is economically meaningful, as invasion-induced fluctuations in the trade balance translate directly into movements in the current account. The goods balance current account demonstrates a high correlation (0.88). This implies that, over the period examined, changes in Poland's current account are largely explained by goods-trade dynamics, which is precisely the component that is most directly impacted by the invasion through energy prices and trade disruption. The sharp move into deficit by 2022 mirrors the goods-balance collapse, indicating that the external shock translated rapidly into an aggregate external deficit. The rise during 2023 is consistent with a partial unwinding of said shock, either through improved price conditions, import compression, or substitution in trade patterns. The deterioration following that, from late 2024 into 2025, alongside a weakening goods balance, indicates that the external position remained exposed to adverse trade movements even after the immediate Russia-related adjustments had faded. The volatile movement may induce the exchange rate to rise and fall, as seen in Figure 3, ultimately translating into uncertainty and reduced economic growth, as established in Figure 4.

Conclusion & findings

The results indicate a clear break around early 2022 and a subsequent adjustment period in which Poland's trajectory diverges from the euro area benchmark.

Price stability. The euro area petroleum import decomposition is consistent with a price-led energy shock. The post-February 2022 rise in the import bill is driven mainly by higher unit prices rather than volumes. In Poland, the HICP contribution split shows an initially energy-dominated inflation surge, followed by persistence sustained by food and core contributions, indicating that inflation broadened beyond energy through underlying pressures.

Economic growth. Poland's growth distribution shifts downwards in the immediate post-invasion window relative to the pre-invasion benchmark, implying a higher likelihood of contractionary quarters. However, medium-run outcomes are more favorable, as the post-invasion level shift is broad across expenditure components, and the cumulative GDP index rises above the euro area path, signifying relative resilience in levels despite short-run weakness.

External balance and current account. The goods-balance decomposition indicates that the initial post-invasion deterioration is closely linked to the Russia-related trade component, consistent with the terms of trade shock. As the Russia component compresses in 2023-2024, later external weakness is driven mainly by the ex-Russia balance. The tightly correlated movement between the goods balance and the current account implies that the external impact operates primarily through trade rather than other current-account items.

The analysis asked whether Russia's full-scale invasion of Ukraine coincided with discernible changes in Poland's key macroeconomic indicators and whether Poland's response diverged from the euro area benchmark. The evidence shows an affirmative answer to both.

Overall, the combined evidence is consistent with a short-run shock followed by a reallocation and adjustment process that produced a measurable divergence from the euro area benchmark, particularly in cumulative output performance. The results are best interpreted as event-based associations rather than structural causal estimates; however, the timing and composition across inflation, output, and the external accounts collectively indicate that the invasion coincided with a distinct macroeconomic break for Poland and a subsequent adjustment path that differed from the euro area baseline.

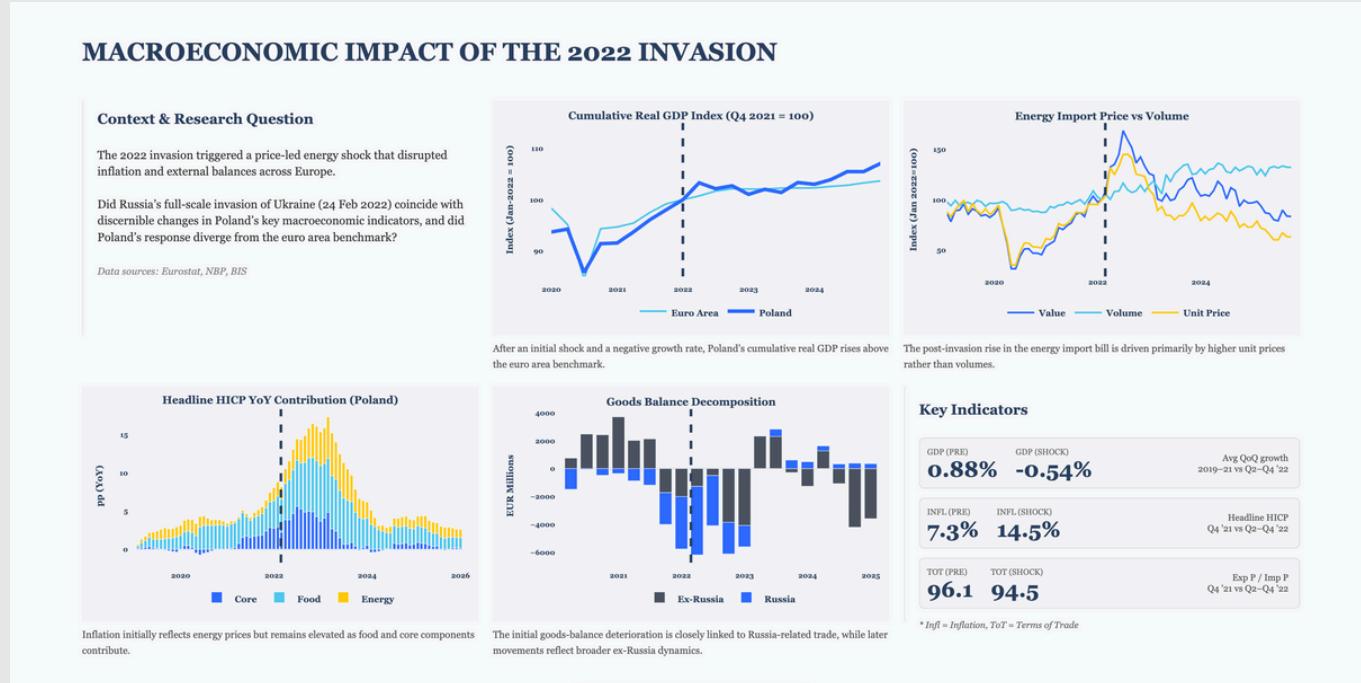
Appendix

Interactive Dashboard

The dashboard is designed as a supplementary exploratory tool and mirrors the structure of the empirical analysis presented in this report. The dashboard can be accessed from the following link:
<https://esc-data-challenge.streamlit.app/>.

The source code can be accessed from the github repository:
<https://github.com/mea-r/esc-data-challenge>.

Example from the “Overview” page:



Appendix

Figure 1

Petroleum Imports: EA with Extra EA - Value vs Volume

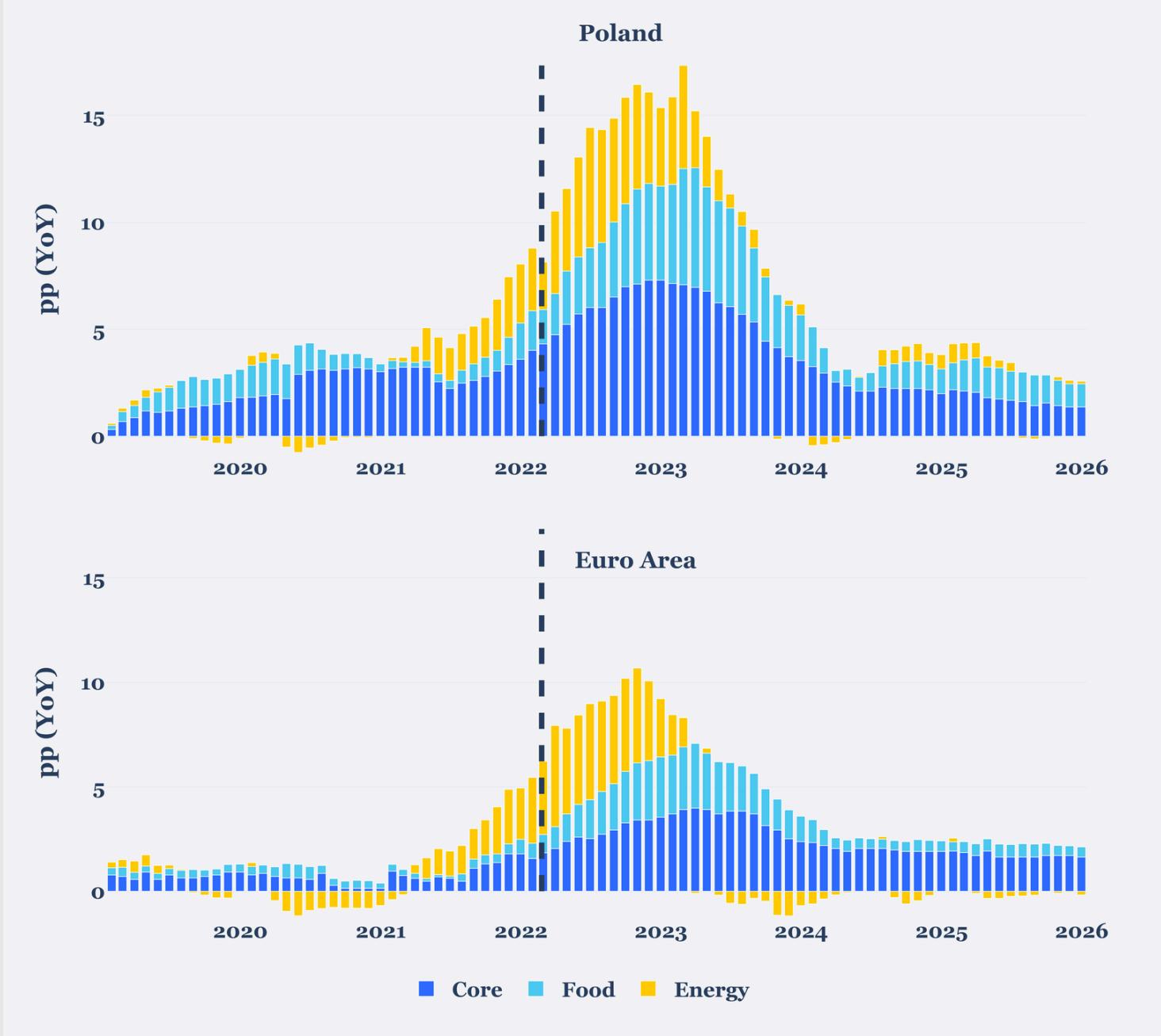


Accessed: 31 January 2026.

Appendix

Figure 2

Headline HICP YoY Contribution



Appendix

Figure 2

Legend labels:

- Core [XEF000 | ANR \times INW]
- Food [FOOD00 | ANR \times INW]
- Energy [NRGY00 | ANR \times INW]

Data used:

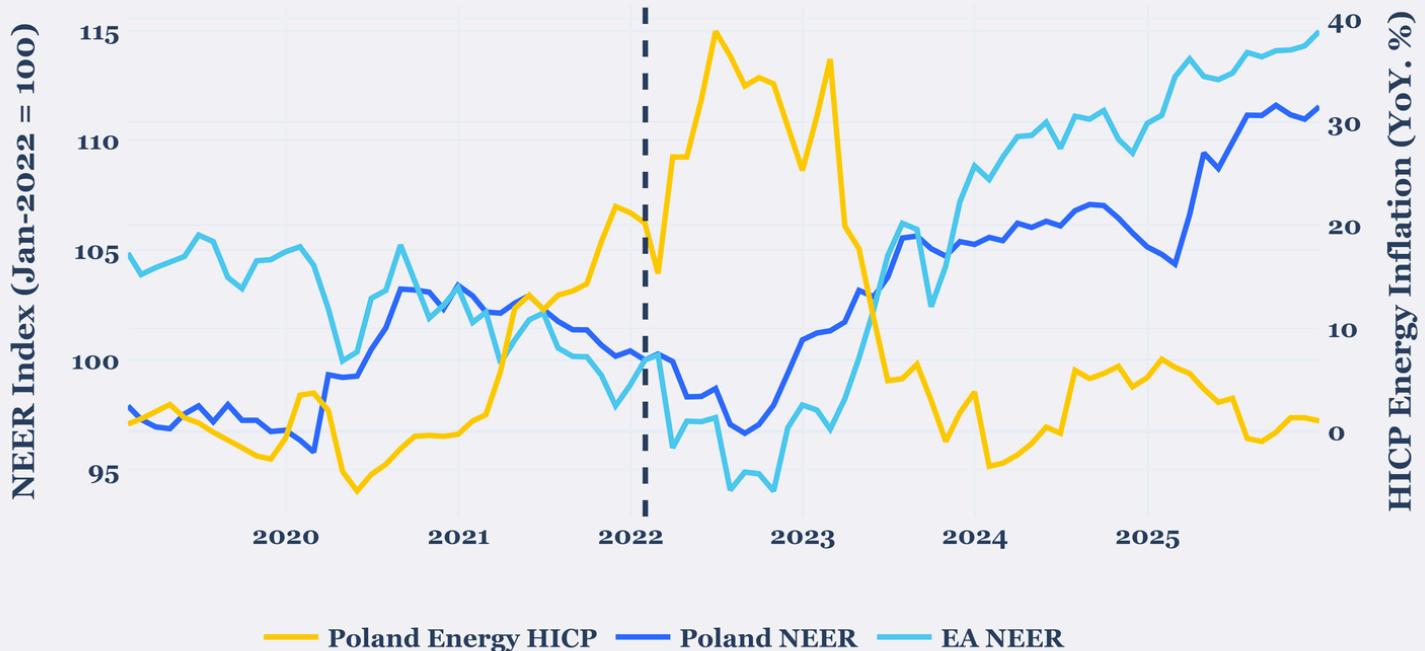
- Core contribution (XEF000; pp YoY) (blue bars):
 - Poland YoY rate: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.M.PL.N.XEF000.4.ANR>
 - Poland weight: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.A.PL.N.XEF000.4.INW>
 - Euro area (U2) YoY rate: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.M.U2.N.XEF000.4.ANR>
 - Euro area (U2) weight: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.A.U2.N.XEF000.4.INW>
- Food contribution (FOOD00; pp YoY) (light blue bars):
 - Poland YoY rate: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.M.PL.N.FOOD00.4.ANR>
 - Poland weight: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.A.PL.N.FOOD00.4.INW>
 - Euro area (U2) YoY rate: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.M.U2.N.FOOD00.4.ANR>
 - Euro area (U2) weight: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.A.U2.N.FOOD00.4.INW>
 - (Accessed: 31 January 2026)
- Energy contribution (NRGY00; pp YoY) (yellow bars):
 - Poland YoY rate: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.M.PL.N.NRGY00.4.ANR>
 - Poland weight: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.A.PL.N.NRGY00.4.INW>
 - Euro area (U2) YoY rate: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.M.U2.N.NRGY00.4.ANR>
 - Euro area (U2) weight: <https://data.ecb.europa.eu/data/datasets/ICP/ICP.A.U2.N.NRGY00.4.INW>
- Computation / annotations:
 - Contribution formula: $\text{contribution}_{\{k,t\}} = (\text{INW}_{\{k,\text{year}(t)\}} / 1000) \times \text{YoY}_{\{k,t\}}$
 - INW weights are annual per-mille ($\text{sum} \approx 1000$)
 - Positive contributions plotted above zero; negative below zero
 - Dashed vertical line: 24 Feb 2022

Accessed: 31 January 2026.

Appendix

Figure 3

Exchange Rate and Energy Inflation



Legend labels:

- Poland HICP Energy (YoY) [ECB-ICP | NRGY00 | ANR]
- Poland NEER (broad) [BIS-EER | M.N.B.PL]
- Euro Area NEER (broad) [BIS-EER | M.N.B.XM]

Data used:

- Poland HICP Energy inflation (YoY, monthly) (yellow line; right axis):
<https://data.ecb.europa.eu/data/datasets/ICP/ICP.M.PL.N.NRGY00.4.ANR>
- Poland NEER, broad basket (monthly) (dark blue line; left axis):
https://data.bis.org/topics/EER/BIS%2CWS_EER%2C1.0/M.N.B.PL
- Euro area NEER, broad basket (monthly) (light blue line; left axis):
https://data.bis.org/topics/EER/BIS%2CWS_EER%2C1.0/M.N.B.XM

Transformations / annotations:

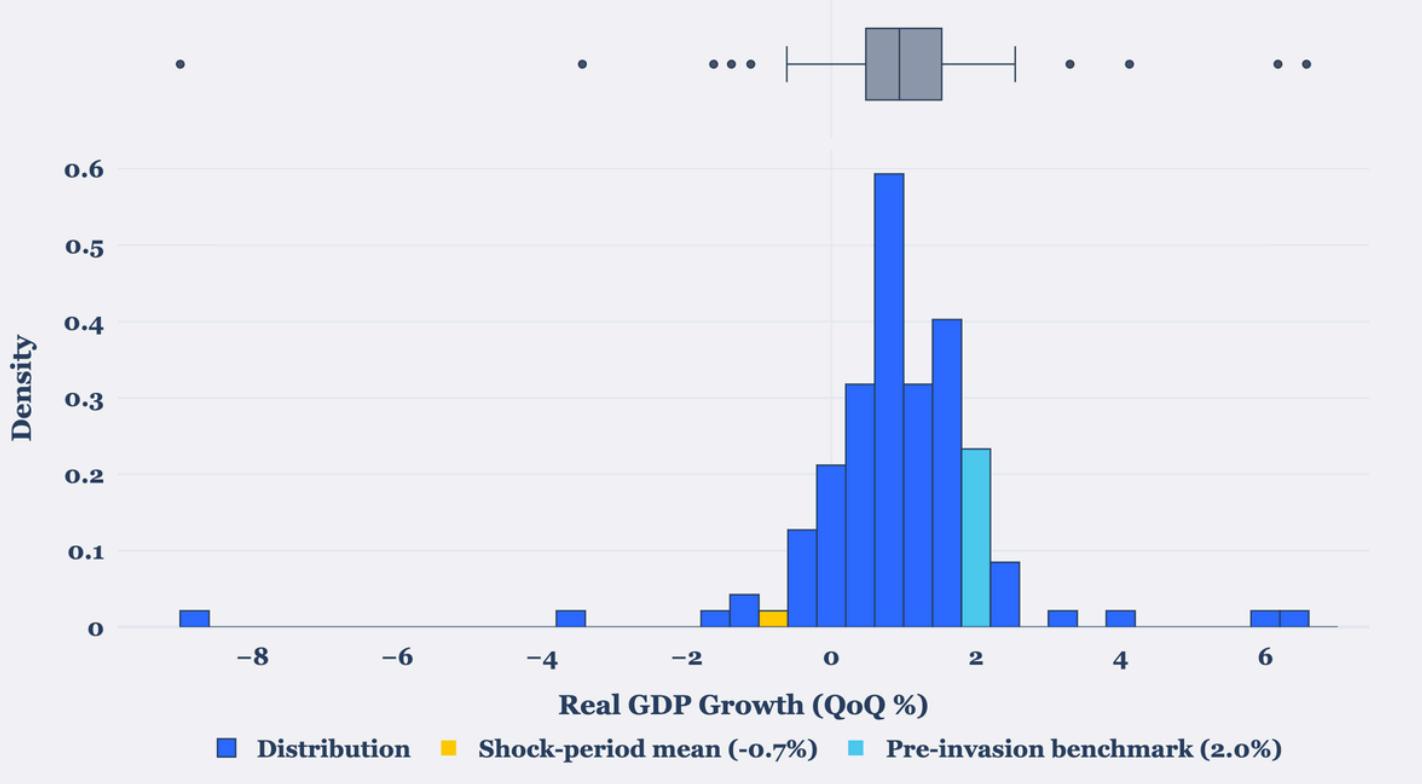
- NEER rebased to Jan 2022 = 100
- NEER interpretation: ↑ = appreciation
- Dashed vertical line: 24 Feb 2022 (Russia's full-scale invasion of Ukraine)

Accessed: 31 January 2026.

Appendix

Figure 4

GDP Growth Distribution



Legend labels:

- Distribution [ECB-MNA | B1GQ | L.CHAIN.VOL]
- Shock-period mean [derived = mean(2022Q2-Q4)]
- Pre-invasion benchmark [derived = VALUE(2021Q4)]

Data used:

- Gross domestic product at market prices, Poland, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.PL.W2.S1.S1.B.B1GQ.Z.Z.Z.EUR.LR.N>

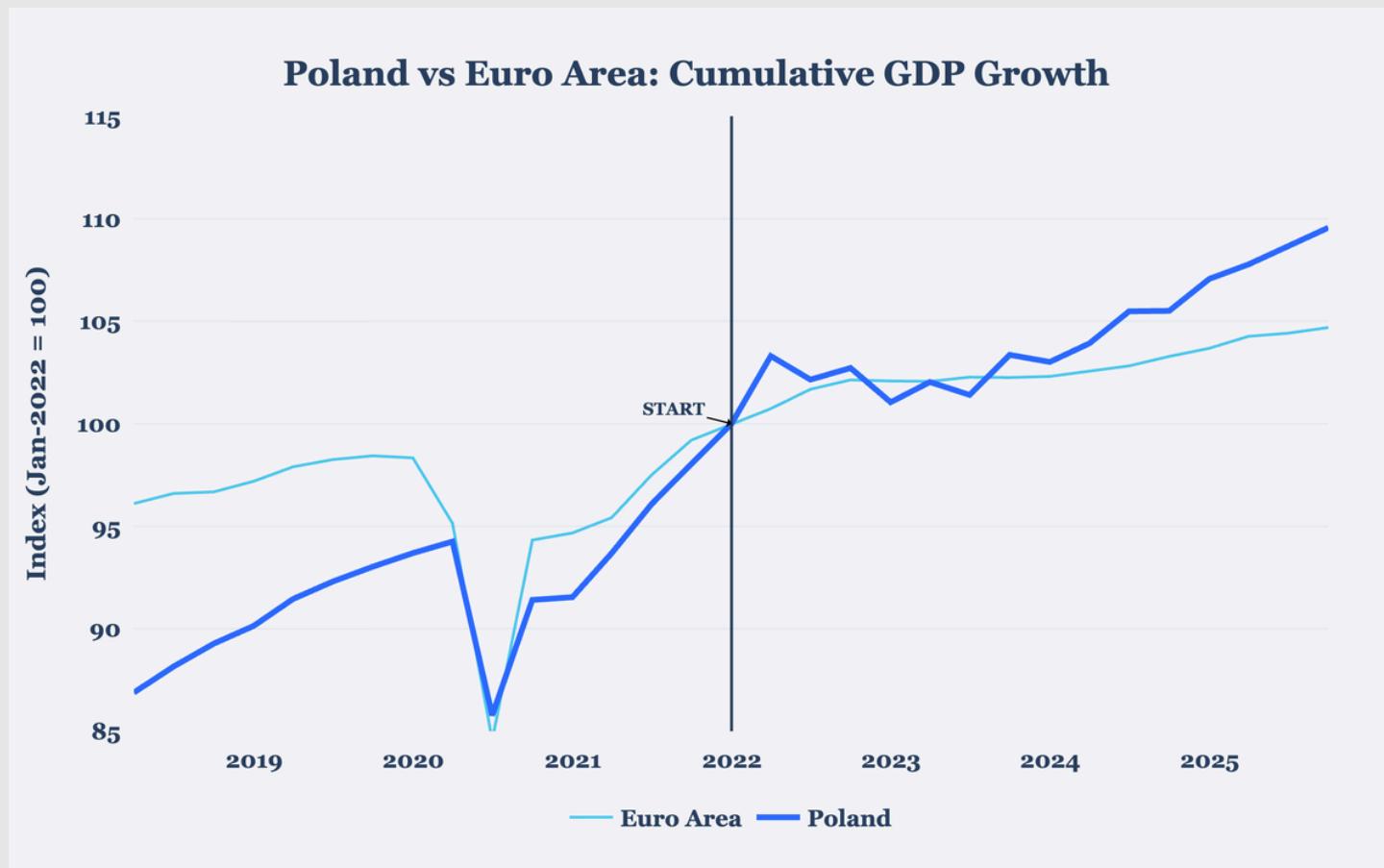
Transformations and annotations:

- QoQ growth was calculated as the percentage change from the previous quarter ($(\text{value}_t / \text{value}_{t-1}) * 100$).
- Boxplot calculates median, 25th/75th percentiles, and whiskers ($1.5 * \text{IQR}$).
- Shock period mean is calculated as the mean of the QoQ growth rates for 2022 Q2, Q3, and Q4.
- Pre-invasion benchmark is the single QoQ growth rate for Q4 2021.

Accessed: 31 January 2026.

Appendix

Figure 5



Legend labels:

- Poland [ECB-MNA | B1GQ | L.CHAIN.VOL]
- Euro Area [ECB-MNA | B1GQ | L.CHAIN.VOL]

Data used:

- Gross domestic product at market prices, Poland, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.PL.W2.S1.S1.B.B1GQ.Z.Z.Z.EUR.LR.N>
- Gross domestic product at market prices, Euro area 20, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.I9.W2.S1.S1.B.B1GQ.Z.Z.Z.EUR.LR.N>

Transformations and annotations:

- Both plotted series rebased to Jan 2022 = 100. Base period is therefore Q4 2021. Formula: $\text{index}_t = (\text{value}_t / \text{value}_{\text{Q4}_2021}) * 100$.

Accessed: 31 January 2026.

Appendix

Figure 6

Drivers of GDP Change (Volume)



Legend labels:

- Consumption [ECB-MNA | P31 | L.CHAIN.VOL]
- Investment [ECB-MNA | P51G | L.CHAIN.VOL]
- Gov Spending [ECB-MNA | P3 | L.CHAIN.VOL]
- Net Exports [derived = Exports - Imports]
 - Exports [ECB-MNA | P6 | L.CHAIN.VOL]; Imports [ECB-MNA | P7 | L.CHAIN.VOL]
- Total shift [derived = Consumption + Investment + Gov Spending + Net Exports]

Data used:

- Gross domestic product at market prices, Poland, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.PL.W2.S1.S1.B.B1GQ.Z.Z.Z.EUR.LR.N>
- Private final consumption, Poland, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.PL.W0.S1M.S1.D.P31.Z.Z.T.EUR.LR.N>
- Gross fixed capital formation, Poland, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.PL.W0.S1.S1.D.P51G.N11G.T.Z.EUR.LR.N>
- Government final consumption, Poland, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.PL.W0.S13.S1.D.P3.Z.Z.T.EUR.LR.N>
- Exports of goods and services, Poland, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.PL.W1.S1.S1.D.P6.Z.Z.Z.EUR.LR.N>
- Imports of goods and services, Poland, Quarterly:
<https://data.ecb.europa.eu/data/datasets/MNA/MNA.Q.Y.PL.W1.S1.S1.C.P7.Z.Z.Z.EUR.LR.N>

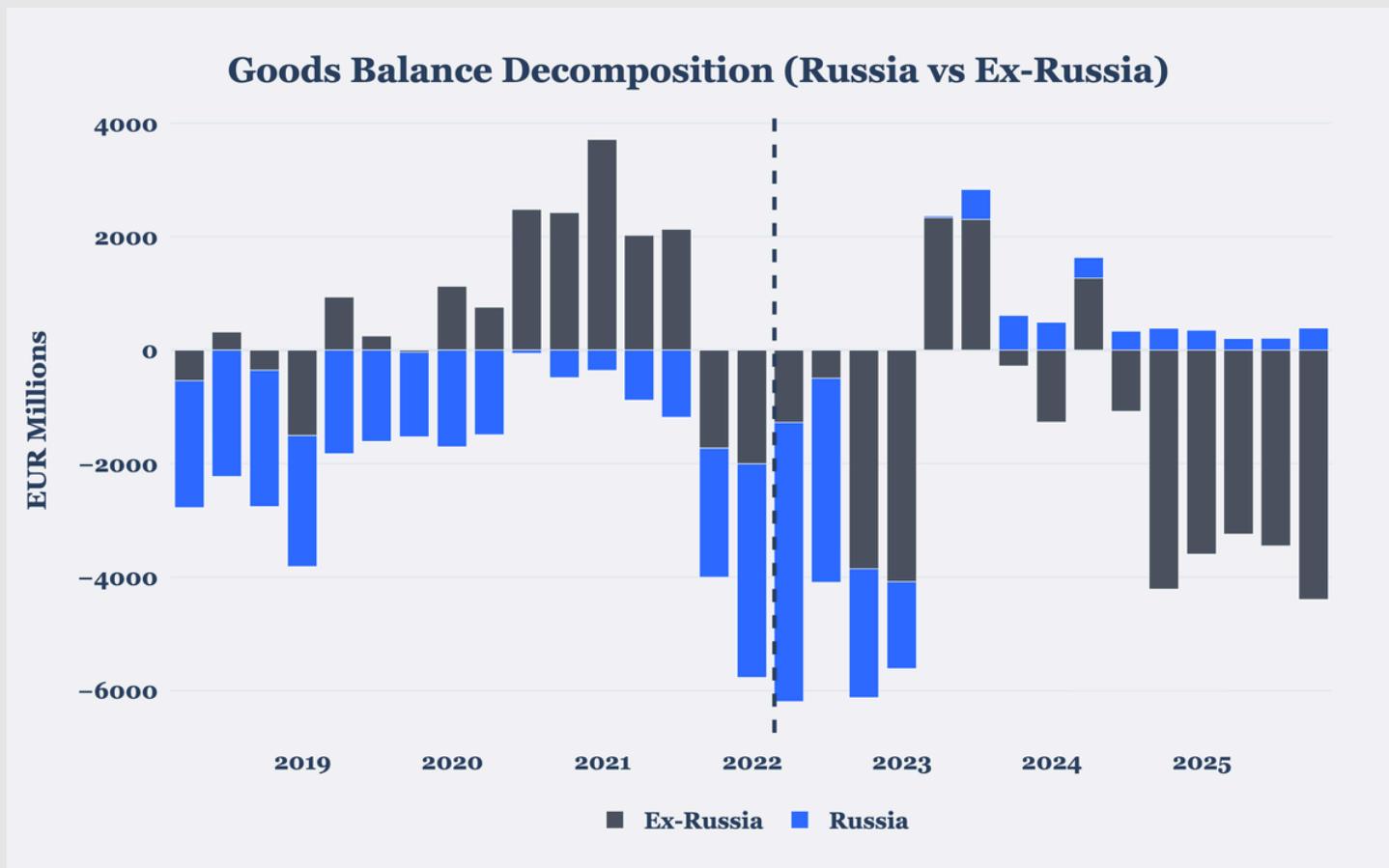
Transformations and annotations:

- Calculates average component levels of two windows (2019-2021 and 2022-2024).
- Net exports is calculated as the difference between exports and imports (X - M).
- Total shift is the sum of all component shifts.

Accessed: 31 January 2026.

Appendix

Figure 7



Legend labels:

- Russia [ECB-BPS | Goods (B.G) | EUR]
- Ex-Russia [derived = Total (W1) - Russia (RU)]

Data used:

- Balance of goods, Poland, Quarterly:
https://data.ecb.europa.eu/data/datasets/BPS/BPS.Q.N.PL.W1.S1.S1.T.B.G_Z_Z_Z.EUR_T_X.N.AL_L
- Balance of goods with Russia, Poland, Quarterly:
https://data.ecb.europa.eu/data/datasets/BPS/BPS.Q.N.PL.RU.S1.S1.T.B.G_Z_Z_Z.EUR_T_X.N.AL_L

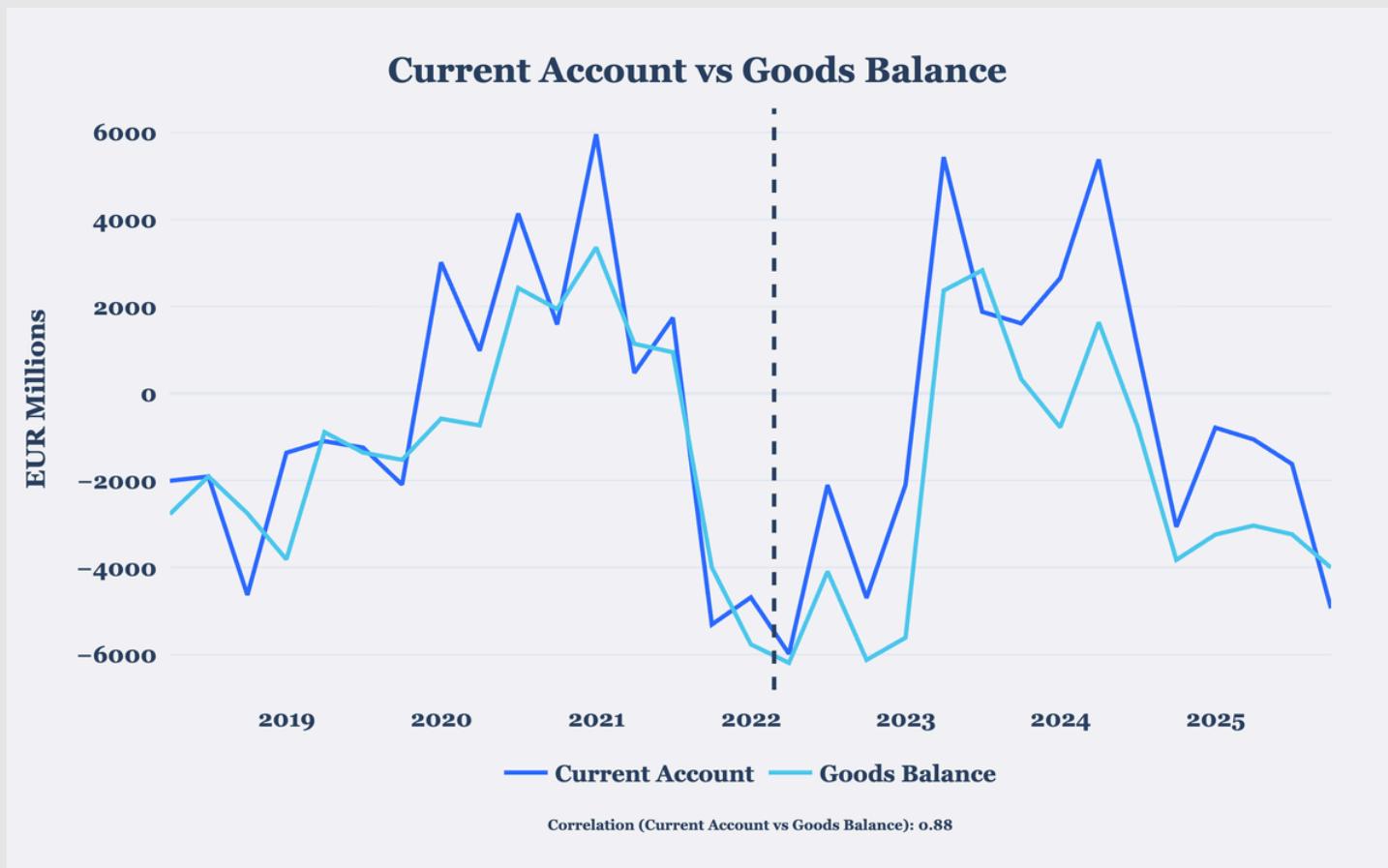
Transformations and annotations:

- Ex-Russia component is calculate as: Ex-Russia balance = total balance - Russia balance.
- Chart stacks Russia and Ex-Russia components to reconstruct total balance.

Accessed: 31 January 2026.

Appendix

Figure 8



Legend labels:

- Current Account [ECB-BPS | B.CA | EUR]
- Goods Balance [ECB-BPS | B.G | EUR]

Data used:

- Balance of goods, Poland, Quarterly:
https://data.ecb.europa.eu/data/datasets/BPS/BPS.Q.N.PL.W1.S1.S1.T.B.G_Z_Z_Z.EUR_T_X.N.ALL
- Current account balance, Poland, Monthly:
https://data.ecb.europa.eu/data/datasets/BPS/BPS.M.N.PL.W1.S1.S1.T.B.CA_Z_Z_Z.EUR_T_X.N.AL_L

Transformations and annotations:

- Current account data is monthly, while goods balance is quarterly, so monthly CA are summed to create quarterly totals.
- A Pearson correlation coefficient ρ is calculated between the two series to measure their linear relationship.

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