

# Post-Covid Inflation in Emerging Europe\*

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## **Abstract**

Emerging European countries had a post-Covid surge in inflation. With the notable exception of Turkey, this inflationary episode followed the same contours as in advanced economies and was primarily due to external shocks, especially in energy prices. The Turkish case was due to misguided monetary policy that led to inflation that is order of magnitude higher and more persistent. Emerging European countries' post-Covid inflation surges depended on their exposure to energy prices based on the weight of energy in the consumption basket and the energy intensity of production, as well as the share of imported energy used in the country. In these regards, emerging European countries were no different from euro area countries.

---PRELIMINARY, NOT FOR CIRCULATION---

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## 1. Introduction

Inflation increased considerably in most countries in the immediate aftermath of the Covid pandemic and, by the end of 2023, has subsided considerably if not returned to levels consistent with price stability already. This inflation hump was, rightly, a global concern, especially for the central bankers of advanced economies who were out of practice in combating high inflation. Central bankers in the euro area, US, and UK, among others, were traumatized by inflation nearing or surpassing double digits, albeit briefly. Even Japanese inflation showed signs of life after three decades of deflationary concerns. Our post-Covid inflation narrative is shaped by the experience of advanced economies.

This is surprising. Advanced economies have not seen inflationary pressures of this kind since the 1970s. Inflation, for the most part, was an emerging market issue until the 21<sup>st</sup> century—when it ceased to be an issue in emerging markets as well, barring a few exceptions--and was discussed as such. How has post-Covid inflation played out in the emerging world? This paper looks at the emerging Europe subsample to answer the question.

Emerging Europe is different from “regular” emerging markets, such as many Latin American economies in that most of these countries in the 1980s were not market economies and were thought of as transition economies in the 1990s rather than emerging ones. Nonetheless, for the most part, they were resembling other emerging markets in the pre-Covid 21<sup>st</sup> century: inflation broadly under control, with an “emerging” label affixed due to per capita income levels but in policy space behaving similar to what advanced economies were recommended to do in textbook analysis.<sup>1</sup> The run-up and decline of inflation in emerging Europe looks similar to that of advanced economies but whether the mechanisms were similar is a separate question. What were the drivers of inflation and disinflation in emerging Europe? How similar or different to each other and advanced economies were they?

In judging emerging Europe, it is useful to have a benchmark. Figure 1 shows inflation in the benchmark to be used in this paper. Switzerland is surely European and is surely not emerging, but its post-Covid inflation path

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<sup>1</sup> Ironically, most advanced economies themselves looked and behaved very similar to emerging markets of yore during the Global Financial Crisis, with under-regulated banks and pro-cyclical fiscal policy. Sayek-Böke and Taşkın (2014) make this argument, matching advanced economies during the GFC to crisis economies of the 90s.

is very instructive. It has the expected hump; however, its peak is below 3.5%, and inflation has already returned to target (and below, as of April 2024). Apparently, it was possible to have some inflation but not let it get out of hand. That admirable inflation performance, despite being part of European economic policy, political, and security landscapes, makes Switzerland a very useful benchmark for emerging European countries. I will also show comparisons to the euro area, as work on European economies would be incomplete without reference to largest economic aggregate in the neighborhood.

As one would expect, doing a precise decomposition of inflation dynamics is not easy. But it is possible to rule some hypotheses out and see which drivers are more likely to have played dominant roles. Much of the evidence to be presented below will be insufficient to convince a sceptic on their own right, but collectively they tell a compelling story. Emerging European countries, for the most part, continued to look very much like advanced economies such as the euro area, and their inflation dynamics post-Covid were indeed transitory, driven in particular by energy prices.

There is a lively literature on post-Covid inflation. Bernanke and Blanchard (2024a) is a new but oft-cited paper that shows, even in the US—where a substantial post-Covid fiscal stimulus was also in play—most of inflation was due to external factors such as commodity prices and supply chain disruptions. Looking at the euro area, Banbura et al. (2023) and DeSantis (2024) find that inflation was similarly primarily driven by external shocks to supply chains and commodity prices. Bernanke and Blanchard (2024b) find that this is more or less the case for 11 advanced economies. Whether inflation in emerging Europe is similarly understandable from the lens of external shocks is the topic of this paper. Broadly, inflation in emerging Europe has behaved very similarly to euro area and external shocks seem to be the primary driver.

## 2. Data and Sample Selection

Emerging Europe is a fuzzy concept and may incorporate an area from the east of the Balkans to the Caucasus. That is not only too broad, but such a country coverage would also include Ukraine, which is defending itself against the Russian invasion, perhaps Russia itself, with its myriad governance problems that spill over to

countries around it, Armenia and Azerbaijan, which have been in war with each other. My country selection, driven by a desire to include large countries other than Ukraine and Russia and as many countries as possible for which I am able to string together a coherent narrative, consists of Albania, Bulgaria, Bosnia-Herzegovina, Croatia, Hungary, Kosovo, Macedonia, Montenegro, Poland, Serbia, and Turkey. Turkey will be studied separately in Section 5 below as it is by far the largest economy in this group and its inflation has different, homemade, dynamics as well as a much higher average level.

Figure 2 shows the inflation paths of these economies. It is clear that the overall shapes are quite similar, although there are mild differences in when inflation began to increase and when it peaked, and larger differences in the extent of the inflation surge. It is useful to define an aggregate measure for these countries so that average behavior is easy to study. I will be using the GDP weighted average of any variable for this purpose, conditioning on pre-Covid GDP levels in 2019. Table 1 provides basic information about these countries and their weights in the aggregate. Table 2 shows the same for core inflation.

Although not all countries had exactly the same break points in their inflation dynamics, a reasonable starting point of post-Covid inflation in emerging Europe is the beginning of 2021 (which is not exactly after the end of the pandemic), and the peak of inflation is the end of 2022. Although there is mild disinflation in many countries in the last few months of 2022, disinflation is palpable only in 2023. Thus, 2021 and 2022 are the years of inflation increase, which is the main object of interest, and 2023 is the year of disinflation. The sample coverage ends at the end of 2023.

The inflation measures used are HCIP inflation as reported by Eurostat. These differ from CPI inflation measures reported by national statistical agencies but have the advantage of being based on the same definitions and therefore exactly comparable. By that metric, Albania has the lowest cumulative inflation in emerging Europe over 2021-22 and Turkey far and away the highest. In the set of comparable countries—which excludes Turkey—Hungary has the highest inflation boom with 34.2 percent. The emerging Europe cumulative average is 24.5 percent and most countries are close to this average, as can be seen in Figure 2. The emerging Europe inflation in 2021-22 was ten percentage points higher than that of the euro area, which itself was ten percentage

points higher than that of Switzerland. Despite the difference in inflation levels during this period, we will see that mechanisms were similar.

It is also worth noting that despite inflation levels reaching double digits in all of the emerging European countries but Albania, and surpassing 15 percent in many of these countries by the end of 2022, by the end of 2023 all of these economies had inflation in the neighborhood of 5 percent. These countries have very different policy frameworks, with some under strongly fixed exchange rates (and some unilaterally euroized), some with managed floats and some with floating exchange rates, as shown in Table 3. This is the first sign that inflation and disinflation was mostly due to external and transitory forces rather than domestic policy choices in these countries. We will return to this below.

The sample period begins in 2016 and ends in 2023, unless otherwise noted. (Not all variables for all countries are available throughout this period.) This is a short sample, but these countries do not have long histories that can be studied as a uniform regime. For that reason, econometric analysis in of the time series will be limited, most of the evidence will be cross-sectional, comparing the cumulative inflation rates in these countries in 2021-22 to each other and relating the differences to country characteristics. In doing so, I will often differentiate between headline and core inflation. Core will be headline inflation minus food and energy contributions throughout the analyses, even though many times official statistical agencies have different definitions. Appendix I (to be added) has the details of the data construction, including sources and mnemonics.

### 3. The common thread

Post-Covid inflation in emerging Europe has two phases: an inflation boom in 2021-2022 and disinflation in 2023 (and so far in 2024). The size of the disinflation in 2023 in these countries strongly correlates with the extent of preceding inflation run up. This, again, is consistent with the initial inflationary episode being exogenous. My analysis will focus on what drove inflation up.

Doing a principal components analysis of headline inflation in these 11 countries finds a first principal component is the comovement in inflation (about equal loadings for all countries) and captures 92 percent of headline inflation variance, as shown in Table 4. Doing the same for core inflation finds a similar factor, with a 75 percent variance share. Naturally, a somewhat lower fraction of total core inflation variance is explained by the first principal component and there is somewhat more variance in factor loadings, compared to headline inflation. The common commodity price shock driving headline inflation created the same dynamics across countries, leading to about identical factor loadings and a very high proportion of headline inflation variance explained by a single factor. This is as expected, but the finding for core inflation is not much different, indicating core inflation rates driven by common dynamics. Figure 3 shows the core inflation rates. They exhibit the same hump shaped pattern with headline inflation, peaking at much lower rates, and showing somewhat more dispersion.

Overall, it is clear that inflation dynamics in these countries, both for headline and core rates, are very similar. That suggests either a coordinated policy failure or a common external shock as the source of post-Covid inflation. It is unlikely that the coordinated policy failure is the main culprit as many of these countries have fixed or close to fixed exchange rates, as was shown in Table 3. It is possible that ECB itself is the source of the policy failure and the policy is similarly implemented in many emerging European countries due to fixed exchange rates, but we will see below that the common external shock is a better explanation as it helps explain a sizable part of inflation differences among countries that peg to the euro.

Food and energy prices are the natural candidates for the common external shock explanation.<sup>2</sup> Figure 4 shows the world prices of oil and wheat together with emerging European inflation.<sup>3</sup> Collectively these countries are small enough that there is no risk of developments in emerging Europe causing changes in commodity prices, as may be the case for advanced economies, hence causality is easy to establish. Having said that, especially for

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<sup>2</sup> In a sign that the common shocks to commodity prices (energy and food in particular) play an important role in headline inflation, the factor loadings for headline are about identical but loadings for core show minor variation.

<sup>3</sup> Gas prices have a similar pattern but gas, unlike oil, is not readily tradable hence a single world price does not exist at times of stress, such as the aftermath of Russian invasion of Ukraine and embargo on imports from Russia in Europe.

countries with fixed exchange rates, monetary policy responses may be driven by the response of the ECB to commodity price shocks and inflation in general, but, unlike in the case of GDP responses that was the topic of active research (Hamilton, 1983, Bernanke, Gertler and Watson, 1997), higher commodity prices and higher interest rates pull inflation in opposite directions. 2021-22 is a period when commodity prices and policy rates were both going up hence, unless one interprets inflation as a late outcome of the monetary stimulus built in during the Covid period, policy was moving in a restrictive rather than expansionary direction.

A series of figures show the relevance of especially energy prices for post-Covid inflation in emerging Europe. Figure 5 shows headline inflation against the weight of energy in the consumption basket. The positive slope is unmistakable. (Switzerland and the euro area are shown as memo items in these figures. They do not affect the best fit line.) Remember from Table 1 above that these countries have substantially different per capita income levels and have correspondingly different weights of necessities in their consumption baskets.

These countries have different policies on taxing and subsidizing food and energy. This not only affects the prices of these items, but it also affects their weights in the consumption basket as the weights are based on expenditure shares. Countries that subsidize food and energy for their consumers will have lower shares of these in the consumption basket compared to countries that tax these, independently of the per capita income levels.

The relationship between headline inflation and energy prices is mechanical, as energy is a component of headline inflation. More interesting is the relationship between the weight of energy in the consumption basket and the core inflation levels, shown in Figure 6. By definition, the core measure excludes the direct effect of food and energy on inflation hence the strong positive relationship between the weight of energy in the consumption basket and core inflation is indicative of general equilibrium effects. Most of my analysis will focus on energy as food prices may not be showing independent variation as food prices themselves are sensitive to energy prices.<sup>4</sup> Identification in the case of post-Covid inflation in emerging Europe is convoluted by the fact that a large shock to both energy and food prices came as a result of the Russian invasion of Ukraine,

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<sup>4</sup> Baffes and Dennis (2013) attribute most of food price inflation to crude oil prices.

which is a major producer of grains. Energy prices in Europe were particularly sensitive to the embargo on Russia as Russian gas was an important source of imported energy for many European countries, including countries in emerging Europe.

An energy price shock is both a direct shock to inflation because energy enters the consumption basket, but also, perhaps more importantly, it is a supply shock. One measure of the importance of energy in the cost structure is the energy intensity of production, measured as the amount of energy used as a share of GDP. Figure 7 shows this relationship. The apparent weak relationship is driven by Bosnia and Herzegovina, excluding this observation leads to a significant positive relationship.

One reason why the relationship between energy intensity and inflation is not tighter is the control over energy prices energy producing countries have. Energy importers are more driven by global energy prices, producers are more able to forego export income and keep domestic prices down. Figure 8 presents the relationship between energy sensitivity (energy intensity  $\times$  share of energy imported) and core inflation. This is a quite tight relationship. The energy price shock was apparently a very important driver of inflation, both for headline and importantly for core inflation, and both from its impact on the consumption basket directly and from its impact on the production costs.

As an aside, it is worth noting that the weight of inflation in the consumption basket and the energy intensity of production may not be independent. To the extent that countries have similar policies for energy used by households and firms, the weight of energy in the consumption basket and the energy intensity of production may be correlated. Figure 9 shows that this is indeed the case, countries that have higher energy weights in the consumption basket tend to have higher energy intensities of production as well. Given this, the correlation between energy weight in the consumption basket and core inflation that was visible in Figure 6 above may not only be due to second round effects working perhaps through wage bargaining, but also be a proxy for marginal cost of production. Disentangling these is a worthy question that is left for future work but it should be noted that either way causality runs from the energy price shock to the inflation rates.



The discussion above implicitly assumes that in these countries, the changes in domestic prices of energy and food are driven by the world price, and the impact on inflation is differentiated by the weight of inflation in the consumption basket and production chain. This is, in most cases, not correct; countries counteract large swings in essential commodities by providing subsidies and changing tax rates. This is distinct from the average levels of taxes and subsidies that affect the weight of energy (and food) in the consumption basket and the energy intensity of production, and is especially easy for smaller countries, such as the emerging European ones (as well as Switzerland), who do not affect world prices. Some countries (a minority of the emerging Europe sample studied in this paper) also have exchange rates that fluctuate and mechanically cause changes in prices of imported commodities. Exchange rate fluctuations affect inflation through other mechanisms such as the prices of imported goods in the consumption basket and the prices of other imported intermediate goods as well. Local currency commodity prices may proxy for these.

The next piece of evidence in favor of the commodity price shock narrative is the relationship between the energy price inflation (rather than weight) and both headline and core inflation measures. Figure 10 shows the relationship. Unlike the weight of energy in the consumption basket, changes in energy prices may not be fully exogenous. In particular, for countries experiencing exchange rate fluctuations that pass through to inflation, changes in sub-components of inflation may be capturing changes in the exchange rate. One way to make sure this is not driving the results is to look at changes in food and energy prices inside the country but in dollar terms. Figure 11 presents this measure, showing that countries with larger increases in energy prices in dollar terms have experienced higher inflation. Energy prices mattered for inflation.

Figure 12 shows the contributions of food and energy inflation to headline inflation in emerging European countries. Even without general equilibrium effects, the mechanical contribution of these to the cumulative increase in inflation in 2021-22 ranges from a half to two-thirds. Once again it is worth remembering that the food contribution itself is likely driven in no small part by energy prices.

Under the hypothesis that food and energy prices are driven by external shocks, it is possible to find the overall effect of these on headline and core inflation using a simple regression. Table 5 presents the results of such a

regression for headline (column 1) and core (column 2) inflation, showing that food and energy contributions to inflation were not only statistically significant but also, in a variance-share sense, the most important determinants of inflation in emerging Europe.

The exogeneity of food and energy prices, given the post-Covid boom and global demand for commodities and then the impact of the Russian war on Ukraine is very possible for this set of countries. However, this is still a regression of measures of cumulative inflation (headline and core) on inflation components (food and energy prices); hence, the regression may be spurious. A natural falsification test is to run the same regression in the pre-Covid period. Table 6 presents the same analysis, this time for headline and core inflation in 2018-2019. Food and energy inflation have much lower explanatory power for headline inflation and almost none for core inflation. The commodity price contribution to inflation in the post-Covid inflation runup in emerging Europe was major and causal.

This section has shown that the most important determinant of inflation in emerging Europe was the commodity price shock, in particular to energy prices.

#### 4. What separates these countries?

This is a more difficult question. The natural starting point is exchange rates. Many of these countries have fixed exchange rates or have unilaterally adopted the euro. Romania has such a tightly managed float that it is closer to having fixed exchange rates. Only Albania, Hungary, and Poland have floating exchange rates.

Figure 13 shows the exchange rate paths of emerging European countries. Many show no deviations, but the large swings in the exchange values of some currencies are striking. The behavior of exchange rates here resembles that of inflation studied above. Figures 14 and 15 make this explicit by showing the exchange rate changes and inflation measures at the headline and core levels.

Albania and Switzerland are especially interesting as these countries have seen their currencies appreciate against the euro and also have the lowest inflation rates during the inflation boom. A purchasing parity relationship would create this result through reverse causality but in this case, for both countries, it appears that currency flows not related to local inflation had affected exchange rates, which in turn have allowed keeping inflation in check.

The Swiss franc is a safe haven currency and often appreciates in bad times and 2021-22 was no exception. The Swiss National Bank, which usually tries to limit the franc's appreciation due to balance of payments concerns, pointedly allowed the currency to appreciate this time, in a sign that the policymakers also saw the disinflationary benefits of an appreciating currency as a worthy tradeoff against a worsening trade balance (Swiss National Bank, 2022). In fact, not only did the SNB lower its purchases of foreign currency, it also actively intervened in the FX market, buying the franc to further appreciate the currency. Further, Switzerland limited the energy price increases as electricity is domestically produced, is not dependent on oil and gas, and the public producer is subject to price controls. This effect was compounded by the already low weight of energy in the consumption basket. Indeed, these, along with an overall high share of price controlled goods and services, help explain to a great extent why the Swiss inflation was so much below the euro area inflation.

The Albanian lek is not a safe haven currency. Its appreciation was driven by financial inflows as well as tourism revenue and remittances. Albania is a small economy and modest foreign direct investment in international terms are proportionally large inflows for Albania. This is also acknowledged by the central bank (Bank of Albania 2022). It is also worth noting that the appreciation of the lek predates the inflation boom and the Covid pandemic, for that matter. For Albania, like Switzerland, having an appreciating currency was an offsetting force against inflation.

As importantly, while Albania is an importer of refined oil, it is an exporter of crude oil and a net exporter of electricity, limiting the impact of the international energy price increase. This, combined with an already low weight of energy in the consumption basket and a low energy sensitivity, has allowed Albania to keep inflation in check compared to other emerging European countries.

The last interesting case is Hungary. The forint depreciated deeply but, as seen in Figure 13, this depreciation came after the onset of the inflation increase in 2021. In the Hungarian case, making a causal argument between inflation and the exchange rate is more difficult. Here, analysis has to rely on expansionary fiscal and monetary policies as well as external shocks to account for the sharpest increase in inflation in emerging Europe.

Hungary was ill suited to weather large shocks to commodity prices and the direct effects were large as the weight of energy in the consumption basket and energy sensitivity of production are both high. However, Hungarian inflation was still too high conditional on these. Here, the other parts of the explanation are misplaced and mis-firing price caps, continued very expansionary monetary policy for too long, and added fiscal stimulus before the elections in 2022 (Cohn et al., 2023).

Going back to exchange rates, note that even for countries that pegged to euro or euroized, there was a negative exchange rate effect. Commodities are priced in dollars and not only the dollar price of commodities were going up sharply in 2021-22, euro was losing value against the dollar as well, compounding the local currency effects. Pegging emerging European countries had more inflation than the euro area because many of these countries have higher weights of food and energy in their consumption baskets and are more energy-intensive in production.

##### 5. When policy is the culprit: Turkey

The Turkish case is the exception that proves the rule. Figure 16 shows inflation in Turkey together with inflation in the emerging Europe aggregate. Turkish inflation is different. This section describes the Turkish case with an aim towards contrasting it to other emerging European countries' experiences. Details of Turkish inflation, especially post-Covid, can be found in Gürkaynak et al. (2023) and Kara and Sarıkaya (2024).

The smaller hump in Turkish inflation visible in Figure 16, taking place in 2018-19, is of a similar order of magnitude to the Hungarian post-Covid inflation, the largest boom in inflation studied above. Other emerging European countries have no comparable pre-Covid inflationary episodes. Turkish post-Covid inflation is also

both quantitatively and qualitatively different. Inflation takes place on a much larger scale, its timing is different, and has not come back down to levels comparable to pre-Covid times.

Turkish inflation is the result of domestic policy choices rather than external shocks. After a lost 90s with twin deficits and twin crises, familiar to many Latin American countries, Turkey reformed after its 2001 crisis by bringing its budget under control, recapitalizing a regulating its banking sector and making its central bank independent with an inflation targeting mandate. This set of structural reforms that brought inflation under control is also similar to the reforms undertaken by many emerging market countries around the world, with similarly successful disinflations. Gürkaynak et al. (2015) present this as a change from fiscal dominance to monetary dominance.

By 2010 structural reforms had not only stalled, various good governance measures, including de facto central bank independence were being rolled back. A good way of reading the Turkish experience between 2010 and 2023 is as a failed attempt to engineer neo-Fisherian disinflation (Gürkaynak et al., 2023). The mini inflation boom (mini by Turkish standards) in 2018 was due to a well understood mechanism where large current account deficits, shown in Figure 17, coupled with increasing foreign debt exposure of the Turkish non-financial sector (Figure 18) that resulted from a regulatory change in 2009, led to a steep depreciation of the lira due to a political spat between then-president Trump and president Erdoğan. The Central Bank of Turkey was not able to convincingly raise interest rates to stem the run for dollars.

Turkey had five different central bank governors between 2018 and 2023. This alone shows the degree of politization of monetary policy. President Erdoğan's long war against interest rates (because "high interest rates cause high inflation") was won when he finally appointed a central bank governor who was willing to cut interest rates indiscriminately and not try to offset the resulting expansionary policy through backdoor methods.<sup>5</sup> The

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<sup>5</sup> These backdoor methods ran the gamut from offering off-market exchange rates for reserves held in foreign currency to refusing to fund banks at the top end of the interest rate corridor in a scarcity regime and forcing them to the discount window, effectively turning the lender of last resort function into a cyclical policy tool, to using the volatility of the effective interbank rate as a policy tool to many others.

central bank of Turkey, with inflation already more than three times its target, began to cut interest rates in fall 2021. The impact on the exchange rate was immediate and was quickly followed by inflation.

This out of control inflation led to higher long-term interest rates, infuriating the central bank and banking regulators, who responded by a plethora of regulations that in effect created strong financial repression and non-allocative financial prices for bank loans as well as fixed income securities and derivatives. This lasted until the elections in May 2023. Due to these elections the lira was propped up by the central bank, and prices of goods that were set by the government were not increased. These, combined with a base effect that kicked in beginning with the fall of 2022, led to a decline in inflation until the election.

After the election, Turkey revamped its economic policymakers, the Monetary Policy Committee of the CBRT, as well as ministers in charge of the economy. In the words of the finance minister, Turkey returned to “rational economic policies”. The first outcome was lessening of the exchange rate controls, which caused the lira to depreciate 30 percent within a month of the election. The policy rate was raised from 8.5 percent to 50 percent in nine months. The exchange rate pass through, combined with increases in sales taxes and prices of government controlled goods, including energy, and once again a base effect that worked in the opposite direction this time, saw inflation strongly creep up again. Unlike in other emerging European countries, inflation in Turkey at the end of 2023 has not shown a tendency to fall to a level in the same ball park as its pre-Covid one.

The discussion of inflation in other emerging European countries was centered on the impact of the commodity price shock, in particular price of energy. Figure 19 shows the Turkish inflation, together with oil prices, going back to 2000. This figure is a longer sample analogue of Figure 4 above that suggested a causal relationship between oil prices and emerging European inflation in 2021-22. Figure 19 clearly shows that there is no such relationship between Turkish inflation and oil prices. When the policy setting is as variable as it is in Turkey and as a result inflation is as volatile, the contribution of oil price shocks to inflation variance is not of first order.

For the reader who has persevered thus far in this section, this is likely a fascinating story albeit one that is difficult to follow. The aim here is not to give a comprehensive account of the Turkish policies over the past few years and their outcomes, which is beyond the scope of this paper but is covered in detail in Gürkaynak et al. (2015) Gürkaynak et al. (2023) and Kara and Sarıkaya (2024). Rather, it should be clear that the Turkish inflation dynamics had to do with domestic policy choices far more than global commodity price developments. This is what inflation under a weak policy regime, inflation due to policy mistakes looks like. And this is not what we see in other emerging European countries.

## 6. Conclusion

Broadly, with the very notable exception of Turkey, post-Covid inflation in emerging Europe was primarily driven by external shocks. This is the same story told for advanced economies. Figure 20 repeats Figure 1, this time also including the emerging Europe average. Emerging Europe is not all that different from Europe. Inflation took off at the same time and peaked at the same time.

This observation is important. One does not need a different set of tools to understand emerging Europe compared to the euro area. Having said that, emerging Europe had a higher post-Covid inflationary bout than the euro area and currently has higher inflation. Then again, emerging Europe had higher inflation than the euro area before Covid as well. Compared to pre-Covid inflation rates, current rates are proportionally in the same neighborhood. Why does emerging Europe have higher inflation than the euro area on average? That is a very good question for future research.

This question is particularly interesting for countries fixing their exchange rates and especially for those that have euroized. Those countries, conditional on the weights of energy in their consumption baskets and energy sensitivities of production, have higher inflation rates than the euro area. This is an interesting natural experiment worthy of further study.

This study of post-Covid emerging Europe reminds us that most emerging markets are not the crisis-prone countries of the 1980s and 90s. The economics toolkit that we apply to analyze advanced economies works as well for the emerging markets of the 21<sup>st</sup> century. That is certainly true for the post-Covid inflation in emerging Europe, where the inflation was primarily attributable to external shocks, as in advanced economies.



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TABLES AND FIGURES

Table 1: Summary statistics

Countries	GDP per capita (€), 2019	Inflation, 2019	Cumulative inflation, 2021-2022	Inflation, 2023	Weight in emerging Europe
Albania	4,820	1.5	11.7	4.5	1.2
Bosnia and Herzegovina	5,444	0.3	22.0	2.2	1.6
Bulgaria	8,820	3.1	21.9	5.0	5.5
Croatia	13,710	1.3	18.5	5.4	5.0
Hungary	15,000	4.1	34.2	5.5	13.1
Kosovo	3,944	1.2	19.6	2.3	0.6
Montenegro	7,960	1.1	20.9	4.9	0.4
North Macedonia	6,000	-0.2	23.5	3.8	1.0
Poland	13,870	3.0	24.6	6.2	47.5
Romania	11,560	4.0	21.8	7.0	20.0
Serbia	6,620	2.1	23.7	7.5	4.1
Türkiye	8,220	11.8	123.5	64.9	-
Switzerland	7,5150	-0.1	4.1	2.1	-
Euro area	34,760	1.3	14.6	2.9	-
Emerging Europe	11,711	3.1	24.5	6.1	100

Note: Emerging Europe is GDP-weighted based on the 2021 Nominal GDPs of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, Montenegro, North Macedonia, Poland, Romania, and Serbia.

Table 2: Summary statistics

Countries	GDP per capita (€), 2019	Core Inflation, 2019	Cumulative core inflation, 2021-2022	Core Inflation, 2023	Weight in emerging Europe
Albania	4,820	0.28	3.32	2.10	1.2
Bosnia and Herzegovina	5,444	-0.25	6.94	1.28	1.6
Bulgaria	8,820	1.21	8.15	3.49	5.5
Croatia	13,710	0.48	8.54	4.01	5.0
Hungary	15,000	2.29	14.00	6.03	13.1
Kosovo	3,944	0.63	4.41	1.35	0.6
Montenegro	7,960	0.07	7.79	4.07	0.4
North Macedonia	6,000	-0.16	6.75	2.51	1.0
Poland	13,870	1.89	11.66	4.15	47.5
Romania	11,560	1.88	6.82	5.72	20.0
Serbia	6,620	0.98	7.41	3.75	4.1
Türkiye	8,220	7.74	64.77	43.92	-
Switzerland	7,5150	0.07	2.04	0.31	-
Euro area	34,760	1.05	5.32	2.63	-
Emerging Europe	11,711	1.71	10.36	4.54	100

Note: Emerging Europe is GDP-weighted based on the 2021 Nominal GDPs of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, Montenegro, North Macedonia, Poland, Romania, and Serbia.

Table 3: Exchange rate regimes in emerging Europe

Country	Exchange Rate System	Currency
Croatia	Managed Floating Exchange Rate Regime (until 2023) Became a euro area member in 2023	Croatian kuna (HRK) joined ERM II in 2020  Adopted euro (EUR)
Romania	Managed floating exchange rate regime	Romanian leu (RON)
Serbia	Managed floating exchange rate regime	Serbian dinar (RSD)
Bosnia and Herzegovina	Fixed exchange rate pegged to euro (Currency Board)	Bosnia-Herzegovina convertible marka (BAM)
Bulgaria	Fixed exchange rate pegged to euro since 1997 (Currency Board)	Bulgarian lev (BGN) joined ERM II in 2020
North Macedonia	Fixed exchange rate pegged to euro (Stabilized Arrangement)	North Macedonian denar (MKD)
Kosovo	Euroization	Unilaterally adopted euro (EUR) in 2002
Montenegro	Euroization	Unilaterally adopted euro (EUR) in 2002
Albania	Free floating exchange rate regime	Albanian lek (ALL)
Hungary	Free floating exchange rate regime	Hungarian forint (HUF)
Poland	Free floating exchange rate regime	Polish zloty (PLN)

Table 4: The commonality across the emerging European price surge

Countries	Headline inflation PC1 loadings	Core inflation PC1 loadings
Albania	0.093	0.112
Bosnia and Herzegovina	0.095	0.081
Bulgaria	0.097	0.111
Croatia	0.098	0.118
Hungary	0.091	0.115
Kosovo	0.091	0.087
Montenegro	0.096	0.108
North Macedonia	0.096	0.095
Poland	0.095	0.099
Romania	0.095	0.106
Serbia	0.095	0.114
Explained variance	92.14%	75.11%

Table 5: Effects of energy and food price contributions to headline inflation on headline and core inflation during the post-Covid price surge

Sample period: January 2021-December 2022		
Dependent variable	Annual headline inflation	Annual core inflation
Energy contribution to annual headline inflation	1.53*** (0.20)	0.53** (0.20)
Food contribution to annual headline inflation	1.35*** (0.09)	0.35*** (0.09)
Constant	0.74*** (0.26)	0.75*** (0.26)
Observations	264	264
R <sup>2</sup>	0.93	0.53

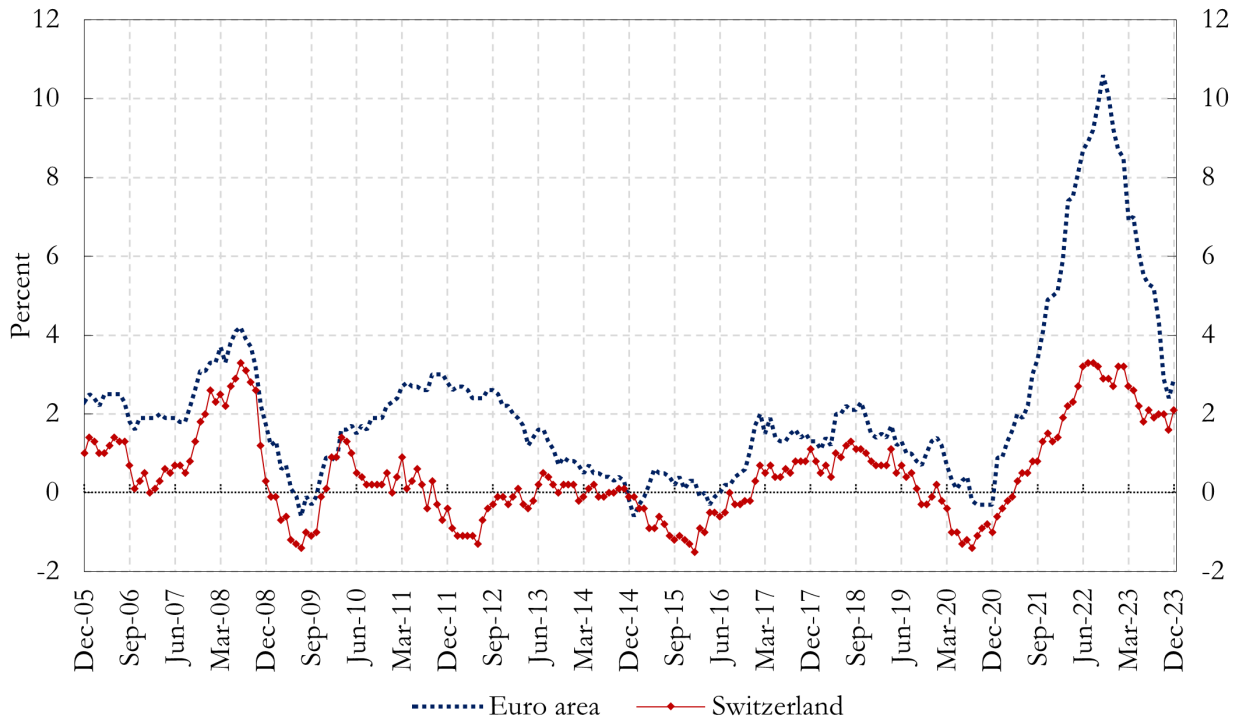
Pooled OLS regression results with Newey-West standard errors in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 5: Effects of energy and food price contributions to headline inflation on headline and core inflation before the pandemic

Sample period: January 2018-December 2019		
Dependent variable	Annual headline inflation	Annual core inflation
Energy contribution to annual headline inflation	1.41*** (0.14)	0.41*** (0.14)
Food contribution to annual headline inflation	1.11*** (0.19)	0.12 (0.19)
Constant	0.68*** (0.19)	0.68*** (0.19)
Observations	264	264
R <sup>2</sup>	0.60	0.07

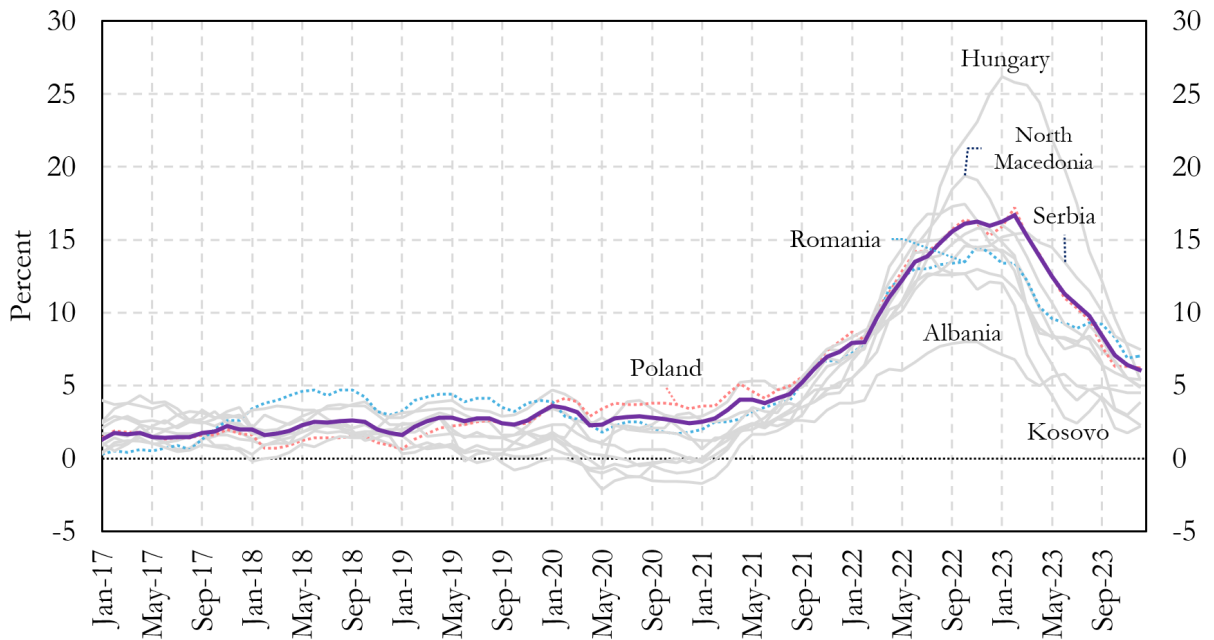
Pooled OLS regression results with Newey-West standard errors in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Figure 1: Inflation in the euro area and Switzerland



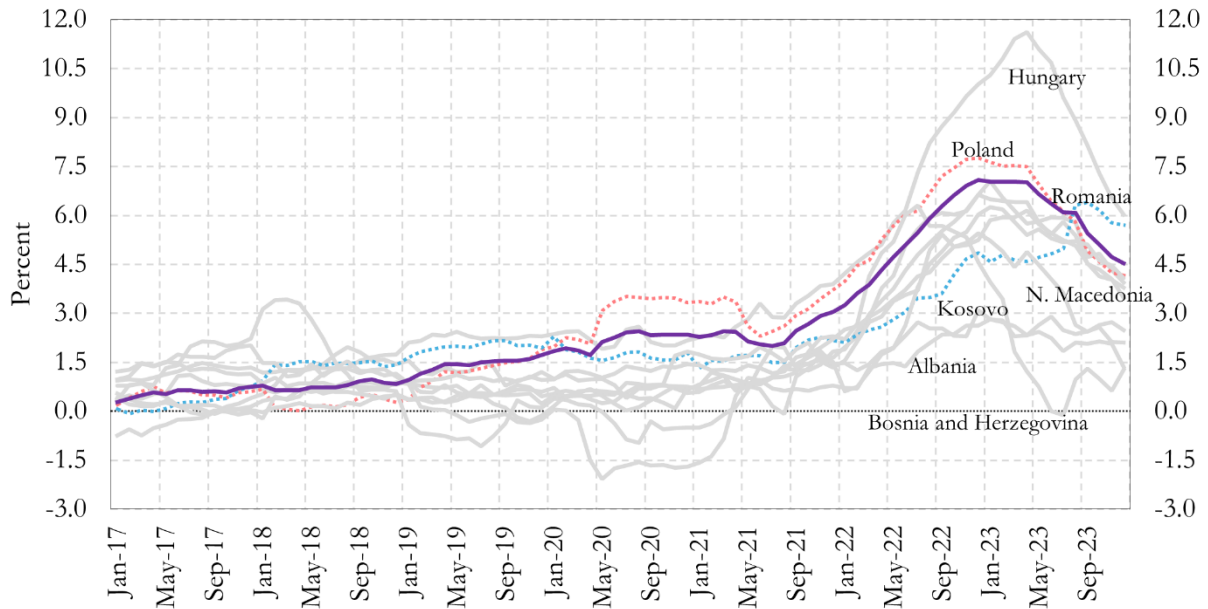
Source: [Eurostat](#)

Figure 2: Headline inflation in emerging Europe, GDP-weighted average



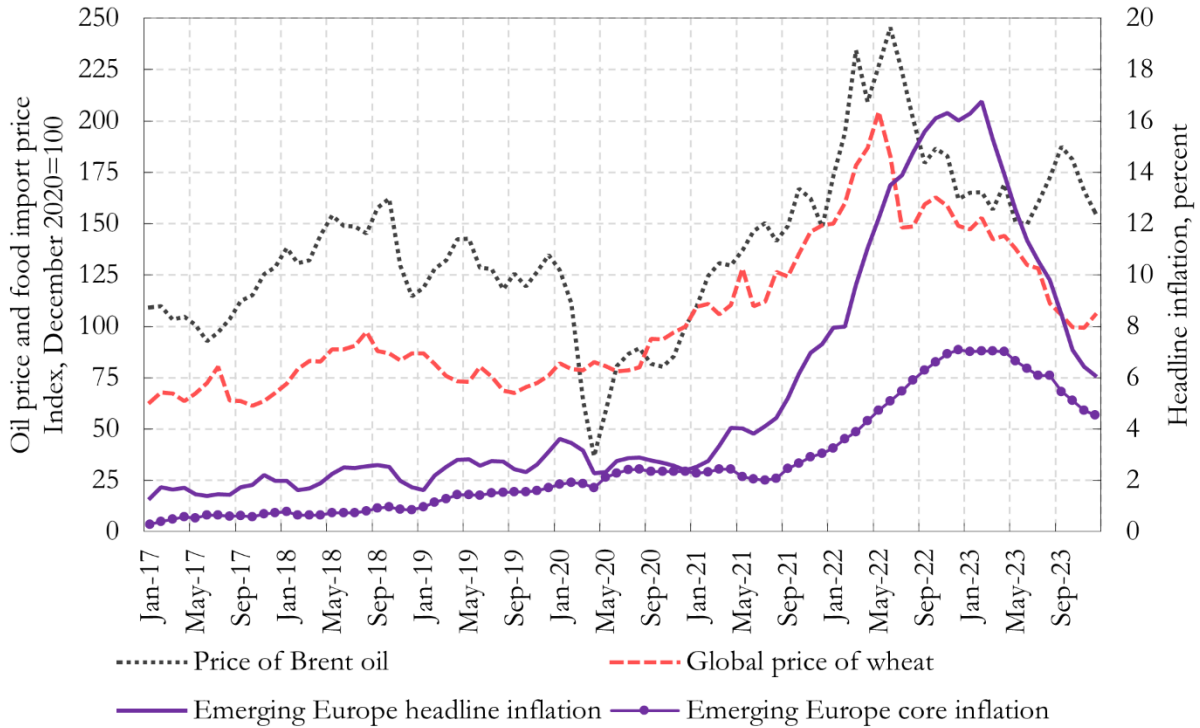
Note: The purple bold line shows the GDP-weighted average of those emerging European countries using 2021 nominal GDPs. The grey lines show the annual inflation of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, Montenegro, North Macedonia, and Serbia. Poland and Romania are emphasized with pink and teal dashed lines to give examples of countries following a similar path to the majority. Source: [Eurostat](#)

Figure 3: Core inflation in emerging Europe, GDP-weighted average



Note: The purple bold line shows the GDP-weighted average of those emerging European countries using 2021 nominal GDPs. The grey lines show the annual inflation of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, Montenegro, North Macedonia, and Serbia. Poland and Romania are emphasized with pink and teal dashed lines. Source: [Eurostat](#)

Figure 4: Wheat and oil price with headline inflation in emerging Europe



Note: The purple line shows the GDP-weighted average of those emerging European countries using 2021 nominal GDPs. Source: [EIA](#) [FRED](#) [Eurostat](#)



Figure 5: Headline inflation vs. the energy weight in the consumption basket

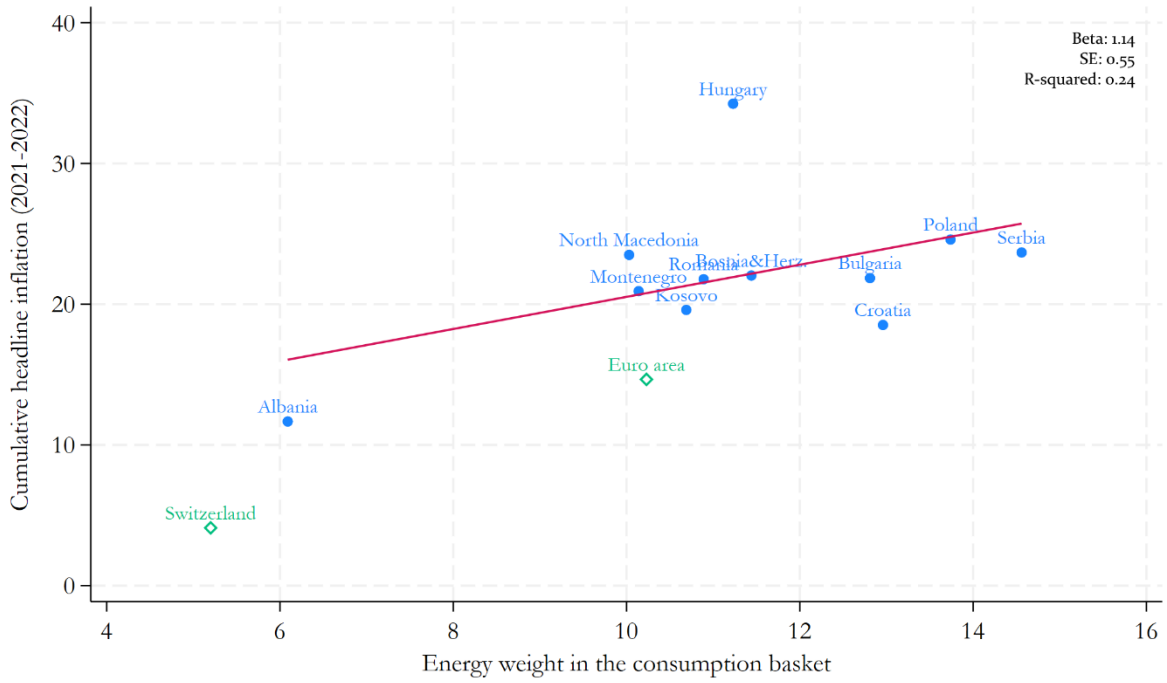


Figure 6: Core inflation vs. the energy weight in the consumption basket

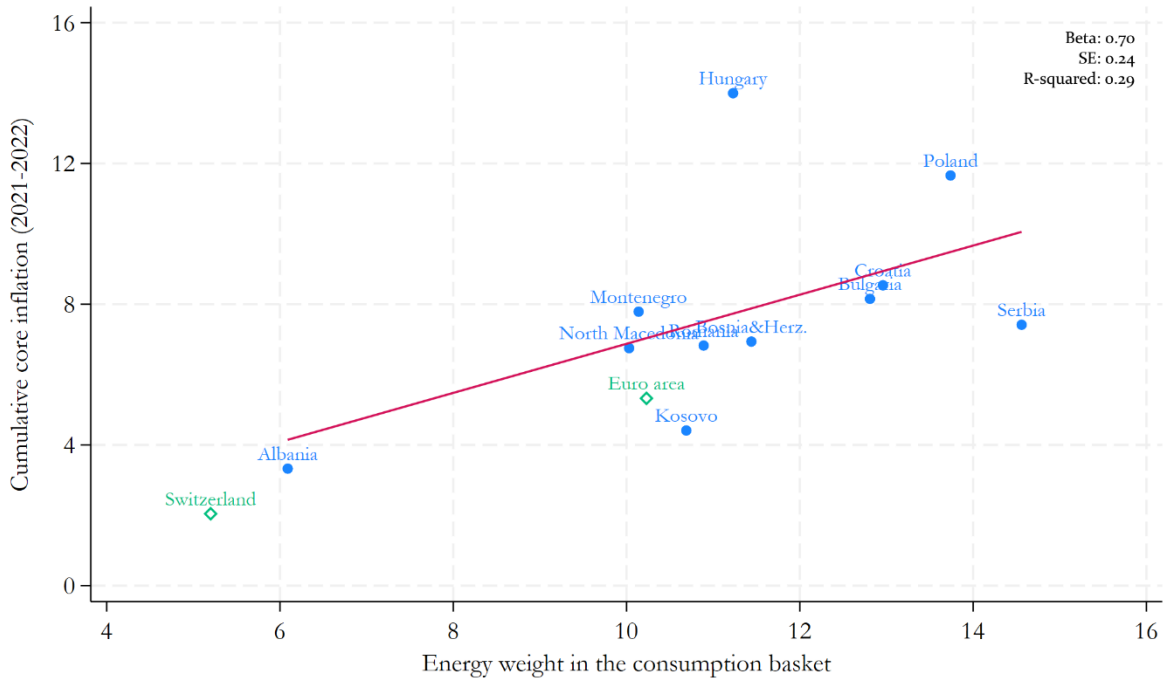
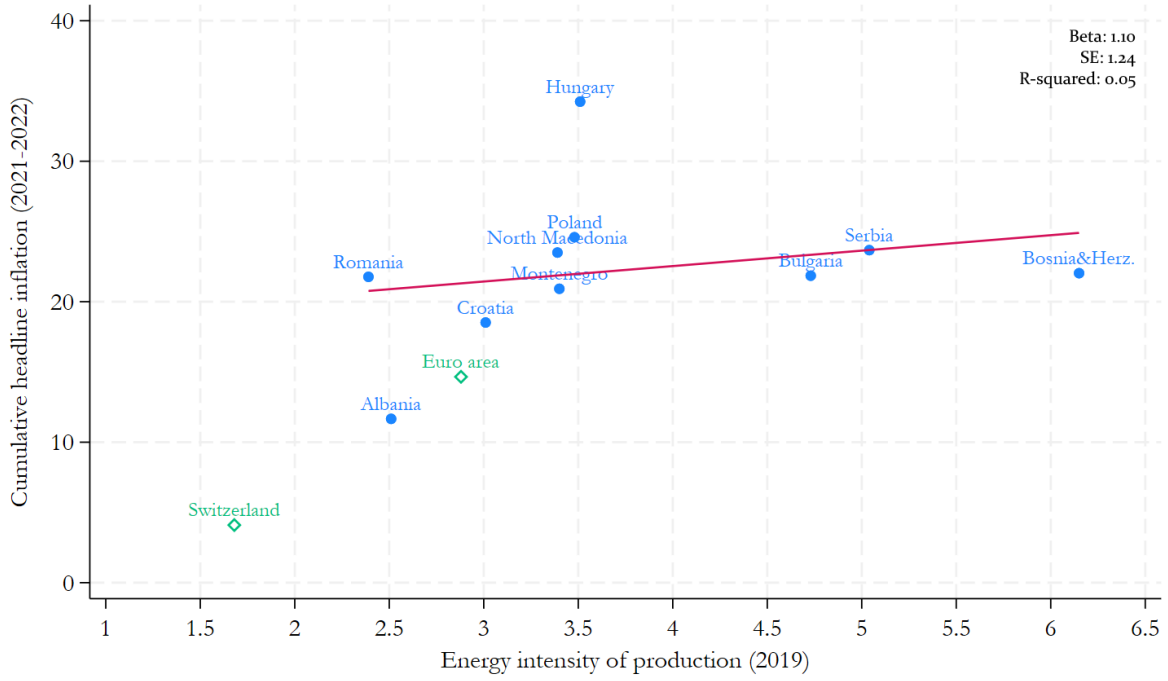


Figure 7: Energy intensity of production vs. cumulative headline inflation



Energy intensity of production vs. cumulative core inflation

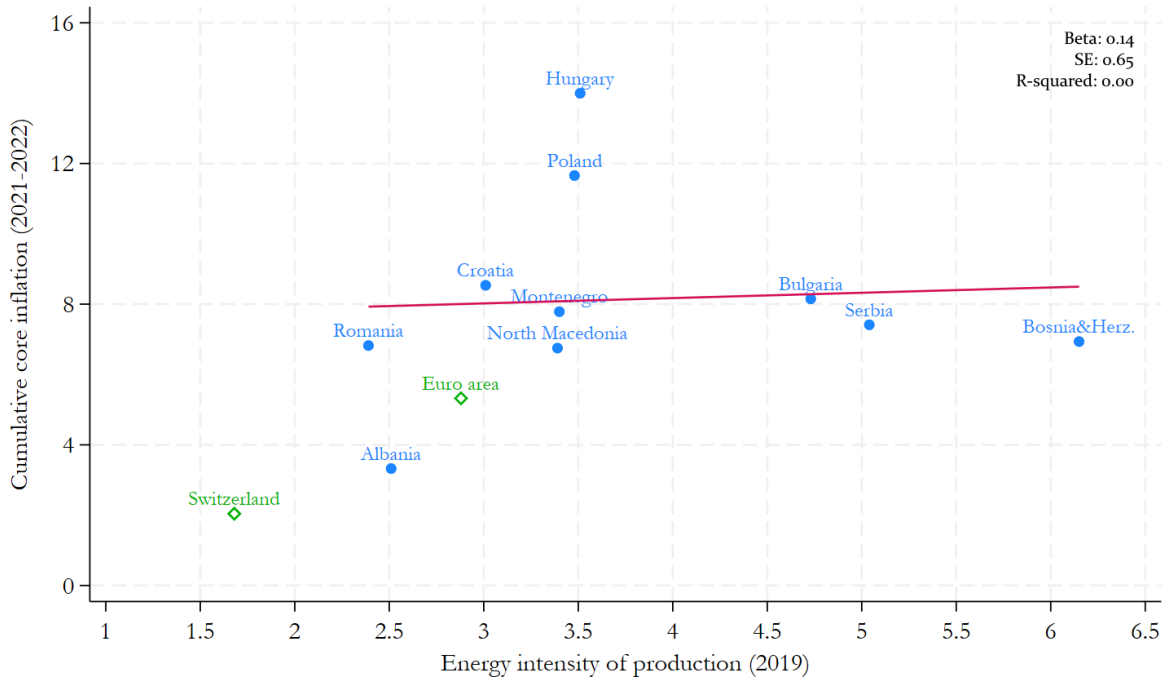


Figure 8: Sensitivity to international energy prices vs. cumulative core inflation

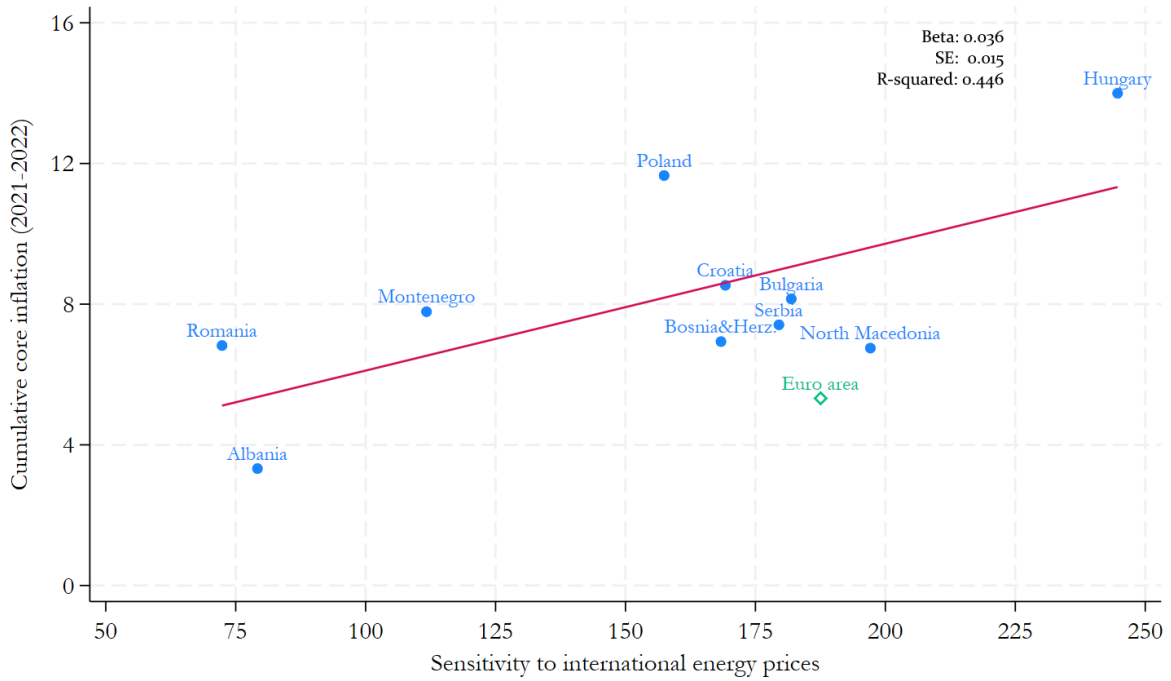


Figure 9: Energy weight in the consumption basket vs. energy intensity of production

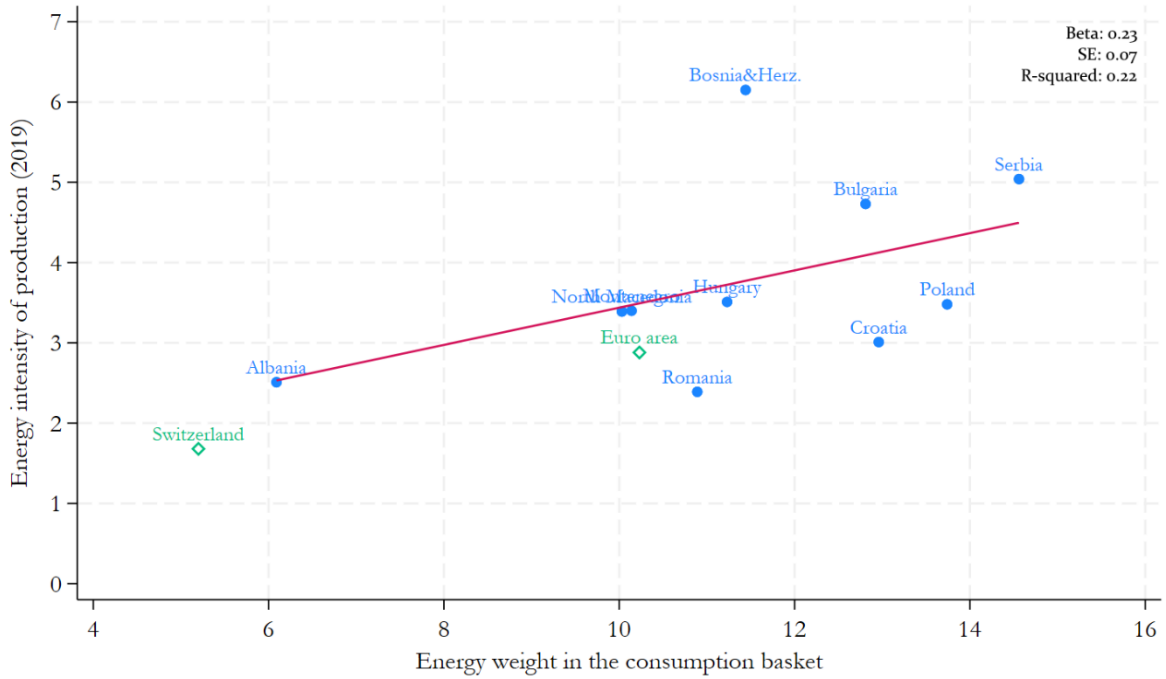
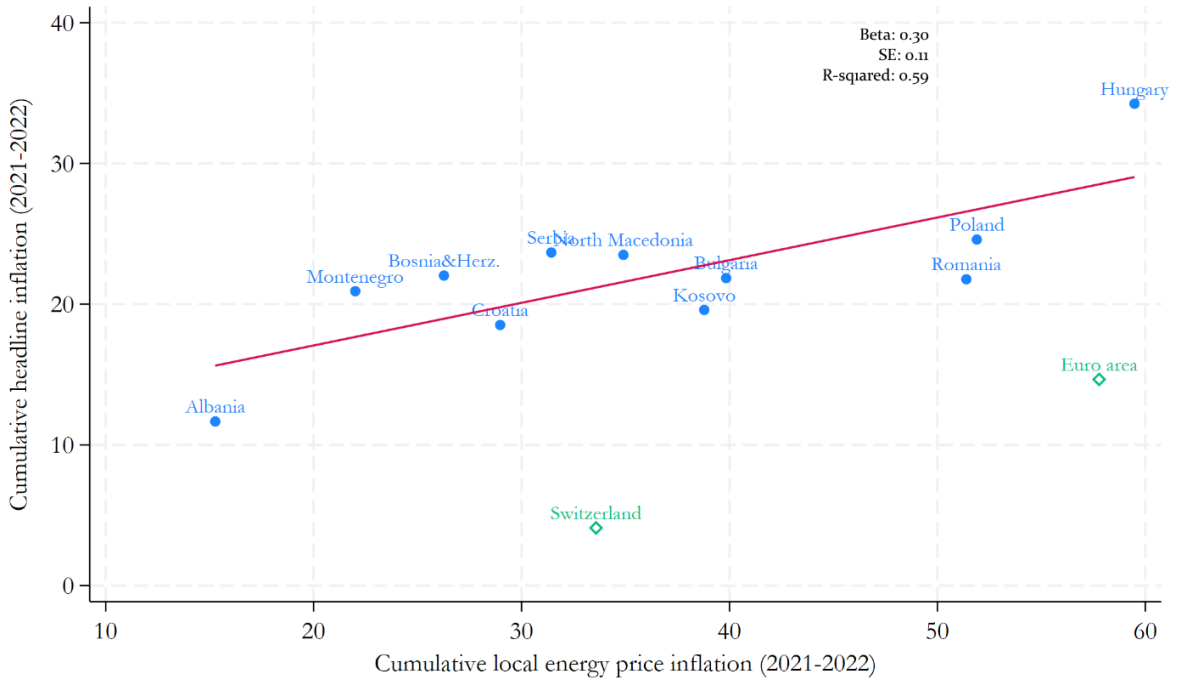


Figure 10: Cumulative local energy price inflation vs. cumulative headline inflation



Cumulative local energy price inflation vs. cumulative core inflation

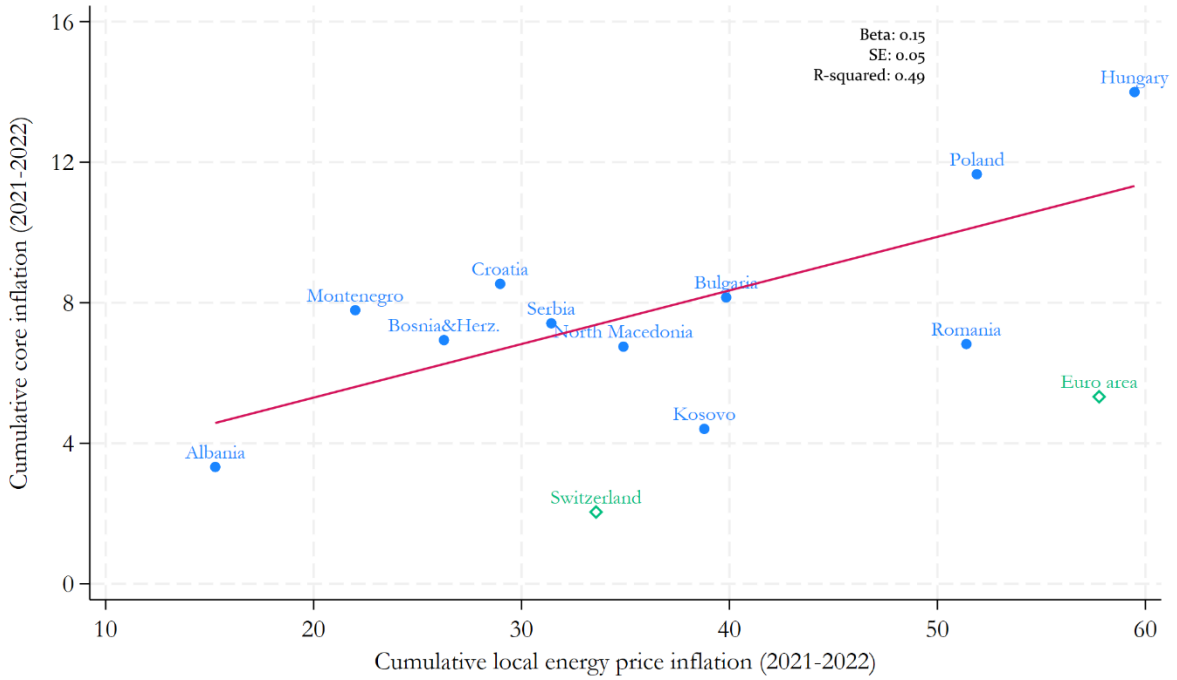


Figure 11: Local energy price inflation in dollar terms vs. cumulative headline inflation



Local energy price inflation in dollar terms vs. cumulative core inflation

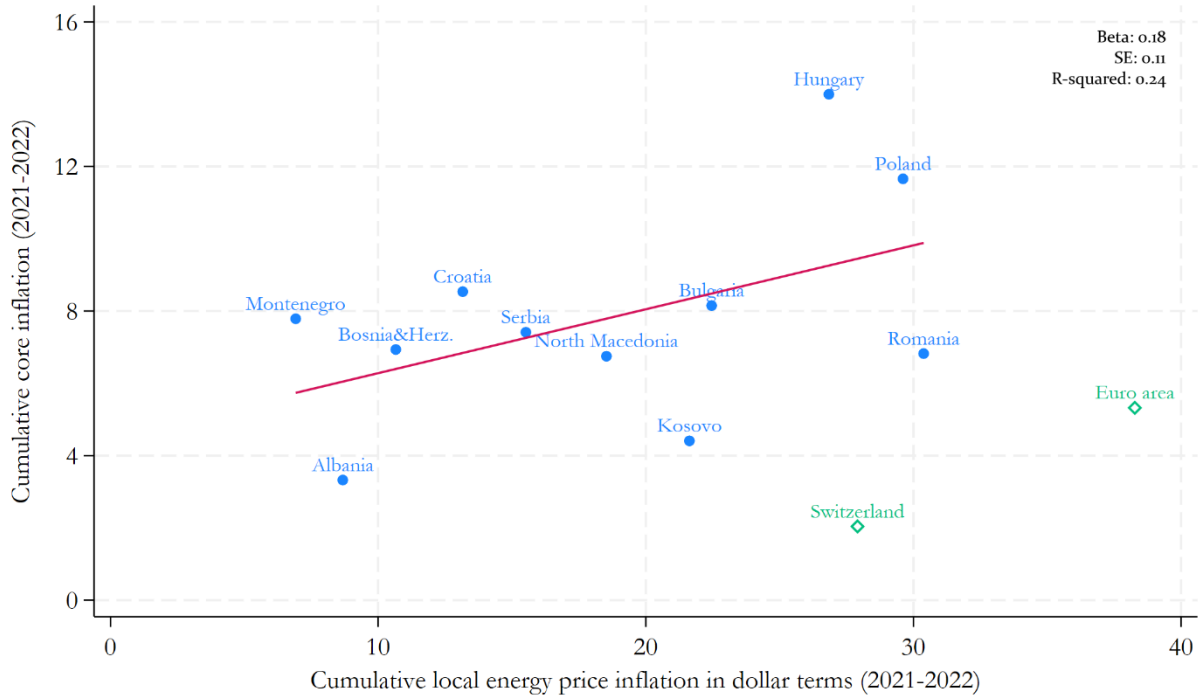
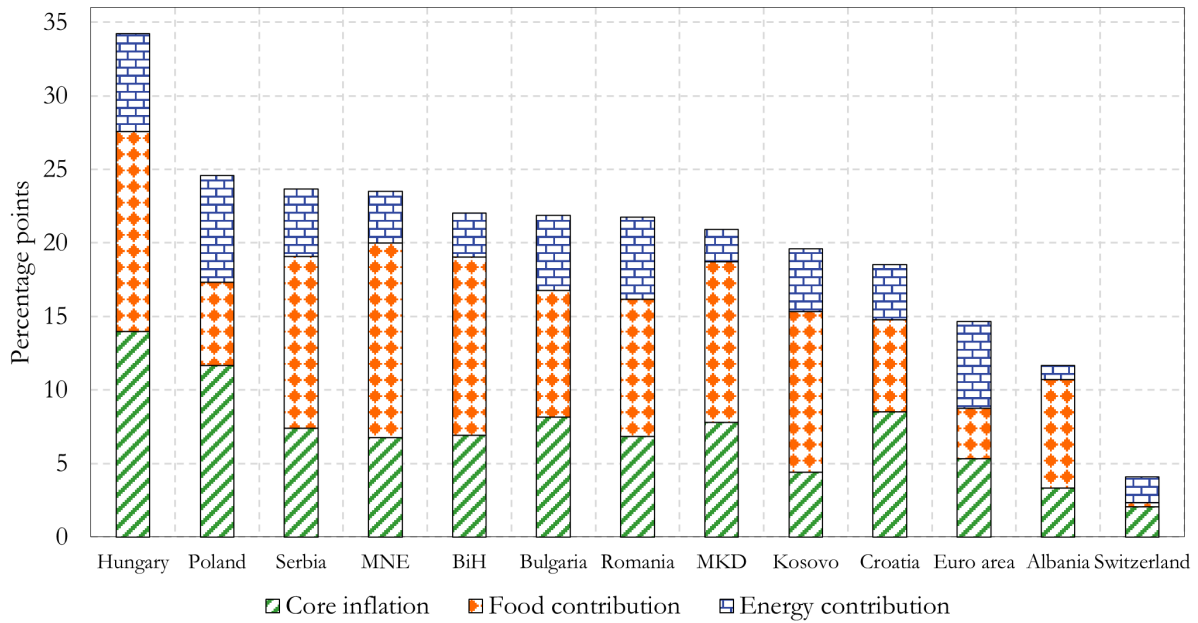


Figure 12: Food and energy contribution to cumulative headline inflation in emerging Europe in 2021-2022



Note: North Macedonia (MKD), Bosnia and Herzegovina (BiH), and Montenegro (MNE) are abbreviated for visual purposes.

Figure 13: Exchange rates in emerging Europe

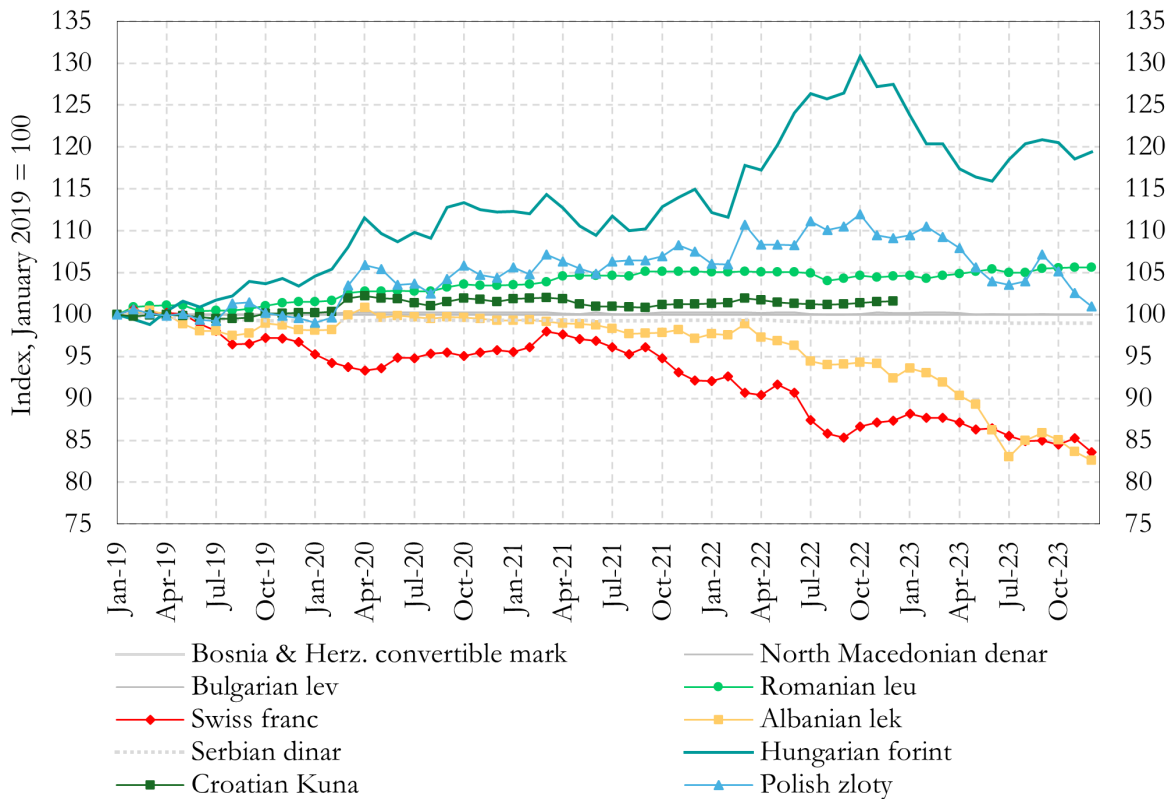


Figure 14: Cumulative USD exchange rate vs. cumulative headline inflation

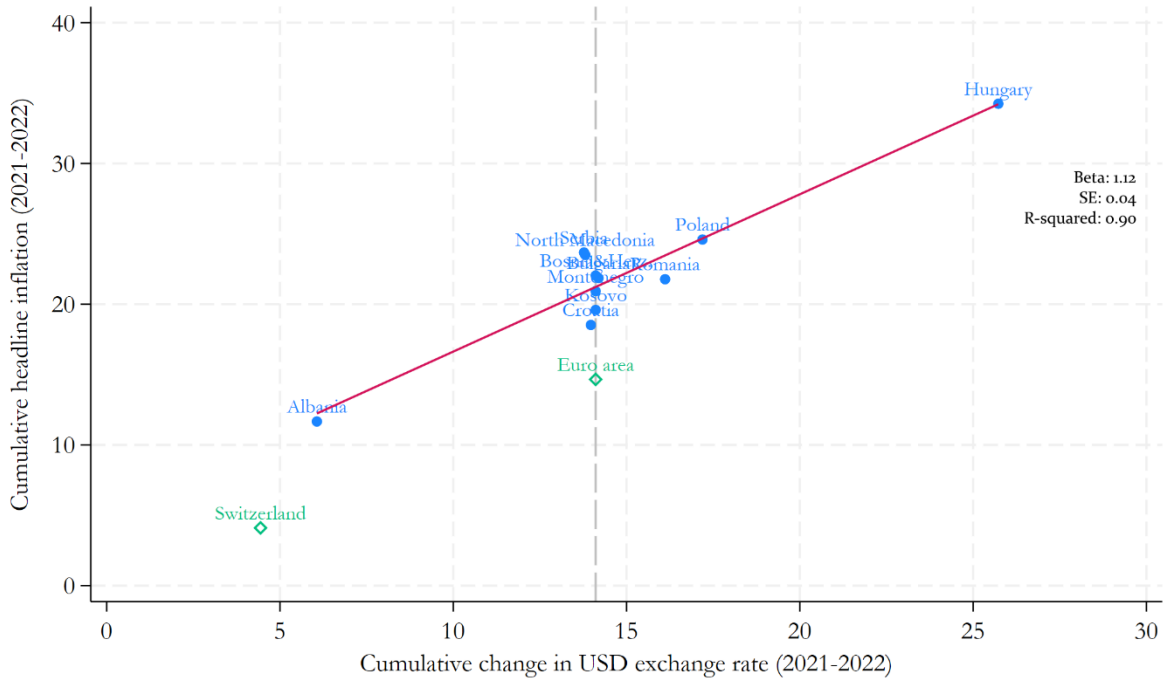


Figure 15: Cumulative USD exchange rate vs. cumulative core inflation

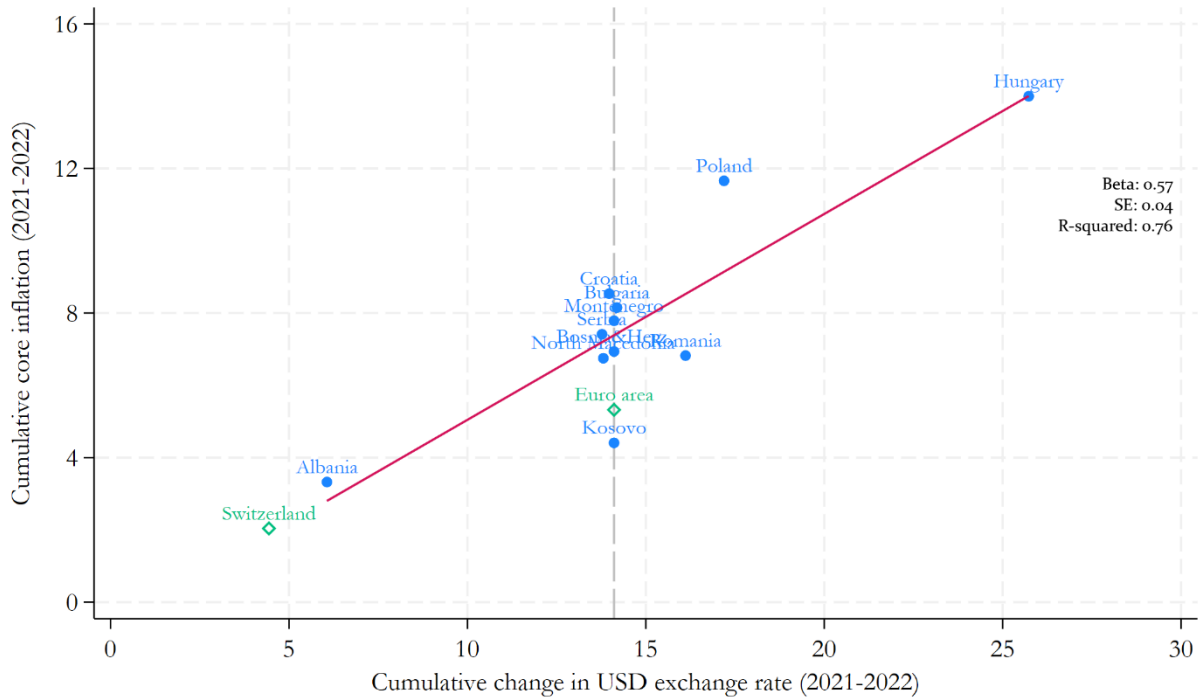


Figure 16: Inflation in Turkey and emerging Europe

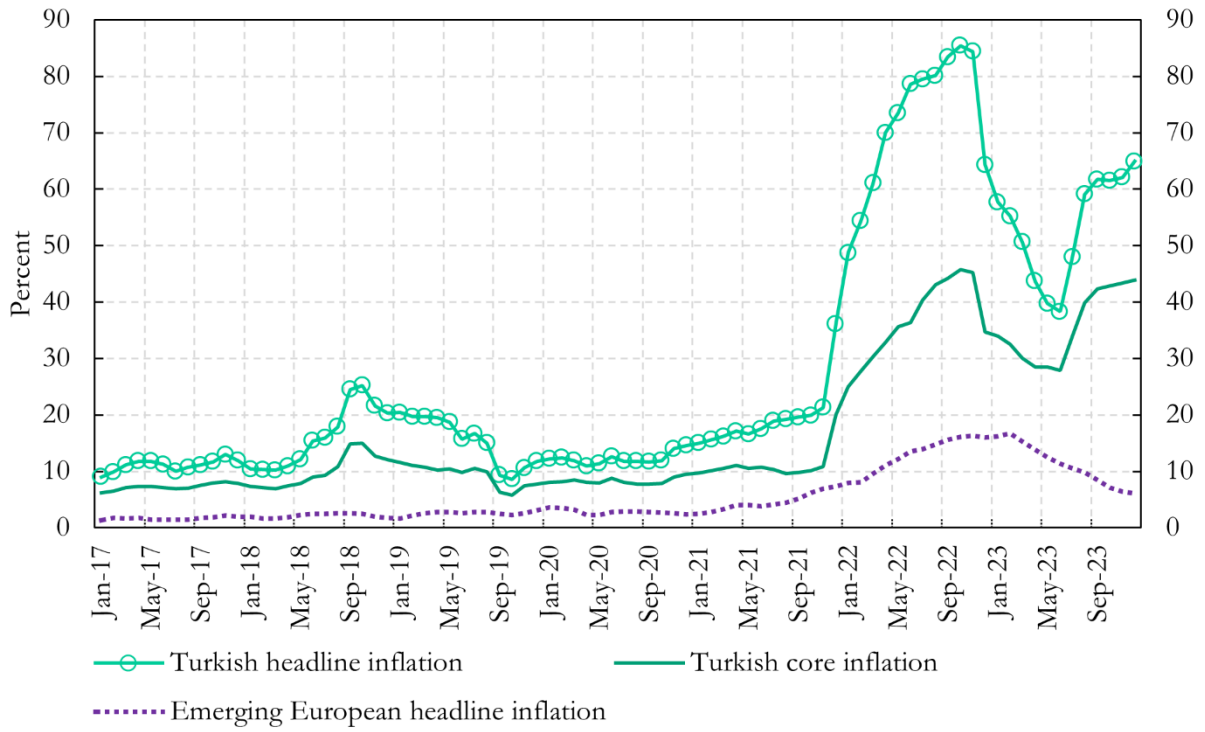


Figure 17: Turkish current account balance

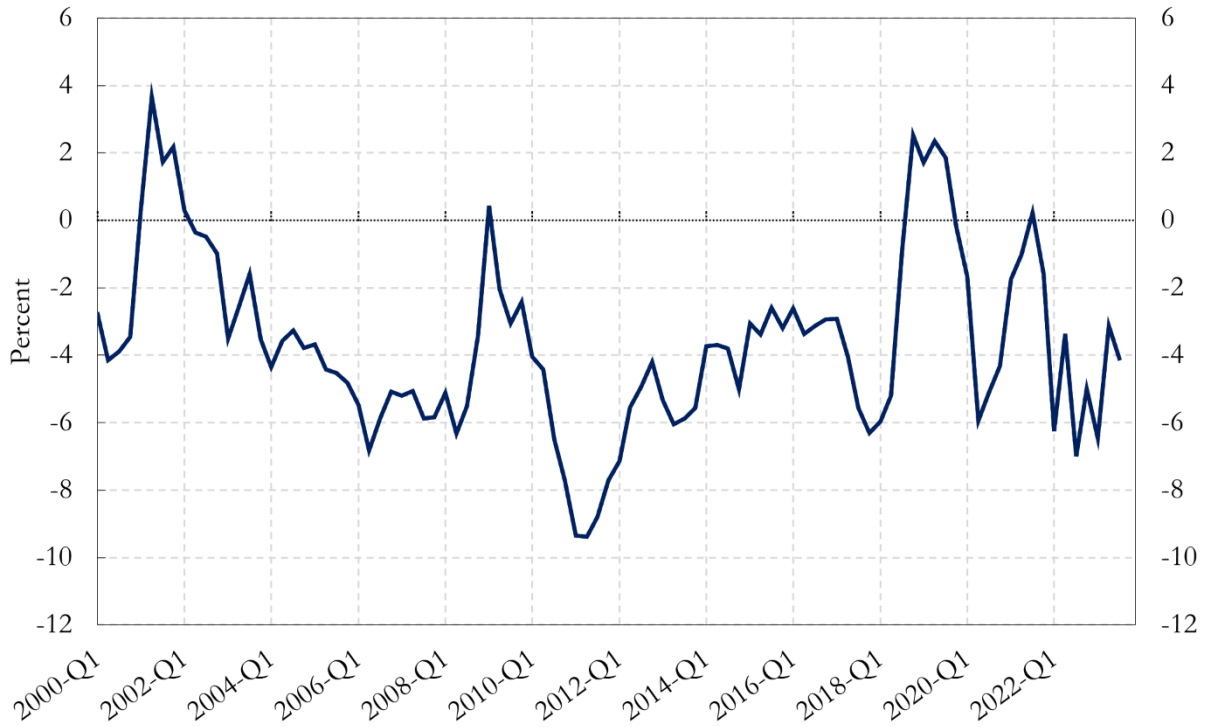




Figure 18: Foreign debt exposure of the Turkish non-financial sector

[To be added]

Figure 19: Turkish inflation and oil prices

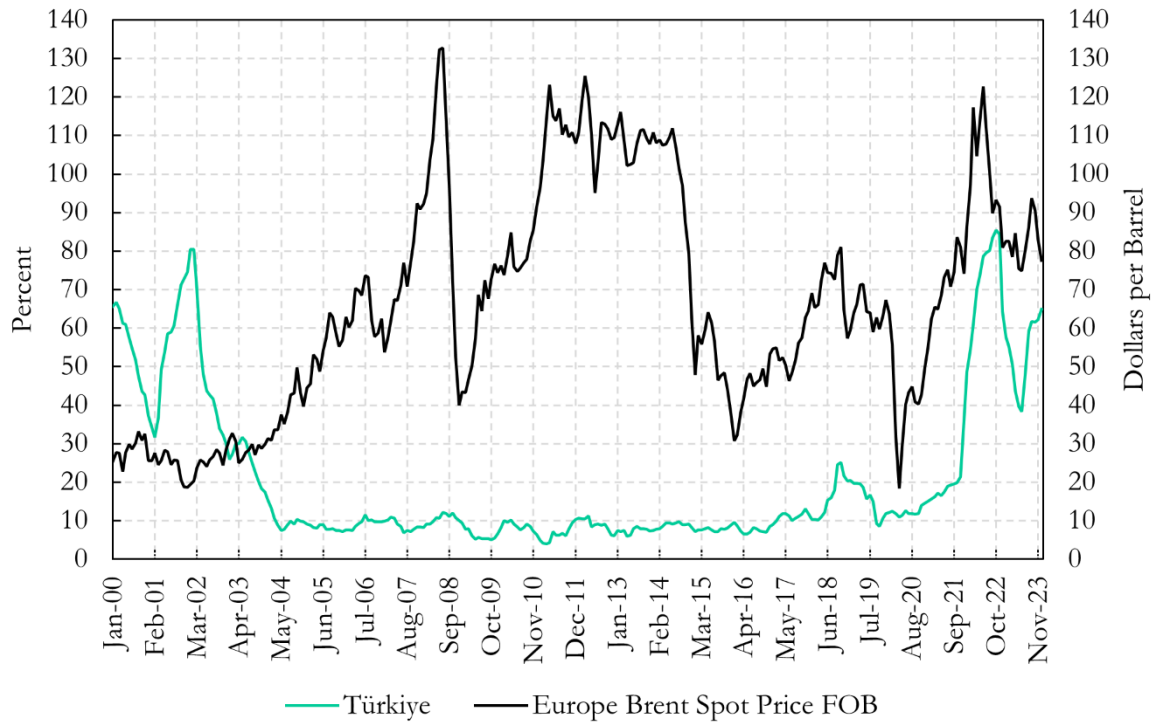


Figure 20: Headline inflation in emerging Europe, euro area and Switzerland

