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Inflation divergence in the euro area: nature and implications

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Abstract

Not only has inflation in the euro area accelerated to historical levels in 2022, but also the dispersion of inflation across Member States has risen strongly. We investigate the nature of this dispersion and find that it is driven by energy and food prices, whereas differences in core inflation are not unusually high, except for the Baltic countries. While large differences in inflation can lead to an undesirable divergence in growth trajectories, this cannot be addressed by the common monetary policy which should strictly focus on price stability in the euro area as a whole.

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CONTENTS

LIST OF ABBREVIATIONS

ECB   European Central Bank

EU   European Union

GDP   Gross domestic product

HICP   Harmonised index of consumer prices

TPI   Transmission Protection Instrument

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EXECUTIVE SUMMARY

- **Headline inflation differentials among euro area Member States are currently at the highest level ever since the start of the monetary union, mostly driven by energy price increases.** Energy subcomponents like fuels, gas and electricity also diverge strongly due to differences in the energy mix but also the characteristics of household utility contracts and regulations, including government interventions to dampen price increases at the consumer level. Hence the historic energy crisis affects Member States differently. The different energy price dynamics also feed into diverging food price inflation.

- **Core inflation, by contrast, does not yet signal a concerning level of divergence, with the exception of the Baltic countries.** While measures of dispersion of core inflation are also historically high among all Member States, the level of dispersion is not unusually elevated when the Baltics are excluded. This finding is confirmed by the analysis of price developments of around 100 HICP subindices, as only the Baltics show a significant shift of the distribution of sub-group inflation rates.

- **Inflation divergences under a single monetary policy can be problematic.** Increased inflation dispersion can inhibit the smooth functioning of the currency union if inflation differentials are significant and persistent. Relatively high inflation may lead to the perception of relatively low real interest rates, potentially fuelling a spiral of rising prices, wages and activity, whereas conversely in low inflation parts of the currency union higher real interest rates can endanger fiscal sustainability and potentially depress the economy. At the current juncture, it is too early to say that the recent inflation dispersion will lead to similar self-reinforcing growth differentials in the euro area as have been experienced before and after the Financial Crisis.

- **The ECB must safeguard price stability for the euro area as a whole, not for every single Member State.** It is not the task of the single monetary policy to fine-tune the business cycle in each Member State. The ECB does not have the tools to create identical real interest rates and financing conditions, or to prevent real exchange rate imbalances from building up. The focus of a single monetary policy must be the euro area aggregate.

- **Diverging trends in inflation have to be kept in check by national policymakers and market forces.** It is the responsibility of national economic policy to counteract potentially harmful macroeconomic developments at the country level, e.g. by discouraging a domestic credit-financed boom by means of regulation or fiscal policy. And if divergent inflationary dynamics persist, the resulting real exchange rate developments will eventually activate market forces that contribute to resolving these imbalances.

1. INTRODUCTION

Inflation rates in all euro area countries increased steadily since early 2021 and are currently extremely high by historical standards. The highest inflation rates are currently recorded in the three Baltic countries at over 20%, followed by rates of around 15% in the Netherlands and Slovakia (Figure 1). Elsewhere in the euro area, headline inflation is generally close to 10%, only Finland, France and Malta have registered significantly lower inflation over recent months, but still significantly above the inflation target.

The inflation surge has different origins, but the effects have accumulated since early 2021. During the first phase of the post-pandemic reopening of the economy, supply-chain problems and material shortages stood in the spotlight of public discussion. The rapid recovery of demand for goods combined with supply-side problems eventually led to surging prices along the supply chain. European gas prices already increased strongly in the second half of 2021 reflecting concerns about supplies amid unusually flows from Russia during the summer, while oil prices also contributed to inflation. Energy inflation depends on the energy mix of the respective countries, on introduced price regulations and the institutional setting of household utility contracts.[1] Another factor behind the surge in inflation is the creation of purchasing power through the fiscal-monetary policy mix applied during the pandemic. In contrast to previous periods, the fiscal deficits during the pandemic were larger and totally absorbed by central bank asset purchases. Monetary aggregates increased heavily and are closely related to the extra savings, which accumulated during the pandemic. The coincidence of purchasing power on the one hand and negative supply shocks on the other hand, which led to lower production capabilities, constitutes another reason for the – worldwide – surge of inflation (Kooths, 2022).

Inflation differentials across euro area Member States are at record levels. A large part of the dispersion of core inflation, i.e. inflation excluding energy, food, tobacco and alcohol, however, seem to be mostly driven by the three Baltic countries and Slovakia (Figure 1), where core rates are above 8%. For the rest of the euro area, core rates are considerably lower at approximately 4%. While recently the Netherlands, Greece, Cyprus, Portugal, Slovenia, Malta and Slovakia hit the 6% threshold. While there is huge divergence among the core rates of euro area countries they all reached a historic level and are way above the inflation target of the ECB.

The consequences of wider inflation differentials are unclear. Differences in inflation can to some extent be justified by catching-up processes. If there are larger deviations, however, and if these deviations accumulate, this can lead to excessive changes in real exchange rates within the currency union and lead to more asynchronous business cycles between Member States, thus complicating the conduct of monetary policy. The recent wave of inflation and inflation differentials is closely linked to the surge in energy prices and may be short-lived (or even reversed) if energy prices stabilise (or decline to more moderate levels). In any case, the question arises: what is the nature of recent inflation differentials, whether they will persist, and if there is need for the ECB to respond to them.

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[1]   The German council of economic experts has compiled a list of the interventions in European countries, although their degree and intensity is hard to measure (Sachverständigenrat, 2022, p.127).

Figure 1: Inflation rates in the euro area from January 2021 to October 2022

a) Headline Inflation
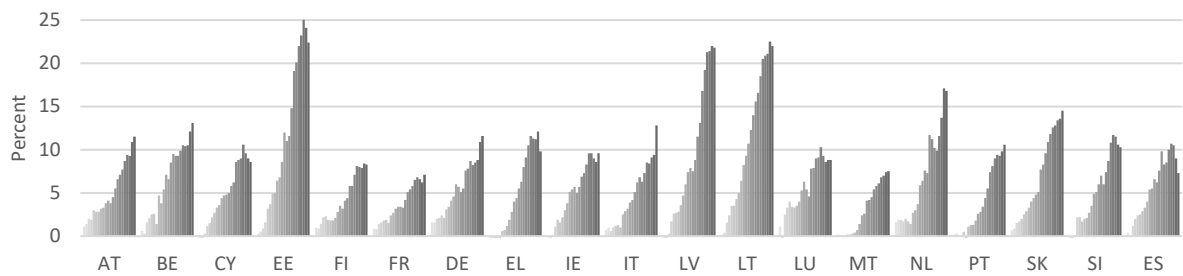
b) Core Inflation
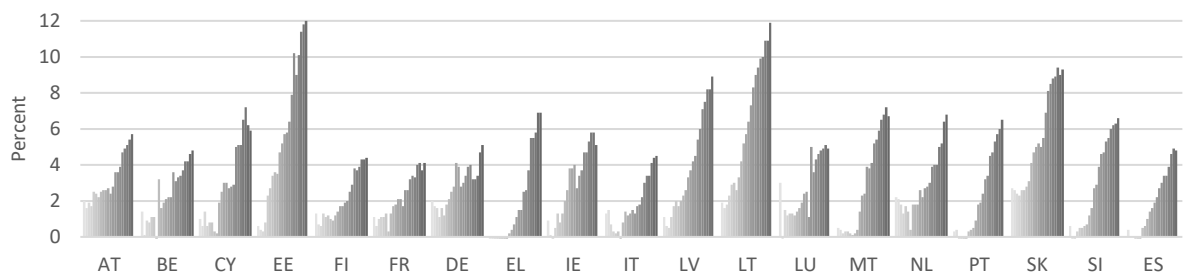
Source: Refinitiv, Eurostat.

Notes: Monthly headline and core inflation rates from January 2021 to October 2022. Core rate here is defined as overall inflation excluding energy, food, tobacco and alcohol. October data for core rates was available for Belgium, Cyprus, Finland, France, Germany, Greece, Italy, Malta Netherlands and Slovakia.

This paper is organised as follows: Section 2 analyses descriptively the sources of inflation divergences in the euro area, digging into harmonised index of consumer prices (HICP) subcategories and comparing different groups of Member States. Section 3 explains how inflation divergences can inhibit a smooth functioning of the euro area economy. Section 4 concludes with a discussion of the possible consequences for monetary policy and national economic policies.

2. CURRENT INFLATION DIVERGENCES IN PERSPECTIVE

This chapter puts the current inflation divergences into perspective using different levels of disaggregation. The first part investigates differences in price developments at the level of headline, core, food and energy inflation as well as the categories services and non-energy industrial goods. Energy is further disaggregated into fuels, gas and electricity price inflation. The second part of the analysis is based on around 100 comparable price series focusing on the shifts in the distribution of sub-group inflation rates in the euro area countries.
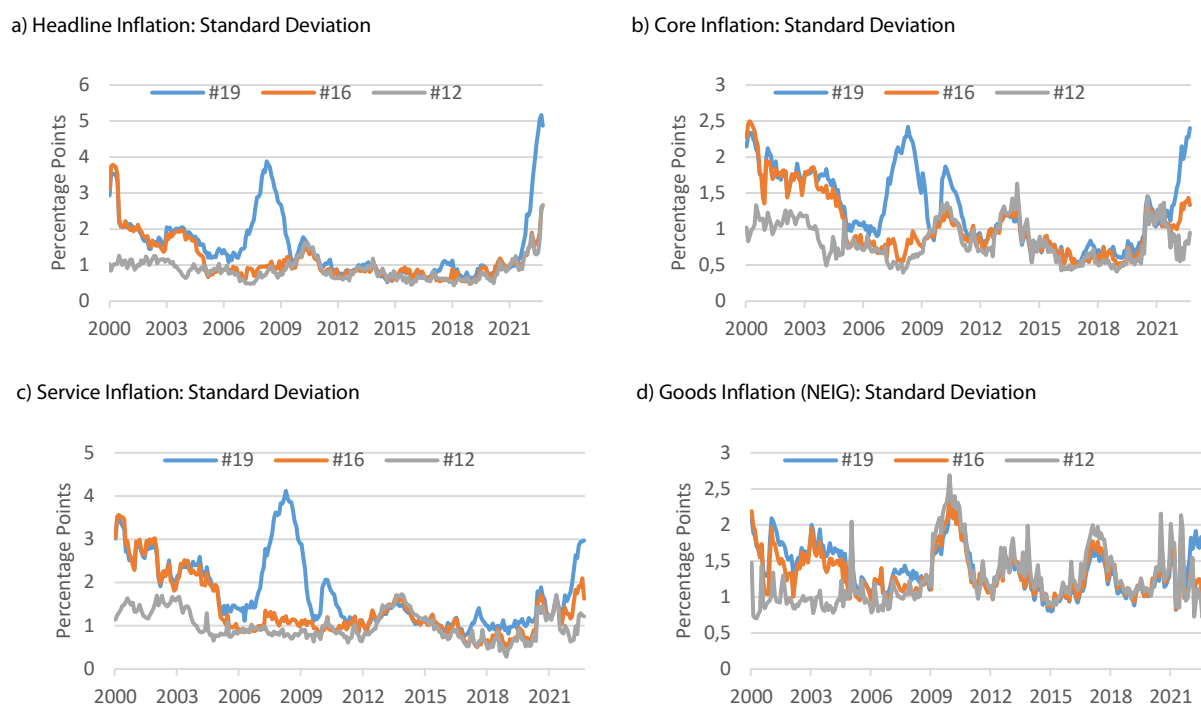
For the analyses two statistical measures are reported. The first measure is the standard deviation of the 19 year-over-year inflation rates for every month since the beginning of the currency union. This measure gives the average percentage point deviation around the average inflation rate of the 19 countries (*#19*). The average inflation rate can be seen as a common trend among the 19 countries. The more dispersed the inflation rates are, the higher will be the standard deviation. A high degree of dispersion of inflation rates can constitute a problem for a single monetary policy, which only applies its policy instruments (esp. interest rates) to the whole euro area targeting aggregate euro area inflation. This measure is also calculated for two other country aggregates: one consisting of 16 countries, where the three Baltic countries (Estonia, Lithuania, Latvia) are excluded (*#16*), which currently stand out in terms of inflation, and one with only the 12 initial countries of the currency area (*#12*)[2]. The second measure is the average percentage point absolute deviation from the underlying euro area inflation. In comparison to the first measure, the country size is taken into account, as the 19 countries receive corresponding weights in the calculation of the euro area inflation aggregate. Hence, the reference is not an equally-weighted average inflation rate of the 19 Member States, but the weighted average of the 19 inflation rates using Eurostat country weights. This measure is also calculated for the other two country aggregates (*#16*, *#12*). Differences over time of the two statistical measures are limited, so the corresponding figures of the second measure are only reported in the appendix.

2.1. Inflation dispersion based on major product categories

Currently the dispersion in headline inflation rates stands at its highest ever level since the start of the monetary union. The headline inflation differentials are more pronounced for the 19-Member States than for the other two country aggregates (#16, #12), reflecting the fact that the three Baltic states are recently inflating considerably more than any other country (Figure 1, Figure 2a). This occurred in similar fashion before the great financial crisis (Figure 2a). Although significantly lower, inflation dispersion is also at record levels for the 12 country and the 16 country aggregates. Currently, the difference between the two country aggregates is small, whereas the dispersion in the 16 country aggregate was substantially larger than in the initial-12 in the early years of the currency union, when the four countries were outside the euro and even outside the European Union (EU).

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[2] 11 initial Member States from 1999: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal and Spain, plus Greece which joined in 2001 before the currency was introduced. The following countries joined the currency area in a later stage: Cyprus (2008), Estonia (2011), Latvia (2014), Lithuania (2015), Malta (2008), Slovakia (2009) and Slovenia (2007).

Figure 2: Dispersion in headline and core inflation rates

a) Headline Inflation: Standard Deviation

b) Core Inflation: Standard Deviation

c) Service Inflation: Standard Deviation

d) Goods Inflation (NEIG): Standard Deviation

Source: Refinitiv, Eurostat.

Notes: Standard deviation of 19, 16 and 12 inflation rates respectively. Country aggregate #19 based on all countries of the euro area. Country aggregate #16 excludes the three Baltic countries. Country aggregate #12 is based on 12 initial euro area countries. Core rate is overall inflation excluding energy, food, tobacco and alcohol.

Core inflation dispersion is not exceptionally high for the majority of Member States of the currency area. The overall dispersion measure (#19) has spiked in recent months and is currently close to the peak experienced in the runup to the Great Recession. Again, the dispersion level is clearly driven by the three Baltic countries, which experience way higher core inflation rates than the rest of the euro area countries. The #12 aggregate shows that core inflation differentials in the initial Member States of the euro area are currently even within the normal range experienced over the past 20 years (Figure 2b, Figure 1b).

The divergence in core rates seems to be particularly driven by differences in services inflation. Dissecting the inflationary developments further, we look at dispersion in services inflation, which is at an elevated level with respect to its historical behaviour (Figure 2c, Figure 9 appendix). Again, services inflation is higher in the newer Members of the currency union and particularly in the Baltic countries, while for the 12 country aggregate the dispersion is less pronounced. Note that before and after the Great Recession, these countries have already shown large swings in services price inflation. Differences in services inflation can, in part, be caused by indirect effects of energy prices (pass-through), but wage dynamics should be particularly important as labour costs represent a large share of services production costs. Different wage dynamics will thus also be a prominent driver of core inflation divergences going forward.

**Inflation differentials for non-energy industrial goods are overall relatively high, but only due to high inflation in the Baltics and still in line with former peaks.** Non-energy industrial goods inflation has also risen for the 19-country group, but so far it is not higher than in previous phases of rising inflation. Strikingly, the increase of dispersion is entirely due to inflation in the Baltic countries as the

standard deviation is even comparatively low by historical standards for the 16- and 12- country aggregates (Figure 2d, Figure 9 appendix).

The biggest driver of headline inflation divergences is the energy component. Never before have there been energy price differentials of this magnitude in the euro area (Figure 3a, Figure 10 appendix). This holds true for all country aggregates, i.e. there are huge differences in energy inflation also among the initial Member States. These huge differences can be explained mostly by the gas and electricity components, but even fuel prices diverge strongly and at a level never seen before. Apart from transportation costs, fuel price increases should be relatively homogeneous among the Member States in a single market, but regulations and differences in the petrol-diesel usage might be drivers of this heterogeneity.
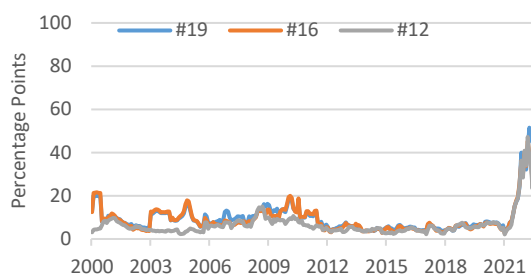
Figure 3: Dispersion in energy inflation

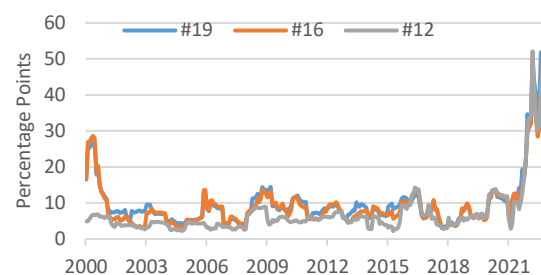a) Energy Inflation: Standard Deviation
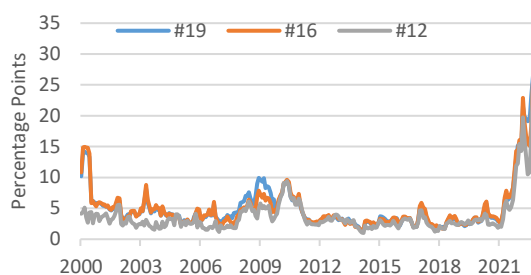
b) Fuels Inflation: Standard Deviation
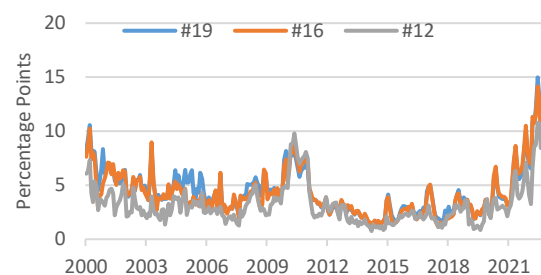
c) Gas Inflation: Standard Deviation

d) Electricity Inflation: Standard Deviation

Source: Refinitiv, Eurostat.

Notes: Standard deviation of 19, 16 and 12 inflation rates respectively. Country aggregate #19 based on all countries of the euro area. Country aggregate #16 excludes the three Baltic countries. Country aggregate #12 includes 12 initial euro area countries.

Institutional settings, the energy and heating mix and different intensity of price regulations lie at the heart of the differences in the evolution of electricity and gas prices. In Germany, a high prevalence of long-term contracts of households and small firms for gas and electricity and a relatively large market share of risk-averse utility companies, which hedge their procurement costs on the futures market, have led to subdued price increases (Sonnenberg, 2022). By contrast, in the Netherlands and Greece, gas prices increased dramatically recently and are pushing headline inflation figures upwards[3]. Regarding electricity, there were recently also huge increases in the Netherlands and Italy[4].

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[3]   In October 2022, the year-on-year increase of the gas component in the HICP is 229% in the Netherlands and 294% in Greece.

[4]   The increase of the electricity component in October is 188% in the Netherlands and 103% in Italy.

Once energy prices have stabilised, these drivers of dispersion should vanish. In some countries, the pass-through from higher electricity and gas prices is faster, while e.g. in Germany prices are increasing rather slowly. Nevertheless, in the end all countries face comparable costs regarding their energy inputs. The energy mix and the specific merit order to meet the demand then determines the cost increases. An energy mix where gas plants are needed relatively often to meet electricity demand will consequently end up with higher retail prices for households and companies. Future market prices decreased since their peaks in August, but are still relatively high compared to their 2005-2020 average values. For Germany, these futures prices still suggest a tenfold increase (Jannsen and Sonnenberg, 2022), which has so far been only partly passed on to retail customers. Eventually, in countries where the energy mix is heavily dependent on gas, the terms of trade effect and related loss in prosperity will probably be higher.

Figure 4: Dispersion in food inflation

a) Unprocessed Food Inflation: Standard Deviation
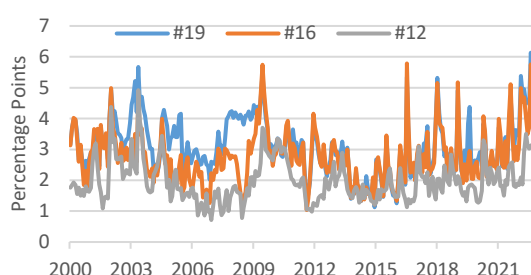
b) Processed Food Inflation: Standard Deviation
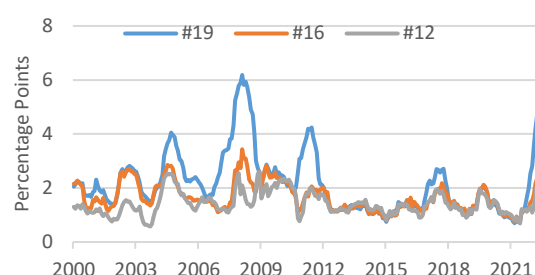
Source: Refinitiv, Eurostat.

Notes: Standard deviation of 19, 16 and 12 inflation rates respectively. Country aggregate #19 based on all countries of the euro area. Country aggregate #16 excludes the three Baltic countries. Country aggregate #12 includes 12 initial euro area countries.

Food price inflation differentials are currently also at a record level. Inflation differentials are high for both food subcategories (unprocessed food and processed food), but the dispersion is higher for processed food (Figure 4, Figure 11 appendix). This is probably related to the amount of energy used in the production process. The standard deviation at the level of 19 countries is once again visibly influenced by the dynamics in the Baltic countries, but the level for the other two country aggregates is also historically high (Figure 4). This effect might also be temporary in the sense that energy prices will be passed-through fully to consumers in all countries at some point.

2.2. Inflation divergences based on disaggregated approach

The disaggregated approach is based on some 100 subcomponents of the HICP and gives an insight into the broadness of price increases. For about 100 HICP price subindices distributional statistical measures provide information about the broadness of inflation. In contrast to the overall HICP and its categories – like services inflation or core inflation – the individual category time series are not aggregated using a weighting scheme, but are simply ranked by their monthly price increase. Then the 10, 25, 50, 75 and 90% quantiles are calculated[5]. The 50% quantile (median) indicates the inflation

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[5] With 100 subindices, the 10% quantile is the price increase at the 10th rank, i.e. only 9 categories have lower price increases than this product group in the respective month, and approx. 90 categories experience higher price increases than this product group.

rate of the category that parts the 100 prices increases into two halves. The median rate like core rates can be seen as a gauge of the underlying inflation dynamics[6] (Sonnenberg and Stolzenburg, 2022).

Since 2021, the distribution of sub-group inflation rates for the euro area has shifted upwards, and the inflation process is becoming more and more broad based. All distributional summary measures lie currently at record levels (Figure 5). The 90% quantile is influenced heavily by energy prices, but also the other measures are unusually high. For example, since the beginning of the currency union the 10% quantile (almost) always had a negative value, i.e. there was a sufficient number of categories with falling prices – today this quantile stands at a positive value of 1.1%. The 25% quantile currently stands at 2.6% and hence above the inflation target of the ECB.

Figure 5: Distribution of sub-group inflation rates in the euro area
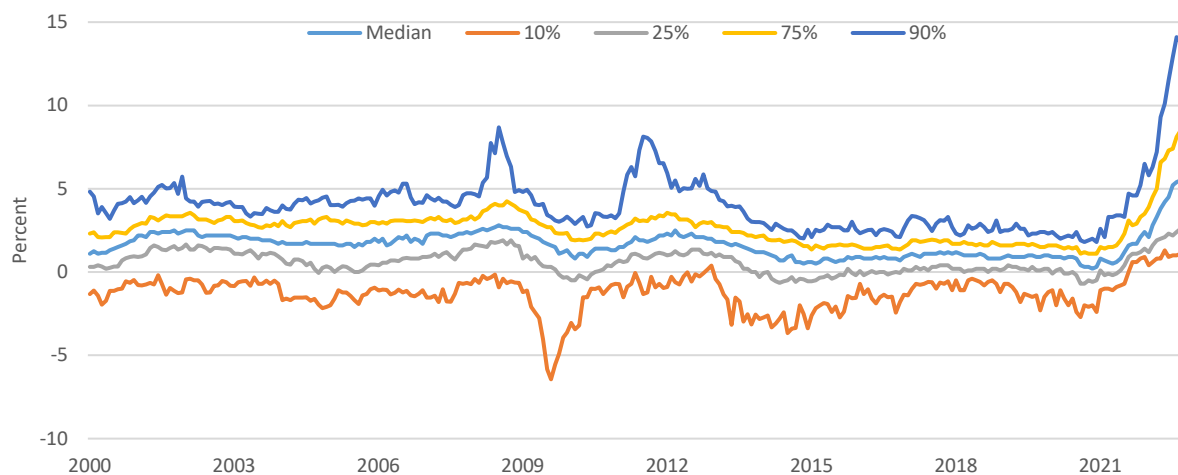
Source: Refinitiv, Eurostat.

Note: The graph shows quantiles of the distribution of sub-group inflation rates of CPI components at the 4-digit level (101 subindices).

In the past, big swings usually where shaped by the dynamics of crude oil prices. These big swings in a few oil-dependent subcategories can be seen by looking at the 10% and 90% quantile in the period around the Great Financial Crisis. With the booming world economy before the Great Recession, the oil price surged, reaching US dollar (USD) 140 per barrel of Brent in July 2008. A year before, it stood at USD 80 per barrel. In January 2009, the oil price stood at USD 40 per barrel. For fuel prices and heating oil the direct connection to crude oil prices is evident, but indirectly these dynamics spread to more categories.

The distribution of sub-group inflation rates was fairly stable until 2007, but shifted downwards after the Great Recession and the subsequent European sovereign debt crisis. Before 2007, the corridor between the 10% and 90% quantiles lay on average between -1% and 4%. The tails of the distribution experienced large swings after 2007 and during the Great Recession related to the volatility of oil prices. From 2015 to 2019 the corridor lay much lower, between -1% and 2.6% on average. Thus, particularly the higher quantiles (90%, 75%, 50%, 25%) shifted downwards. This effect also becomes

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[6] A trimmed mean is another way, which is often used to measure the underlying inflation dynamic. For the trimmed mean the extreme price increases, i.e. especially high or low price increases, are not considered in the mean calculation. It is often having a similar trajectory as the median of all price increases (Sonnenberg and Stolzenburg, 2022).

obvious from inspecting the inflation corridors for the single countries of the euro area (Figure 12 appendix).

The distributions of sub-group inflation rates in Italy, Spain, Greece and Portugal shifted visibly downwards in the aftermath of the euro sovereign debt crisis. This crisis, where sovereign bond yields escalated and growth rates decreased, had a lasting effect on the price dynamics in these countries (Figure 12 appendix). The shift in these countries also influenced the distribution of sub-group inflation rates of the euro area as a whole (Figure 5) as the share of these countries in the calculation of the euro area HICP is significant at about one third, according to the weights used by Eurostat.

The divergence in the quantiles of the distribution of sub-group inflation rates are currently at a high level. In line with the analysis above (chapter 2.1.), statistical measures like the standard deviation to describe the dispersion among the euro area countries can be calculated for all quantiles. Currently, the dispersion for a country aggregate including the Baltics is higher on all levels (quantiles). This is also indicated by the inflation corridors for the Baltics as they are the only ones that need a different vertical scale (Figure 13 appendix).

The median as an indicator for the underlying inflation dynamics also signals elevated price pressure in the Baltic countries. In line with the discussion of the behaviour of the core rates above (chapter 2.1.), the Baltic countries experience a much higher underlying inflation, so that the dispersion statistic for the country group including the Baltics stands out. But this is also true for the 75% and 90% quantiles (Figure 6, Figure 13 appendix). The dispersion for the 10% quantile is relatively low in historic comparison and there is also no big difference between the country aggregates (#19, #16, #12).

Figure 6: Dispersion in the distributional statistics of sub-group inflation rates
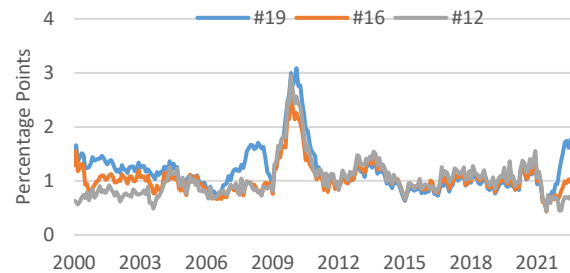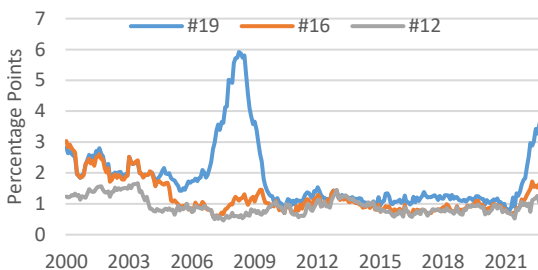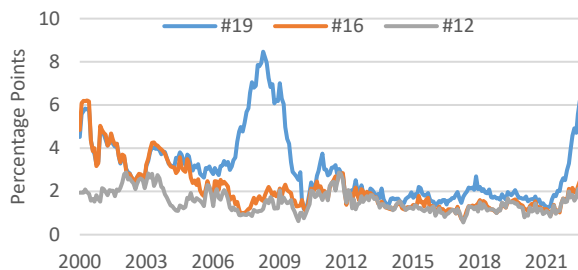
Median
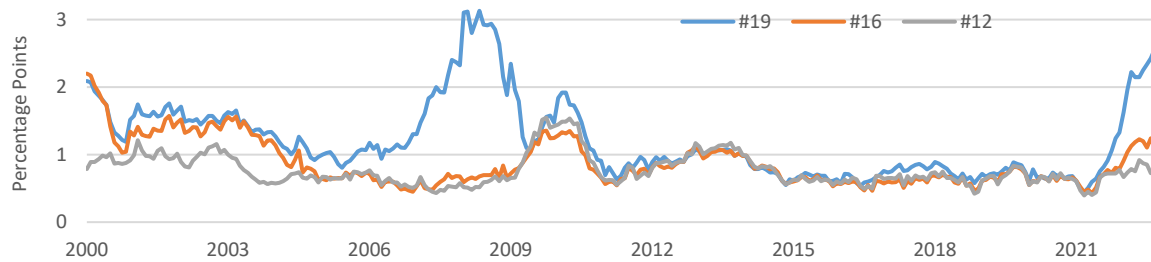
10% Quantile
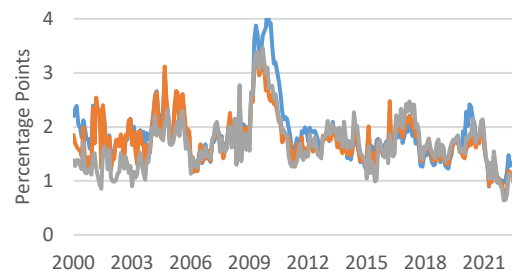
25% Quantile

75% Quantile

90% Quantile

Source: Refinitiv, Eurostat.

Notes: Standard deviation of the summary distributional measures for the respective 19, 16 and 12 countries. Country aggregate #19 based on all countries of the euro area. Country aggregate #16 excludes the three Baltic countries. Country aggregate #12 is based on 12 initial euro area countries.

Overall, the effect from the Baltic countries on the distribution of sub-group inflation rates for the euro area as a whole is limited. The country weight of the Baltic countries sums up to about 1%, hence the effect is limited. The distribution of sub-group inflation rates for the initial 12 euro area countries is very similar to the euro area aggregate (Figure 5, Figure 12 appendix). A significantly higher distribution of subgroup inflation rates can only be observed in Slovakia and the Baltics. However, they have experienced a higher upward and downward price flexibility also in the past, hence these elevated inflation dynamics may prove to be temporary. But going forward there might result a bigger trade-off, if eventually wage dynamics based on past inflation surges set in or inflation expectations de-anchor contributing to a persistent divergence of price and wage setting behaviour in the Member States.

3. POTENTIAL PROBLEMS WITH INFLATION DIFFERENTIALS

Inflation divergences under a single currency with a one-size-fits-all monetary policy can be problematic. Deviations in price developments between Member States are not a big concern if they are rather small and temporary. However, as soon as inflation differentials become relatively large and persistent, there is a case for counteracting potentially detrimental effects to the statics and the smooth functioning of the currency union. In this chapter, we present issues that may arise with deviations in price developments across countries – concerning an uneven transmission of monetary policy, concerning public debt sustainability and real exchange-rate misalignments.

With substantial differences in nominal interest rates or domestic inflation, an even transmission of monetary policy to individual Member States is hard to achieve. Economic actors take investment and consumption decisions based on their expectations of real interest rates. If these differ to a large extent, either due to differences in nominal interest rates or in expected inflation, monetary policy instruments affect economic activity differently within the currency union. Inflation differentials can even be self-reinforcing, when high inflation in a Member State leads economic actors to build above-average inflation expectations, so that perceived real interest rates are lower than in the euro area average. As a result, investment and consumption is stimulated additionally, raising domestic demand even further and fuelling inflation. Conversely, below-average inflation dynamics can also be self-reinforcing, when perceived real interest rates are relatively high, and domestic demand is hampered, thereby putting further downward pressure on prices. As a result, inflation differentials could potentially increase heterogeneity of the cyclical situation between Member States making it more likely that the common monetary policy is inappropriate for individual countries.

Figure 7: Government bond yields (10-year)
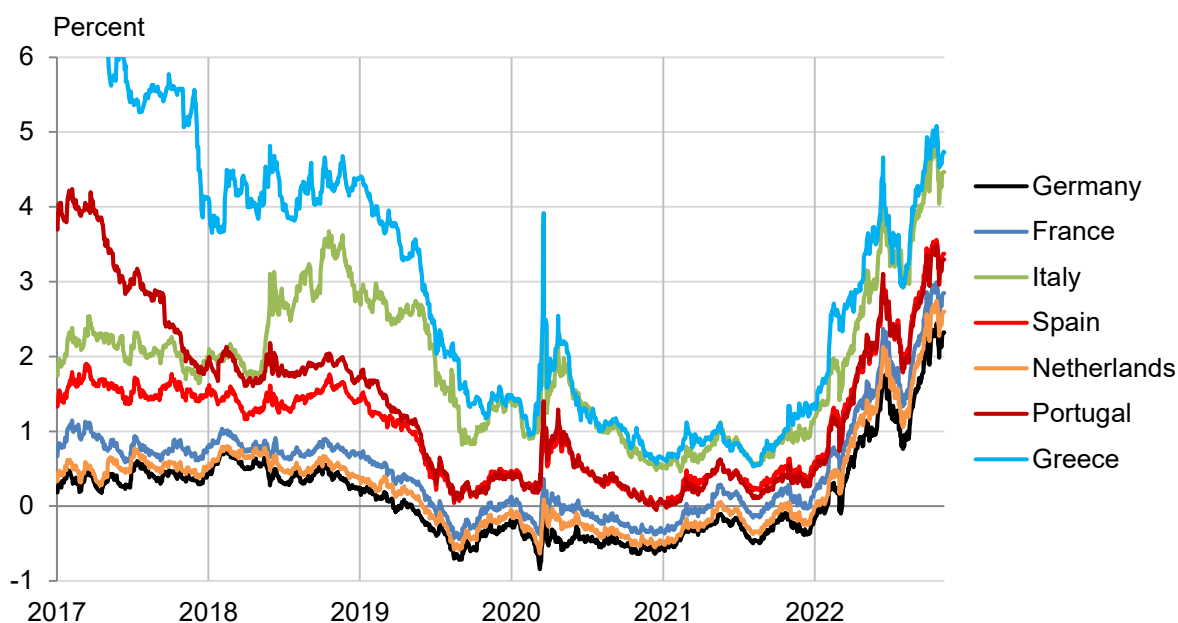
Source: Refinitiv.

Notes: Daily data.

Differences in nominal interest rates for government bonds have temporarily receded since the peak of the euro area debt crisis, but they are still there. Compared to 2021, the respective risk spreads of highly-indebted countries have re-increased to alarming levels raising the spectre of another sovereign debt crisis (Figure 7). This "fragmentation risk" urged the ECB to introduce a new instrument, the "Transmission Protection Instrument" (TPI), to counteract tendencies that refinancing costs between Member States drift further apart. Large interest rate differentials for government bonds may translate to different financing conditions for the private sector, because government bonds serve as benchmark assets for domestic financial markets.

The gross domestic product (GDP) deflator has also shown remarkable differences within the currency union. Consumer prices are subject to major changes in import prices, while the GDP deflator basically indicates at what rate the price of domestic value added increases. Therefore, a closer look at this domestic component of inflation is warranted. For example, at the onset of the currency union, the GDP deflator increased at a much faster rate in Spain – at about 4% on average between 1999 and 2008 – in contrast to Germany, where the increase was merely 1% on average. This differential may have fuelled the domestic boom and housing bubble in Spain, where the single monetary policy was probably too lax at that time, whereas an ailing German economy likely needed a less restrictive monetary policy stance. After the global financial crisis, these trends partially reversed. GDP deflator growth in Spain fell to a level close to zero until approximately 2017, whereas it increased steadily at about 1.5-2% on average for Germany. Lately, in 2022, the GDP deflator increased markedly in Germany and the Netherlands at about 5-6%. In Spain, the GDP deflator increased by about 4%, and in France and Italy, the increase was merely 2% in the first half of 2022.

For the sustainability of public finances and government debt, the interest-inflation differential matters. Public debt sustainability depends not only on nominal interest rates, but also on growth of nominal GDP, which is the combination of real GDP growth and the increase of the GDP deflator. A country that faces low interest rates, high rates of economic growth and large increases in the GDP deflator is in a much more comfortable position with respect to debt sustainability than a country at the other side of the spectrum. In the latter case, low domestic inflation can be problematic, in particular if the average inflation rate of the euro area, which determines the monetary policy stance, is higher than the domestic one. The case of Italy could be particularly challenging, as the risk spread on benchmark government bond yields is relatively high, the potential growth rate is notoriously low, and the Italian GDP deflator has increased by considerably less (about 2% y-o-y) than the euro area average (4.3%) up to the second quarter of 2022. Overall, from the perspective of public debt service, below-average domestic inflation dynamics can be problematic. At the same time, however, if above-average inflation dynamics accumulate in a currency union, firms from the respective country can run into competitiveness problems.

Permanent inflation differentials can result in a build-up of real exchange rate misalignments. The early years of the currency union where characterised by a substantial decline in interest rates for many countries, which fuelled a credit-financed boom and pushed inflation up in some of the periphery countries like Spain and Ireland. Inflation differentials kept on building up in the domestic price levels, as indicated by the scissor-shaped deviation in the level of the GDP deflator between Germany (black line below) and some of the periphery countries (Figure 8). A similar picture can be drawn with the development of unit labour costs within the currency union, that led to current account imbalances between surplus countries (Germany, Netherlands) and deficit countries (Greece, Italy, Ireland, Portugal, Spain). Since then, domestic inflation as indicated by the GDP deflator was subdued in most of the periphery countries, contributing to a narrowing of the previous imbalances.

Figure 8: GDP deflator in selected Member States
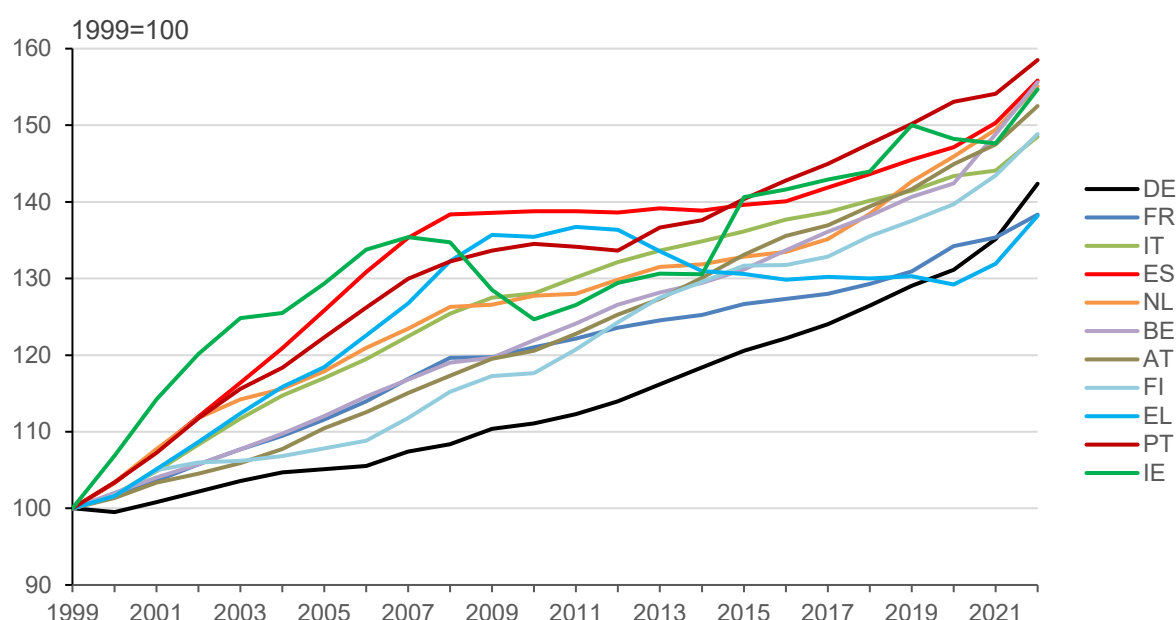
Source: European Commission, AMECO database (Spring 2022 forecast); Own Calculations.

Notes: Yearly data.

So far, the recent inflation divergences are too short-lived to cause self-reinforcing cyclical variations within the euro area or a pronounced deterioration in competitiveness for some countries. It remains to be seen whether these divergences prevail once the major first shock has passed and energy prices stabilise on a somewhat more moderate level in a few quarters or years. Moreover, at least among the bigger Member States this far, countries with above-average inflation dynamics as indicated by the GDP deflator are not at risk of running into competitiveness issues immediately.

Central and eastern European countries like the Baltics have recorded persistently higher increases in the GDP deflator for many years, though this may also reflect a rather benign catching-up process towards advanced economies. The Baltic countries, among others, which are not included in Figure 8 above, would end up beyond the vertical scale at 250 to 300 in 2022. While they entered the currency union only in the 2010s, their former currencies were pegged to the euro before, so that, given the absence of a nominal devaluation, the persistent and large differential of prices for domestic value added led to a pronounced real appreciation with respect to the other euro area Member States . However, this inflation differential appears not to be a major problem for exporting firms in these newer, less developed Member States. It may rather reflect a benign catching-up process that results in higher wage dynamics and inflation rates that are in line with fundamentals (see Box 1 below). Nevertheless, local policymakers should carefully monitor their economies for potential signs of overheating, excessive wage growth and loss of competitiveness, to avoid undesirable consequences.

Box 1: The Balassa-Samuelson theorem: benign inflation differentials?

The **Balassa-Samuelson Theorem** (Balassa, 1964 and Samuelson, 1964) describes the catch-up process regarding income and price levels of less developed economies vis-a-vis more developed countries. Usually, the productivity level in the industry (relevant for goods trade) is lower in less developed economies, and through capital accumulation and assumption of technological progress, a higher productivity growth results in comparison to already developed countries. Hence, the real wages in the traded goods sector can increase in line with productivity without a loss in competitiveness. The increasing wages in the traded goods sector also trigger wage increases in the domestic service sector. The degree to which wage increases spill over to services hinges on the level of labour mobility. As the productivity level is assumed to be constant in the services sector, the wage increases also lead to an upward pressure on the general price level. **Thus, in comparison to advanced economies, less developed countries experience higher inflation** while catching up, along with an appreciation of the real exchange rate under fixed exchange rates (or nominal appreciation under flexible exchange rates).

There are **critical assumptions** though involved to generate this effect:

1. The productivity level of services is constant. – *In reality, also an increase in productivity in the service sector is likely, while the increase in productivity will probably be slower for services compared to industrial goods production.*

2. Services are not tradable. *In reality, some services are indeed tradable (e.g. IT services, consulting activities), but the macroeconomic aggregate of domestically produced services is to a considerably larger extent consumed domestically compared to industrial output.*

3. Demand mix for trade goods and services is constant. *In reality, with rising incomes also the consumption of services usually increases relative to goods.*

4. There is no international labour mobility. *In reality there is some cross-border migration.*

Additional finding regarding capital inflows: Capital inflows can lead to a **"pseudo"-Balassa-Samuelson effect**, where real wages increase beyond the productivity equilibrium path on a credit-driven demand boom (Belke et al, 2018).

4. CONCLUSION AND POLICY IMPLICATIONS

Historically high headline inflation differentials among euro area Member States are mainly due to differences in the evolution of the energy component, suggesting that underlying inflation dynamics is less of a concern. Energy price inflation strongly differs across countries due to differences in the energy mix, but also the characteristics of household utility contracts and regulation, including government interventions to dampen price increases at the consumer level. Different energy price dynamics are also a major factor behind the increased dispersion of food price inflation. Thus, at the moment the historic energy crisis seems to affect inflation in the Member States differently. Over time, however, with adjustments to the energy crisis progressing on both the demand and the supply side and temporary government programmes being wound down, we would expect differences in price levels for energy in general and gas in particular to recede again. With respect to core inflation, the level of divergence is currently not particularly high among the 12 initial euro area Member States. While exceptionally high core inflation in the Baltic Member States is leading to an elevated level of inflation dispersion in the total euro area, the size of the Baltic economies is small. In addition, experience with similar episodes in the past suggests that price flexibility in the Baltic countries is sufficiently high to correct any excessive real revaluation that may result from the current price dynamics in a relatively short period of time.

A more co-ordinated response of European governments to the energy crisis would help to reduce potential tensions arising from its different impact on inflation at the country level. National governments in the EU followed different approaches in their response to escalating energy prices. While some governments concentrated on measures to assist households in particular in coping with higher energy bills, e.g. by extra transfers often targeted to vulnerable groups, others intervened heavily to limit the increase in prices. For example, in France price increases for gas and electricity have been capped at 15% for the year 2023, following the cap of 4% for electricity and a gas price freeze in 2022. In Malta, gas and electricity prices did not increase at all since April 2021, according to Eurostat HCPI data. Substantial differences in the extent to which price intervention measures are taken tend to distort the common internal market. In addition, subsidised prices inhibit the role relative prices play for demand adjustment and will lead to higher energy demand, driving prices still higher for consumers in other countries. Monitoring and guiding national policies to support the proper functioning of the internal market would be an important role for institutions at the European level. In addition, a common European medium-term energy strategy, including elements such as long-term contracts with potential suppliers of energy and the closure of gaps in the energy infrastructure, could stabilise expectations both on the supply and the demand side with potentially significant positive effects for all countries involved.

Persistent inflation differentials in a monetary union can lead to self-reinforcing differences in the effects of the common monetary policy and a build-up of macroeconomic imbalances. Differences in the cyclical position of member countries and asymmetric shocks inhibit the efficient transmission of monetary policy across Member States of a monetary union, which, in the euro area, is complicated by the low level of coordination of national fiscal policies. Inflation dispersion could mean that the common monetary policy, which is set by the ECB with a view at the euro area level, is too loose for high inflation countries and at the same time too tight for countries with relatively low inflation rates, leading to diverging economic trajectories. In the early years of the currency union persistent differences in inflation and, hence, real interest rates, fuelled a credit-financed boom in some countries and eventually led to a (painful) correction of economic structures and relative price levels. It is too early to say that the recent inflation divergences will lead to similar self-reinforcing growth

differentials in the euro area. The behaviour of underlying inflation in the euro area countries, with the exception of the Baltic states, rather suggests that the risk of running into competitiveness issues is currently limited.

The primary objective of the ECB is to safeguard price stability for the euro area as a whole, not for every single Member State. It is important to note that the single monetary policy has to be conducted according to the requirements of the euro area aggregate. It is not the task of the ECB to fine-tune the business cycle in each Member State at any point in time, let alone provide a tailor-made monetary policy stance for the Baltics which represent less than a percentage point of euro area GDP. The ECB does not have the tools to provide identical real interest rates and harmonised financing conditions in every Member State, or to prevent real exchange rate imbalances from building up. The focus of attention of the ECB must be on the euro area as a whole.

The risk of fragmentation has increased amid monetary tightening and could result in the ECB being soft on inflation. Given the strong inflationary pressure, the ECB is called to tighten monetary policy aggressively. Substantially higher nominal interest rates could result in a painful increase of real interest rates particularly in countries with a relatively low growth of nominal GDP and a legacy of high government debt. In this situation, familiar questions about debt sustainability and fragmentation risk re-appear (Gern et al., 2022). To alleviate concerns about a negative spiral in sovereign debt markets, the ECB has launched the TPI. It is nevertheless possible that in the pursuit to avoid fragmentation risk, the ECB could be tempted to lean towards tightening monetary policy too slowly at the cost of persistent deviations from the inflation target.

Temporary inflation divergences will have to be kept in check by market forces and by policies in the Member States. Growth in high inflation countries will finally lose momentum when the domestic economy is increasingly priced out of the markets, and financial exposure has to be reduced. Such adjustments can, however, come with a serious recession. It is the responsibility of national economic policy to counteract harmful developments at the country level, e.g. by discouraging a domestic credit-financed boom by appropriate regulation (e.g. institutional setup for wage formation, housing market, macroprudential policy) or fiscal policy (e.g. taxation). In the context of macroeconomic surveillance ("Macroeconomic Imbalances Procedure"), the European Commission extensively reports on possibly undesirable developments in EU Member States. Countries receive in-depth analyses and economic policy recommendations from Brussels in order to counteract the build-up of vulnerabilities and macroeconomic imbalances. This is complemented by national institutions – central bank, ministries, research institutes, systemic risk board, fiscal council, think tanks – which analyse these issues and provide recommendations to national policymakers. If policy fails to arrest increasing imbalances, unsustainable economic trends will eventually be checked by market forces.

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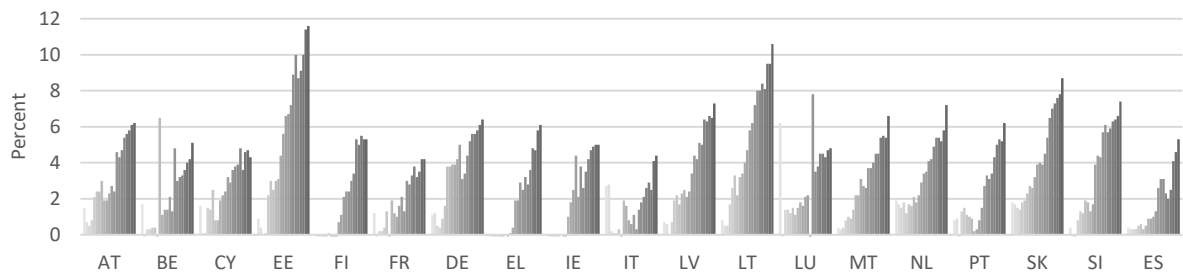
ANNEX

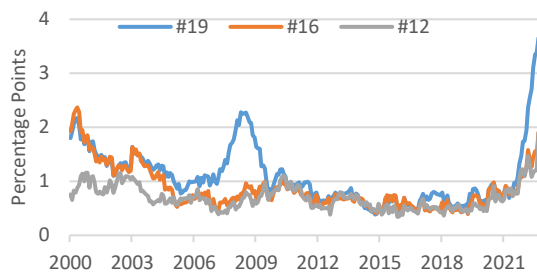Figure 9: Service and goods inflation in the euro area

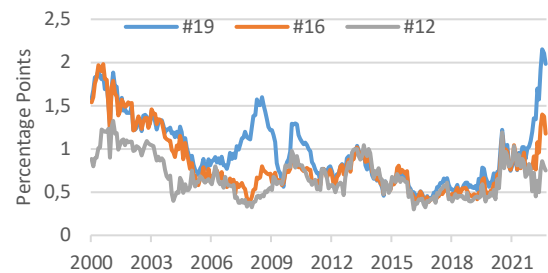Service Inflation from January 2021 to September 2022
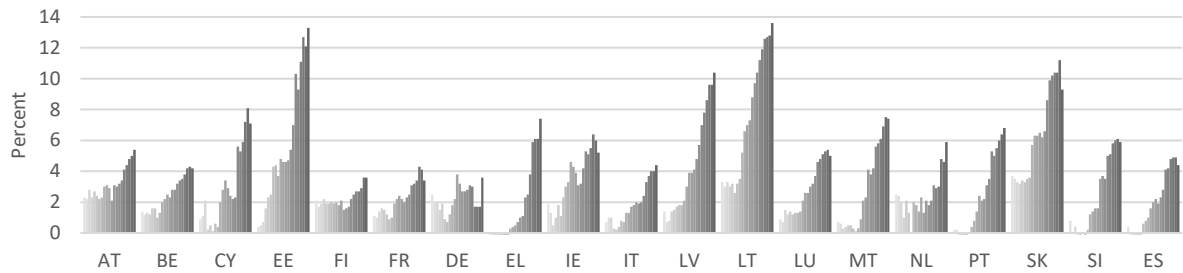
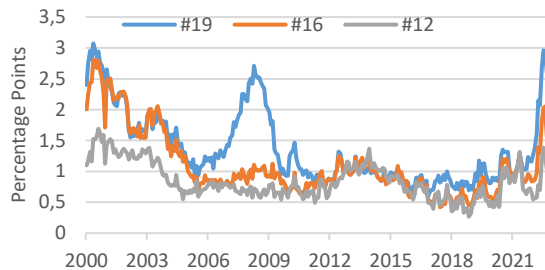Goods Inflation from January 2021 to September 2022

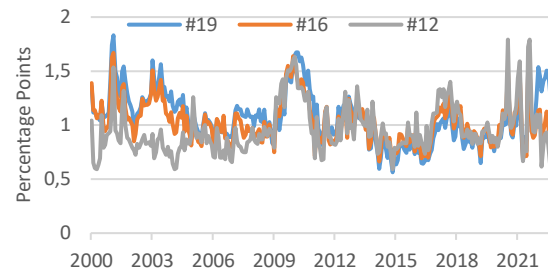Headline Inflation: Mean of abs. difference from euro area rate

Core Inflation: Mean of abs. difference from euro area rate

Service Inflation: Mean of abs. difference from euro area rate

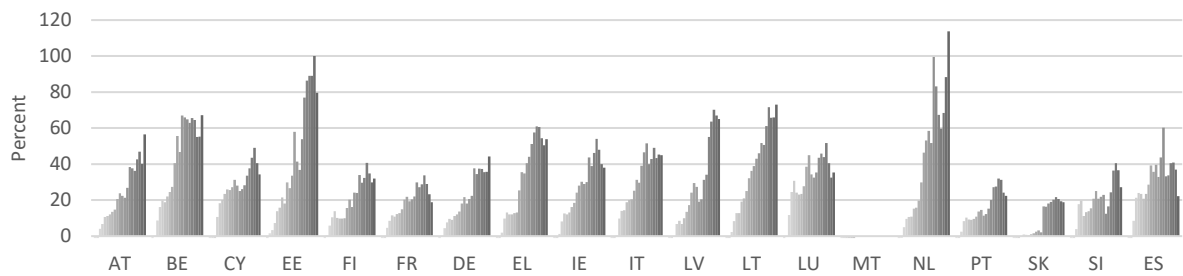Goods Inflation (NEIG): Mean of abs. diff. from euro area rate
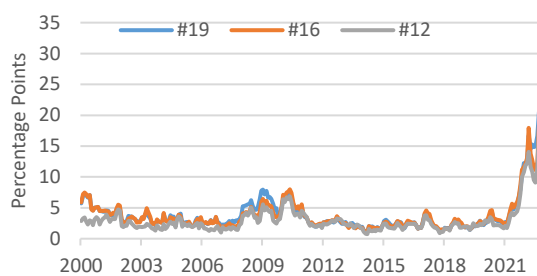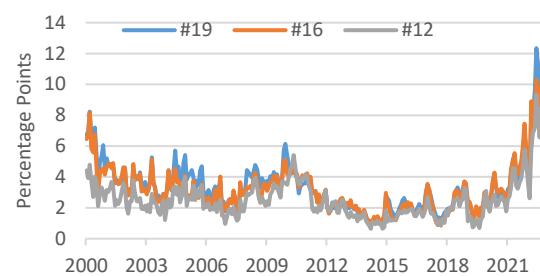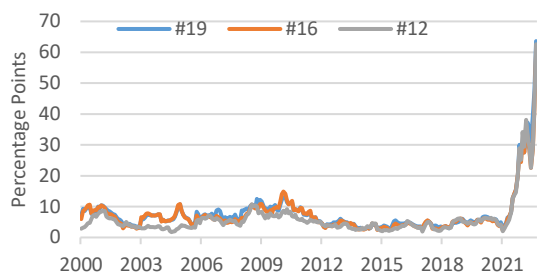

Source: Refinitiv, Eurostat.

Notes: Mean of the absolute difference from corresponding euro area rate for 19, 16 and 12 countries respectively. Country aggregate #19 based on all countries of the euro area. Country aggregate #16 excludes the three Baltic countries. Country aggregate #12 is based on 12 initial euro area countries.

Figure 10: Energy inflation

Energy Inflation from January 2021 to September 2022

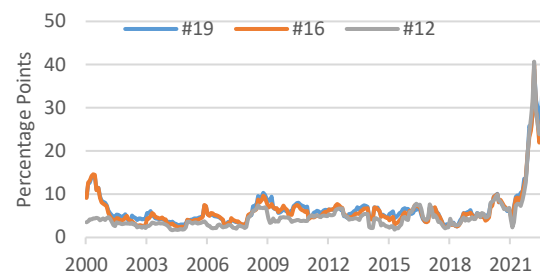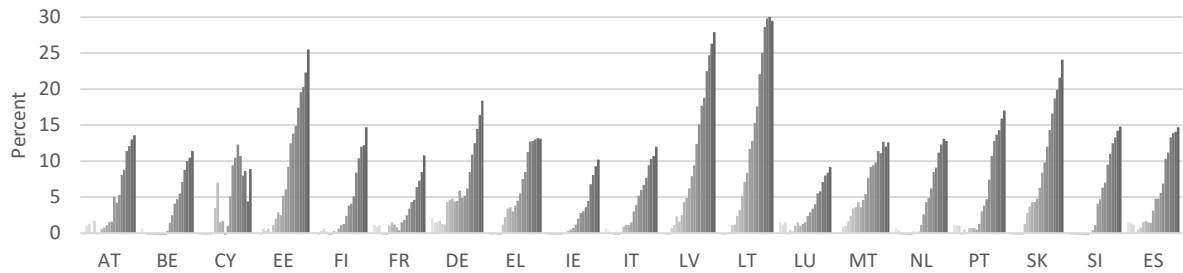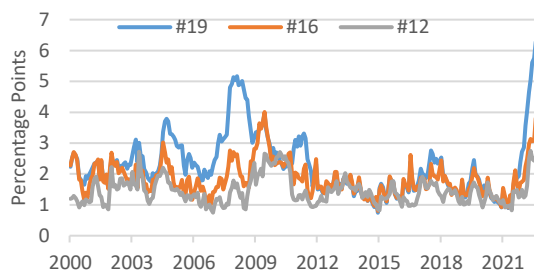Energy Inflation: Mean of abs. difference from euro area rate

Fuels Inflation: Mean of abs. difference from euro area rate

Gas Inflation: Mean of abs. difference from euro area rate

Electricity Inflation: Mean of abs. difference from euro area rate

Source: Refinitiv, Eurostat.

Notes: Mean of the absolute difference from corresponding euro area rate for 19, 16 and 12 countries respectively. Country aggregate #19 based on all countries of the euro area. Country aggregate #16 excludes the three Baltic countries. Country aggregate #12 is based on 12 initial euro area countries.
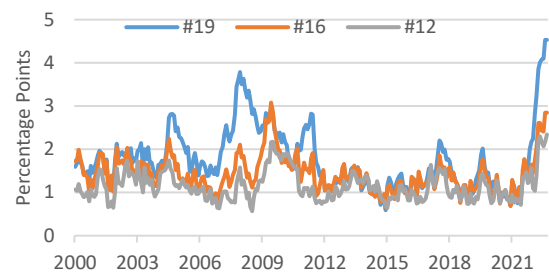
Figure 11: Food inflation

Food Inflation from January 2021 to September 2022

Food Inflation: Standard Deviation

Food Inflation: Mean abs. difference from euro area rate

Source: Refinitiv, Eurostat.

Notes: Standard deviation of 19, 16 and 12 inflation rates respectively. Mean of the absolute difference from corresponding euro area rate for 19, 16 and 12 countries respectively. Country aggregate #19 based on all countries of the euro area. Country aggregate #16 excludes the three Baltic countries. Country aggregate #12 is based on 12 initial euro area countries.
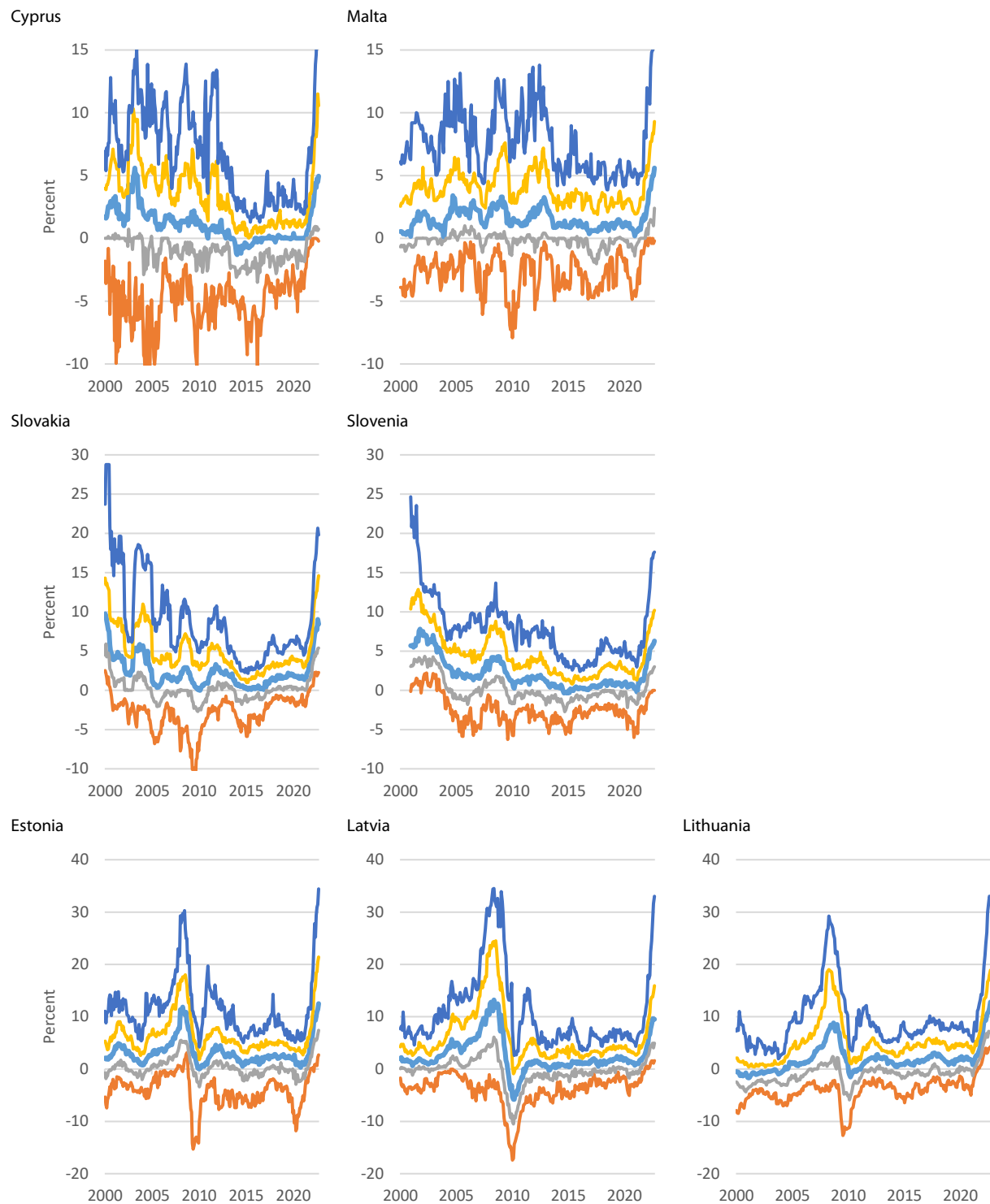
Figure 12: Distribution of sub-group inflation rates for 12 initial euro area countries
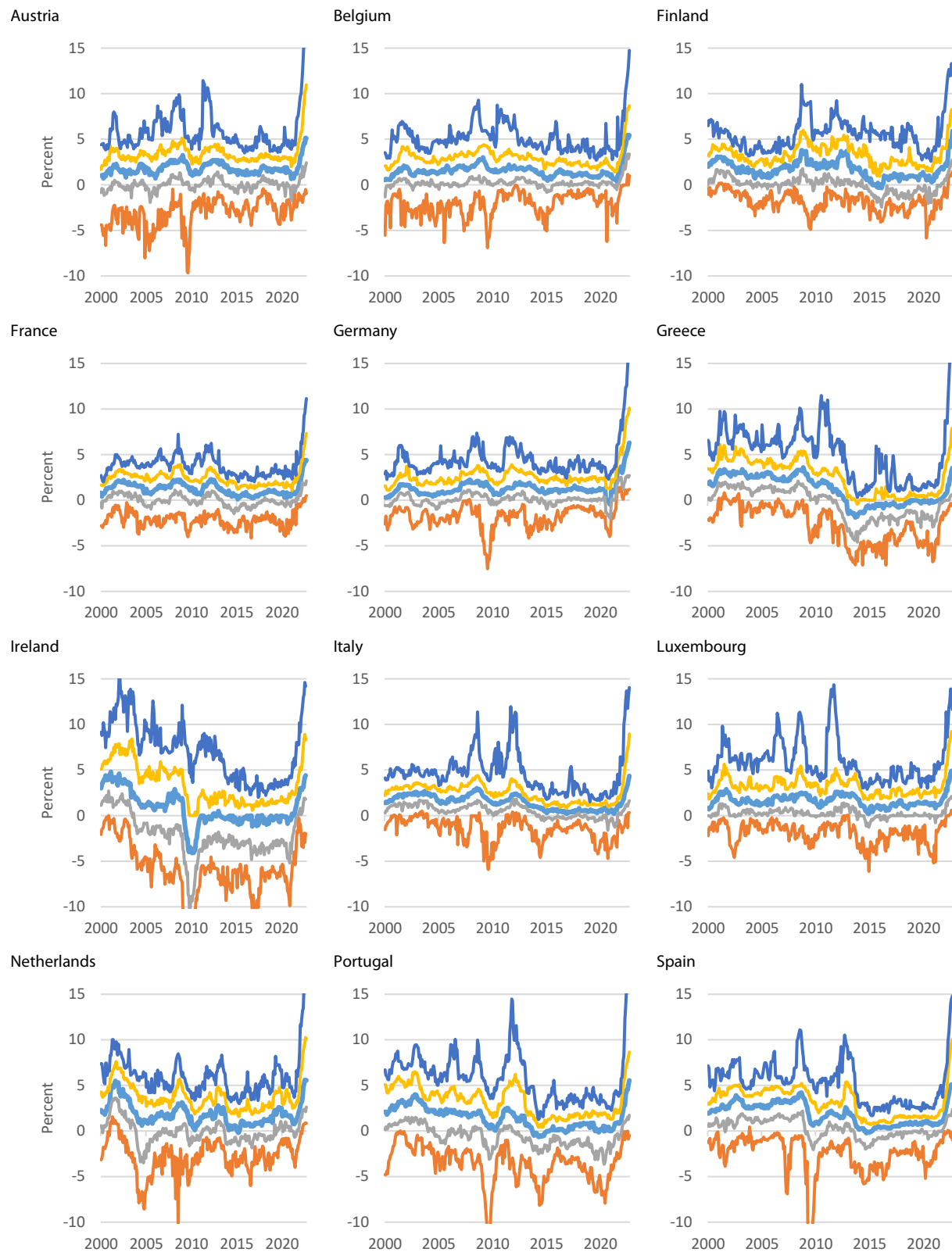
Notes: The graph shows quantiles of the distribution of sub-group inflation rates of CPI components at the 4-digit level
(approx. 101 subindices).

Figure 13: Distribution of sub-group inflation rates for newer euro area countries

Notes: The graph shows quantiles of the distribution of sub-group inflation rates of CPI components at the 4-digit level (101 subindices). For Cyprus and Malta the same scale as for the 12 initial euro area member is used. For Slovakia and Slovenia, the scale is adjusted upwards. For the Baltic countries the scale had to be adjusted further upwards.

Not only has inflation in the euro area accelerated to historical levels in 2022, but also the dispersion of inflation across Member States has risen strongly. We investigate the nature of this dispersion and find that it is driven by energy and food prices, whereas differences in core inflation are not unusually high, except for the Baltic countries. While large differences in inflation can lead to an undesirable divergence in growth trajectories, this cannot be addressed by the common monetary policy which should strictly focus on price stability in the euro area as a whole.