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THE PROFIT-PRICE SPIRAL IN FOOD AND ENERGY: ANALYSIS AND TOOLBOX TO FIGHT INFLATION

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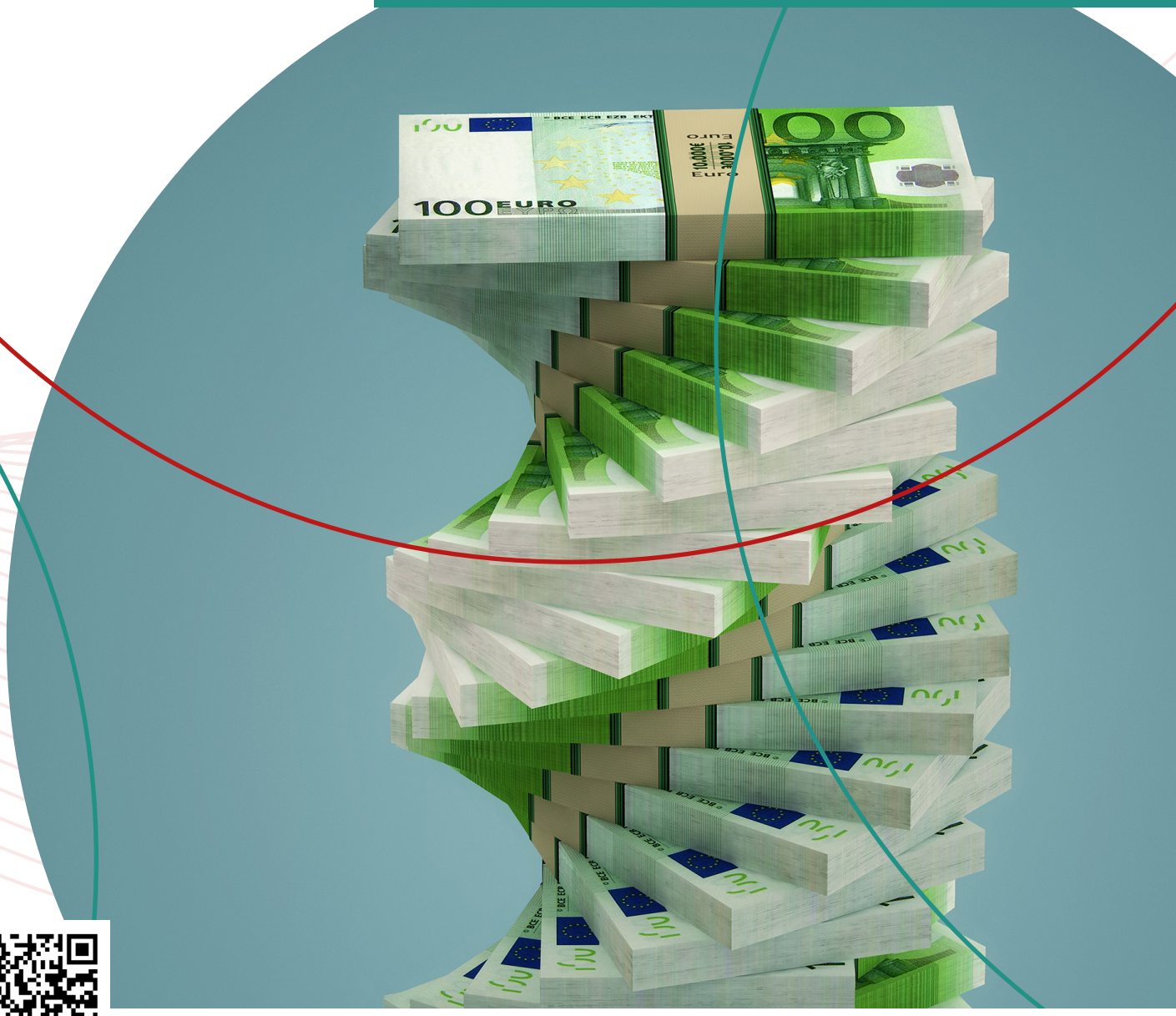

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

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This policy study analyses the role of profits in food and energy price inflation in the EU in 2022-23. It uncovers new stylised facts around energy and food price inflation, discusses the effectiveness of policy responses, and highlights how companies along the food supply chain have significantly benefited during high inflation. The study provides new contributions to the understanding of inflation along three lines:

1. Assessment of the effectiveness of policies to deal with energy price inflation:
    - We show that countries which spent more on energy price controls had overall lower energy price inflation: 1% more spent on price controls as a share of total spending reduces energy price inflation by 0.37 percentage points between 2021 and 2023.

2. Analysis of profits along the food supply chain. The policy study highlights how companies along the food supply chain benefitted greatly from recent food price inflation:
    - Profits of fertiliser producers and food commodity traders have skyrocketed during recent price surges. Moreover, a large part of profits in these sectors can be attributed to speculation.
    - High concentration in the maritime transport sector has amplified bottlenecks that allow companies to control crucial points in the supply chain, raising the profit margins of shipping companies to around 50%.
    - Food processing companies exert significant pricing power, resulting in permanently high profit margins in this sector.
    - High and often increasing concentration in grocery retail in many European countries.

3. The policy study outlines a toolkit to tackle future inflationary shocks:
    - We discuss the key impacts of different policy options, reflect on their advantages and disadvantages and discuss their application in the EU. The following instruments are discussed in more detail: price controls; income support; excess profit taxes; limiting speculation; increasing price transparency; building strategic reserves; and reducing fossil fuel dependency.

1. THE ROLE OF PROFITS IN INFLATION: OVERVIEW AND INTRODUCTION

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After prolonged periods of low inflation in Europe, inflation returned in 2022. Supply-side shocks such as COVID-19-related production closures and transport delays, as well as the Russian invasion of Ukraine in early 2022, abruptly increased import prices and overall inflation, with inflation peaking at 10.6% in October of that year.

Yet, there is more to the recent surge in inflation than just these supply-side shocks. Notably, the contribution of profits to inflation has received a lot of attention (Storm, 2023; Weber and Wasner, 2023). Globally, the post-pandemic (temporary) market power of some corporations is suspected to have exacerbated price surges (Jung and Hayes, 2023) and numerous studies suggest that many firms have raised prices beyond the level needed to offset higher costs (International Monetary Fund (IMF), 2022; Cucignatto et al., 2023). Konczal and Lusiani (2022) observe the highest profit markups and margins in the USA since the 1950s. For the eurozone, the IMF found that domestic profits accounted for up to 45% of the average increase in inflation (Hansen, 2023). One result of these trends is that the share of labour in overall income fell during this recent period of high inflation (Jung and Hayes, 2023; Onaran, 2023), redistributing income away from wage earners. Some studies have also highlighted the role of excess profits – profits that exceed a predetermined "normal" rate of return – in crisis periods (Hebous et al., 2022; Magalhães and De Lillo, 2023; Directorate General for Economic and Financial Affairs, 2024; Heck et al., 2024).

However, few studies have examined profits and inflation in specific essential sectors like energy and food. This policy study aims to fill this gap. Section 2 centres on profits and inflation in the energy (Section 2.1) and food (Section 2.2) sectors. Inflation in these sectors is a particular concern for lower-income groups, as they spend a relatively larger amount of their income on essential items than higher-income groups. Moreover, energy is used in almost every other sector as an input, thus affecting costs in other sectors. This makes energy prices "systemically relevant" (Weber and Schulken, 2024) and warrants detailed analysis and policy attention.

Although inflation calmed down in most European countries by the summer of 2024, the EU economy remains vulnerable to inflationary shocks, due to the looming climate crisis, geopolitical conflicts or wars (Van 't Klooster and Weber, 2024). Therefore, this policy study suggests a policy toolkit (Section 3) to prepare for future shocks, discussing the primary impact, pros/cons and examples of several policies: price controls; income support; excess profit taxes; limiting speculation; increasing price transparency; building strategic reserves; and tackling fossil fuel dependency.

The policy study is structured as follows: Section 2 gives an overview of energy and food inflation, followed by detailed discussions of energy and food. Section 2.1 lays out reasons for energy price inflation, the role of profits, cross-country variation in energy price inflation, and a discussion of countries' and EU policy responses. Section 2.2 turns to food price inflation, with an overview of the reasons for food price inflation and analysing profits and market concentration along the food supply chain during the recent inflationary period, focusing on food commodity trading, fertilisers, maritime transport, food manufacturing and retail. Section 3 discusses different policy tools to prevent and manage potential future price shocks.

2. UNDERSTANDING THE PRICE DYNAMICS IN FOOD AND ENERGY SECTORS

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In the EU, energy and food price inflation have outpaced overall inflation. While overall inflation peaked at an annual rate of 10.6 % in October 2022 (Schnabel, 2024), energy price inflation peaked above 40% in June 2022, four months after the Russian invasion of Ukraine (Figure 1). As shown in Figure 1, energy price inflation precedes overall inflation, as energy is a "systemically relevant" good (Weber and Schulken, 2024) that serves as an input for many other goods, including food. Food price inflation has also become a significant concern across EU countries. Starting in late 2021, food price inflation surged in EU countries, reaching levels not seen since the 1970s. Food price inflation exceeded 10% for most of 2022 and early 2023 and peaked in March 2023 when it hit almost 23%. The peak of food prices lags behind energy price inflation by several months.

Figure 1. Food and energy price inflation in Europe, annual change (in %).

Source: Own calculations with Eurostat data.

2.1 Energy

2.1.1 Reasons for energy price inflation

The surge in EU energy prices was caused by several factors: the Russian invasion of Ukraine; rising demand for energy post-pandemic; lower capacity of nuclear generation; speculation; profiteering; and a poor design of the EU electricity pricing system. These factors combined create a perfect storm of energy price inflation in Europe in 2021-22.

Firstly, the Russian invasion of Ukraine caused major price disruptions in European and global energy markets in 2022. This has sparked a reconsideration of the reliability of Russian gas as an energy source. In a joint European effort, the share of gas originating from the Russian Federation has since plummeted from roughly 40% to 8%.[1] Yet, there are important cross-country differences (see Section 2.1.3), which are closely related to countries' integration with Russian energy markets.

Prices in the energy sector, however, had already been rising before the Russian invasion. Energy prices in the EU already grew at an annualised rate of more than 20% in autumn 2021 (Figure 1), reflecting the surge in energy demand as economies recovered from the COVID-19 pandemic. Industrial activity ramped up significantly, compared to the previous year, as manufacturing and heavy industries resumed operations at higher capacities to meet pent-up consumer demand. Moreover, lower capacity of nuclear generation in 2022 due to technical issues, notably the need for maintenance works on French reactors, also had an effect.

What happened in 2022, however, cannot be fully explained by supply-demand mismatch. The kind of price fluctuations that were observed in 2022, when the gas price rose from €30 per MhW in summer 2021 to almost €350 per MhW in summer 2022, were a sign of malfunctioning European energy markets.

There are two main features of the European energy market that contribute to a massive price disruption for gas and electricity. Firstly, the price of gas in the EU is defined based on the gas commodity futures benchmark called TTF, which is linked to a gas hub in Rotterdam.[2] This means that whenever there are swings in the mood of commodity traders and subsequent huge swings in the price of gas derivatives, all of this is translated into higher prices for European consumers. A second crucial element is that the electricity price in the EU is calculated based on the gas price through a so-called marginal pricing mechanism (see Box 1). This means that fluctuations in the gas markets ripple through the whole economy. In 2022, we saw the perfect storm that this system produced, when concerns about gas supplies led to more than a ten-fold gas price jump and a massive electricity price increase throughout the European economies.

Box 1. Electricity pricing in the EU.

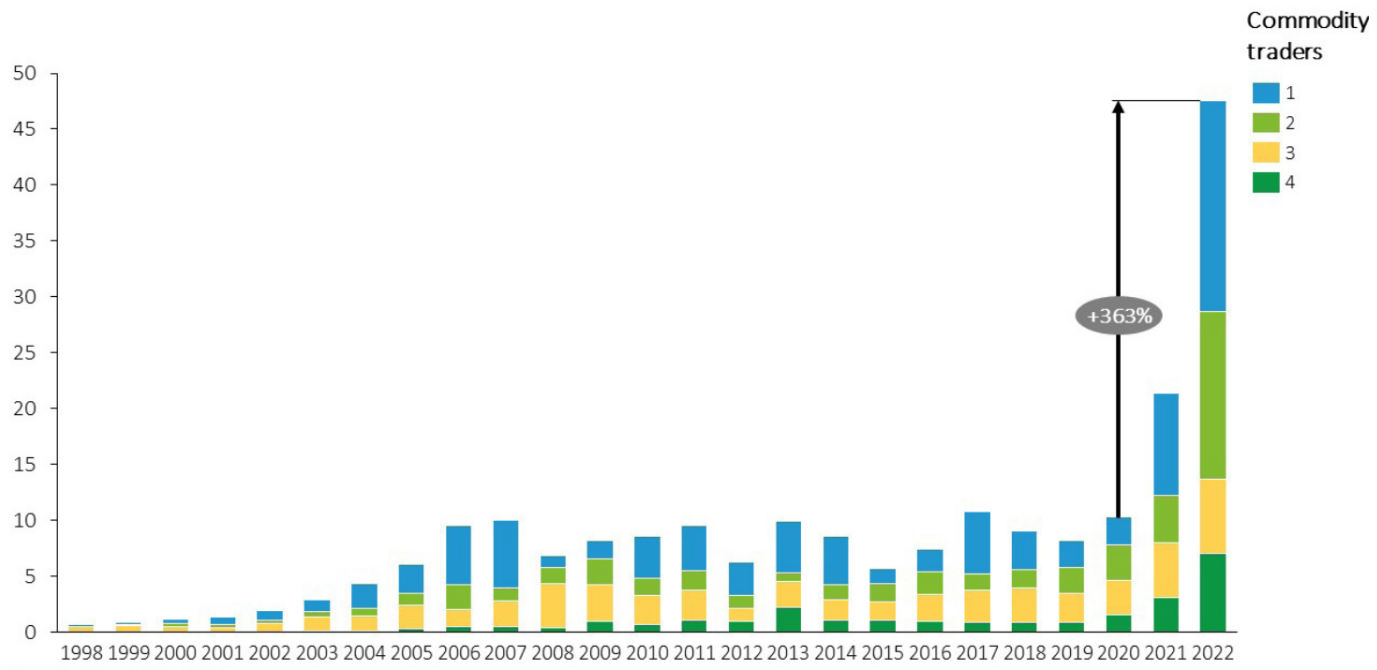
In the EU electricity pricing system, demand is met by ranking in ascending order of the generator supply bids based on their marginal production cost. The last accepted bid, known as the marginal bid, determines the market-clearing price, which is paid to all accepted generators. This mechanism leads to the presence of an inframarginal rent, which benefits power plants with production costs that are lower than the clearing price.

Most of the time, the clearing price happens to be that of gas, one of the most expensive sources. This means that the price is set at this higher level, despite a large portion of electricity being produced from renewable sources with much lower marginal cost. Pertinently, gas serves as a price setter on the electricity market much more often than is justified by its contribution to electricity supply: in 2022, natural gas was the price setter 63% of the time, despite being only 20% of the electricity mix (Draghi, 2024).

This leads to the counterintuitive result that a higher share of renewables in electricity production – which has a lower marginal cost – does not necessarily imply a lower price of electricity. For example, a simulation for 2030 shows that, even if the share of electricity generation from renewable sources greatly expands – from 46% to 67% between 2022 and 2030 – this will not be reflected in the fossil fuel based price-setting hours (Gasparella et al., 2023). As renewable energy sources are unlikely to meet the entirety of the EU's electricity demand, hourly residual load, especially during peak hours, will still be met by more expensive gas power plants, and therefore, gas will continue to define the price of electricity.

During the period of high price volatility in 2021-22, some energy companies made hefty profits. Commodity traders in particular were the big winners: the profits for the four biggest global energy traders (Vitol, Trafigura, Mercuria and Gunvor) more than quadrupled between 2020 and 2022, from about $10 billion to $46 billion (Figure 2).[3]

Figure 2. Net income of the world's top commodity trading houses, USD billion.



Source: Draghi (2024).

A report by the European Securities and Markets Authority (ESMA, 2023) shows that the way gas trading was organised before the crisis was a major driver of gas price volatility. Notably, a large share of volumes traded on European gas exchanges are performed by proprietary trading firms, such as high-frequency traders. About half of trading is done by non-EU firms. Data on trade by foreign traders was not available to EU regulators. Poor liquidity management at these markets led to severe liquidity strains in spring 2022, prompting government intervention through public guarantees or capital injections into troubled companies. Apart from high liquidity risk, these markets are also characterised by high concentration risk: the top-five counterparties accounted for more than 50% of reported notional volumes by EU entities on each of the two regulated EU gas market platforms. Finally, most energy firms are not regulated as investment firms and, therefore, are exempt from a range of reporting requirements. Some large non-EU commodity trading firms are not listed (notably, the largest trader, Vitol), with very little public information on their operations.

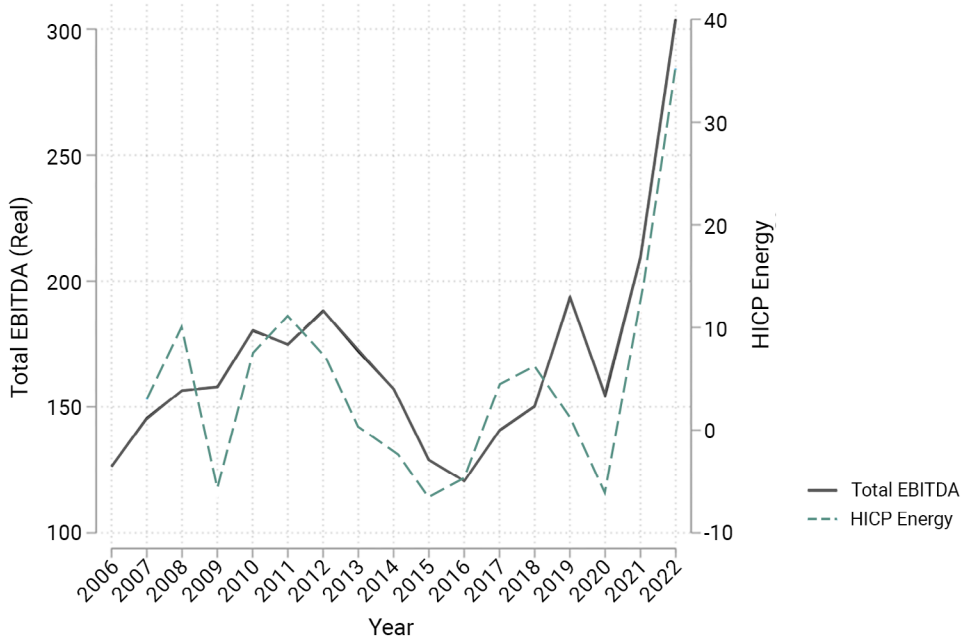
Apart from traders, major energy companies also generated substantial profits during this period. So, Shell booked a historically record profit (earnings before interest, taxes, depreciation and amortisation (EBITDA)) of $84 billion in 2022, a 53% increase from 2021 and 2.3 times higher than in 2020. This dynamic is representative of all major energy companies.

2.1.2 The role of profits in energy price inflation

To investigate the role of profits in energy price inflation, we compiled data on 65 large energy firms in the EU from ORBIS. Specifically, we have identified and included the three biggest energy providers in each country.[4]

We observe that the combined profits, measured as EBITDA, of these 65 firms[5] surged in recent years, reaching €300 billion in 2022 – roughly equalling the GDP of Portugal[6] (Figure 3). This rise coincides with higher energy price inflation. Energy inflation picks up at the end of 2021, accompanied by profit increases, and the two series are highly correlated over time.

Figure 3. Energy inflation and profits of 65 important energy firms.



Does the causal link run from profits to inflation, or the other way round? On one hand, energy firms, at least in some sub-segments (e.g., electricity production), act as price takers, navigating the market landscape and benefiting from elevated prices. Yet, high profits in the energy sector suggest that prices may be higher than necessary, driving energy inflation due to energy companies' profit-maximisation imperative.

A more granular analysis would be needed to make more precise conclusions. As evidence in Section 2.1.1, energy traders' activity did drive prices up, so their profits can be considered as a driver of inflation. On the other hand, some other companies in the energy sector, such as electricity generators, were price takers. Some of them who relied on non-gas inputs benefited from higher electricity prices (due to the marginal pricing system). At the same time, energy suppliers relying on gas or those without power-generation assets were squeezed, and some went out of business.[7]

2.1.3 Variation in energy price inflation across the EU

Energy price inflation in 2021-22 varied across EU countries, to a large extent due to their historical reliance on Russian gas. We contrast three sets of countries: the Baltic countries (heavily reliant); EU14 states (moderately reliant); and the post-2004 states (less reliant). The Baltic countries saw the largest increases, in part because they were highly reliant on Russian energy prices, as can be seen in Figure 4. Estonia hit 100% energy inflation in August 2022, which also translated to headline high inflation at the time. Although Estonia only imported around 10% of its energy resources from Russia, single sectors were heavily reliant on gas, such as heating and industry (Lepmets, 2022). Due to ongoing Soviet legacy, Baltic electricity grids were interconnected with the Russian Federation's and used Russian electricity imports for maintaining the grid frequency (Lepmets, 2022). Dependency on Russian energy imports is not only a Baltic issue. From 2004 to 2019, the EU14 countries (i.e., EU countries without the Baltics or the other post-2004 Eastern European countries) became more dependent on Russian gas, despite sanctions against the Russian Federation since 2014 (Weiner et al., 2024). Post-2004 member states exhibit a lower energy inflation than EU14 states. Over the same period, four out of nine post-2004 countries had reduced their high dependency on Russian gas, in part explaining this.

Figure 4. Energy price inflation in EU14, post-2004 and Baltic countries between 2007 and 2024, percent.

Source: Eurostat.

2.1.4 How effective were countries' responses to energy price inflation?

This section evaluates the impact of two policies on energy price inflation: (1) price controls and (2) income support. Since 2022, 23 European countries have spent a total of $434 billion (2022 US dollars) on price controls and income support, shielding consumers and businesses from rising energy costs. However, countries differ with respect to whether the bulk of their spending was aimed at either price controls or income-support policies (Castle et al., 2023).[8] We first describe what impact price controls and income support are likely to have on energy price inflation before empirically testing these claims. This policy study focuses narrowly on their relationship to energy price inflation. Their relationship to other relevant factors, such as inequality and overall inflation, while important, are beyond the scope of this policy study.

Price controls are fiscal interventions that directly modify the marginal price of energy (Castle et al., 2023). Income-support policies, on the other hand, provide direct monetary support to households and firms to buy energy without impacting the marginal price of energy. One example of price control is the 2022 policy in the Netherlands to hold down the energy bills of energy-intensive SMEs. An example of an income-support policy would be France's 2022 one-off top up to the means-tested energy voucher. The Netherlands policy

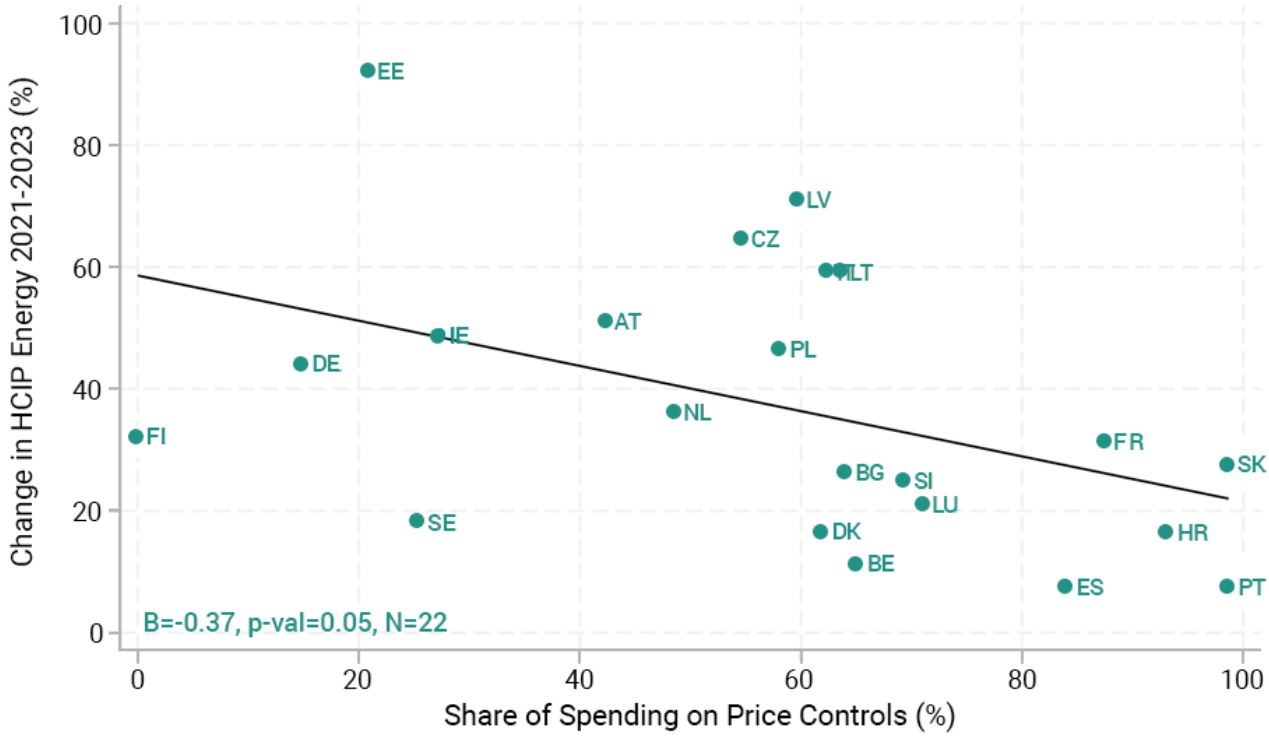
reduces the marginal price of energy, while the French policy provides a budgetary transfer to households to consume energy up to a given amount, thereby impacting its average price but not its marginal price.

Price controls and income support are expected to have different impacts on energy price inflation. As price controls directly reduce the marginal price of energy, they should, in theory, dampen energy price inflation (Krebs and Weber, 2024, p. 30). In contrast, income support does not directly aim to reduce energy price inflation, but instead focuses on protecting firms and households from the rise in energy prices, with targeted income support particularly protecting the more vulnerable households and firms. Income support is therefore not expected to reduce energy price inflation. Consequently, countries that spent more on price controls should have lower energy price inflation than those which focused on income support.

To assess this prediction, we use data on price controls and income support policies from the OECD Energy Support Measures Tracker and energy price inflation from Eurostat. The OECD classifies spending by either price-support policies, which influence the marginal price of energy, or income-support policies, which influence the average price of energy. We use these categories as our definition of price controls and income support. We measure energy price inflation as the total percentage change in the HICP energy price index between May 2021 and May 2023, to capture the two-year period of rising energy prices due to the shock and policy responses.

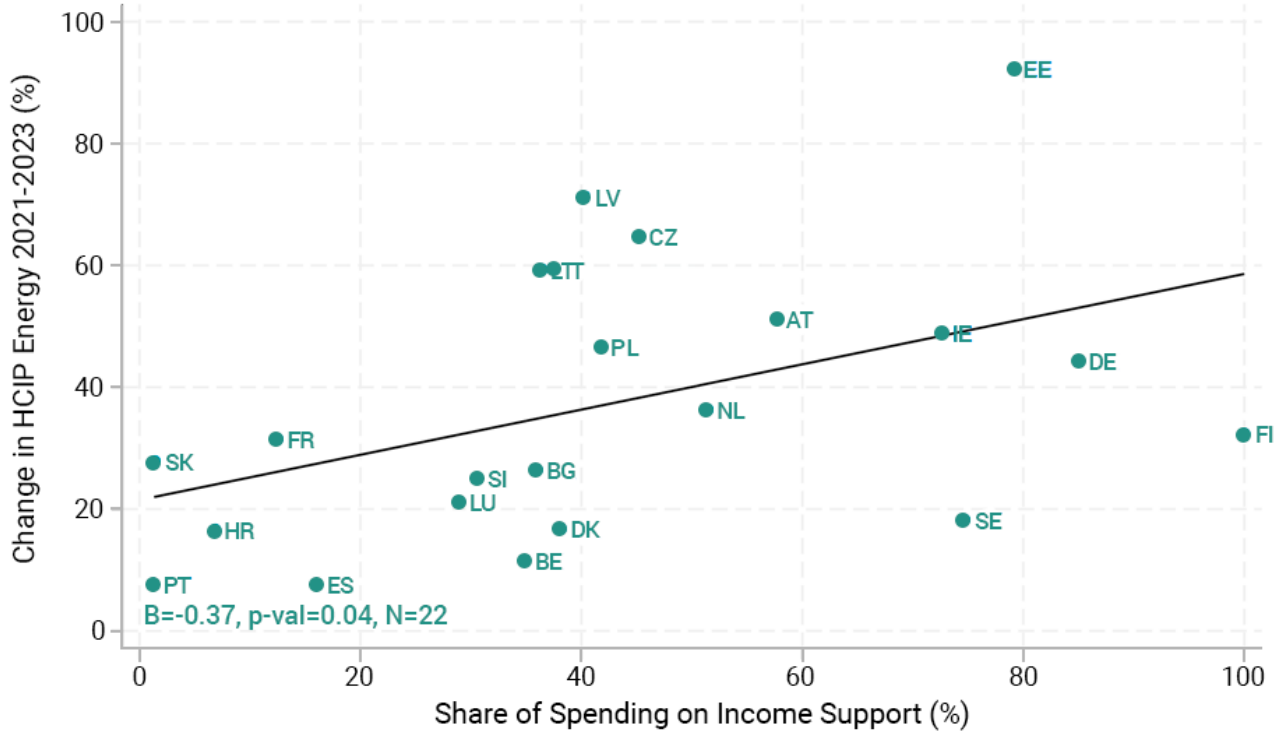
We find that **countries which spent more on price controls experienced lower energy price inflation**, as predicted. Figure 5 shows the cross-country correlation between energy price inflation and spending on price controls as a share of total spending. Plotting a simple ordinary least-squares regression line through the data suggests that for every 1% more spent on price controls, energy price inflation dropped over the two-year period by 0.37 percentage points, and the coefficient is significant at the 5% level.[9] Spain, France and Portugal focused almost all their spending on price controls (over 80%), and these countries had some of the lowest energy price inflation. These countries were also the only Western European countries to implement wholesale price controls, that is, controlling the price at which energy suppliers buy energy at the wholesale market (Bruegel, 2024).

Figure 5. Relationship between percentage change in HICP energy (2021-2023) and share of spending on price controls (% of total spending on price controls and income support).



Next, Figure 6 plots energy price inflation against the share of spending on income-support policies (the inverse of the share of spending on price controls). Looking at Western Europe, Germany and Austria had some of the highest shares spent on income support (over 80% of its spending). These countries also had the highest energy price inflation of all Western European countries. A one % point increase in the share of spending on income support leads to a 0.37% point increase in energy price inflation. The coefficient is also significant at the 5% level.

Figure 6. Relationship between percentage change in HICP energy (May 2021-May 2023) and share of spending on income support (% of total spending on price controls and income support).



These findings corroborate the expectation that price controls help to reduce energy price inflation, while income support does not.

One potential issue with these findings is that they only focus on the composition of government spending (i.e., either price controls or income support) rather than the overall amount of spending. Some countries undertook much more spending than others, which may also have had a greater impact on energy price inflation, distorting the correlations. To test this, we analyse the relationship between total spending (on both price controls and income support) and energy price inflation. Figure 7 plots the relationship between total spending percentage of GDP from 2021 to 2023 and the change in the HICP (energy) over the same period. Germany (DE) and Austria (AT) spent the most as a percentage of GDP out of Western European countries, alongside Poland (PL) and Latvia (LT) from the Eastern European countries. Hungary, Greece, Cyprus, Hungary, Malta and Denmark spent the least as a percentage of GDP. However, as can be seen, there is not a statistically significant relationship between the total amount spent and energy price inflation (the *p* value is 0.39).

Figure 7. Relationship between percentage change in HICP energy (2021-2024) and total government spending on price controls and income support (% of GDP).

In summary, price controls and income support have different impacts on energy price inflation. While both policies may help the balance sheets of firms and households, price controls help to bring down energy price inflation, while income support does not. This is to be expected, given that income support only provides households with financing without directly influencing the marginal price of energy. Spain and Portugal, for example, spent most of their spending on price controls and ultimately had relatively low energy price inflation. Germany and Austria spent much more on income support and ultimately were two of the non-Eastern European countries with the highest inflation. Given that overall spending on policies is not significantly associated with higher energy price inflation, it seems that what matters for energy price inflation is not overall spending but its composition between price controls/income support.

2.1.5 EU response to energy price inflation

The initial response of many European countries to the disruption to Russian gas supplies was to prioritise supplies from alternative sources at any cost. This intra-EU competition for natural gas contributed to a rise in gas prices. It was only in December 2022, after gas storage was fully filled, that EU member states agreed to introduce a common gas price cap of €180 on the market price of gas at TTF.[10] Other EU measures on gas included a regulation on voluntary demand reduction (by at least 15% from 1 August 2022 to 31 March 2023) and measures to improve solidarity among member states and better coordination of joint gas purchases.[11] Although welcome, these measures came quite late, when higher gas prices had already fed through the value chain. Many countries have introduced measures to shield households from energy price inflation,

but industry received less support and had to cut production and investment.[12] Moreover, the level of the gas price cap at €180 was rather high, and market prices have not been that high since the measure was introduced and the cap was never activated before it expired in January 2025.

Another set of EU measures were windfall profit taxes, introduced by the "Council regulation on an emergency intervention to address high energy prices".[13] It included two types of taxes: a revenue cap on inframarginal technologies (electricity generation based on inputs other than gas); and a solidarity levy for the fossil fuel sector. The revenue cap on inframarginal technologies capped market revenues at €180 per MWh, with 90-100% profit tax to be collected on the excess revenues. The solidarity levy for the fossil fuel sector defined the windfall profit as one that exceed 120% of average profits in the reference period (2018-2021), which would be subject to a tax rate of at least 33%. According to estimates by Nicolay et al. (2023), the tax on inframarginal technologies could generate €106 billion in 2022 if applied retroactively and the solidarity levy at least €4.4 billion. The actual total proceeds for both levies were much lower – at €17.5 billion from 2022 profits (European Commission, 2023).

Finally, the European Commission launched a reform of the electricity market in March 2023, which came into force in May 2024. The intention was to break the dependency of the electricity prices on gas. The reform included two legislative proposals: on electricity market design (EMD); and on protection against wholesale energy market manipulation (REMIT).[14] The reform gives a greater role to longer-term instruments (contracts for difference and power purchase agreements), a greater choice of options for consumers (including more fixed-priced contracts), and facilitates consumer access to renewable and low-carbon energy. It also allows member states to introduce targeted state interventions in price setting in the case of an electricity price crisis.

However, the reform left the merit order system intact. This seems to be problematic: as Gasparella et al. (2023) show (see Box 1), this system will mean that gas will remain the dominant price setter for EU electricity for many years to come, despite the shift to renewables, resulting in structurally higher electricity prices on the wholesale market. After cooling down in 2023 and in early 2024, wholesale EU electricity prices started to rise again at the end of 2024 and early 2025, to reach €95 per MWh in January 2025[15] (vs €78 per MWh in Q3 2024). Unsurprisingly, this rise was driven by higher gas prices: TTF gas futures reached the highest monthly average since March 2023, at €48.32 per MWh. The electricity market reform has not yet helped to prevent high volatility in electricity prices.

Defenders of the reform say that it should be allowed more time to take effect. The problem is that it might take years to have an effect, while European industry and households are being squeezed. Mario Draghi in his report shows that high energy prices are a major drag on European competitiveness (Draghi, 2024). The price for industrial consumers, as of Q3 2024, was €187 per MWh compared to €119 per MWh pre-crisis[16] and 2.5 times higher than in the USA. The European Commission argues that an alternative design – pay-as-bid model – would not provide lower prices as producers (including cheap renewables) would bid at the price they expect the market to clear, not at their generation costs.[17] During the discussions on the EMD proposal, there were alternative propositions: for example, EESC called for abolishing the merit order system and replacing it with a model where electricity prices were based on the average costs (Widuto, 2024). Neuhoff (2022) proposed putting a cap on balancing gas only, which would naturally constrain the gas market price.

Now that the reform is completed, the EU and its member states would need to explore other options for reducing the level and volatility of European electricity prices. Stimulated by the Draghi report and widespread alarm about the harm of high energy prices to European competitiveness, the European

Commission proposed additional measures to reduce the dependency of electricity prices on volatile gas prices in its Clean Industrial Deal and an Action Plan on Affordable Energy, published in February 2025. In particular, the Commission proposed a de-risking tool with the involvement of the European Investment Bank to stimulate the uptake of long-term electricity supply contracts.

In our view, given that the link of electricity pricing to gas still remains, the price of gas itself should get much more attention. As we showed earlier in this policy study, there was a lot of speculation on energy derivatives markets. Therefore, limiting speculation on gas prices should be a priority (which we discuss in Section 3).

2.2 Food

In this section, we turn to food price inflation. Firstly, we give an overview of the reasons for recent food price inflation in the EU (Section 2.2.1). Then, in Section 2.2.2, we provide new evidence of high concentration and profits along the food supply chain, including in food commodity trading, fertiliser production, maritime transport, food manufacturing and grocery retail.

2.2.1 Reasons for food price inflation

The main drivers of the food price inflation in the EU in 2022-23 are (1) disruptions in supply chains and (2) rising energy costs caused by the pandemic and the Russian invasion of Ukraine, and (3) climate crisis linked extreme weather events. In addition, an often overlooked fourth factor is the increasing market power of companies along the food supply chain, who can convert their privileged market position into higher profits – and higher prices. We discuss these drivers in more detail.

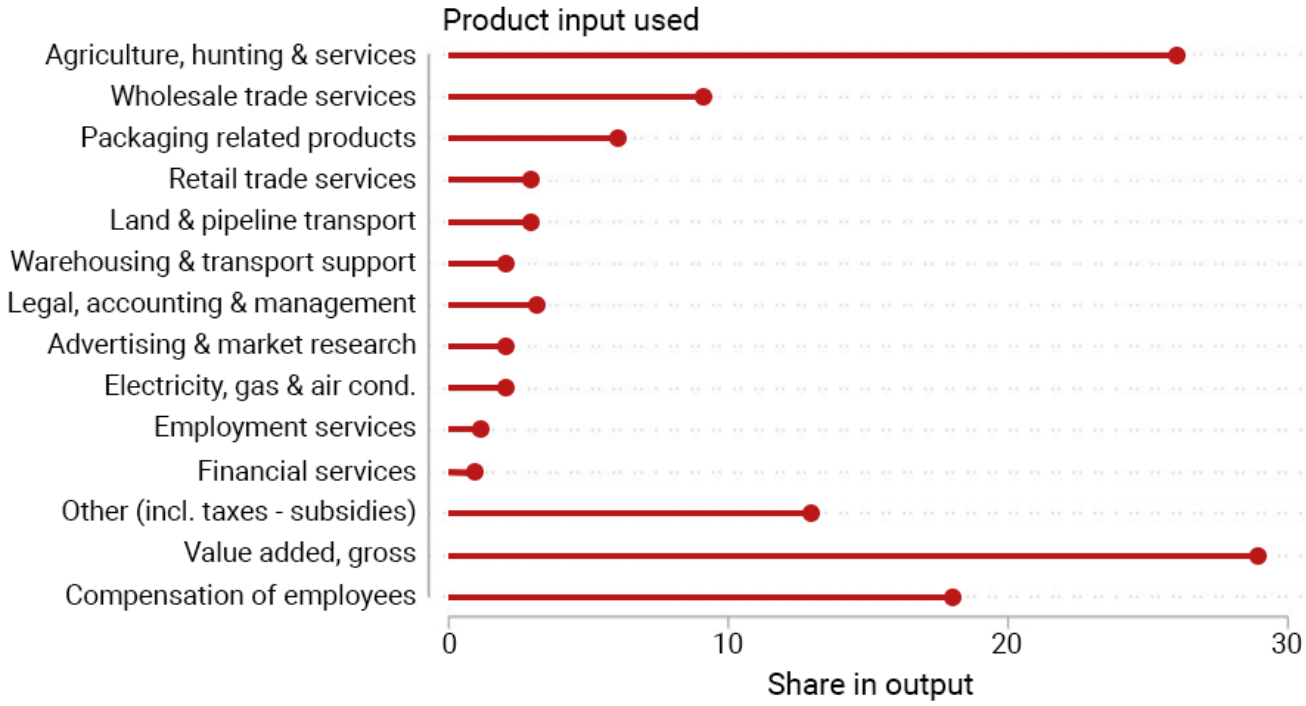
Food supply disruptions caused by Russia's invasion of Ukraine, combined with post-pandemic supply chain strains, have significantly impacted global food prices. The war affected food prices directly by disrupting the supply of agricultural inputs, like fertilisers, and outputs, like grains. Sanctions on Russia, a major fertiliser supplier, have led to global fertiliser supply issues and higher costs (Savage et al., 2022; see also Section 2.2.2). Meanwhile, Ukraine, a global leader in wheat production, saw its exports plummet due to the conflict, resulting in a 28% surge in wheat prices early in the war (Devadoss and Ridley, 2024). Additionally, the closure of Black Sea ports hindered exports of crucial commodities like sunflower oil and corn, exacerbating global food supply concerns, and resulting in further price increases. Given that agricultural products account for 26% of the output of the EU food sector (Figure 8), these price shocks to agricultural inputs and outputs have significantly impacted EU food prices.

Another driver of food price inflation is rising energy costs (see Section 2.1). While electricity and gas directly account for only about 3% of the total output in the wider food industry (Figure 8), their indirect impact is more significant. Fossil energy is a crucial input across many food items. Higher energy costs affect various sectors, including farming, transport, food processing and packaging. They also influence agricultural input prices through increased costs of fertilisers, machinery and tools. Thereby, higher energy prices ripple through the supply chain and contribute substantially to overall food price inflation.

A third reason for higher food price inflation is the climate crisis, with crop yields suffering from heatwaves and extreme weather conditions. In the summer of 2022, these conditions lowered the supply of various agricultural products, like tomatoes, olive oil or cocoa. Consequently, prices for these products have risen. A

recent study found that the 2022 extreme summer heat increased food inflation in Europe by 0.67 percentage points. If global warming follows current projections, future impacts of extreme weather events on inflation will be amplified (Kotz et al., 2024).

Figure 8. Share of direct inputs used for the production of food, beverages and tobacco in the euro area (in % of output).



Source: Based on Rezessy and Maravalli (2024) using Eurostat data.

Lastly, profiteering and monopolisation are often overlooked contributors to food price inflation along the food supply chain. A stylised view of the food supply chain is given in Figure 9.[18]

Figure 9. Schematic of the food supply chain.

The food sector's ability to profit from monopolised parts of its supply chain during crisis periods stems from several interrelated factors. High market concentration in certain subsectors of the supply chain grants firms the power to set prices above competitive levels. As Baines (2017) argues, food prices are not merely determined by supply and demand conditions but are significantly influenced by major firms along the global food supply chain. Another factor contributing to market power is the control of specific bottlenecks by certain firms (Weber and Wasner, 2023). These bottlenecks can create temporary monopolies or quasi-monopolies, allowing companies to safely increase prices and boost profits beyond merely protecting their margins. Recent examples of such supply bottlenecks include the fertiliser industry, which is affected by both

sanctions on Russian exports and constraints in maritime transportation. In these situations, companies controlling crucial points in the supply chain can exploit their position to maintain high prices, even as other cost pressures ease. This bottleneck effect is amplified by the impact of market concentration, further enabling firms to extract higher profits during periods of supply chain disruption or crisis. Moreover, the rise of financial operations in food trading exacerbate price swings (UNCTAD, 2023). This is reflected in recent evidence that speculative behaviour by commodity traders and other major food companies has introduced further instability and uncertainty into food markets (Institute for Agriculture and Trade Policy (IATP), 2022).

Empirical evidence of the significant role of profits in driving food inflation has recently emerged. Subran et al. (2023) attribute up to 20% of recent food inflation to profiteering. Moreover, various reports have highlighted substantial profits of food commodity traders (UNCTAD (2023), fertiliser producers (IATP, 2022) and food processing companies (Oxfam, 2023).

While it is challenging to precisely quantify the impact of corporate power on food price inflation, Section 2.2.2 will shed light on key profit and monopolisation trends in various subsectors in the food supply chain – and their relationship with food price inflation. The subsectors include food commodity trading (Section 2.2.2.1), fertiliser production (Section 2.2.2.2), maritime transport (Section 2.2.2.3), food manufacturing (Section 2.2.2.4) and grocery retail (Section 2.2.2.5).

2.2.2 Corporate power and profiteering in the food supply chain as a source of inflation

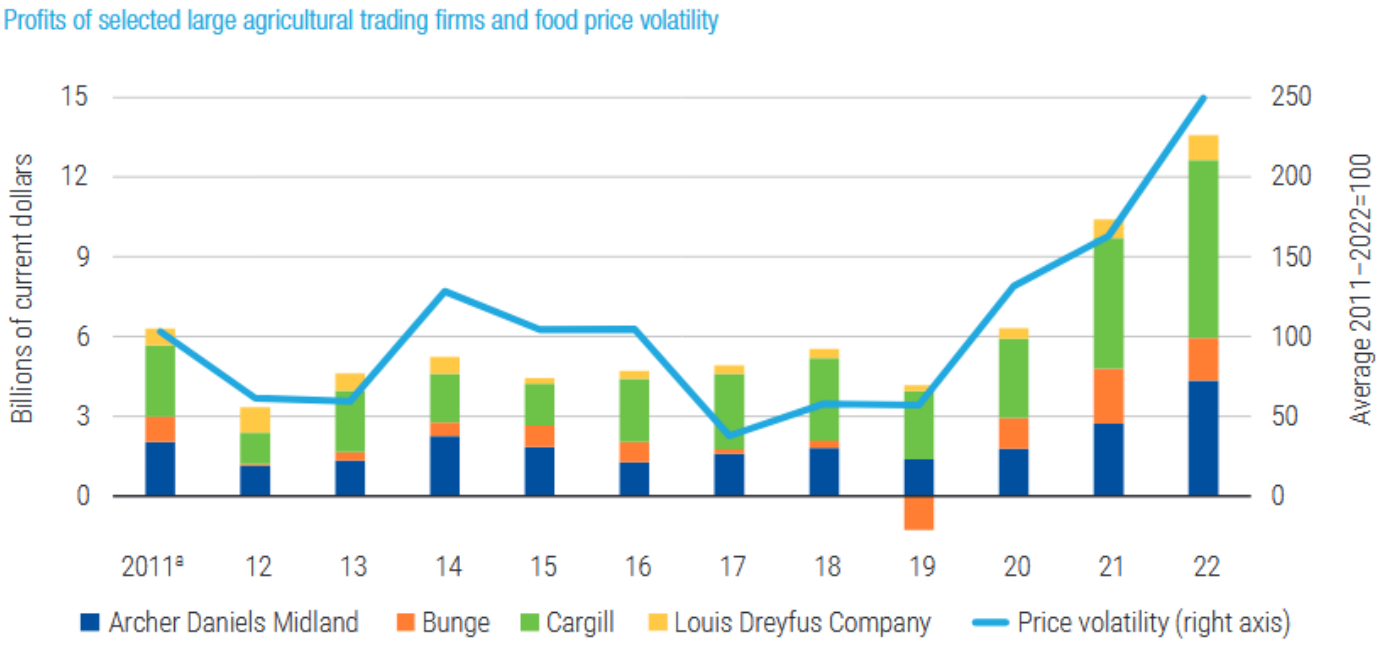
We examine various sectors along the food supply chain, namely, commodity trading, fertilisers, maritime shipping, food manufacturing and grocery retail.

2.2.2.1 Food commodity trade

Food commodity traders have come under increased scrutiny due to their role in profiting from market instability and in exacerbating price volatility. UNCTAD (2023) highlights how large food commodity traders have benefitted significantly from recent crises and that a large share of the increase in their profits can be attributed to speculation. This comes with substantial costs for producers (i.e., farmers) and consumers.

A few companies dominate food trading. Among them, Archer Daniels Midland, Bunge, Cargill and Louis Dreyfus Company are the biggest – jointly known as ABCD. The profits of ABCD companies have risen significantly during recent periods of market volatility (Figure 10).

Figure 10. Profits of the ABCD food companies surge during periods of price volatility.



Source: UNCTAD calculations based on FAO *Real Food Price Index*, Blas and Farchy (2021: Appendix ii), Eikon Refinitiv, and Louis Dreyfus Commodities' Financial Results Reports (various issues).

Note: The underlying indicator for volatility corresponds to the yearly average of the monthly standard deviations of the FAO *Real Food Price Index* divided by the average of such figure for the 2011–2022 period. An hypothetical value of 200 would mean, for instance, that at a suppositional year, the average of the monthly standard deviations would have been twice as large as the average of the monthly standard deviations for the 2011–2022 period.

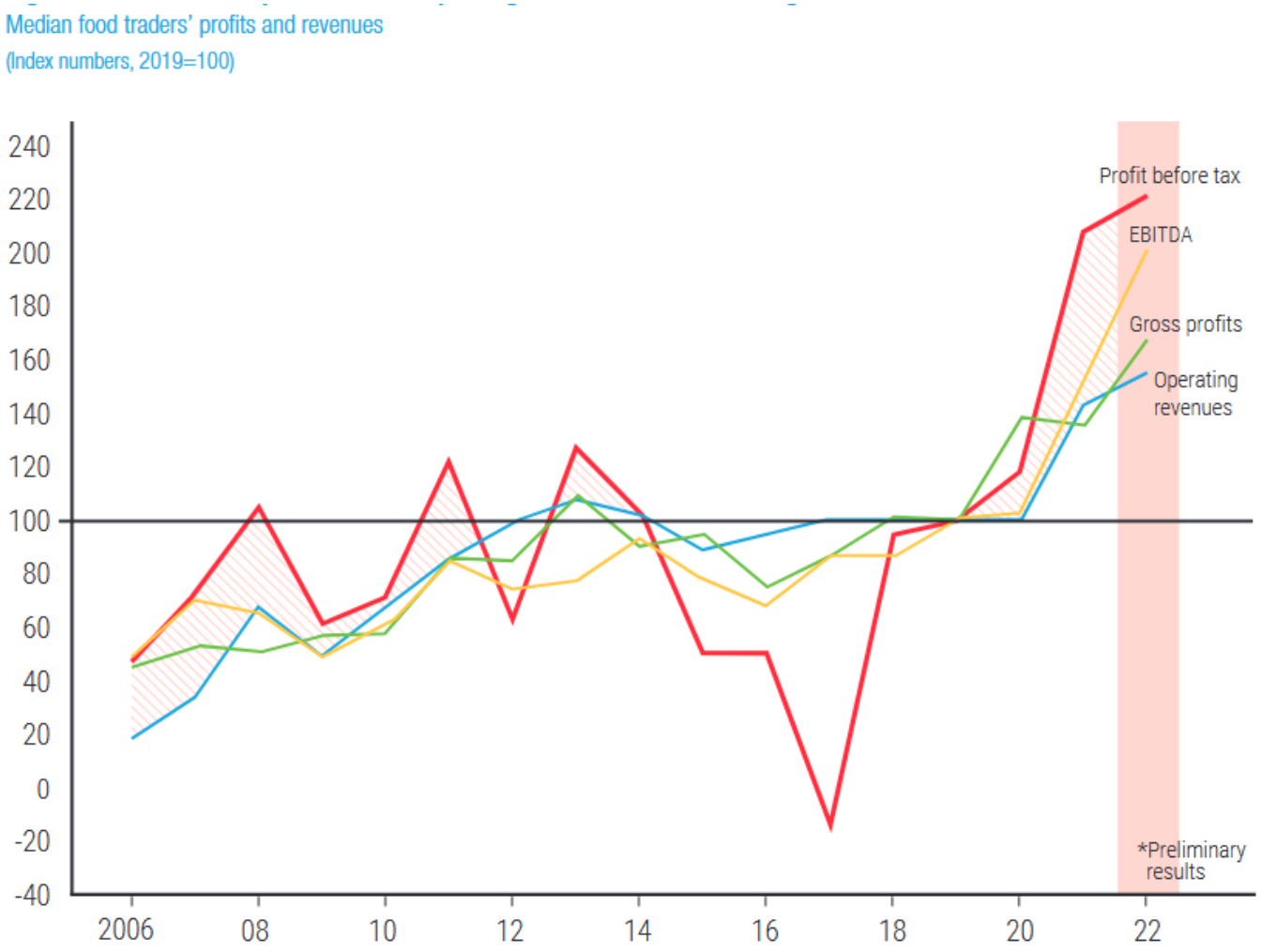
[a] Cargill's 2011 profits do not include the sale of its stake in the fertilizer group Mosaic that year.

Source: UNCTAD (2023, p. 79).

UNCTAD (2023) argues that a substantial share of profits on food commodity trade can be attributed to speculation. To understand the extent to which trading companies' profit increases are driven by speculative activities rather than just supply and demand factors, UNCTAD (2023) compares firm-level data on leading food commodity traders' core business operations with income from other sources (e.g., speculation).

It can be seen that pre-tax profits diverge from other core business indicators in the crisis years 2021 and 2022. Profits before tax rose by a factor of around 2.5, exceeding growth in other core indicators (Figure 11): food commodity trading companies increasingly rely on financial instruments and markets to hedge their commercial positions and engage in strategic speculation. Traders particularly benefit during periods of heightened market and price volatility. As UNCTAD (2023) points out, fragmented regulation within the commodities sector enables this behaviour. Consequently, speculative price increases and market instability worsen the global food crisis, benefiting actors with privileged information. These actors also encompass hedge funds, which have made an estimated $1.9 billion by speculating on food price spikes (Gibbs and Ross, 2023).

Figure 11. Financial operations drive profit growth in the food trading sector.



Source: UNCTAD (2023, p. 81).

Speculative activities of food companies are largely a consequence of a lax regulation of commodity trading. Food commodity markets are characterised by low regulation and oversight, creating a fertile ground for speculation on food prices. Notably, food traders are not regulated as financial institutions but are treated as manufacturing companies, which means that central banks have no regulatory power over them.

Lastly, another characteristic of major food commodity traders is their growing vertical integration along the food supply chain. These companies do not simply trade commodities but offer a range of services, including providing farmers with loans, seeds, fertilisers and pesticides, as well as storing, processing and transporting food commodities. This vertical integration enables them to control various stages of the supply chain, providing access to essential market information and allowing them to leverage it to their advantage

throughout different parts of the food supply chain (SOMO, 2024). An improved regulatory and competition oversight of vertically intergrated food companies is vital to keep the power of these companies in check.

2.2.2.2 Fertilisers

Fertiliser prices have skyrocketed in recent years, with far-reaching implications for the entire food supply chain. While fertiliser prices are directly responsible for only a small share of overall food production, the impact of fertilisers on food prices is disproportionately large due to their crucial role as key inputs for farmers. A 1% increase in fertiliser prices (heavily influenced by fossil energy prices) increases food commodity prices by 0.45% (IMF, 2022). For specific food items, the impact is even higher: a 10% rise in fertiliser prices leads to a 0.7% rise in cereal prices in the next quarter. Considering that fertiliser prices tripled between early 2021 and April 2022 (Figure 12), the expected impact on food price inflation is substantial. As a result, fertiliser prices are a significant concern not only for farmers and food producers but also for consumers.

Figure 12. Fertiliser prices peaked in 2022 (World Bank Fertilizer Price Index, 2015 = 100).

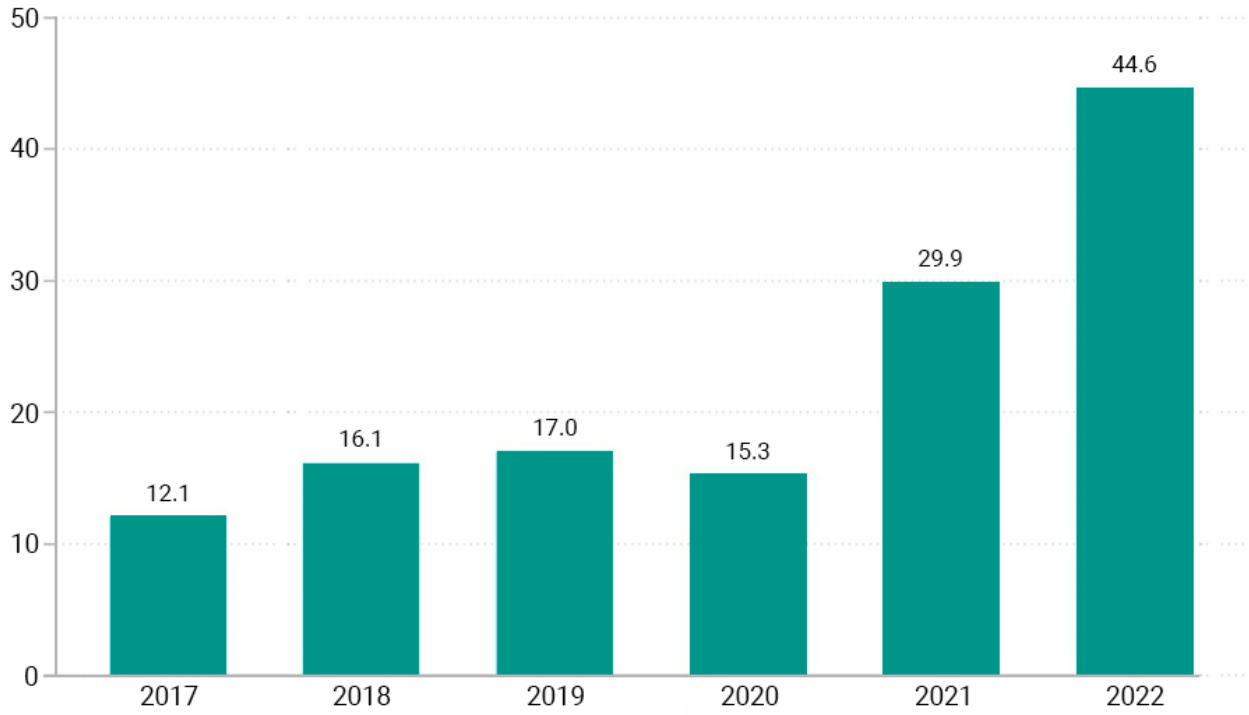
Source: World Bank Pink Sheet.

The usually claimed reason for fertiliser price increases is the higher cost of resources used as inputs in fertiliser production – such as natural gas, phosphorus, potassium, and deposits of potash and phosphate – related to higher energy prices and supply restrictions due to sanctions on Russia, a key producer of fertiliser inputs.

In this section, we also demonstrate that fertiliser companies have significantly benefited from the recent crisis, as evidenced by a substantial increase in their profits. Additionally, we show that much of these profits can be attributed to speculation, using the methodology of UNCTAD (2023).

A few companies control the fertiliser sector (IATP, 2022) and the profits of nine major fertiliser companies have risen significantly during recent periods of market volatility (Figure 13).[19] For example, the combined profits of these firms jumped $15 billion in 2020 to around $44 billion in 2022, coinciding with skyrocketing fertiliser prices.

Figure 13. Profits of fertiliser companies have surged (EBITDA, in billion $).



Source: Own calculations based on ORBIS data.

Notes: Profits are measured as profits before taxes and interest, so-called EBITDA. The figure shows fertiliser companies' EBITDA (a commonly used measure for profit) for nine major fertiliser companies for each year, based on available corporate data from CF INDUSTRIES, ICL, K+S, MOSAIC, NUTRIEN LTD., OCI N.V., PHOSAGRO, WESFARMERS and YARA. Of these, many are multinationals. K+S (Germany) and OCI (Netherlands) are headquartered in the EU.

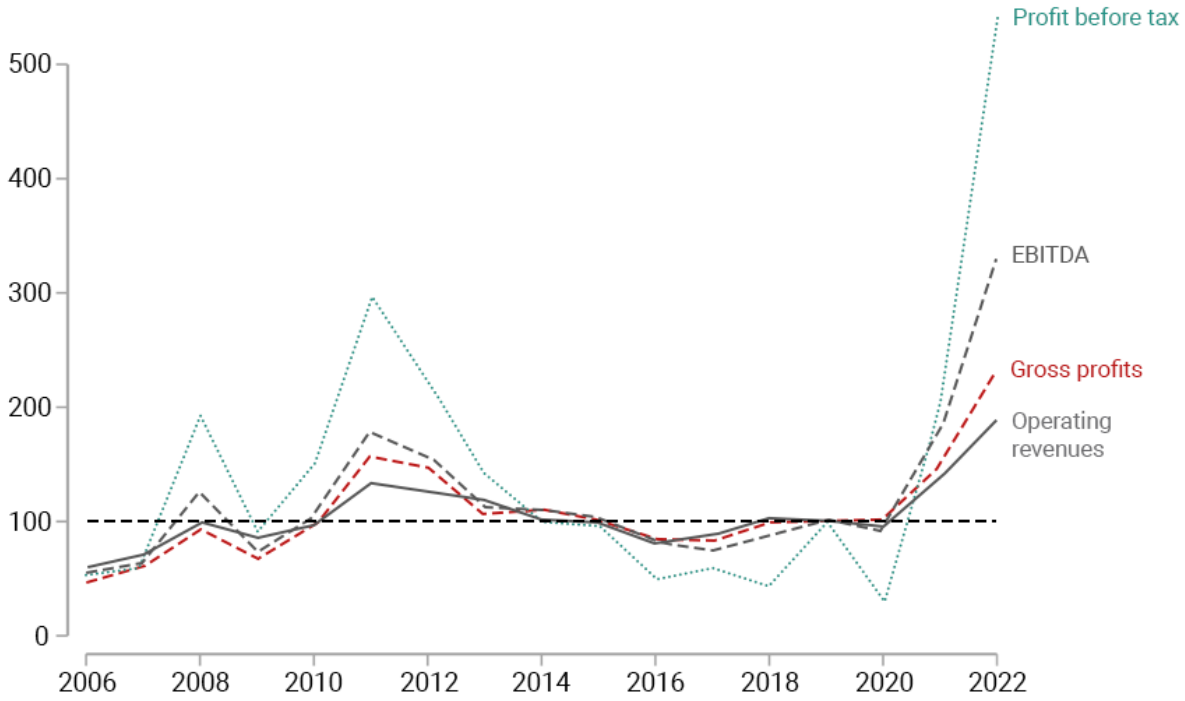
A recent report also highlights the contribution of unregulated activity within the commodities sector to speculative price increases and market instability, exacerbating the global food crisis. (UNCTAD, 2023). To understand the extent to which fertiliser companies' profit increases are driven by speculative activities rather than just supply and demand factors, we compare firm-level data on the core business operations of leading fertiliser producers (fertiliser sales) with income from other sources (e.g., speculation). Following UNCTAD's (2023) methodology, we compare (1) core business indicators – operating revenues, gross profits and EBITDA – with (2) pre-tax profits of these firms. The deviation of pre-tax profits from core business indicators can serve as an indicator of profits (and losses) from purely financial operations, such as speculation (UNCTAD, 2023).

Indeed, our analysis indicates that fertiliser companies have made substantial profits through speculative activities in the recent inflation episode (Figure 14). Specifically, we highlight the divergence of pre-tax profits from other core business indicators in 2021 and 2022. While pre-tax profits and core business indicators, these variables have followed a common trend, since between 2006 and 2020 pre-tax profits soared in 2021

and 2022, significantly exceeding sales and profits from their core business operations; operating revenues (i.e., sales) and gross profits rose by a factor of around 2.5, while pre-tax profits increased by an astounding 500% (Figure 14). This stark difference suggests that a significant portion of these companies' profits may be attributed to non-core business activities, potentially including financial speculation. There is evidence that this goes beyond reasonable hedging operations of these companies.

This pattern underscores the disproportionate role that speculation plays in the current era of super profits, also in the fertiliser sector. The divergence between pre-tax profits from other indicators of the core fertiliser business suggests that these firms strategically speculate on market turbulence and price swings using financial engineering. This trend aligns with broader patterns observed in unregulated commodity trading. It's worth noting that similar patterns between pre-tax profits and core business indicators, albeit less extreme, can be observed during other periods of market turbulence, such as during and after the financial crisis (2008, and 2010-2012; see Figure 14). This suggests that the fertiliser industry's speculative activities tend to intensify during times of economic uncertainty, potentially exacerbating price volatility in the sector.

Figure 14. Financial operations drive profit growth of fertiliser companies (median fertiliser companies profits and revenues, 2019 = 100).

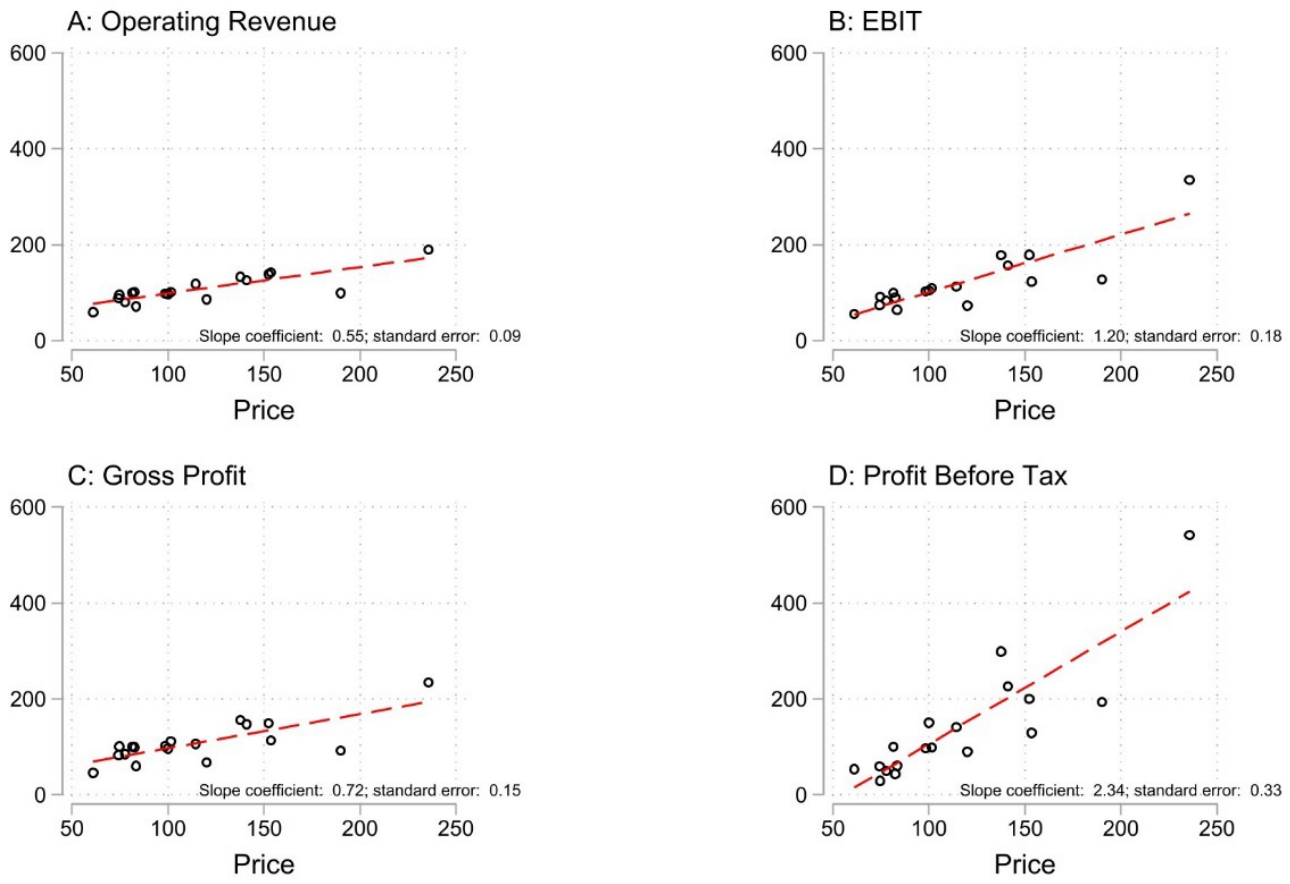


Source: ORBIS. Own calculations based on available corporate data from CF INDUSTRIES, ICL, K+S, MOSAIC, NUTRIENLTD., OCI N.V., PHOSAGRO, WESFARMERS and YARA. Methodology based on UNCTAD (2023).

We further substantiate this argument by showing correlations between prices and different profit and revenue measures of fertiliser companies (Figure 15). The first three quadrants (Figure 15A-C) show how fertiliser prices correlate with core business variables – operating revenue, EBITDA and gross profits. Figure 15 underscores the link between higher prices and higher profits. Crucially, in the fourth quadrant (Figure 15D), we show the relationship between fertiliser profits and profits before taxes of fertiliser companies – the measure of profits that includes profits from speculative activities. We again observe a link between

higher prices and higher profits from speculative activities. The correlation is much higher than the slopes in Figure 15A-C. This pattern confirms that higher prices are more strongly linked to profits from financial operations than to other core business operations.

Figure 15. Fertiliser prices and profits before taxes are particularly strongly related: profits before tax are highly sensitive to higher prices (2015 = 100).



Source: ORBIS. Own calculations based on available corporate data from CF INDUSTRIES, ICL, K+S, MOSAIC, NUTRIENLTD., OCI N.V., PHOSAGRO, WESFARMERS and YARA. Each dot represents annual median profits/ revenues across fertiliser firms on the vertical axis and fertiliser prices on the horizontal axis.

The contrast in profit indicators leads to three conclusions. Firstly, fertiliser producers rely on the use of financial instruments and markets not simply to hedge their commercial positions but to strategically benefit from market volatility (in other words, to speculate). Secondly, market and price volatility are more strongly related to profits from financial operations than their core operations. Thirdly, we can infer that the use of financial instruments for speculative purposes is enabled by the current regulatory architecture of commodity trading as a whole, which remains diluted and fragmented (UNCTAD, 2023).

Taken together, our analysis underscores the disproportionate role that speculation plays in the current era of super profits in fertiliser trading and broader commodity trading. The divergence between pre-tax profits from other indicators of the core business suggests that these firms strategically speculate on market turbulence and price swings using financial engineering. Speculative price increases and increased market

instability worsen the global food crisis. While consumers and farmers bear the burden of rising fertiliser prices, these companies are capturing outsized profits.

2.2.2.3 Maritime transport

Transport costs are another significant contributor to food price inflation. Here, we focus on the maritime transport sector, where shipping rates rose considerably in 2021. A recent study has shown that the doubling of global shipping costs leads to an approximately 0.7 percentage point increase in global inflation (International Transport Forum, 2018; Ostry et al., 2022), which suggests that the 2021 surge in shipping costs contributed around 2 percentage points to global inflation in 2022.

However, calculating the exact impact of shipping costs on food price inflation is challenging due to the complexity of global food supply chains. Shipping costs affect food prices at every stage, from raw materials to finished products. Basic food items, especially grains and other bulk commodities, are particularly sensitive to shipping rates due to their higher ad valorem transport costs (transport costs divided by total import value) compared to higher-value goods.

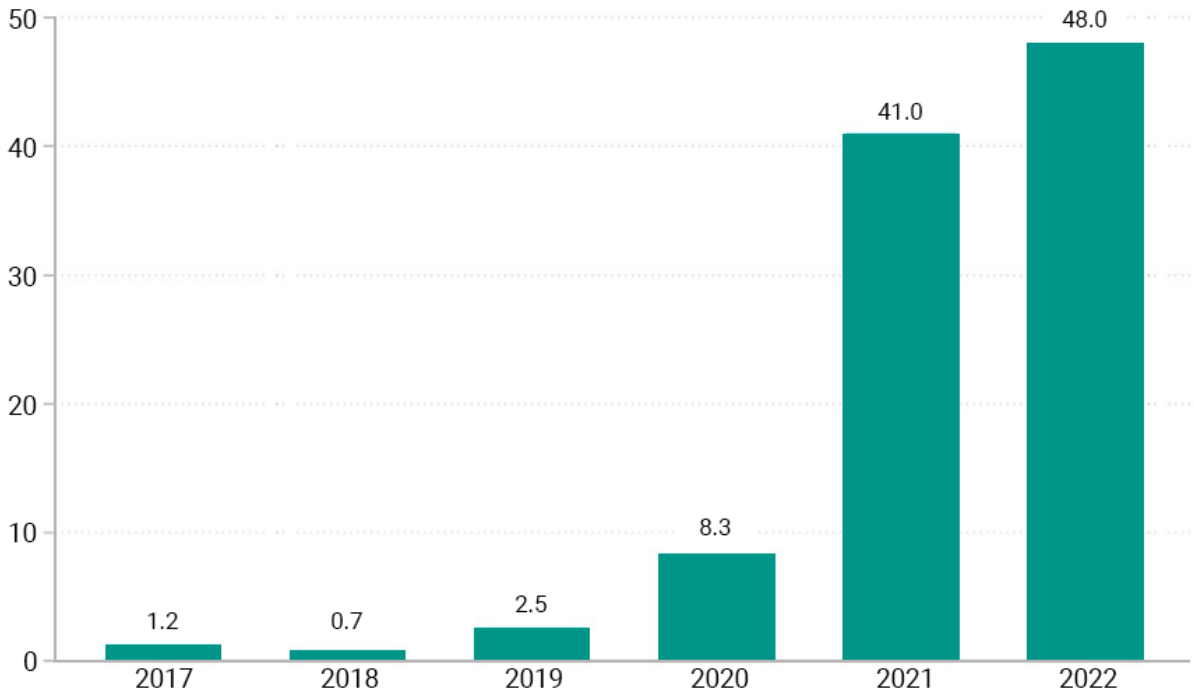
Crucially, while excess demand for shipping services has resulted in higher shipping prices, an often overlooked factor is that the shipping industry has become increasingly concentrated. The resulting oligopolistic market structure can also lead to higher prices, particularly in crisis periods with transport bottlenecks.

The industry has seen significant consolidation over the past decades. As of 2018, the top-four carriers accounted for approximately 55% of the global container shipping market, a dramatic increase from less than 20% in 1998 (International Transport Forum, 2018). Moreover, the industry is characterised by strategic alliances. Three global alliances (2M, Ocean Alliance and THE Alliance) dominate the market, representing around 80% of global container trade and operating approximately 95% of shipping capacity on East-West routes (International Transport Forum, 2018). This high concentration level and cooperation among major players raises concerns about potential market power and its impact on pricing, especially during crisis periods.

We take a closer look at the profits of large shipping companies in Figure 16. Our analysis reveals that the shipping industry has indeed experienced an unprecedented surge in profits, particularly during and following the COVID-19 pandemic (Figure 16). The combined profits of nine of the largest shipping companies (based on available data, see Figure 16 for details) have risen from $14.7 before the COVID-19 pandemic to $117.1 billion in 2022, with the median profit margin of these companies rising from 2.5% to a remarkable 48%. These findings suggest that the shipping industry's concentration enabled leading companies to extract high profits, implying that higher shipping profits are also reflected in higher food prices, particularly for products such as grains, which are often shipped in bulk. Our findings are also echoed in a recent report by Opportunity Green.[20]

While only a few of these companies have their headquarters and primary bases within the EU – A.P. Moller-Maersk (Denmark), DFDS (Denmark) and Hapag-Lloyd (Germany) – all of the companies included operate in the EU shipping markets.

Figure 16. Profit margins of maritime shipping companies have surged (median profit margins, in %).



Source: ORBIS. Own calculations based on available corporate data from A P MOLLER-MAERSK, COSCO SHIPPING, DFDS, EVERGREEN, HAPAG-LLOYD, HMM, MITSUI OSK LINES, NIPPON YUSEN KABUSHIKI KAISHA and ZIM.

2.2.2.4 Food manufacturers and processing companies

The food manufacturing/processing sector is another part of the food supply chain with price rises. This sector is responsible for transforming raw ingredients into prepared food products through various methods, such as cooking, freezing, canning and packaging. It produces a wide range of items, from processed foods like bread, soft drinks and dairy products to ingredients used by other manufacturers, such as flour and sugar. According to an Oxfam report (2023), the largest global food and beverage companies made an average of about $14 billion annually in windfall profits in 2021 and 2022.

Here, we analyse the profit margins of some of these companies with a strong presence in European markets. We find that profit margins rose for some companies until 2021, while 2022 saw a general decline (Figure 17). Nonetheless, profit margin levels are incredibly high compared to other economic sectors, underpinning the market power of multinational companies in this sector. While Nestlé recorded a profit margin above 20%, other firms, including PepsiCo, Unilever and Mondelez, also had more than 10% profit margins between 2017 and 2022. Danone experienced a decline in profit margins below 10% in 2021 and 2022. Lastly, Lactalis, a French multinational dairy producer, has seen its profit margins rise since the start of the pandemic.

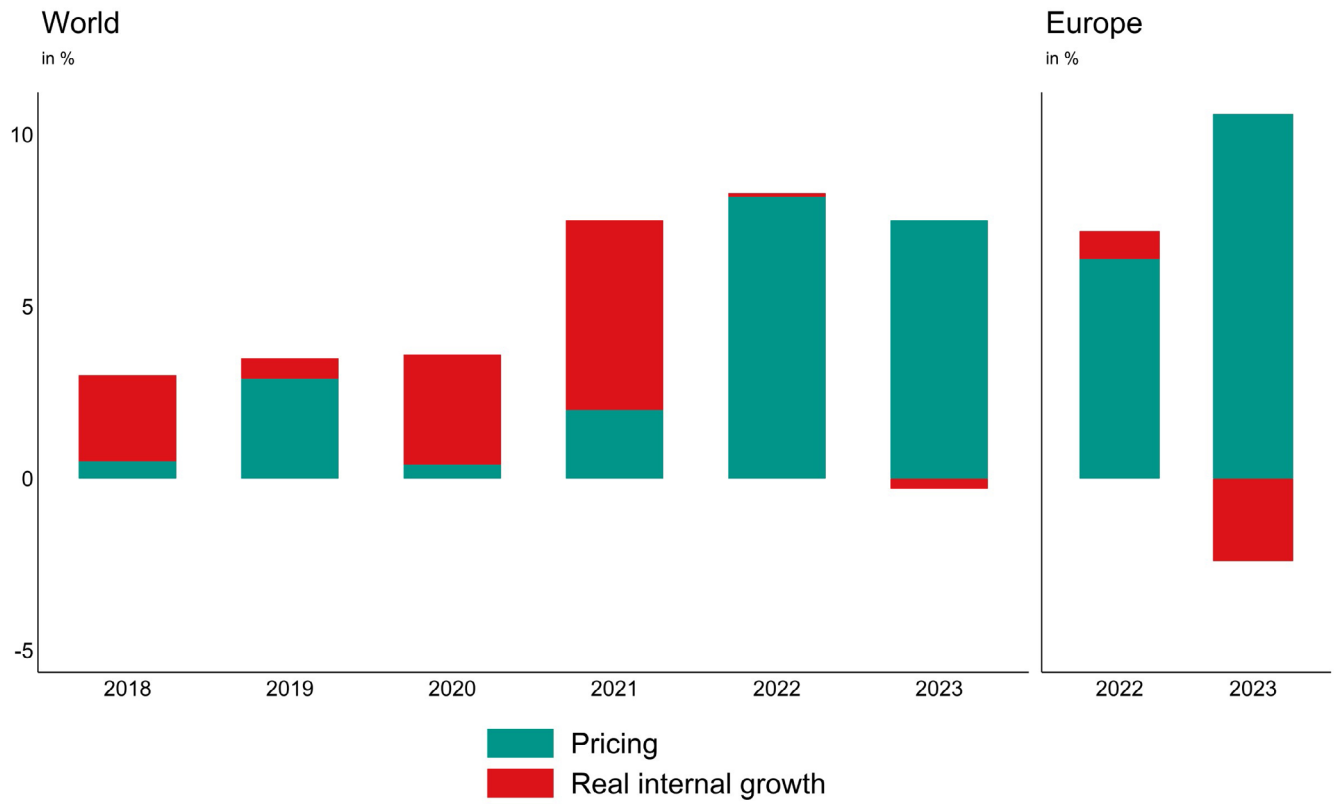
Figure 17. Profit margins of food manufacturers are consistently high (in %).

Source: Own calculations with ORBIS data.

These high profits have prompted authorities to investigate Lactalis for abusing its market power. In February 2024, the Spanish Audiencia Nacional fined Lactalis €11.69 million for forming a cartel with other milk companies to avoid competition when buying milk from Spanish farmers (Obelleiro, 2024). This case highlights the need for stricter oversight in the food supply chain to ensure fair competition and protect the interests of both farmers and consumers. It also underscores the importance of addressing power imbalances in the food supply chain, where large corporations may exploit their dominant market positions at the expense of smaller or more fragmented producers.

When analysing the profits of large food companies, access to detailed price and sales data remains a challenge. However, some companies provide insights through their financial reports. For instance, Nestlé's recent performance illustrates that its recent sales growth is primarily driven by price increases rather than volume growth (Figure 18). In 2022 and 2023, Nestlé's growth was almost entirely due to higher prices, with volumes slightly declining in 2023. This pattern is even more pronounced in Nestlé's European operations, where volumes fell by more than 2% in 2023 (see the right panel in Figure 18). This strategy suggests that Nestlé sells fewer units of products but at higher prices per unit. This suggests that firms like Nestlé have found that they can increase profits by raising prices, particularly during crises, even if it results in lower sales volumes. This evidence aligns with the broader trend of companies actively balancing higher prices against potentially lower sales, highlighting the need for closer price monitoring in the food sector.

Figure 18. Nestlé's growth comes from price growth, not sales volume growth (decomposition of organic growth, world and Europe, in %).



Source: Own calculations based on data from Nestlé.

Concerns have also been raised about the increased speculative activities of many of these major food companies. However, in the case of major food giants, subsidiaries often engage in hedging or speculative activities. Therefore, these activities are often not reported at a consolidated level (UNCTAD, 2023), making it more difficult to track them.

2.2.2.5 Grocery retail

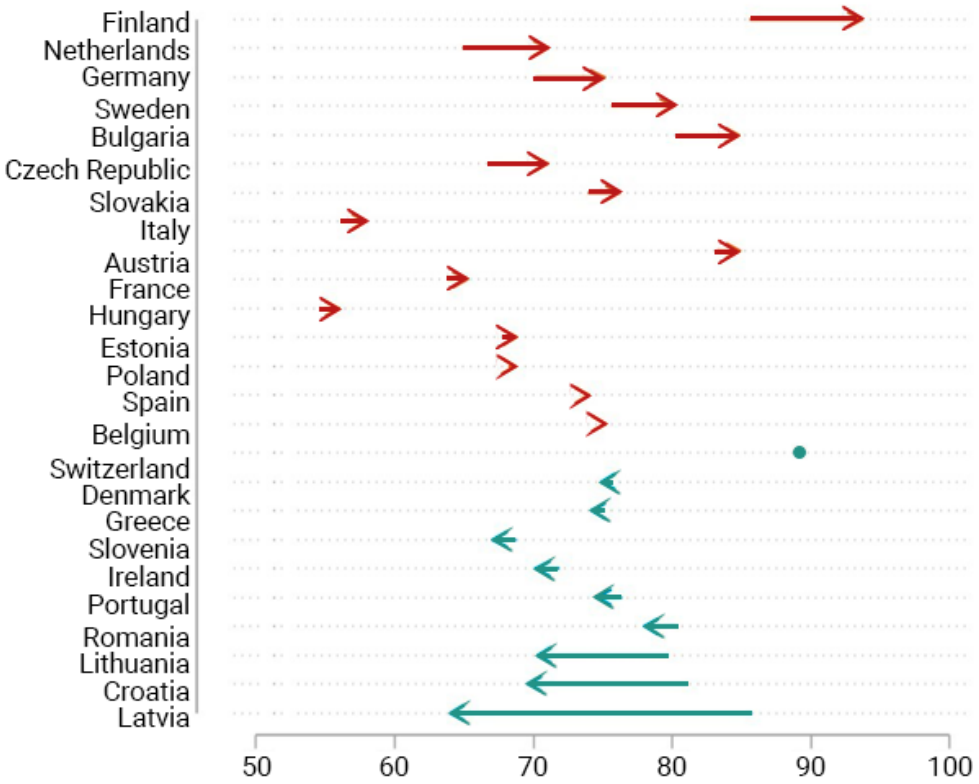
Grocery retailers are typically the last stage of the food supply chain, directly influencing the prices consumers pay for food. As such, they have come under increased scrutiny amid rising food price inflation. Intense competition and price pressures among retailers are essential for containing cost-of-living pressures. However, price setting in retail is complex, with retailers' prices heavily dependent on what they pay their suppliers, who are affected by inputs further up the supply chain. Yet, if retail competition is low and a few large retailers dominate the market, it could lead to higher food prices.

Figure 19 shows the market concentration of national grocery retailers across several EU countries measured as the market share of each country's combined top-four retailers. Two features stand out: high levels of supermarket concentration in some countries (e.g., Finland, Switzerland, Austria, Bulgaria) and a mixed pattern of increasing concentration of supermarkets in many countries over the last decades (Finland, Netherlands, Germany and Sweden, among others) and decreasing concentration in other countries (Latvia, Croatia and Lithuania, among others).

What does grocery retail concentration imply for food price inflation? In our analysis, a mixed pattern emerges. While there is a link between higher concentration and higher food price inflation (relative to inflation) across most countries, some outliers render this correlation insignificant. Outliers are Hungary – low concentration and high food price inflation – and Austria – with high concentration and low food price inflation. The observed pattern in Figure 20 indicates that food price inflation is primarily related to factors other than retail concentration.

Nonetheless, the high concentration of European grocery retailers raises concerns about potential pricing power during crisis periods. This concentration in the grocery retail sector is a factor worth monitoring. Some countries – like Austria, a country with low food price inflation – have taken some steps to increase monitoring and price transparency on supermarket shelves (see Section 3.5), potentially explaining the low food price inflation despite high concentration in the sector.

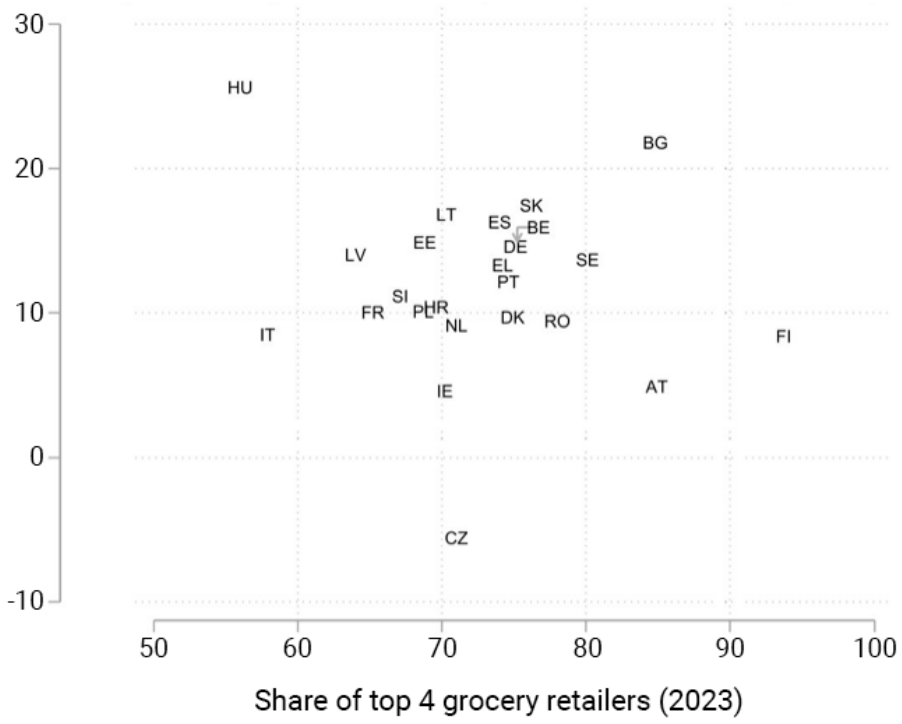
Figure 19. Grocery retail concentration across EU countries, 2014-2023 (share of top-4 retailers, in %).



Source: Own calculations with Passport Monitor data.

Note: We use food price inflation relative to inflation to (partly) account for other structural drivers of inflation.

Figure 20. Food price inflation and grocery retail concentration (food price inflation (in excess of inflation), Dec 2021-Mar 2024 change, in percentage points).



Source: Own calculations using Eurostat and Passport Monitor data.

2.2.3 Summary of results

Our analysis has highlighted large profits in the food sector during the recent food price crisis. High levels of concentration in areas like shipping and retail (see Sections 2.2.2.3 and 2.2.2.5), coupled with the rise of financial operations in food commodity and fertiliser trading (Sections 2.2.2.1 and 2.2.2.2), have enabled companies along the food supply chain to generate significant profits. For instance, the top-nine major fertiliser companies have seen profits soar from $15 billion in 2020 to $44 billion in 2022. We further show that these gains can be attributed to speculative activities. This trend is echoed in the food commodity trading sector, where a few dominant firms have significantly profited from market volatility. These trends indicate that these firms are significantly benefiting from financial operations during periods of market volatility, enabled by lax regulation in commodity trading.

In addition, the maritime transport sector has faced significant bottlenecks, allowing companies to control crucial shipping routes and raise their profit margins. Major food processing companies have also reported substantial profits during recent crises. Notably, these companies typically exhibit high profit margins, even before the pandemic, indicating their considerable market power. Lastly, grocery retail firms are highly concentrated in many EU countries (and becoming increasingly so). However, we find no evidence to suggest that the concentration within grocery retail has contributed to higher food price inflation in recent years.

Our analysis indicates that while EU food price inflation is primarily driven by external factors such as energy costs and supply chain disruptions, many companies have greatly profited from the recent price increases.

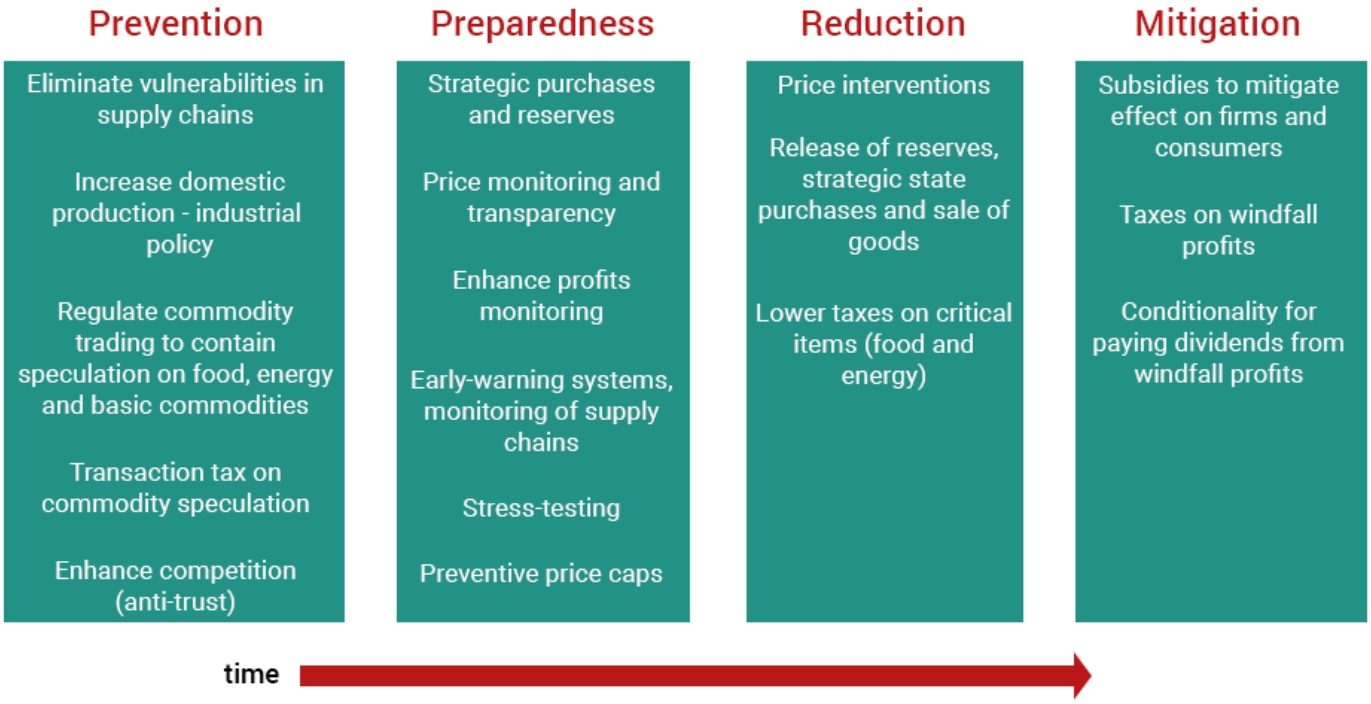
3. TOOLKIT

3. TOOLKIT

As we live in a time of overlapping emergencies with a higher probability and frequency of looming pandemics, geopolitical tensions and climate change, a future of more frequent shocks in systemically significant sectors appears to be on the horizon. In such circumstances, relying only on monetary policy to deal with inflation will clearly be insufficient and counterproductive. If crises occur frequently and central banks respond each time with monetary tightening, this will lead to a depression. Moreover, as our analysis has shown, the causes of inflation are multiple, many of which are clearly beyond the reach of monetary policy.

In this section, we outline additional measures to monetary policy that could be used to deal with inflation. They could be broadly divided into several categories: prevention; preparedness; reduction; and mitigation (Figure 21).

Figure 21. Types of measures against inflation.



There is a time dimension to this classification: the measures on the left side of Figure 21 (prevention and preparedness) are taking place well before a possible inflation crisis, reduction happens at the beginning and mitigation when inflation has already happened. The experience of the 2021-23 inflation crisis showed that with absent measures on preparedness and mitigation, the only options that were left were reduction and mitigation. Reduction has been effective in the countries that acted early and introduced price caps on electricity prices (Spain, France). The majority of countries, however, relied more on mitigation measures.

Energy price reduction measures (caps on the gas price) at the EU level appeared largely ineffective due to a lengthy decision-making process.

Another major feature that inflation governance should acquire is a risk-based approach to inflation prevention and mitigation. It is going very much in sync with the development of the general system of economic security and crisis preparedness in the EU that is going to be risk-based. It means assessing the magnitude and probability of particular risks, and government intervention where these risks are high. Concerning inflation, a risk-based approach would involve defining critical products and services in the economy, the prices of which have systemic significance. These are the prices that have the largest impact on other prices in the economy or directly influence consumer welfare. Another component is volatility: if on top of being systemically significant, the prices for a particular product are volatile, the risk is amplified. Weber and Wasner (2023) suggest a method for determining which sectors are systemically important based on input-output tables.

In our review of different tools, we look at the key impact of different policy options, reflect on their relative advantages and disadvantages, and provide examples. The review is not comprehensive, as it does not include all possible tools, nor all potential impacts of these tools. Rather it focuses on the aspects that come from our analysis of inflation in food and energy presented in this policy study.

The findings are summarised in Table 1. It should be read as a guide for policymakers to understand the impact of policies on specific economic outcomes, including inflation and the distribution of income.

Table 1. Summary of the proposed toolkit.

Policy	Key impact	Reflections/examples
Price controls	Dampen/reduce initial inflationary price shock	Should be combined with strategic reserves to buy time for supply adjustments
Income support	Protect incomes of (vulnerable) households and firms	Leads to overall high inflation relative to price controls
Excess profit taxes (EPTs)	Prevents inequality increasing the impact of the shock	Permanent EPTs limit uncertainty for firms
Limit speculation	Prevent speculative dynamics from artificially pushing up prices beyond the initial shock	Examples: prohibiting index funds from investing in food commodities; introducing financial transaction tax on operations with (food) commodity derivatives
Increase price transparency	Generate a better understanding of systemically important prices	Examples: *Heisse Preise* in Austria, Germany and Slovenia; the UK's Food Foundation Food Price Tracker; EU's TRANSFOP Project
Build strategic reserves	Allows price controls to work with shortages, buying time for supply adjustments	Example: Strategic Petroleum Reserve in the USA
Reduce fossil fuel dependency	Limit high market power, particularly prevalent in the fossil fuel subsectors of energy and food (fertiliser producers and transport)	Countries which had a greater share of renewable energy experienced less inflation

3.1 Price controls

The primary aim of price controls is to dampen inflationary price shocks, thereby limiting the adverse effects of inflation on the economy as a whole. They work via various channels (Krebs and Weber, 2024, p. 30). Firstly, they minimise a drop in supply in the face of cost shocks, by limiting energy and food price rises and, therefore, input costs.[21] Secondly, they increase disposable income, which can spur growth by strengthening aggregate demand and limiting inequality. Thirdly, they reduce uncertainty, increasing investment by businesses and household spending. Fourthly, tackling inflation reduces the need for restrictive interest rate rises.

A textbook view of price controls criticises them for distorting markets and incentives for actors, leading to a misallocation of resources. However, in a crisis scenario, markets often overreact in response to the initial shock, creating price distortions (Krebs and Weber, 2024). In such situations, price controls can correct systemically important prices, such as energy and key food commodities, more efficiently. This allows the economy to mitigate price spikes via the channels discussed above while giving suppliers and the government time to tackle the initial causes of the shock that caused the spike. However, price containment will lead to relatively higher consumption of the respective goods, namely, energy and food. Price controls should therefore be combined with strategic reserves (see Section 3.7) to prevent shortages, buying time for policymakers to respond to the initial supply shock or bottlenecks (Krebs and Weber, 2024).

As this policy study has shown, countries that implemented energy price controls had relatively lower energy price inflation than other countries, demonstrating the effectiveness of controlling systemically important prices. In other words, focusing on price controls seems to be effective at bringing down inflation, particularly relative to income-support policies.

At the EU level, the price cap for gas was introduced rather late and at a high level, which made it largely irrelevant (at €180, in December 2022, as discussed in Section 2). This experience shows that the mechanisms for price controls should be agreed upon in advance, as part of a crisis-preparedness framework, so that when a crisis hits such mechanisms come into action automatically. This is especially necessary at the EU level, where any decision requires considerable time and coordination, which is a significant weakness in crisis situations. Now that the EU gas price cap has expired (in January 2025), it is highly advisable to design a long-term mechanism for automatic price controls and other instruments that prevent irrational spikes in gas prices. It could be part of the EU crisis-preparedness agenda that is now being developed.

3.2 Income support

The primary aim of income-support measures is to protect the disposable income of households and firms and reduce uncertainty. A key benefit of income support is that it can be targeted to the most vulnerable households and firms, resulting in more equitable distributional outcomes than if the support were not implemented (OECD, 2024). However, as discussed in Section 2.1.4, income support is not expected to impact price inflation, and may even exacerbate the initial price shock by allowing households/firms to purchase goods at higher prices. The evidence from our analysis suggests that countries which spent more on income support for energy experienced statistically significantly higher energy price inflation rates compared to those that focused on price controls. Germany spent a particularly high percentage of its GDP on income support, compared to France, Spain and Portugal, which allocated less than 5% of their GDP to income support.

Policymakers should, therefore, be aware that if they decide to focus on income support relative to price controls for energy, it is likely to result in higher energy price inflation. Another disadvantage of income support with respect to price controls is that it does not influence the marginal price of energy and, therefore, does not shift the incentives for energy consumption of firms or households. As discussed by Krebs and Weber (2024, p. 30), this shift in incentives is a crucial channel through which price controls work to reduce the impact of systemically important price shocks on the economy. Income support by its nature does not reduce the marginal price of energy and, therefore, does not stimulate firms to increase production (if production is sensitive to energy prices). The increase in production may have a beneficial effect on overall inflation by limiting supply shortages. This demonstrates another limitation of income-support policies on keeping down overall inflation.

3.3 Excess profit taxes

The primary aim of excess profit taxes is to limit the negative impacts of inflationary shocks on inequality, while also providing funding for governments for fiscal policy. Inflationary shocks lead to increases in income and wealth inequality. During the recent crisis, 51% of the increase in energy profits in the USA has been going to the wealthiest 1% (Semieniuk et al., 2024).

Excess profits during the crisis were at historically high levels, according to an IMF definition that defined excess profits as returns on assets above 10% (Hebous et al., 2022). In 2014, global excess profits were just under €1 trillion; following the COVID-19 pandemic and the Russian invasion of Ukraine, excess profits had more than doubled to over €2 trillion in 2022 (Heck et al., 2023). Such a boom will exacerbate wealth inequality, given that the top 10% own more than 86% of total net financial assets (Heck et al., 2023). Excess profit taxes could significantly reduce inequality while generating large revenues for the government. Heck, Rabensteiner and Tippet (2023) propose that excess profits should be taxed at an additional 20% for "base" excess profits and an additional 40% for "super" excess profits.[22] This excess profit tax design would raise an additional €126 billion in 2022 on top of existing corporate tax revenues (Heck et al., 2023). This is equivalent to roughly 0.8% of the EU's GDP or about 1.6% of total government expenditure by EU member states. This translates to €280 for every EU citizen.

The key challenge with excess profit taxation lies in its implementation. The experience with windfall profit taxes on energy companies in the EU in 2022-23 showed that actual proceeds were several times lower than ex-ante estimates. The primary issue is profit shifting, which is particularly prevalent among large multinational corporations. This experience also strengthens the case for developing tools to prevent the emergence of windfall profits in the first place.

3.4 Limit speculation in commodity markets

Both energy and food price inflation have been substantially exacerbated by the fact that these essential goods are traded on international commodity markets. As a result, global energy and food prices are prone to speculation and irrational exuberance. Energy markets can respond to the initial energy price shock via speculative dynamics, as discussed by Van 't Klooster and Weber (2024). Similarly, our analysis of the fertiliser and food commodity trading sectors shows that commodity traders extract huge profits from financial operations (see also UNCTAD, 2023).

After the previous commodity price bubble burst in 2008, policy initiatives aimed to reduce the risk inherent in this sector. In particular, the EU adopted the Markets in Financial Instruments Directive II – MiFID II (came into force in 2018) – that restricted trading in food products and introduced position limits, and enhanced transparency requirements through pre-trade and post-trade transparency rules, among other measures. However, as the inflation crisis of 2021-23 showed, these measures were insufficient.

UNCTAD (2023) exposes a long list of flaws in the current regulatory regime for commodity trading. The main ones are (1) the absence of a global regulator for commodity trading and divergence of national regulations, which offers plenty of arbitrage opportunities for the global trading companies; (2) the treatment of commodity traders as commercial traders instead of financial institutions, which removes them from financial supervision; and (3) a large part of food commodity trading happens over-the-counter (OTC), which is barely regulated.

Several proposals to protect food prices from speculative attacks exist, including prohibiting index funds from investing in food commodities or introducing a financial transaction tax on operations with (food) commodity derivatives (EESC, 2022). Given that a few players dominate these sectors, reforms could also include breaking up monopolies, promoting the entry of new market participants and enforcing stricter antitrust laws. To limit speculation, it is necessary to recognise food traders as financial institutions and extend relevant regulations (UNCTAD, 2023). Notably, in 2012-2013, the Financial Stability Board (FSB) considered classifying large physical commodity trading houses either as shadow banks or as "systemically important non-bank financial institutions" or both. This would have made them subject to greater regulation. But the traders pushed back, and the decision was scrapped (UNCTAD 2023, p. 95).

Concerning energy markets, a discussion about gas price caps at derivatives exchanges was briefly revived in early 2025 after the TTF gas price spiked at the end of 2024 to the highest level since March 2023. However, commodity traders immediately put pressure on the European Commission, threatening that gas supplies would bypass Europe, and the initiative died out.[23]

Speculation on commodity markets is also a risk to financial stability. In 2022, amidst a surge in gas prices, utility companies did not have enough working capital to meet big collateral calls[24]. For some commodities, such as nickel in March 2022, trade had to be suspended to prevent market collapse.[25] Financial Stability Board analysis of the commodity markets shows that they have a range of features which increase risks – significant concentration, high leverage, and opacity and data gaps, especially on the OTC trade (FSB, 2023).

A significant portion of commodity trading takes place in Switzerland. It is reportedly the global market leader in the trading of sugar, cotton, oilseed, coffee and cereals.[26] Vitol, Glencore, Gunvor, Cargill and Mercuria, the largest commodity traders, have their trading houses in Switzerland. The reasons are tax privileges and lax regulation. On top of that, Switzerland does not have proper oversight over commodity trading, and some data is simply not being reported (on transit trade, for example) (Public Eye, 2023). With such a big role in commodity trading, Switzerland should be closely involved in all EU efforts to regulate commodities.

As this policy study was going to print, the European Commission launched, at the end of February 2025, a Clean Industrial Deal and an Action Plan on Affordable Energy that suggest scrutinising derivatives markets, especially for gas, aiming to curb speculation on these markers. Simultaneously, the European Commission has launched a consultation on commodity derivatives markets that should feed into a report by the Commission to the European Parliament and the Council, as required by MiFID. These initiatives should diminish speculative activities and volatility in European commodity markets. However, past experiences with initiatives aimed at better regulating commodity trading demonstrate that these efforts face strong

resistance and lobbying from commodity trading companies, resulting in regulations often being either scrapped or diluted.

3.5 Improve data transparency on critical commodities prices and stocks

A better understanding of where price pressures emerge, particularly for systemically important energy and food prices, requires improving price transparency. Higher price transparency is also an effective tool to monitor price patterns and identify profiteering. UNCTAD (2023) shows that a lack of transparency is a key reason that enables profiteering in the food supply chain and recommends establishing daily price monitoring.

Several initiatives demonstrate that effective and inexpensive solutions are possible. The open-source project *Heisse Preise*, covering Austria, Germany and Slovenia, is a comprehensive price comparison tool for over 177,000 food items across 14 supermarket chains. This project, led by a single developer and sparked by the Austrian government's plans for a price transparency database, showcases the potential for official data collection efforts. Similarly, the UK's Food Foundation Food Price Tracker and the EU's TRANSFOP Project (2011-2013) have monitored and analysed food prices. To further enhance price transparency, experts recommend that Eurostat and the ECB's Datawarehouse improve their real-time monitoring of prices and volumes in systemically significant sectors and goods (Van't Klooster and Weber, 2024). This approach and moving from sector-level analysis to firm-level analyses could provide policymakers with more granular assessments of systemically important prices and identify profiteering at the firm level (Welburn et al., 2023; Van 't Klooster and Weber, 2024).

Improving price transparency is also a precondition for implementing price controls in both the energy and food sectors. However, this may be more challenging in the food sector compared to the energy sector for several reasons. While specific raw commodities could be potential targets for price controls – particularly with a focus on reducing speculation – the food supply chain is significantly more complex and diverse than the energy sector. The food sector involves many stakeholders from farmers to distributors and retailers, and many food products require unique production, storage and processing requirements, making product (and price) standardisation difficult. In contrast, the energy sector, while still complex, tends to have fewer variables and a more centralised distribution system, making price controls easier to implement and administer. One key resolution to this problem is to focus on price controls of only the most systemically important food commodities.

The monitoring of critical commodities stocks also needs enhancement. Draghi (2024) points to deficiencies in energy sector monitoring and calls for improving granularity and timeliness of data, as well as centralising all public and open energy data sources (e.g., ENTSO-G, ENTSO-E, ACER and Eurostat) in a common hub for energy data. The same applies to food stocks. In May 2022, as the food supplies from Ukraine and Russia got disrupted, the EU instructed member states to develop the methodologies and operational systems to collect information on levels of stocks of cereals, oilseeds, rice and certified seed held by producers, wholesalers and relevant operators (Regulation (EU) 2022/791). The information collected now feeds into an online dashboard to monitor the EU agricultural markets.[27]

3.6 Improve profit monitoring

During the recent inflation crisis, it became apparent that the existing data on profits was inadequate for effective monitoring and a timely response. Currently, Eurostat collects data on profits once per year. As of March 2025, its most recent data was for 2023.[28] ECB data on gross operational surplus is more frequent (quarterly), yet it is still far from the level of detail and frequency of wage data. ECB President Christine Lagarde acknowledged this problem in her June 2023 speech at the European Parliament:

> *The contribution of profit to inflation had gone a little bit missing for a very simple reason which has to do with the fact that we don't have as much and as good data on profit as we do on wages.*[29]

Hopefully, the ECB is working on enhancing profits data.

3.7 Build strategic reserves

Building up food and energy reserves is essential for systemically important price controls to be effective (Van 't Klooster and Weber, 2024). If governments hold down the price of energy or food, following some initial negative supply shock, stocks of energy and food will dwindle as consumers and firms consume more than the country is able to buy on the market at the global price.

Against the backdrop of monopolisation in the food supply chain, a tense geopolitical environment and the effects of climate change, the return of price spikes is likely more frequent. Building strategic reserves in basic foods – like grain – likely can stabilise food markets, limiting speculation and stopping prices of key food basics from soaring.

We have shown that recent price spikes are linked to profit spikes in various areas of the food supply chain. For example, the profits of four companies ("ABCD") that control 70-90% of the global food commodity market jump with price volatility. We have seen similar patterns in fertilisers or shipping. Buffering essentials against shocks can help prevent inflation and coordinate price hikes (Weber and Schulken, 2024). Weber and Schulken (2024) call for the creation of buffer stocks of grain that could be released during shortages or emergencies to ease price pressures. Such a system would quell the volatility that is a hallmark of grains (and other food commodity items) and keep food prices stable and down. An EU-wide approach can help ensure stable supplies of essential commodities like traded food staples and dampen price fluctuations.

Buffer systems for critical commodities are not a new idea. The USA has long kept the Strategic Petroleum Reserve to limit price spikes and collapses in the oil market. When oil demand is strong and prices climb, the government can use its oil reserves to help bring prices down. When demand is weak, and prices fall so low that pumping more oil becomes unprofitable, the government buys and stores barrels in its reserve.

Although this approach may work for most commodities, easy-to-store items like grains are particularly well-suited. The United States Department of Agriculture already buys food for aid programs to "stabilise" prices in agricultural commodity markets by balancing supply and demand (Weber and Schulken, 2024). The EU should look at a similar approach to balance the supply and demand of essential food items.

On top of reserves creation, there should be a better coordination of commodities procurement. In particular, the chaotic response to the gas supply disruption in 2022 points to a need for better coordination and a greater role of the EU in securing gas supply. Currently, in the EU, natural gas is bought by a myriad of public

and private actors, which is a consequence of earlier liberalisation. Draghi (2024) brings up examples of Korea and Japan, who are also net gas importers, but who manage their gas supplies much better. In both cases, gas supplies are arranged centrally by state-owned monopolies at prices near production costs. In 2023, the EU launched a platform, AggregateEU, to facilitate the coordination of gas purchases by European companies, which ran its first demand-matching round in 2024.[30] It would still be useful to explore how large state monopolies in the energy sector, of which the EU has many, could be used for long-term strategic energy procurement.

3.8 Reducing fossil fuel dependency

Recent disruptions in the energy and food supply chain, triggered by Russia's invasion of Ukraine, have highlighted the need to reduce dependence on both fossil fuels and food systems that rely heavily on fossil fuel energy. Our analysis shows that high market power is particularly prevalent in the fossil fuel energy sector and fossil-energy-intensive food subsectors like fertiliser producers and transport. Companies in these sectors have been able to leverage this market power into higher profits and, crucially, higher food prices. The reliance on fossil fuels poses significant inflationary pressures throughout the food supply chain, including energy, fertiliser, and transport costs. To lower these risks, the EU should consider large-scale public procurement strategies that move away from fossil-energy-intensive food production. This approach would also help guide the food system towards greater climate resilience and lower emissions. Moreover, recent research shows that countries which had a greater share of renewable energy suffered less energy price inflation following the shock (Turco et al., 2023).

4. CONCLUSIONS AND REFLECTIONS

4. CONCLUSIONS AND REFLECTIONS

We have shown that companies in food and energy supply chains have reaped abnormally high profits during the 2021-23 inflation episode. Part of these profits are attributable to speculation on the commodity markets, in which the majority of food and energy companies engage.

Food and energy markets are highly concentrated, with a handful of international companies controlling trading and transportation of commodities. These companies are very loosely regulated and data on their activities is only partially collected by regulators. Our detailed analysis of the food supply chain shows that almost all segments of this supply chain have high levels of monopolisation and vertical integration. Companies controlling the segments of trading, fertilisers, maritime transportation and food processing have reaped abnormally high profits during the 2021-23 inflation crisis.

To deal with these deficiencies, we have outlined a set of necessary measures: limiting speculation in commodity markets through better regulation and the introduction of caps on price volatility; increasing transparency of the energy and especially food value chains and commodity trading; reducing monopoly power of the companies controlling food and energy supply chains; taxation of windfall profits; and the creation of strategic reserves.

Given the strategic importance of energy and food for economic security and their systemic importance for the whole economy, there is a strong case for enhanced policy oversight over these sectors. Considering the increasing probability of diverse weather and geopolitical shocks, policymakers should take preventive measures to avoid the kind of experience that happened in 2021-23. In particular, crisis-preparedness frameworks should be developed to enable a fast response in the case of a shock.

The EU and its member states have employed a set of crisis-response measures to deal with energy price inflation: price controls; income support (subsidies); and a reduction of taxes on energy. The EU has also conducted electricity market reform, aiming to protect electricity prices from fluctuations, especially those caused by gas price volatility. The effect of this reform, however, is likely to be felt only in the medium term. A more recent EU initiative, as a part of the Clean Industrial Deal, to scrutinise gas trading and pricing can potentially bring the very needed measures that would reduce speculation in gas derivative trading.

Policy response regarding food price inflation was rather limited. Apart from price controls in the food retail segment in some countries, there was little action on speculation and profiteering in the rest of the supply chain. This is in stark contrast to the 2008 food inflation episode that (together with the general financial crisis) sparked lots of regulatory activity on food derivatives trading. Farmer protests that sparked across Europe in 2023-24 were used by some political forces to blame the farmers' plight on green regulations, driving attention away from the main causes of the crisis – speculation, monopolisation and profiteering. As a result, the food sector remains highly exposed to any future price shocks.

An important reason why commodity speculation has not been adequately regulated so far is strong lobbying by commodity traders. In Section 3.4, we have shown an example of when commodity traders intervened to block their classification as financial companies and blocked a more recent attempt to introduce a gas price cap. UNCTAD (2023) exposes in more detail how diverse policy initiatives were dropped and loopholes

remained that enabled commodity companies to reap substantial profits from speculation. Now, as energy prices have become a matter of survival for European industry, there will be countervailing voices to help balance against traders' lobbying. More public awareness about the problem could also help.

Due to a lack of crisis preparedness, most of the EU's efforts to combat inflation in 2022-23 were undertaken through monetary policy and subsidies. The relevance and effectiveness of monetary policy to fight a supply-side inflation shock is limited. If the frequency of supply shocks increases, as anticipated, repeated use of a monetary contraction to fight inflation would put the economy into a depression. Moreover, high interest rates will hamper investments in Europe, especially those needed for the green transition. Therefore, there is a clear need to introduce a toolbox to tackle inflation beyond relying solely on monetary policies. ECB and national central banks should be part of this effort. Even though non-monetary tools are not in their domain, central banks can substantially benefit in their fight against inflation by coordinating their policy action with governments.

Preferably, anti-inflationary measures should come in the form of inflation prevention and preparedness. If a shock has already happened, the quick introduction of price containment measures in systemically significant sectors prove to be an effective policy. Our analysis has shown that countries that focused on price controls (Spain, France and Portugal) had some of the lowest energy price inflation. By contrast, Germany and Austria, who focused more on income support, had the highest inflation amongst Western European countries.

On top of deciding what to do, there needs to be a better coordination of the inflation preparedness effort. The European Commission should assume a more active stance and take on a leadership and coordination role. Inflation preparedness needs to become part of the European crisis preparedness and resilience strategy. Some elements of inflation preparedness are already incorporated into the European Preparedness Strategy launched by the European Commission in March 2025, such as the plan to develop an EU Stockpiling Strategy and a platform for demand aggregation for strategic raw materials. An inflation-preparedness strategy would be a complement to this broader effort and serve as a tool to modernise the inflation governance framework to make it fit to deal with the challenges of today and the future.

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ENDNOTES

ENDNOTES

1 "Where does the EU's gas come from?" European Council.

2 Other trading places are the European Energy Exchange (EEX) in Germany and over-the-counter (OTC) trading, but their volumes are substantially lower than those on TTF (EMSA, 2023, p. 6).

3 As of 2024, these companies have increased their equity many times and paid record bonuses and dividends and were sitting on a pile of cash. Zhdannikov, D. and J. Payne (2024) "Top global energy traders face multi-billion cash quandary". *Reuters*, 26 February.

4 In some cases, we included the biggest *electricity* providers due to data constraints.

5 The 65 firms are SHELL PLC, TOTALENERGIES SE, ELECTRICITE DE FRANCE, ENEL SPA, ENI S.P.A., E.ON SE, ENGIE, IBERDROLA SA, ENERGI DANMARK A/S, ENBW ENERGIE BADEN-WUERTTEMBERG AG, VEOLIA ENVIRONNEMENT, OMV AKTIENGESELLSCHAFT, RWE AKTIENGESELLSCHAFT, ENDESA, S.A. (SPAIN), MOL MAGYAR OLAJ-ES GAZIPARE RESZVENYTAR, PGE POLSKA GRUPA ENERGETYCZNA S.A, VATTENFALL AB, MVM ENERGY PRIVATE LIMITED LIABILITY COMPANY, ACCIONA SA, EDP, S.A., A2A S.P.A., CEZ A.S., HELLENIQ ENERGY HOLDINGS SOCIETE ANONYME, TAURON POLSKA ENERGIA SA, VERBUND AG, PUBLIC POWER CORPORATION S.A., FORTUM OYJ, ELECTRICITY SUPPLY BOARD (ESB), HOLDING SLOVENSKE ELEKTRARNE D.O.O., SLOVENSKE ELEKTRARNE, A.S., DEPA COMMERCIAL S.A., CENTRICA ENERGY TRADING A/S, INA-INDUSTRIJA NAFTE D.D., EVN AG, TERNA S.P.A., AB IGNITIS GROUP, ELINOIL HELLENIC PETROLEUM COMPANY S.A., BULGARGAZ, REDEIA CORPORACION, S.A., ENOVOS LUXEMBOURG S.A., AKCIJU SABIEDRIBA LATVENERGO, TPP MARITSA EAST 2, ENERGIA CUSTOMER SOLUTIONS LIMITED, EESTI ENERGIA AS, SSE AIRTRICITY LIMITED, BORD GAIS ENERGY LIMITED, ELECTRICITY AUTHORITY OF CYPRUS, BULGARTRANSGAZ, AKCIJU SABIEDRIBA RIGAS SILTUMS, NUTS GROEP B.V., FLOGAS ENTERPRISE SOLUTIONS LIMITED, ZAPADOSLOVENSKA ENERGETIKA, A.S., ALEXELA ENERGIA TEENUSED AS, MELITA POWER DIESEL LTD, BULGARIAN ENERGY HOLDING, IBEROLAS SL., ENEMALTA P.L.C., ENERGIE CONCURRENT B.V., ENCAVIS NORDBRISE A/S, HRVATSKA ELEKTROPRIVREDA, ELECTRICA FURNIZARE SA, LIETUVOS ENERGIJA, ENEL ENERGIE MUNTENIA SA (EX ELECTRICA FURNIZARE SUD SA), PLINACRO D.O.O., and ENEL ENERGIE SA.

6 Not all of this profit was necessarily generated in EU countries, as the dataset also contains some multinational companies that operate in non-EU countries.

7 Tillier, N. (2022) "Energy Outlook: European utilities driven by higher tariffs and investment". ING, 26 January.

8 Countries also implemented other policies, such as non-energy-related income support and credit and equity support. However, price controls and income support made up 60% of total support (434 billion/730 billion). Moreover, these policies are specifically related to the energy market.

9 The correlation is still significant, even if we exclude the Baltics from the sample, following the discussion in Section 2.1.3. The coefficient becomes 0.27 and this is significant at the 5% level.

10 "Council agrees on temporary mechanism to limit excessive gas prices". Press release. European Council, 19 December 2022.

11 "Timeline - energy prices and security of supply". European Council.

12 According to Draghi (2024), if European companies had access to prices linked to the Henry Hub in the USA (delivered on a cost-plus basis), as opposed to the speculation-driven TTF index, the theoretical gain for the European economy would have been in the order of up to €50 billion, with enormous savings for public budgets and a lower impact on the overall economy.

13 Council regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices.

14 The REMIT regulation entered into force in May 2024 and the EMD in July 2024.

15 "Analysis January 2025". AleaSoft.

16 Eurostat: Electricity prices for non-household consumers, data code: nrg_pc_205.

17 "Electricity market design". European Commission.

18 Energy is a key input across all sectors, from fertiliser production to cooling systems in retail. Another critical sector within the $9 trillion food industry is financing. Major food processors and commodity traders are increasingly active in financing other sectors along the supply chain, extending their vertical integration and enhancing their control over market dynamics. However, discussing food supply financing is beyond the scope of this policy study.

19 Here, profits are measured as profits before taxes and interest, so-called EBITDA. Data are selected based on the size of revenues of fertiliser companies and are dependent on data availability.

20 "Global shipping: Mega profits, micro taxes". Opportunity Green, March 2025.

21 This first channel will also increase the consumption of energy and, therefore, reduce reserves of energy and food.

22 In their report, excess profits are defined as above a normal rate of return on total assets (above 10%). Base excess profits are profits between a rate of return of 10% and 15% and super excess profits are profits above a rate of return of 15%. These excess profits, both base and super, would be taxed in addition to existing corporate taxes.

23 "EU weighs temporary gas price cap to counter diverging costs with US", 12 February 2025, *Financial Times*.

24 "Brussels ignores derivatives at its peril amid energy crisis", 8 September 2022, *Financial Times*.

25 In March 2022, nickel prices on the London Metal Exchange (LME) nearly quadrupled in just three trading days. The surge in prices forced the clearinghouse associated with the exchange, LME Clear, to issue large margin calls, which traders could not meet, putting LME Clear itself at risk of bankruptcy. LME responded by cancelling trade altogether.

26 "Commodities trading". About Switzerland, 27 December 2023, and Public Eye (2023).

27 "Agri-food markets". European Commission.

28 "Business – statistics on profit and investment". Eurostat.

29 "Monetary dialogue with Christine Lagarde, President of the European Central Bank". Multimedia Centre. European Parliament, 5 June 2023.

30 Directorate-General for Energy (2025) "Upcoming: Commission to launch second mid-term matching round via AggregateEU". European Commission, 4 March.

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This policy study analyses the role of profits in food and energy price inflation in the EU in 2022-23. It highlights new stylised facts about energy and food price inflation, discusses the effectiveness of policy responses and highlights how companies along the food supply chain have significantly benefited during high inflation. The study provides new contributions along three lines: (1) Assessment of the effectiveness of policies to tackle energy price inflation. Our evidence suggests that countries which spent more on energy price controls had overall lower energy price inflation. (2) Analysis of profits along the food supply chain. We present evidence on how companies along the food supply chain greatly benefitted from recent food price inflation driven by speculation of fertiliser producers and food commodity traders, high concentration in the maritime transport sector, significant pricing power of food processing companies, and high concentration in grocery retail in many European countries. (3) Toolkit to tackle future inflationary shocks: we discuss the key impact of different policy options, their advantages and disadvantages, as well as their application in the EU.

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