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**Working Paper**

## The cushioning effect of the measures adopted in Romania in response to the 2022 cost of living crisis

JRC Working Papers on Taxation and Structural Reforms, No. 06/2024

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# The cushioning effect of the measures adopted in Romania in response to the 2022 cost of living crisis

*JRC Working Papers on Taxation and Structural Reforms No 06/2023*

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2024

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## **Abstract**

In response to the energy crisis, which led to high inflation, Romania, like other EU Member States, introduced a series of price-related and income-related measures to cushion the negative impact on households' welfare. Using EUROMOD and its Indirect Tax Tool extension, we assess the impact of these measures on welfare across the income distribution, while distinguishing between automatic stabilisers and discretionary measures. We find that these measures did not succeed in diminishing entirely the negative effect of the inflationary shock on the lowest-income population, given that, on the one hand, the shock was higher for low-income deciles, and, on the other hand, the policies applied were not sufficiently targeted. Against this background, the use of targeted measures is warranted in order to improve the welfare effect of such measures on lower-income households and diminish income inequalities resulting from the energy crisis.

## **Acknowledgements**

We are indebted to Salvador Barrios and Dan Mattei, and to the many people who have contributed to the development of EUROMOD. Originally maintained, developed and managed by the Institute for Social and Economic Research (ISER), since 2021 EUROMOD has been maintained, developed and managed by the Joint Research Centre (JRC) of the European Commission, in collaboration with Eurostat and national teams from the EU Member States. The results and their interpretation are the authors' responsibility. The contents of this article reflect only the positions or opinions of the authors and not necessarily those of the European Commission or the Romanian Ministry of Finance.

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## **Executive summary**

The 2022 cost of living crisis, triggered by the energy crisis, had a significant impact on households in Romania, highlighting the need for effective policy measures to mitigate the negative effects of inflation. This paper assesses the impact of the policy measures implemented by the Romanian government on income inequality and poverty using microsimulation techniques.

### ***Policy Context***

The Romanian government implemented a series of policy measures to mitigate the negative effects of inflation on households, including price caps and income support. These measures were designed to cushion the impact of inflation on households, particularly the most vulnerable ones.

### ***Main Findings***

The inflationary shock had a highly regressive impact on household welfare, with the poorest households experiencing a significantly higher welfare loss than the richer ones. The impact of inflation was highest in the lowest income deciles, with the bottom income decile suffering a welfare loss almost four times as large as the one of the ninth decile.

The policy measures introduced by the government, including price caps and income support, had a cushioning effect on household welfare, but did not fully neutralize the negative effect of the inflationary shock on the poorest part of the population. The measures did, however, benefit the poorest households the most, with the welfare loss in the first decile significantly diminishing.

The use of targeted measures is warranted to improve the welfare effect for lower-income households and further diminish income inequalities resulting from the energy crisis.

The impact of automatic indexation alone was found to be small, but it acted as an automatic stabilizer and helped to preserve the purchasing power of vulnerable population groups.

### ***Related and Future JRC Work***

This paper contributes to the JRC's work on the distributional implications of policy measures in response to economic shocks. Future work will focus on assessing the impact of policy measures on income inequality and poverty in other EU Member States, as well as evaluating the effectiveness of different policy measures in reducing income inequalities.

### ***Quick Guide***

- What was the impact of the 2022 cost of living crisis on households in Romania?
  - The inflationary shock had a highly regressive impact on household welfare, with the poorest households experiencing a significantly higher welfare loss than richer ones.
- What policy measures were implemented by the Romanian government to mitigate the negative effects of inflation on households?
  - Price caps and income support were introduced to cushion the impact of inflation on households.
- What was the effect of these policy measures on household welfare?

- The measures had a cushioning effect on household welfare, but did not fully neutralize the negative effect of the inflationary shock on the poorest part of the population.
- The targeted measures improved the welfare of lower-income households and diminished income inequalities resulting from the energy crisis.
- The automatic indexation acted as an automatic stabilizer and helped to preserve the purchasing power of vulnerable groups, albeit to a small extent.

# 1 Introduction

Consumer prices have risen significantly since mid-2021, peaking towards the end of 2022 and decelerating afterwards. Alongside the gradual economic recovery from the COVID-19 crisis, supply chains faced various constraints, while energy demand was boosted by continued support from governments and central banks. Several factors, including a series of weather-related events, have further strained energy supply. Subsequently, the shock caused by Russia's invasion of Ukraine, which has significantly disrupted the energy trade in Europe, exacerbated an existing mismatch between energy demand and supply. Against the backdrop of an unprecedented crisis in the European energy system, energy prices reached historic highs in 2022, fuelling record inflation. In this context, many governments implemented measures to mitigate the impact of higher energy costs on households. These can be divided into two major categories: price-side interventions (e.g. retail price caps, regulated tariffs and reduced value added tax (VAT) / excises for energy products) and income support targeted at specific population groups.

The design and effectiveness of such measures have been the subject of heated debates, especially within international institutions. The European Commission suggested a common approach among the EU Member States to implementing measures related to the energy crisis, which would target the most vulnerable groups, be fiscally affordable and maintain incentives for reducing energy consumption and improving energy efficiency (European Commission, 2022). The need for reducing energy demand has also been stressed by the Council of the European Union, which stated that energy measures must cover a limited amount of consumption, to maintain an incentive to reduce demand. This would also ensure fiscal affordability (Council of the European Union, 2022). The Organisation for Economic Co-operation and Development (OECD) argued in favour of more-targeted measures, shifting from price-side measures to income support, and highlighted the need to improve the design of the social welfare systems in place. This would ensure that the support provided is fair and effective, with limited fiscal and budgetary impact, sustaining market mechanisms for supporting the medium- to long-term transition to carbon-neutrality and ensuring energy security (OECD, 2022).

The Romanian government has implemented both price and income-side policies. A price-capping scheme for natural gas and electricity prices was introduced in November 2021. Over time, the measure was extended and modified and, according to the present regulations in force, it will be valid until March 2025. Several income support measures were also implemented, aimed at diminishing the impact of high inflation on vulnerable populations. The most important measures concerned direct transfers/aids or vouchers for food or other goods granted to people at risk of poverty or in situations of material deprivation, including pensioners and students from low-income families. The net fiscal cost of the measures (considering taxes on windfall profits) was estimated to be about 0.6 % of the country's gross domestic product in 2022.

In this paper, we attempt to assess the impact of the policy measures implemented by the Romanian government in the context of the 2022 cost of living crisis on income inequality and poverty. Given their complicated design and the significant costs associated with them, assessing their distributional implications becomes of great importance. Our methodology involves a counterfactual analysis based on microsimulation techniques. To conduct the analysis, we made use of EUROMOD – the tax-benefit microsimulation model of the EU – and its newly developed Indirect Tax Tool (ITT). The model's underlying microdata come from Eurostat's European Union Statistics on Income and Living Conditions (EU-SILC) and the Household Budget Survey (HBS).



As stated by Süssmuth and Wieschemeyer (2022), the impact of inflation on income inequality is rather underexplored. The authors find that, in the case of the United States, the interaction between inflation and progressive taxation significantly favours low-income groups in terms of their net income. However, the findings of Zheng et al. (2023) suggest that, in a model of growth based on research and development, inflation has inconclusive effects on income inequality; its impact can be positive, negative or U-shaped, depending on the relative dominance of wealth and skills.

Since the unprecedented inflationary pressures have occurred and the policies adopted to cushion their negative effects have been implemented very recently, the literature regarding these issues is rather scarce, and includes mixed results. Capeau et al. (2022) examine the impact of several cushioning measures implemented in Belgium in the context of the current energy crisis using EUROMOD. They find that the aggregate impact of the measures is mainly in favour of the lowest income deciles, given that the measures other than the VAT cut for electricity have been highly targeted and therefore progressive. Other studies show that low-income households have been the most affected by the energy crisis and inflation (Claeys and Guetta-Jeanrenaud, 2022). Varga et al. (2022) find that the direct impact of the price increases has resulted in a rise in the share of energy consumption as a proportion of income in the EU from 2.5 % to 3.75 % for median-income households, and from 4.75 % to more than 6 % for the lowest income quintiles, which could amplify existing inequalities. However, Blake and Bulman (2022) find that low-income households are not always the most affected, as the largest losses of real income depend on the type of energy the households consume and the corresponding price increases, and on the share of energy in household consumption. In every Member State, households in the lowest income deciles are more affected by increased home energy prices than those in higher income quintiles. However, when it comes to fuel prices, in several countries high-income households seem to be more affected than low-income households. Varga et al. (2022) also analysed the impact of three different measures – fuel tax reduction, targeted income support and non-targeted income support – on different types of households. Their results show that targeted income support is the most effective measure for vulnerable households. Income policy measures seem to have a lower impact on greenhouse gas emissions than fuel tax cuts do. These cuts also increase reliance on imported fossil fuels and promote the consumption of fossil-fuel-intensive durable goods, undermining the goals of the European Green Deal.

Some recent papers study the effect of the rising inflation on households' well-being. The average impact of the energy crisis on households' cost of living was estimated to be up to 10 % in 2022 in the EU (Ari et al., 2022; Menyhért, 2024). While the impact varied significantly across countries and regions, its effects have been found to be mostly regressive (Ari et al., 2022; Claeys and Guetta-Jeanrenaud, 2022). Vulnerable population groups in central and eastern European countries, such as low-income households, large families, the rural population and older people, seem to be the most affected (Menyhért, 2024). Inflation is estimated to increase material and social deprivation by 2 percentage points in the EU, while also increasing energy and monetary poverty by 5 percentage points. These effects are several times higher in some Member States (Menyhért, 2024).

Our contribution to the literature is twofold. To the best of our knowledge, this is the first paper assessing the distributional impact of the measures implemented in the context of the recent cost of living crisis in Romania, including both the income-side measures, targeted at specific population groups, and those related to prices (i.e. price capping and fuel price reduction), concerning all the citizens of the country. Using microsimulation techniques, we are able to estimate the cushioning effect of each of those measures throughout the income distribution. The second novel aspect of this work is that we attempt to separate the impact of the abovementioned discretionary measures from the impact of policies that act as automatic stabilisers in the event of high inflationary

pressure. The latter include policies that, according to the legislation, are indexed to inflation and/or to some other relevant variables, such as real wage growth or the cost of living. Pensions are the most prominent example of such policies in Romania. Disentangling the effect of automatic versus discretionary measures is crucial, as it allows policymakers to make informed decisions about investing in existing policies or creating new ones.

Our main results show that the applied measures did not succeed in entirely removing the impact of inflation on the lowest income population, but did have a cushioning effect along the income distribution. Given that the impact of inflation was highest in the lowest income deciles, the use of targeted measures is warranted in order to improve the welfare effect of such measures on lower-income households and diminish income inequalities resulting from the energy crisis.

The remainder of this paper is organised as follows: Section 2 presents the Romanian context and the policies applied in the country, Section 3 delves into the methodology used, Section 4 details the results of the analysis and Section 5 provides the conclusions.

## **2 State of play and policy responses in Romania**

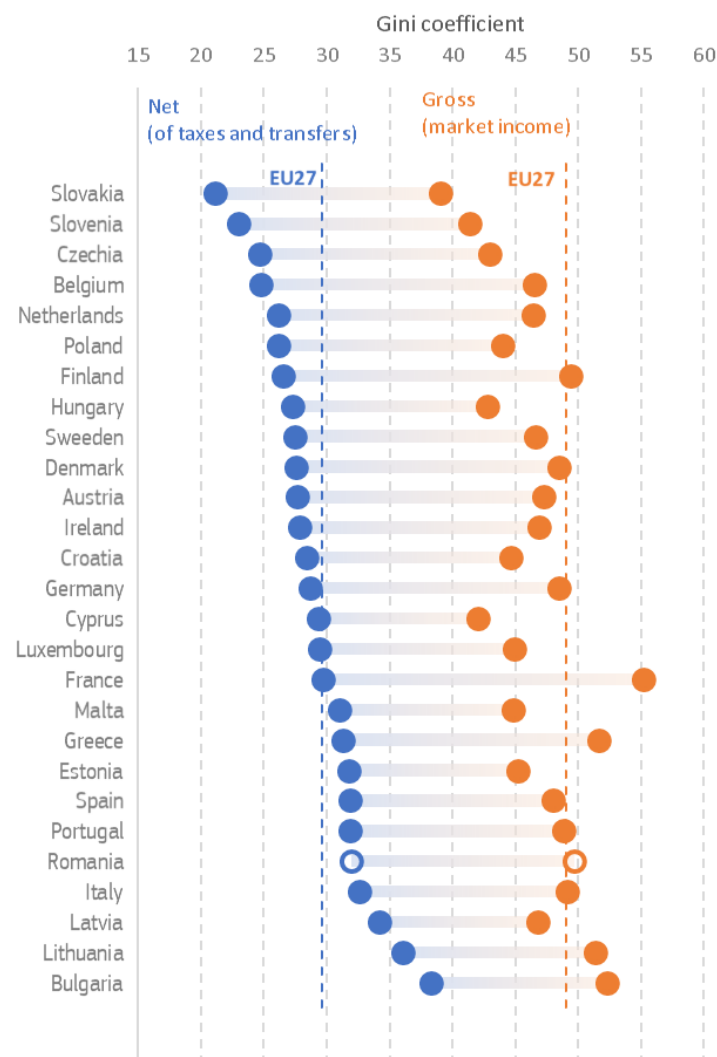
In Romania, the inflation rate in 2022 rose to the highest level in nearly two decades. Compared with the pre-pandemic period (the fourth quarter of 2019), significant rises in Romania in the price of electricity (> 60 %), natural gas (100 %) and fuel (almost 30 %) were reported in the fourth quarter of 2022, while the consumer price index annual average inflation increased to 13.8 % in the same year. Until mid-2022, the inflation rate was mainly driven by non-food products. Afterwards, the price rises for energy products were transferred to food prices, so that in the last months of 2022 the surges in the prices of food exceeded those for non-food products.

In the context described above, the Romanian government has implemented several policy responses aimed at diminishing the impact of the inflationary context on the population and firms. We only address the policy measures aimed at households, which relate to both price controls and boosting income or purchasing power, targeting the most vulnerable social categories (as shown in Table 1).

The price caps designed in Romania are mostly in line with the European Commission's proposal within the Annual Sustainable Growth Survey 2023 to address the energy crisis in a common manner, based on a two-tier energy-pricing system set according to three parameters: the minimum reference price, the consumption volume covered by the minimum reference price and a financial safeguard to ensure fiscal affordability (European Commission, 2022). The several levels of price cap, depending on the consumption level, are intended to ensure a lower cap for households that consume a low amount of electricity. Other arguments for the different price cap levels regard the incentive for reducing electricity demand and the fiscal costs associated with this policy measure.

Despite the government policies directed at price stabilisation, the price surges for energy products (electricity and natural gas) have been higher than the EU averages, which led to Romania registering the highest prices for household consumers for natural gas and electricity in purchasing power standards (including taxes) in the EU in the second half of 2022 and first half of 2023. This affects the population's living standards, and the prevalence of poverty and inequality, which are already very high compared with the EU averages. The consequences of the existence and persistence of high inequality and poverty rates consist of the erosion of cohesion, an increase in social exclusion and, not least, the hampering of economic growth, which also lead to the loss of citizens' trust in institutions. This is also linked to the fact that the redistributive capacity of the Romanian tax-benefit system is among the lowest in the EU (Figure 1).

**Figure 1.** The redistributive effect of the fiscal system (with pensions excl. from social transfers)



Sources: Eurostat (ilc\_di12, ilc\_di12b).

**Table 1.** Description of the measures applied in Romania

Policy measure	Period	Details
Price-related policy measures		
Price capping for electricity and natural gas for households	1 November 2021 to 31 January 2022 (GEO 118/2021)	Electricity (including VAT): RON 1/kWh for households with a maximum consumption of 300 kWh/month (and a maximum margin of 10 %) Natural gas (including VAT): RON 0.37/kWh for households with a maximum consumption of 2 300 kWh/month (and a maximum margin of 10 %)
	1 February 2022 to 31 March 2022 (GEO 118/2021)	Electricity (including VAT): RON 0.8/kWh for households with a maximum consumption of 500 kWh/month (and a maximum margin of 10 %) Natural gas (including VAT): RON 0.31/kWh for households with a maximum consumption of 3 600 kWh/month (and a maximum margin of 10 %)
	1 April 2022 to 31 August 2022 (GEO 27/2022)	Electricity (including VAT): RON 0.68/kWh for households with an average consumption below 100 kWh/month, and RON 0.80/kWh for those with an average consumption between 100.01 kWh and 300 kWh/month; for households with an average consumption that exceeds 300 kWh/month, no capped price is applied Natural gas (including VAT): RON 0.31/kWh for households regardless of their level of consumption
	1 September 2022 to 31 December 2023 (GEO 119/2022)	Electricity (including VAT): RON 0.68/kWh for households with an average consumption below 100 kWh/month, and RON 0.80/kWh for those with an average consumption between 100.01 kWh/month and 255 kWh/month (compared with 300 kWh under GEO 27/2022) Natural gas (including VAT): RON 0.31/kWh for households regardless of their level of consumption
	1 January 2023 to 31 March 2025 (Law No 357/2022)	Electricity (including VAT): RON 0.68/kWh for households with a consumption between 0 kWh/month and 100 kWh/month (about 5 million), including those who use medical devices or equipment necessary for carrying out treatments, those who have at least three children aged up to 18 years (or 26 years if they are enrolled as students) and single-parent families that have at least one dependent child aged up to 18 years (or 26 years if they are enrolled as students); and RON 0.80/kWh for households with an average consumption between 100.01 kWh/month and 255 kWh/month. Households with an average consumption between 255 kWh/month and 300 kWh/month are billed at a maximum price of RON 1.3 /kWh (including VAT; approximately 2.8 million households). If consumption exceeds 300 kWh/month, the total consumption is billed at a maximum price of RON 1.3/kWh Natural gas (including VAT): RON 0.31/kWh for households regardless of their level of consumption
Fuel price reduction	1 June 2022 to 31 December 2022	Reimbursement (including VAT) is RON 0.5 per litre of fuel, applied at the pump. It is half borne from the budget, and half by the suppliers
Targeted income-support policy measures		
Food vouchers	June 2022 to December 2023	Vouchers of RON 250 (around EUR 50) were granted every 2 months to over 2.5 million people at risk of poverty or in situations of material deprivation, such as pensioners and people with disabilities whose own monthly net income was lower than or equal to RON 1 500 in 2022 or lower than or equal to RON 1 700 in 2023; families with at least two dependent children and single-parent families whose monthly net income per family member was less than or equal to RON 600 in 2022 or less than or equal to RON 675 in 2023; families that receive the guaranteed minimum income; and homeless people
Financial aid for pensioners	January 2022 (one-off measure)	Unique financial aid for pensioners with pensions less than or equal to RON 1 600 (all those in this category must have an income of RON 2 200)
Financial aid for pensioners	July 2022 (one-off measure)	Unique financial aid of RON 700 for pensioners whose income is less than or equal to RON 2 000

NB: GEO, Government Emergency Ordinance.

## 3 Data and methodology

### 3.1 The microsimulation model

To simulate the impact of the cost of living crisis and the cushioning effect of discretionary policy measures for households in Romania, we employ EUROMOD (version ITTv4\_0.18), including the recently developed ITT extension<sup>(1)</sup>.

EUROMOD is the EU tax–benefit microsimulation model<sup>(2)</sup>. It combines country-specific coded policy rules with representative household microdata (mainly from EU-SILC) to simulate tax liabilities and cash benefit entitlements. EUROMOD simulations therefore consider the role played by each tax–benefit instrument and their possible interactions, and generate the disposable household income (i.e. income after direct taxes and cash benefits)<sup>(3)</sup>.

EUROMOD has been widely used to assess the effect of tax reforms on labour incentives (e.g. Benczúr et al., 2018), optimal taxation (e.g. Islam and Colombino, 2018) and comprehensive tax reforms (e.g. Alexandri et al., 2024). The ITT extends the scope of EUROMOD, enabling the simulation of indirect taxes (VAT and harmonised excises on energy, alcohol and tobacco) such as in Maier and Ricci (2022b). For this paper, we have extended the model to account for inflationary shocks.

To simulate indirect tax liabilities, the ITT combines the underlying microdata of EUROMOD with household expenditure information for around 200 commodity categories. These mainly come from the harmonised Eurostat HBS, with the latest available data being from 2015 at the time this model was developed. Starting from the disposable household income simulated by EUROMOD, the ITT applies the indirect taxation rules in place in each country and year (i.e. VAT, specific and *ad valorem* excises) to simulate adjusted disposable household income – that is, income after direct taxes, cash benefits and indirect taxation.

To combine HBS data (i.e. the source dataset) with the EU-SILC data of the same year (i.e. the recipient dataset), we used a semi-parametric procedure, developed by Akoğuz et al. (2020) and summarised in the annex to Amores et al. (2023). This procedure combines the estimation of Engel curves employed in earlier studies (e.g. Decoster et al., 2010) with matching techniques. It consists of three main steps. Firstly, a common set of relevant covariates is identified in the source and recipient datasets. Secondly, in the source dataset, consumption goods are aggregated into 20 macro-categories and expressed in terms of consumption shares of income. These aggregated consumption shares are regressed against the set of covariates identified in the first step. Thirdly, the estimated coefficients are used to construct fitted shares of consumption in both the source dataset and the recipient dataset (i.e. in each of these datasets 20 fitted consumption shares are constructed for any household based on the regression model). A Mahalanobis distance metric is used to find the closest match between any household in the source and the recipient datasets.

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<sup>(1)</sup> See Akoğuz et al. (2020) for a comprehensive description of the ITT for 18 Member States, including the construction of the original underlying microdataset, the simulation of indirect taxes and the validation of the model. Akoğuz et al. (2022) document the extension of the model to the remaining nine Member States.

<sup>(2)</sup> See Sutherland and Figari (2013); the model is open access (see <https://euromod-web.jrc.ec.europa.eu/>).

<sup>(3)</sup> More information on the main methodological assumptions, and on the most recent policy systems covered and their main features, can be found in Maier and Ricci (2022b).

Once households from the recipient and source datasets are matched, the consumption share of the full basket of consumption from the latter is imputed into the former. When running the analysis for policy years that succeed the year the underlying dataset refers to, appropriate updating factors are used to update income information.

### 3.2 Scenarios

We measure the impact of cost of living crisis on Romanian households and the cushioning effects of policy measures by constructing the following three scenarios.

- **Baseline.** In this scenario, we use the 2021 tax–benefit system in Romania.
- **Actual (inflationary shock with policy responses).** In this scenario, we simulate the inflationary shock on the 2022 tax–benefit system, including the discretionary policy measures put in place by the Romanian government.
- **Counterfactual (inflationary shock without policy response).** This is a hypothetical scenario in which we use the 2022 tax–benefit system, excluding energy policies. In this scenario, we simulate the inflationary shock and see what would have happened without a policy response.

The difference in household welfare in the baseline and in the actual scenario allows us to measure the impact of inflation on households in Romania, given the counteracting policies introduced by the Romanian government, whereas the difference between the baseline and the counterfactual scenarios allows us to measure the impact of the inflationary shock in the absence of these measures. The differences between the impact of the inflationary shock in the presence of the cushioning measures, on the one hand, and its impact in the absence of any measure, on the other hand, allow us to isolate the cushioning effect of the discretionary policy measures introduced by the Romanian government.

In our analysis, household welfare is assessed in terms of compensatory variation at constant quantities<sup>(4)</sup>. The theoretical foundations of this approach are discussed in detail by Amores et al. (2024). In summary, we ask how much extra money households would need at the inflated prices to afford the same basket of goods as in the baseline scenario, net of any income increase. Like the analysis of Amores et al. (2024), our analysis will hence be based on households maintaining their pre-inflation consumption basket. There are several ways to rationalise this. Firstly, this measure provides an upper bound of the increase in expenditure households actually faced. After several years of relatively low inflation and a sudden surge in 2022, the price increases took households in Romania largely by surprise. Thus, this upper bound still represents a meaningful approximation of the actual impact. Secondly, Sologon et al. (2023) – who actually measure the households’ demand responses – find substitution to be small. This result can be rationalised by the fact that it is difficult to switch away from necessities such as food and energy, which were the main drivers of inflation back in 2022.

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<sup>(4)</sup> This is effectively equivalent to assuming a Leontief utility function.

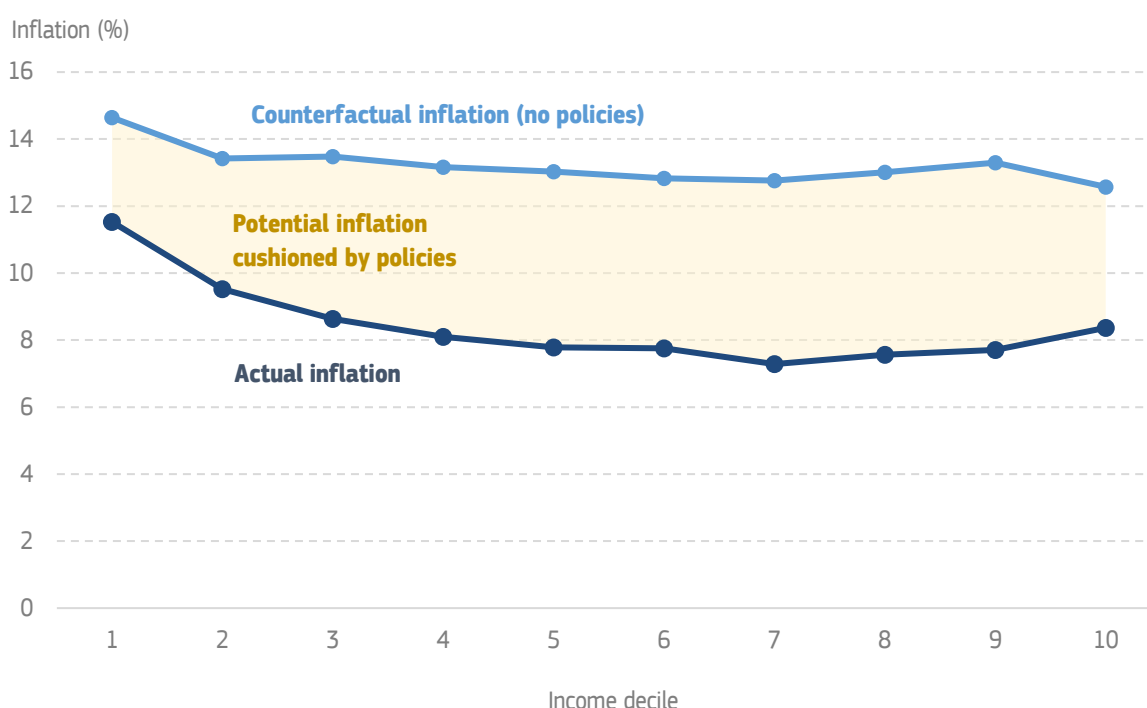
## 4 Results

### 4.1 The impact of the inflationary shock in Romania

In this section, we discuss the impact of the inflationary shock on Romanian households. To isolate the impact of inflation, we consider the counterfactual scenario, in which the government's response is silent – that is, no policies are adopted in response to the inflationary shock. Effectively, household welfare across the income distribution is affected by two factors: (i) the increase in consumption expenditure experienced by households across income deciles and (ii) the increase in nominal income. Both factors affect households heterogeneously.

In particular, the impact of increasing consumption expenditure generally differs across the income distribution because of differences in consumption patterns among households. As a result of the price surge in 2022, low-income households were most affected by the increase in consumption expenditure, for two reasons. Firstly, they generally face higher effective rates of inflation, as depicted in Figure 2. That is because households at the bottom of the income distribution spend a larger share of their income on necessities such as home heating and food. These were precisely the main drivers of the 2022 price surge, as shown by Figure 3. Secondly, low-income households generally consume more than they earn, and hence have limited ability to finance the extra expenditure burden brought about by inflation. As a result, they generally suffer a larger welfare loss. Likewise, note that the impact of price policies introduced by the government was slightly lower for households in the first four deciles of the income distribution, given that their car fuel consumption (which was temporarily subsidised by the government) is rather low. On average, price-related policies reduced the effective rate of inflation by 4.8 percentage points across the income distribution (this can be seen by comparing counterfactual and actual inflation rates in Figure 2).

**Figure 2.** Effective rates of inflation across income deciles (%)

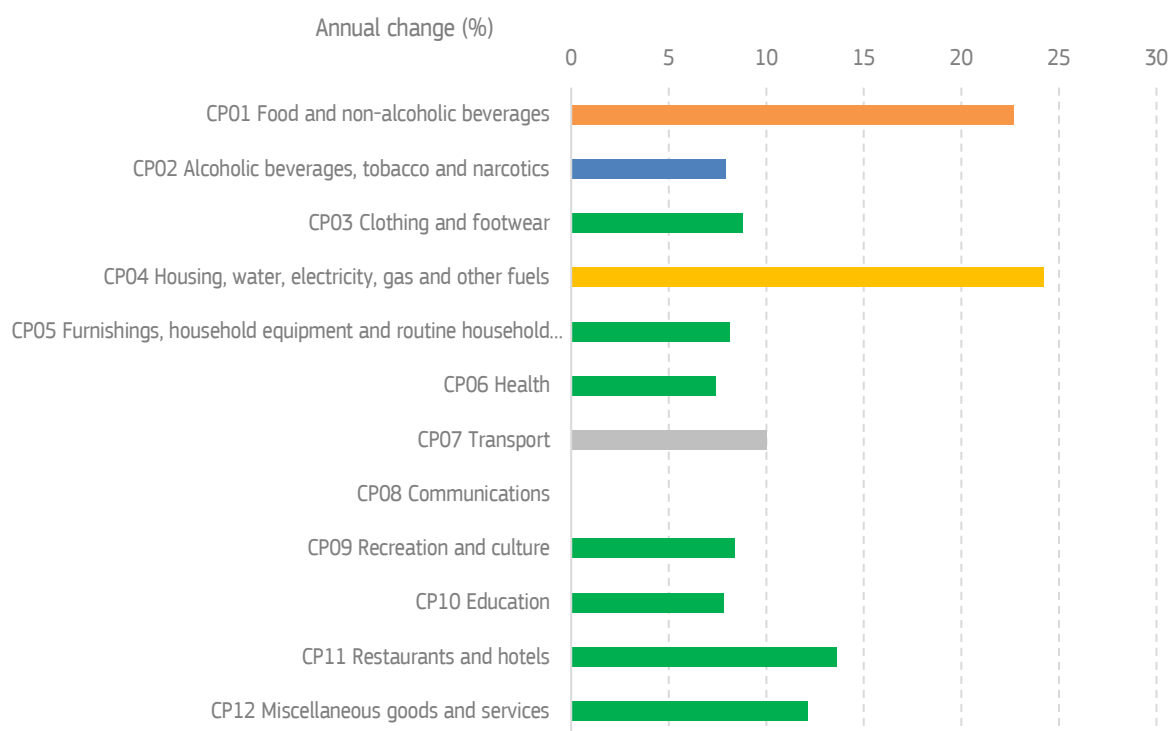


Source: Authors' calculations based on EUROMOD results.

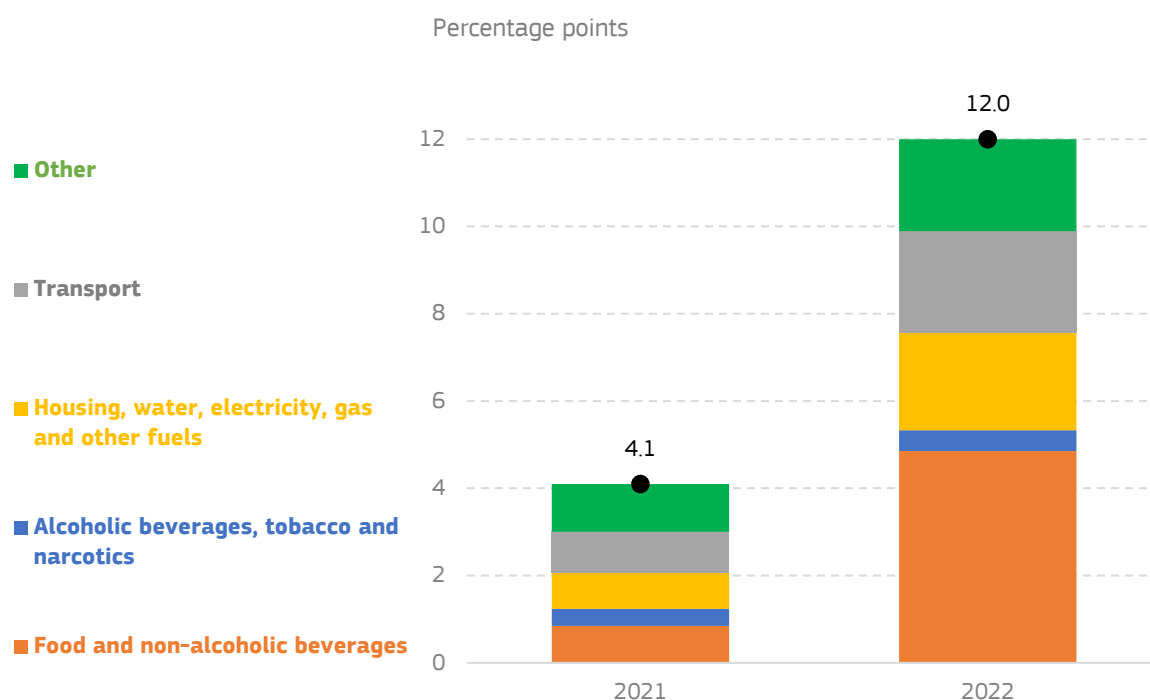


**Figure 3.** Inflation by main product categories (A) and their contributions to general inflation (B)

(A)



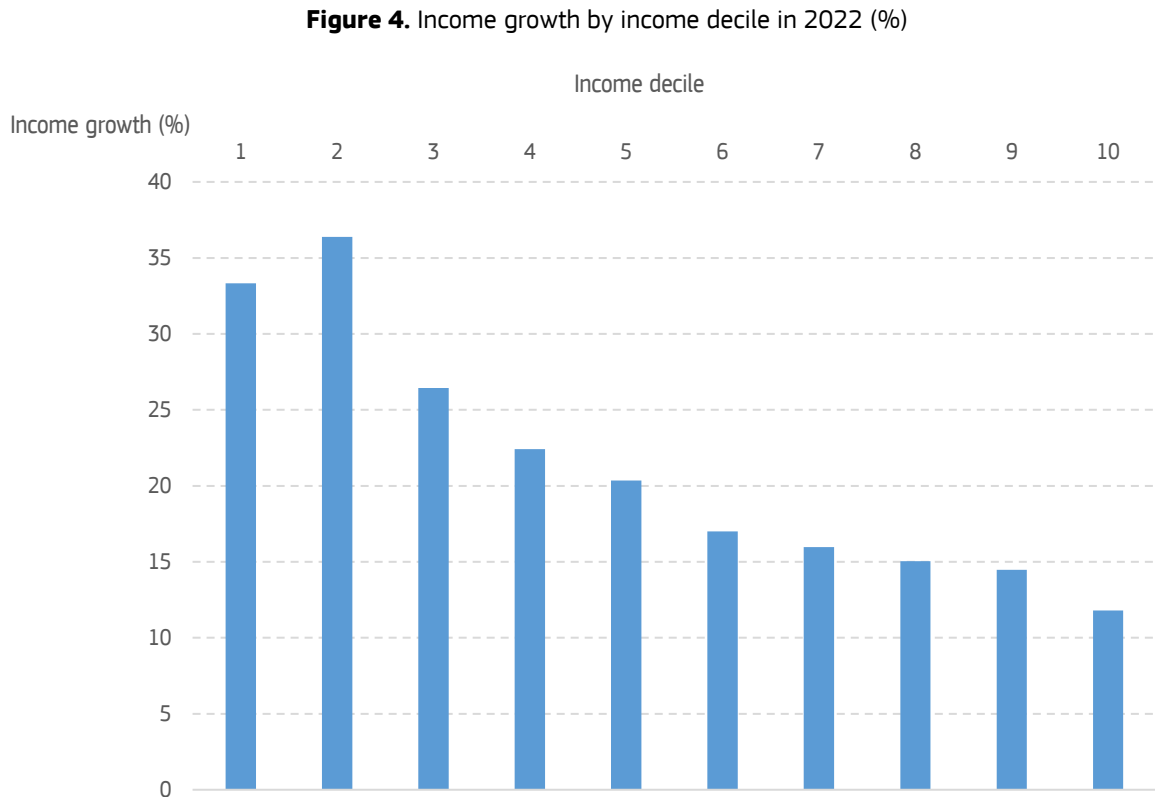
(B)



Sources: Eurostat (*prc\_hicp\_manr*, *prc\_hicp\_aind*, *prc\_hicp\_inw*).

On top of the unequal impact of inflation on consumption expenditure, nominal income growth across income groups was also unequal, as shown in Figure 4. Nominal wage growth is simulated

using EUROMOD uprating factors <sup>(5)</sup>. Uprating factors update sources of income, pensions and non-simulated social benefits according to their (estimated) growth between the year to which the data refers (e.g. 2019) and the years of the simulations (e.g. 2021 and 2022). While these rates of growth are the same across individuals (e.g. we do not simulate the income-decile-specific growth rate of earnings), the different composition of income for households at different points of the income distribution means the nominal income growth was actually quite different across income groups. To rationalise this, one might think of the difference between the income sources for the bottom deciles and for the top ones. Households at the bottom of the income distribution typically rely on pensions and social benefits, while, for households sitting at the top of the income distribution, market income is generally the main driver of nominal income growth <sup>(6)</sup>. Income growth for the first two deciles stood at around 16 %, decreasing to just over 12 % for the third decile and to around 10 % for the fourth and fifth deciles, while being stable around 9 % for the second half of the income distribution.



Source: EUROMOD uprating factors.**Figure**

Figure 5 presents the overall impact of the inflationary shock on household welfare through income and consumption, in the absence of a policy response. As we can appreciate from the figure, the impact is highly regressive: the first income decile suffered a welfare loss almost four times as

(<sup>5</sup>)

Detailed information on the data source of each uprating factor is documented in the EUROMOD country report for Romania.

(<sup>6</sup>)

In this specific case, part of the increase in nominal income at the bottom of the distribution is explained by policy changes in means-tested benefits, not related to the energy crisis.

large as the one for the ninth decile, while the richest 10 % of the households appear least affected. Even though the income growth for the lowest incomes deciles was higher than for the highest ones, the impact of inflation on household welfare is almost five times as large for the bottom as for the top, given the differences in the structure of consumption expenditure across the income distribution.

**Figure 5.** Impact of the inflationary shock on household welfare (no policies)

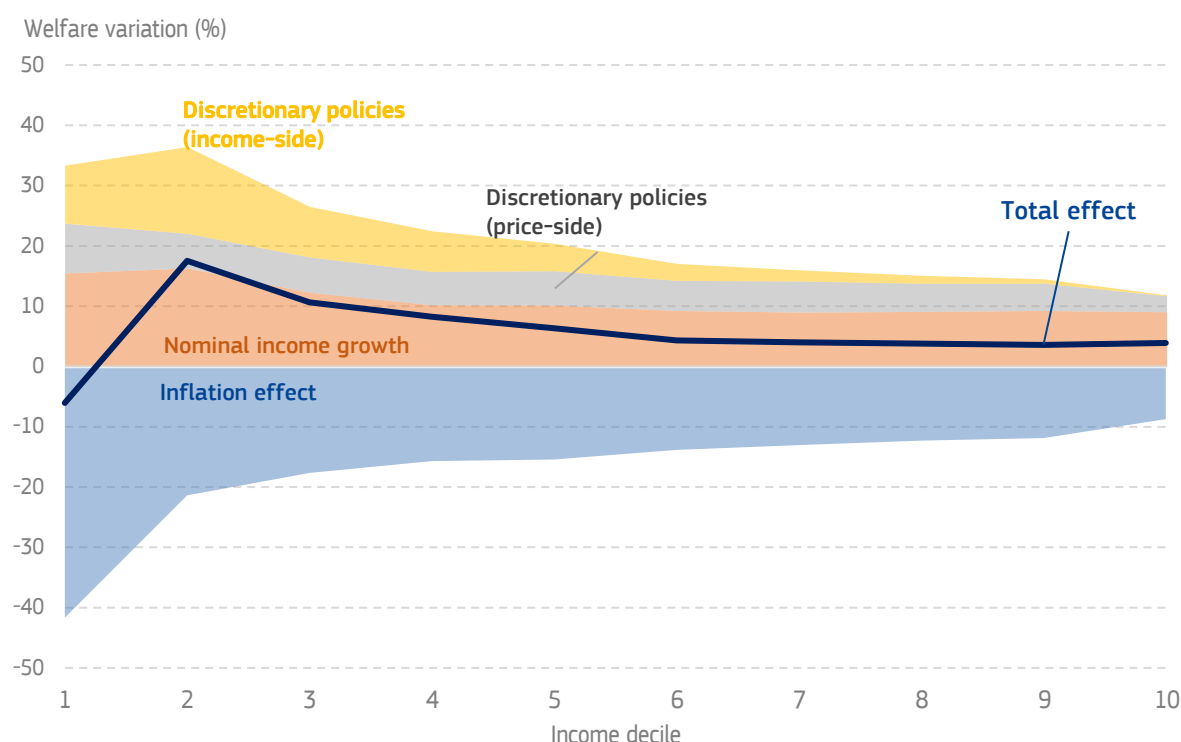


*Source: Authors' calculations based on EUROMOD results*

## 4.2 The cushioning effect of policy measures

From the previous section, we learnt that in absence of policy measures the impact of the inflationary shock would have been least significant for the richest households. The impact would have been rather dramatic for the lowest-income households, with the bottom income decile suffering a loss of almost 40 % of their welfare compared with 2021. We now consider to what extent the policy measures introduced by the Romanian government (discussed in detail in Section 2 **Error! Reference source not found.**) were able to shelter households across income groups. In doing so, we break down the role played by income-side measures, mostly aimed at supporting household income, on the one hand; and price-side measures, mostly aimed at limiting the increase in prices, on the other hand. We recall that the income-side measures were highly targeted at vulnerable social groups, while price-side policies benefited households across the board.

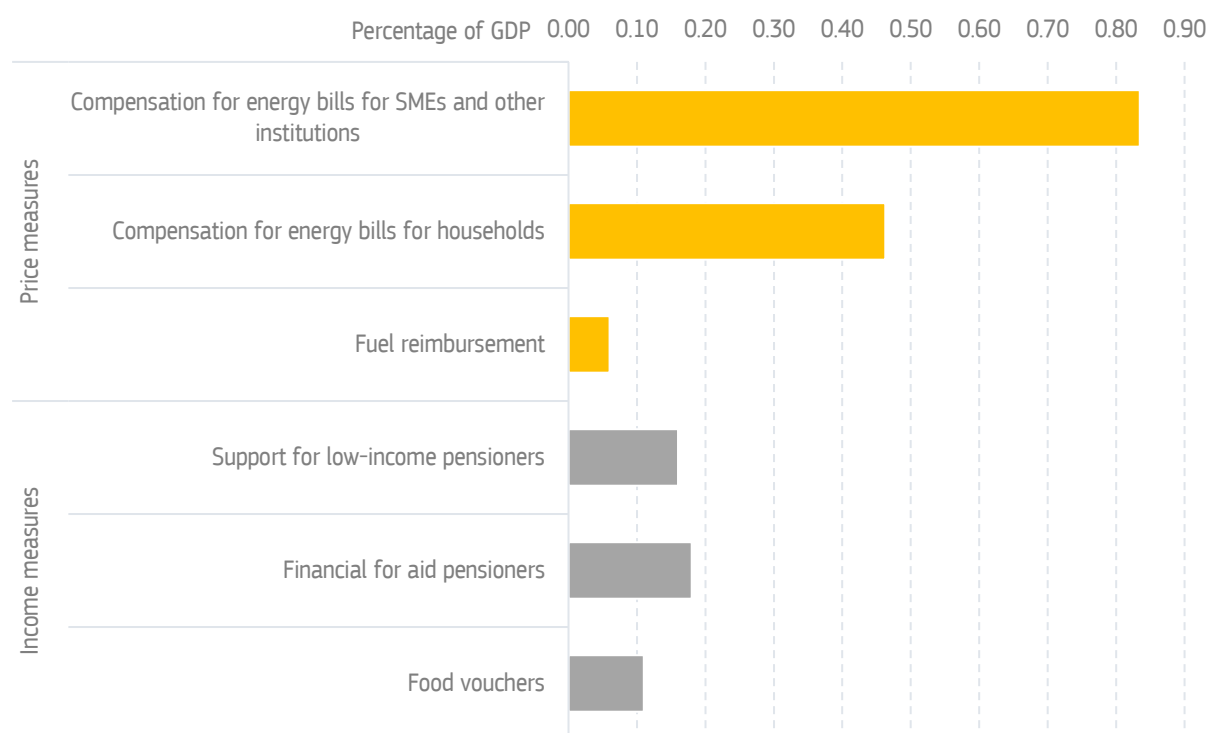
**Figure 2.** Impact of inflation on household welfare with government policies



Source: Authors' calculations based on EUROMOD results

Figure **Figure 2** displays the impact of inflation on household welfare considering the cushioning effect of government measures. From the figure, we can see how the poorer households have benefited the most from government measures. In particular, the welfare loss in the first decile has significantly diminished (from 38.7 % in the absence of the measures to 5.4 % with the measures applied). Better-off households have also benefited to such an extent that their welfare impact becomes positive. This means that these households have actually improved their pre-inflationary shock situation. This is largely because a significant part of the cushioning effect was determined by price-side measures, as can also be seen in the budget share of price measures (see Figure Figure 3). Overall, generous fiscal measures went a long way towards counteracting the negative impact on household welfare; however, the great reliance on price measures meant that government support was largely untargeted. As a result, significant losses remained uncompensated among the lowest-income households.

**Figure 3.** Cost of measures by type



NB: GDP, gross domestic product; SMEs, small and medium-sized enterprises.

Source: Romanian Ministry of Finance.

### 4.3 Automatic versus discretionary policy

Apart from the discretionary policies implemented in the unexpected context of high inflation and aimed at cushioning its negative impact on the population, other elements of the Romanian system acted as automatic stabilisers to reduce the impact of inflation. In particular, these elements included the indexation of certain income transfers, such as old-age and minimum pensions, the allowance for children and the minimum wage. According to the legislation, these policies are meant to be (partially) indexed to inflation and/or other indicators, such as real wage growth, to ensure the preservation of the purchasing power of the most vulnerable households. Most often in Romania such indexation takes place in an ad hoc way, through derogation from certain rules. For instance, although a Swiss rule for pension indexation has been intended to be enforced by law, in recent years pension indexation has been done in an ad hoc way. Despite derogations from these indexation rules, such policies do act as automatic stabilisers to cushion the impact of inflation.

Table 2 depicts the population coverage and monthly values of those policies in 2022. It also provides a breakdown of the actual indexation rules applied in 2022 into discretionary and non-discretionary (automatic stabilisers) rules. We can see that the share of the population benefiting from these policies is rather high. For instance, in 2022 Romania registered almost 5 million pensioners (26 % of the total population), of whom about 20 % were paid the social allowance for pensioners (a top-up amount that brings the net pension received to a minimum threshold). In addition, the allowance for households with children aged 2–18 years benefited almost 19 % of the total population, while about 23 % of Romanian employees earned the minimum wage (1.2 million employees, or 6.3 % of the total population).

**Table 2.** Statutory versus discretionary indexation of certain policies in Romania, 2022

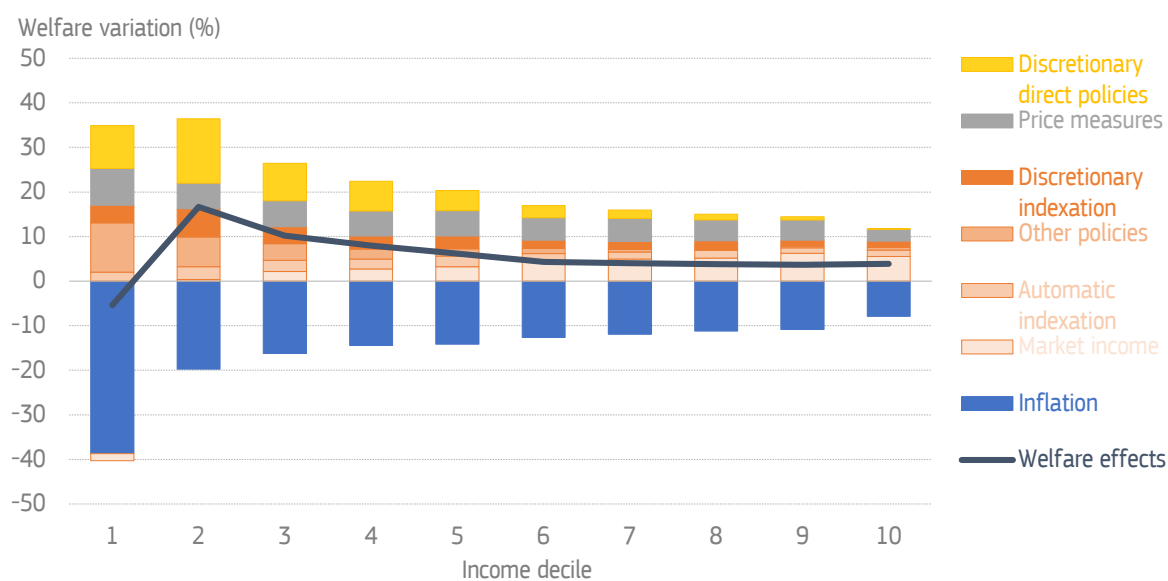
Policy	Population share (%)	Indexation			Monthly value (EUR)
		Actual (%)	Statutory (automatic stabiliser) (%)	Discretionary (%)	
Old-age pensions (pension point value <sup>(*)</sup> )	20.8	10	5.0	5.0	321
Social allowance for pensioners (minimum pension)	5.2	25	5.3	19.7	202
Allowance for children aged 2–18 years	18.8	13.5	5.3	8.2	49
Minimum gross wage	6.3	11	5.3	5.7	517

(\*) An indicator used to calculate pensions. According to law, the pension point value is indexed every year in accordance with the indexation rule: inflation rate + 50 % of the rate of growth of the real wage.

Source: Romanian Ministry of Finance.

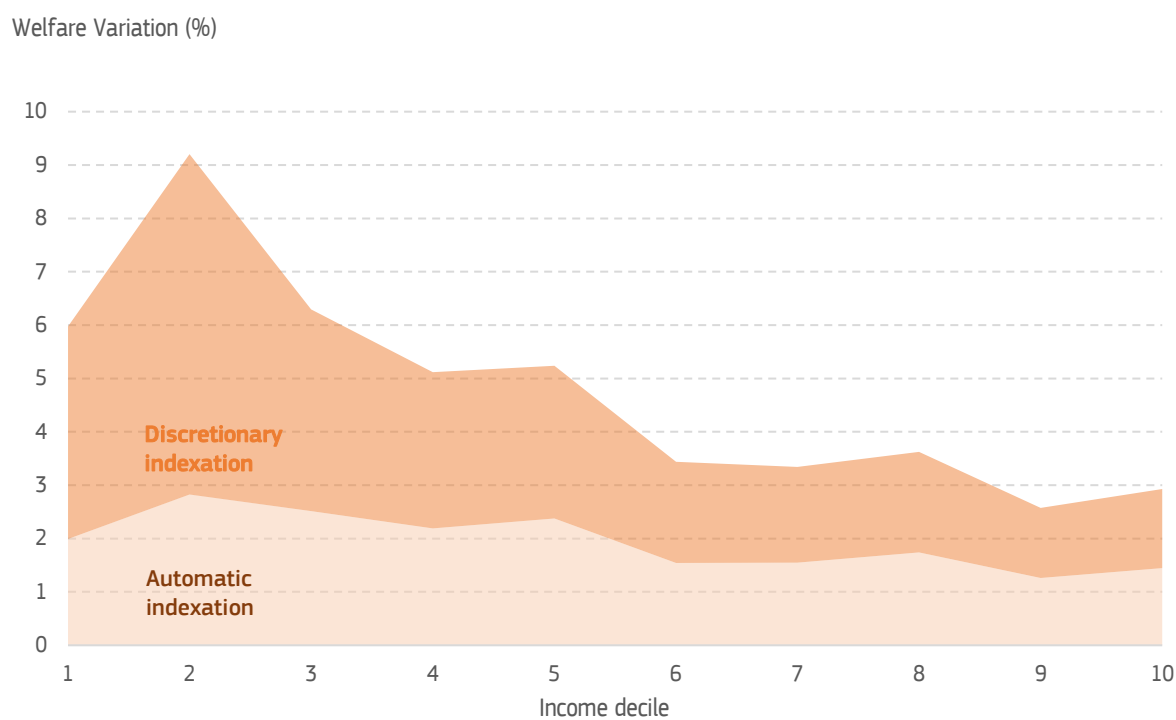
Given the relatively large share of the population benefiting from these indexation rules (over 50 %), and as the annual average inflation rate stood at 13.8 % in 2022, the abovementioned policies significantly contributed to the maintenance of households' purchasing power. The welfare impact of direct discretionary policies, price measures, discretionary indexation and other policies, by income decile, is depicted in Figure 8. Figure 9 splits the overall policy indexation effect into discretionary and automatic (statutory) effects. As already discussed, inflation had a larger negative impact on the lowest income deciles, especially the poorest one. Market income developments had a more pronounced positive impact on richer households, and a slightly negative effect on households in the first decile. As expected, the effects of both automatic and discretionary indexation were more favourable for the lower half of the income distribution, benefiting rich households less. Still, as shown in Figure 9, discretionary indexation was more progressive than automatic indexation. Likewise, price measures positively affected the first three deciles to the largest extent. They also positively affected the rest of households, given that price caps were targeted based on not income but energy consumption. However, direct discretionary policies were found to have mostly favoured the poorest 50 % of the population, with an insignificant impact on the richest half of the income distribution, as these measures were targeted at low-income households.

**Figure 4.** Impact of discretionary and automatic measures on household's welfare



Source: Authors' calculations based on EUROMOD results.

**Figure 5.** Discretionary versus automatic indexation



Source: Authors' calculations based on EUROMOD results.

## 5 Conclusions

Romania exhibits one of the highest rates of poverty and inequality in the EU. The recent increase in the cost of living has made the population of Romania even more vulnerable, triggering a bold policy response from the government through the adoption of both price and income-side support measures.

This paper uses microsimulation techniques to assess the impact of the 2022 inflationary shock on Romanian households and the effect of the policy measures adopted by the government, in terms of welfare and inequalities. We construct three counterfactual scenarios to depict the actual impact of the inflationary shock on the population: one in the presence of price and income-side support measures, one in the hypothetical absence of these measures and one that captures the cushioning effect of discretionary policy measures introduced by the Romanian government.

We find that the inflationary shock had an uneven effect on households through consumption expenditures. The impact was higher on lower-income households than on higher-income ones, given that they spend a larger share of their income on basic needs, for example home heating and food – which were the main drivers of the 2022 price surge – and, at the same time, save little or not at all. Moreover, the effect generated by nominal income growth also differs significantly along the income distribution, partially offsetting differences between higher- and lower-income households. However, the inflationary shock, tested in the absence of policy measures, remained highly regressive, with poorer households experiencing a significantly higher welfare loss than richer ones.

As regards the impact of the policy measures adopted by the government (income-side measures, price-side measures and discretionary indexation), we find that households in the first decile of the income distribution benefited the most. However, the large impact of the inflationary shock on these households was such that significant losses remained. On top of discretionary policies, some automatic indexation measures related to inflation were implemented that mainly acted as automatic stabilisers and helped to preserve, at least partly, the purchasing power of some of the vulnerable groups of the population. Still, the impact of automatic indexation alone was found to be small.

Overall, we conclude that these discretionary and non-discretionary measures did not fully neutralise the negative effect of the inflationary shock on the poorest part of the population. This is because, on the one hand, the shock was higher for low-income deciles, and, on the other hand, the policies applied were not sufficiently targeted to ensure this outcome. Therefore, households in the first income decile faced a slight welfare reduction, while all the other deciles recorded a higher level of welfare than the previous year, with deciles 2 and 3 benefiting the most. The use of targeted measures is therefore warranted in order to improve the welfare effect for lower-income households and further diminish income inequalities resulting from the energy crisis.



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