



OECD Economics Department Working Papers No. 1744

**A cost-of-living squeeze?
Distributional implications
of rising inflation**

**Orsetta Causa,
Emilia Soldani,
Nhung Luu,
Chiara Soriolo**

<https://dx.doi.org/10.1787/4b7539a3-en>

A COST-OF-LIVING SQUEEZE? DISTRIBUTIONAL IMPLICATIONS OF RISING INFLATION

ECONOMICS DEPARTMENT WORKING PAPERS No. 1744

By Orsetta Causa, Emilia Soldani, Nhung Luu and Chiara Soriolo

OECD Working Papers should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed are those of the author(s).

Authorised for publication by Luiz de Mello, Director, Policy Studies Branch, Economics Department.

All Economics Department Working Papers are available at www.oecd.org/eco/workingpapers.

JT03509968

OECD Working Papers should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed are those of the author(s).

Working Papers describe preliminary results or research in progress by the author(s) and are published to stimulate discussion on a broad range of issues on which the OECD works.

Comments on Working Papers are welcomed, and may be sent to the [Economics Department](#).

All Economics Department Working Papers are available at www.oecd.org/eco/workingpapers.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

© OECD (2022)

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for commercial use and translation rights should be submitted to PubRights@oecd.org.

ABSTRACT/RÉSUMÉ**A cost-of-living squeeze? Distributional implications of rising inflation**

Inflation has quickly and significantly increased in most OECD countries since the end of 2021 and further accelerated after Russia's war of aggression against Ukraine, mostly driven by surging energy and food prices. Certain categories of households are particularly vulnerable, as large parts of their consumption expenditures are devoted to energy and food. Drawing on national micro-based household budget surveys and on CPI data, this paper provides a quantification of the impact of rising prices on households' welfare. Declines in household purchasing power between August 2021 and August 2022 are estimated to range from 3% in Japan to 18% in the Czech Republic. This decline is driven by energy prices in most countries, especially Denmark, Italy, and the United Kingdom, while energy prices play a lesser role in countries where inflation is more broad-based like the Czech Republic and the United States. In all considered countries, inflation weighs relatively more on low than high-income households. Rural households are hit particularly hard, most often more than low-income ones, and this is driven by energy price inflation. To cushion vulnerable households from rising inflation, especially from energy prices, these findings call for a careful targeting of income and price support measures, notwithstanding their administrative and logistical complexity, taking into account their effects on economic activity, inflation, and, last but not least, environmental goals.

JEL: H12, H23, I3, Q41, Q48

Keywords: inflation, purchasing power, distribution, inequality, energy, policy analysis

Une compression du coût de la vie ? Incidences distributives de la hausse de l'inflation

L'inflation a augmenté rapidement et substantiellement dans la plupart des pays de l'OCDE depuis la fin 2021 et a encore accéléré après la guerre d'agression de la Russie contre l'Ukraine. Les prix de l'énergie et de l'alimentation ont largement contribué à cette flambée inflationniste. Certains ménages sont plus vulnérables que d'autres, une part importante de leurs dépenses étant consacrée à l'énergie et à l'alimentation. En utilisant un ensemble d'enquêtes nationales sur le budget des ménages et les données de l'IPC, cet article quantifie l'impact de la hausse des prix sur le bien-être des ménages. Les baisses de pouvoir d'achat du ménage moyen entre août 2021 et août 2022 sont estimées entre 3 % au Japon et 18 % en République Tchèque. Ces effets sont dus à la hausse des prix de l'énergie dans la plupart des pays, particulièrement au Danemark, en Italie et au Royaume-Uni, tandis que les prix de l'énergie jouent un rôle moins important dans les pays où l'inflation est plus généralisée, comme la République Tchèque et les États-Unis. L'inflation pèse toujours plus lourd sur les ménages à faible revenu que sur les ménages à revenu élevé. Les ménages ruraux sont très durement touchés, bien souvent plus que ceux à bas revenus, et ce en raison du poids de l'énergie dans leur budget. Pour préserver les ménages vulnérables à la hausse des prix, en particulier de l'énergie, ces résultats appellent un ciblage prudent des mesures de soutien des revenus et des prix, nonobstant leur complexité administrative et logistique ; tout en tenant compte de leurs effets sur l'activité économique, l'inflation et les objectifs de transition vers une économie décarbonée.

JEL: H12, H23, I3, Q41, Q48

Mots clés : inflation, pouvoir d'achat, distribution, inégalités, énergie, analyse des politiques

Table of contents

A cost-of-living squeeze? Distributional implications of rising inflation	5
Introduction	5
The approach	7
The results	10
Policy discussion	17
Annex A.	22

FIGURES

Figure 1. Consumer price inflation across OECD countries	6
Figure 2. Expenditure shares on energy and food by income group	9
Figure 3. Expenditure shares on energy	10
Figure 4. Purchasing power changes for the average household (%)	11
Figure 5. Differences in purchasing power effects between various types of households (pp)	12
Figure 6. Purchasing power losses from energy price increases: low-income, rural, senior households (%)	14
Figure 7. Non-energy non-food price inflation tends to weigh relatively more on high than low-income households	16
Figure 8. Governments' responses to cushion households from rising energy prices	17
Figure A 1. Country-by-country expenditure shares across income groups	30
Figure A 2. Country-by-country purchasing power losses across income groups	32

TABLES

Table A 1. CPI data	22
Table A 2. HBS data	22
Table A 3. Income	24
Table A 4. Place of residence	25
Table A 5. Age	25
Table A 6. Czech Republic	26
Table A 7. Denmark	26
Table A 8. Italy	27
Table A 9. Japan	27
Table A 10. Mexico	28
Table A 11. Spain	28
Table A 12. United Kingdom	29
Table A 13. United States	29

A cost-of-living squeeze? Distributional implications of rising inflation

By Orsetta Causa, Emilia Soldani, Nhung Luu, and Chiara Soriolo¹

Introduction

Inflation in the OECD has been on the rise since the start of 2021, intensifying sharply following Russia's war of aggression against Ukraine. Soaring energy and, to a lesser extent, food prices are a global phenomenon, yet the inflationary picture differs across countries (Figure 1).

This paper looks at the distributional impact of rising inflation² over the past year, with a focus on energy and, to a lesser extent, food price inflation, for ten OECD countries selected on the basis of adequate and timely data availability i.e., the Czech Republic, Denmark, Germany, France, Italy, Japan, Mexico, Spain, the United Kingdom and the United States. The exercise draws on national micro-based household budget surveys (HBS) providing information on the structure of household spending across the distribution of households based on income, age, and area of residence, depending on data availability. This paper associates expenditure shares from national HBS with price changes from national CPIs.

This work informs the policy debate by identifying households more exposed and vulnerable to the recent rise in inflation and in particular to changes in energy prices, which may become more frequent in the path to a low-carbon economy (IEA, 2021^[1]). Main findings can be summarised as follows:

- Rising prices, especially on energy, have been squeezing households' purchasing power, yet with large differences across countries, partly reflecting differences in the rate of inflation, its breadth across consumer items and the spending structure of the average household.
- Low-income, rural and senior households are more exposed to rising energy prices than the average household, but the variation in purchasing power losses across these three vulnerable groups is highly heterogeneous across countries.
- In most countries, rural households are more vulnerable than low-income households to energy price inflation, in particular in the Czech Republic, Spain, and France.

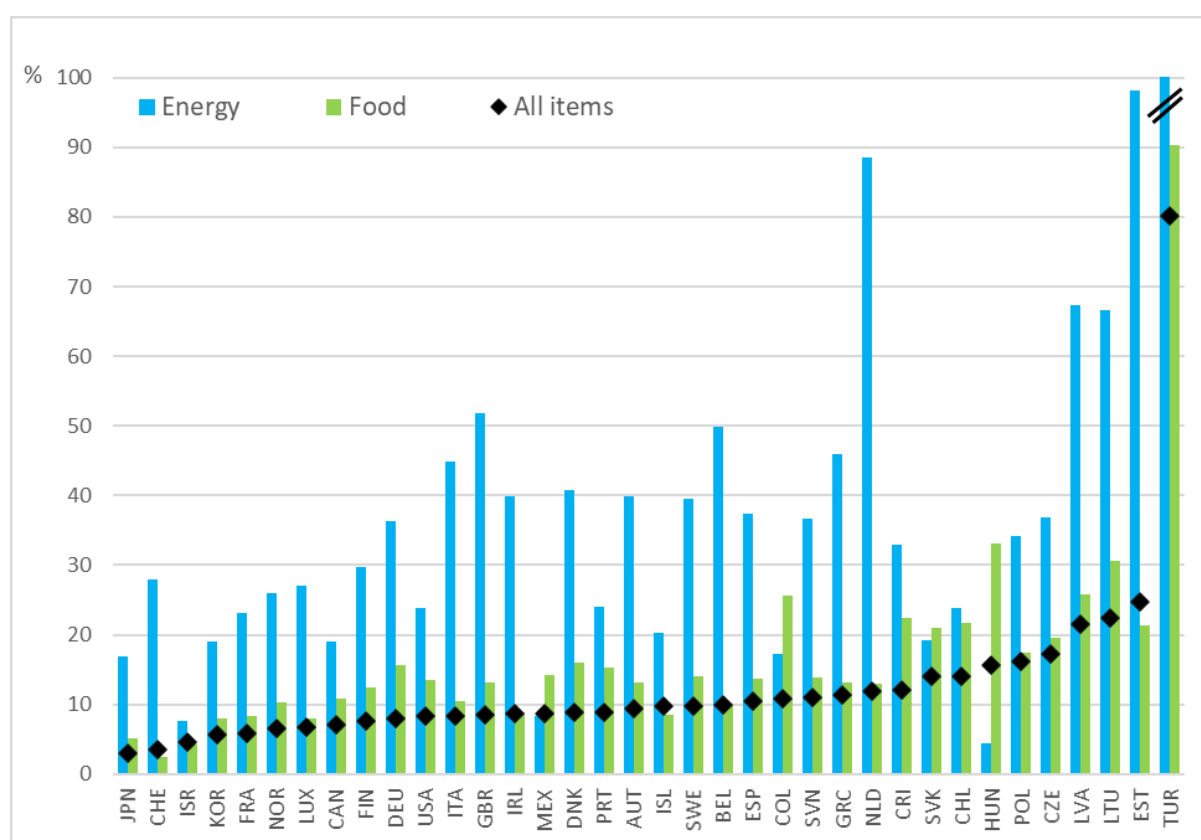
¹ The authors work in the OECD Economics Department. They thank Michael Abendschein for his contribution at the early stages of the project. The authors thank Douglas Sutherland for fruitful discussions and valuable suggestions. They are grateful to colleagues from the Economics Department Luiz de Mello, Tim Bulman, Assia Elgouacem, Priscilla Fialho, Antoine Goujard, Tobias Kruse, Mauro Pisu, Lukasz Rawdanowicz for their valuable discussions, comments and insights that benefitted the quality of the paper; and they also need to thank colleagues from the Statistics directorate for their help in working out OECD consumer price data. They thank Sisse Nielsen for her valuable support with the final preparation of the manuscript. They are grateful to delegates of the OECD Economic Policy Committee for their excellent discussion of the paper.

² Households across the distribution experience differential inflation effects for several reasons: consumption shares may differ systematically (e.g. for low- and high-income households); the goods and services within each consumption category may differ; the ability to substitute for lower-priced alternatives of the same item may differ; and prices paid for the same good may differ systematically due to differences in access. Country-specific research has been measuring experimental consumer prices for different household groups. See (Klick and Stockburger, 2021^[22]) and (Orchard, 2022^[23]) for recent experimental evidence in the case of the United States.

- Non-energy non-food-price inflation tends to be progressive, thus somewhat mitigating, but not offsetting the effect of rising energy and food prices. This reflects the fact that “other” rising consumer prices correspond to items representing a higher share of spending for more affluent households, i.e., non-energy transport, recreation, restaurants and hotels.
- The timeliness and granularity of the data should be improved to help designing well-targeted policy support: for instance, to identify households most exposed to shifts in energy prices, e.g. those with limited financial resources and possibilities to substitute in the short-run. The digital transformation is the opportunity to build agile targeting instruments based on data collection and management.

Figure 1. Consumer price inflation across OECD countries

Consumer price inflation, change from same period previous year, August 2022 (%)



Note: Year on year energy price inflation for Turkey: 132.76 per cent.

Source: [OECD Database on Consumer Price Indices](#).

The rest of this paper is structured as follows. Section 1 provides an overview of the data and empirical approach -- additional methodological aspects are provided in the Annex. Section 2 delivers the core results of the analysis, i.e., it sheds light on the distributional effects of the recent rise in inflation, with a focus on energy and food driven price inflation across a selection of OECD countries. The emphasis is on differences across income groups, but alternative relevant dimensions are also explored. This evidence is followed by a short policy discussion on key policy challenges to achieve effective targeted support for households most vulnerable to energy price swings while pursuing decarbonisation objectives.

The approach

Data and country coverage

The analysis draws on household budget surveys, which are national surveys on households' expenditure on goods and services. Countries covered are those for which data are available and as timely as possible. Harmonised Eurostat HBS data for European countries would have been well-suited for this exercise but are not timely, only being updated every five years, the last occurrence being in 2015 at best. The following ten countries can be covered, with HBS data available for the year 2020 (with the exception of France): Czech Republic, Denmark, France, Germany, Italy, Japan, Mexico, Spain, UK, US.³

Methodology

Distributional effects of inflation are assessed based on household exposure to the change in the prices of the items that make up households' consumption baskets. This is expressed in terms of change in purchasing power following the conceptual framework of the compensating variation approach (Deaton, 1989^[2]). The compensating variation (CV) measures how much expenditure can be decreased (increased) when consumer prices fall (rises) so that the utility level remains the same as before the price decrease (increase). For household i , the CV is measured relative to total household expenditure (C_i). This is a measure of the change in household purchasing power resulting from changes in consumer prices underlying inflation; that is, the price change in item k ($\frac{dp_k}{p_k}$) weighted by the share of expenditure that is spent on item k (sc_k^i):

$$\frac{CV_i}{C_i} = \frac{\sum_k q_k^i p_k * dp_k / p_k}{C_i} = \sum_k sc_k^i * \frac{dp_k}{p_k} \quad (1)$$

This approach has been used to assess the distributional effects of consumption taxes (OECD/KIPF, 2014^[3]) and of trade-driven price changes (Luu et al., 2020^[4]) (Porto, 2006^[5]). The change in purchasing power can be computed for the average household and by income or other socioeconomic groups defined by e.g. age, education and urbanisation of the area of residence, depending on data availability. For the purpose of the current exercise, the analysis relies on semi-aggregated data provided by national sources, that is, expenditure shares by socioeconomic groups.

The CV for household i corresponds to the average of the percentage changes in prices across categories of expenditures, weighted by the household's expenditure share on each category. This is close, but not equal, to the inflation rate, i.e., percentage change in CPI, for household i , which would be the percent change in the average of prices across categories of expenditures, weighted by the household's expenditure shares. The CV approach is adopted here because it has a conceptually-grounded economic interpretation for the purpose of the current exercise, similar to previous papers on distributional aspects of consumer price changes. In addition, the CPI calculations rely on weights that are adjusted based on consumption estimates from national accounts, with country-specific frequencies and methodologies ([OECD Database on Consumer Price Indices](#)). Given the focus on distributional effects and for internal consistency, the current exercise uses the original expenditures shares from domestic HBS surveys, including for the average household.⁴

³ The Annex provides details on countries' data sources.

⁴ As a result, the purchasing power loss from "all items" inflation for the average household does not necessarily match the official CPI from OECD.stat. The numbers can be reconciled by factoring out methodological differences, for instance applying the CPI weights from OECD.stat instead of the HBS weights for the average household (this technical material is available upon request).

The analysis uses 2020 household expenditure shares to assess the impact of inflation over the past year,⁵ consistent with the standard CPI methodology: national CPIs are constructed as weighted averages of sub-indices covering different products in the consumption basket, using the total household expenditure shares of a base year, as weights. These weights are regularly updated⁶ and, in normal times, are very stable.⁷

To introduce the exercise, Figure 2 reports expenditure shares on energy and food across the household income distribution for the Czech Republic, Germany, Japan, Mexico, the United Kingdom, and the United States.⁸ The main insights are:

- Households devote a significant share of their spending on food and energy, and this share declines with income level. Their combined spending share ranges from more than 30 per cent at the bottom to less than 15 per cent at the top of the income distribution, across the advanced economies covered here, yet with large cross-country differences within that broad spectrum.
- Food is a major component of the consumption basket. Low-income households spend around 20 per cent on food in the advanced economies covered by this paper with the notable exception of the United States, where that share is around 10 per cent. In line with Engels' law, the weight of food is larger in Mexico, where low-income households devote approximately half of their spending on food and high-income ones 30 per cent.
- Energy represents around 10 per cent of household spending in most of the countries covered and this share declines across the income distribution. Mexico stands out as energy represents a much higher share of spending and this share increases across the income distribution. Households in the Czech Republic devote a large share of spending on energy. Energy spending is relatively less important in Japan and the United States.

⁵ The current exercise is based on changes in CPI between August 2021 and August 2022 except otherwise stated.

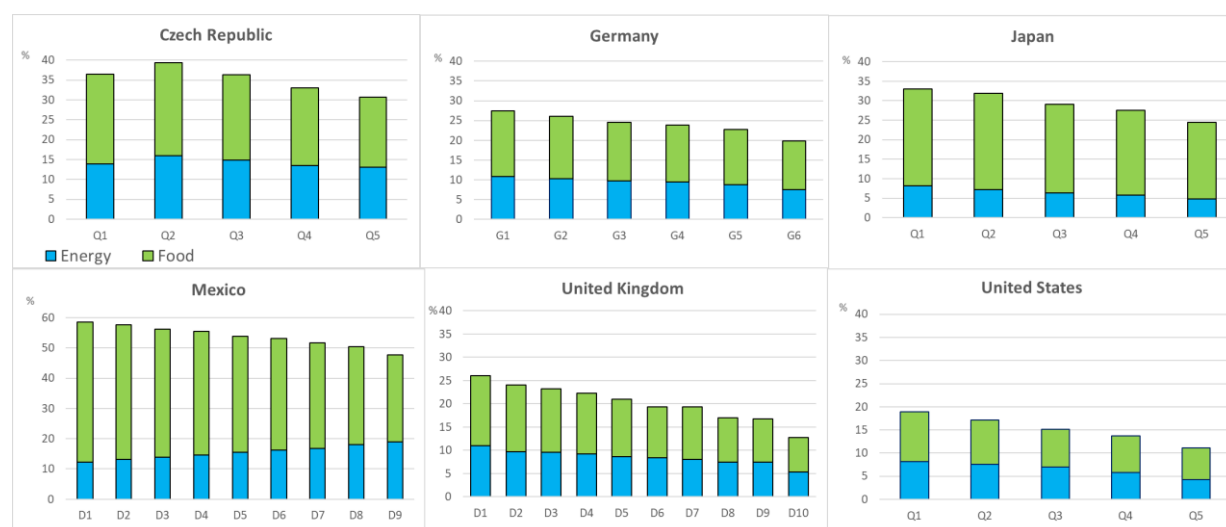
⁶ See above and [OECD Database on Consumer Price Indices](#) for details on CPI methodology.

⁷ One possible concern is that the COVID-19 crisis induced changes in consumption patterns due to lockdowns and restrictions. This poses analytical challenges because the 2020 weights differ from the pre-COVID weights and may differ from the post-COVID weights. The problem raised by spending shifts during the pandemic has been addressed by the OECD Statistic Directorate, by various National Statistical offices and researchers, based on different experimental methods. Almost all these studies find small effects on 2020 inflation. As a robustness check on this issue, the Annex reports a comparison between 2019 and 2020 expenditure weights across income groups for countries that collect yearly HBS data. This exercise shows that while 2020 weights tend to differ from 2019 weights in some consumption categories, the difference in such weights between income groups is stable over the period.

⁸ The Annex reports more detailed expenditure shares for all countries covered by the study.

Figure 2. Expenditure shares on energy and food by income group

Expenditure per category as a share of total expenditure

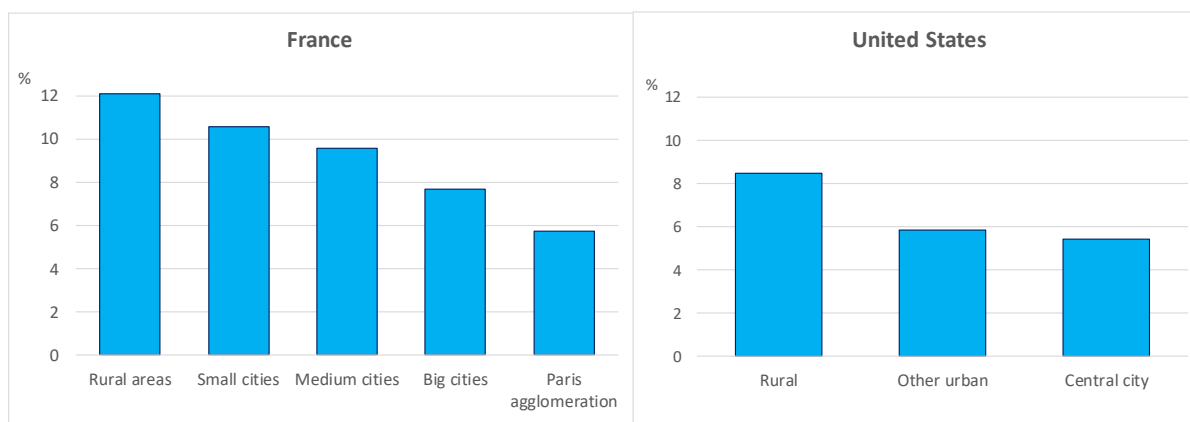
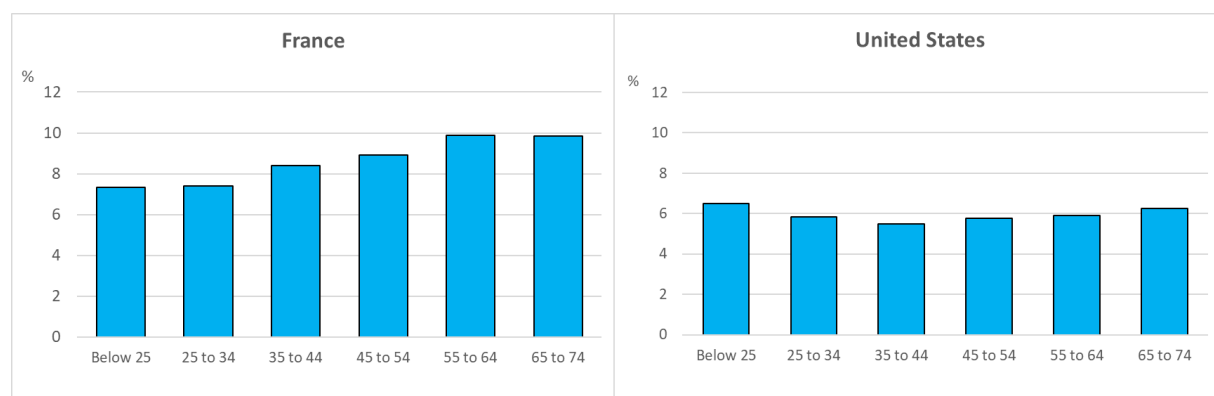


Note: Distribution based on household income (see Annex for country-specific income measurement). Energy refers to energy from housing and private transportation. Food includes food and non-alcoholic beverages, with the exception of Mexico, where it also includes alcoholic beverages consumed at home.

Sources: National HBS sources (see Annex).

Differences in energy spending are more pronounced across households' place of residence than across households' incomes. This is illustrated in Panel A of Figure 3 with France and the United States. For example in France, people living in rural areas devote around 12 per cent of their budget to energy, more than twice as much as people living in the Paris agglomeration. It is often the case that people living in metropolitan areas have diverse commuting and mobility options, including public transportation, walking, biking, and while people living in rural or non-central areas may have no other option than driving a personal car (for example to go to work or the doctor). Differences in energy spending by age are less systematic across countries than they are by income and place of residence: taking again France and the United States as examples, Panel B of Figure 3 shows that the share of spending devoted to energy increases almost monotonically with age in France, but not in the United States.⁹

⁹ These various vulnerability dimensions are to some extent correlated, e.g., high-income prime-aged households living in metropolitan areas; but, as also suggested by the illustrative charts in this section, such correlation is not necessarily very high and, in any case, differs across countries.

Figure 3. Expenditure shares on energy**Panel A. Expenditure shares on energy by place of residence****Panel B. Expenditure shares on energy by age group**

Note: for France, "small cities" are defined as those below 20,000 inhabitants, "medium cities" range between 20,000 and 100,000 inhabitants, "big cities" have more than 100,000 inhabitants. For the U.S., the classification in rural, urban and central city areas is provided by BLS-CEX. Source: National HBS. See Annex.

The results

The big picture: the cost-of-living pressure for the average household

Rising prices, especially on energy, have been squeezing households' purchasing power, yet with large differences reflecting differences in the rate of inflation, its breadth across consumer items, and the spending structure of the average household.¹⁰ The main findings on the basis of year-on-year August 2021 – August 2022 inflation are (Figure 4):

- Declines in households' purchasing power range from around 3% in Japan to 18% in the Czech Republic.¹¹

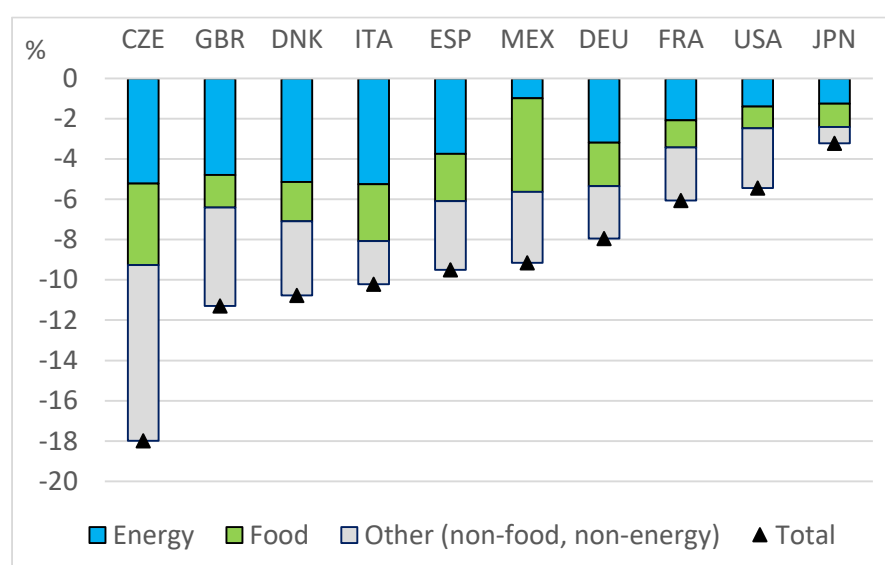
¹⁰ See (INSEE, 2022^[23]) for a recent assessment of the role of differences in the spending structure of the average household in explaining differences in HIPC inflation between France and three other big Euro area countries (i.e., Germany, Italy, and Spain).

¹¹ Due to the differences in formulas between CPI and CV discussed above, these numbers are close but not identical to official average inflation figures.

- The effect of rising energy prices is large but differs across countries, being particularly important in Italy, Denmark and the United Kingdom.
- Rising food prices have been weighing less than rising energy prices on the purchasing power of the average household. Mexico is an exception given the high share of food in the consumption basket and the relatively mild increase in energy prices over the period.
- Prices of “non-food-non-energy” items have been weighting on the purchasing power of the average household, especially in countries with relatively more broad-based inflation, like the Czech Republic and the United States.

These results are subject to two main caveats: 1) the computations include the purchasing power effects of price-based policy interventions, e.g., reduced prices or taxes on electricity, gas and gasoline; while they do not include the purchasing power effects of non-price-based policy interventions, e.g. income support via cash transfers or reduced income taxes. This might affect the cross-country comparison.¹² 2) energy effects are to be taken as a lower-bound, given that energy items are key intermediate inputs for the production of non-energy items, and therefore for the pass-through, to non-energy consumer items (see (Ari et al., 2022^[6]) and (OECD, 2022^[7]) for a quantification exercise of direct and indirect effects from rising energy prices).¹³

Figure 4. Purchasing power changes for the average household (%)



Note: How to read: in Italy, the average household experienced a 10.2% decline in purchasing power following changes in consumer prices between August 2021 and August 2022. This is driven by three effects: the effect of changes in energy prices (a 5.3% decline in purchasing power), the effect of changes in food prices (a 2.8% decline in purchasing power) and the effect of changes in non-energy non-food consumer prices (a 2.1% decline in purchasing power).

Source: National HBS and CPI. See Annex.

¹² See (INSEE, 2022^[25]) for recent analysis in the case of France, taking into account both price changes and microsimulation-based incomes changes following government support to cushion households' purchasing power losses (e.g., “bouclier tarifaire”). See (CBO, 2022^[24]) for a similar analysis in the case of the United States. This approach cannot be carried with available data and research tools, especially in a cross-country setting.

¹³ See (Blake and Bulman, 2022^[26]) for the technical background paper associated with the Survey of Greece.

Beyond the average household: distributional effects of the cost-of-living pressure

The effects of inflation are highly heterogeneous across households and distributional patterns differ across countries (Figure 5). Comparing low relative to high-income households (defined as first and last decile, quintile, or country-specific threshold of the household income distribution, see Annex) delivers the following insights (Figure 5, Panel A):

Inflation weighs relatively more on low than high-income households, but with marked differences across countries irrespective of differences in inflation. The gap between low and high-income households is the largest in the United Kingdom while it is close to zero in the Czech Republic and Denmark despite similar or even higher headline inflation over the period covered.

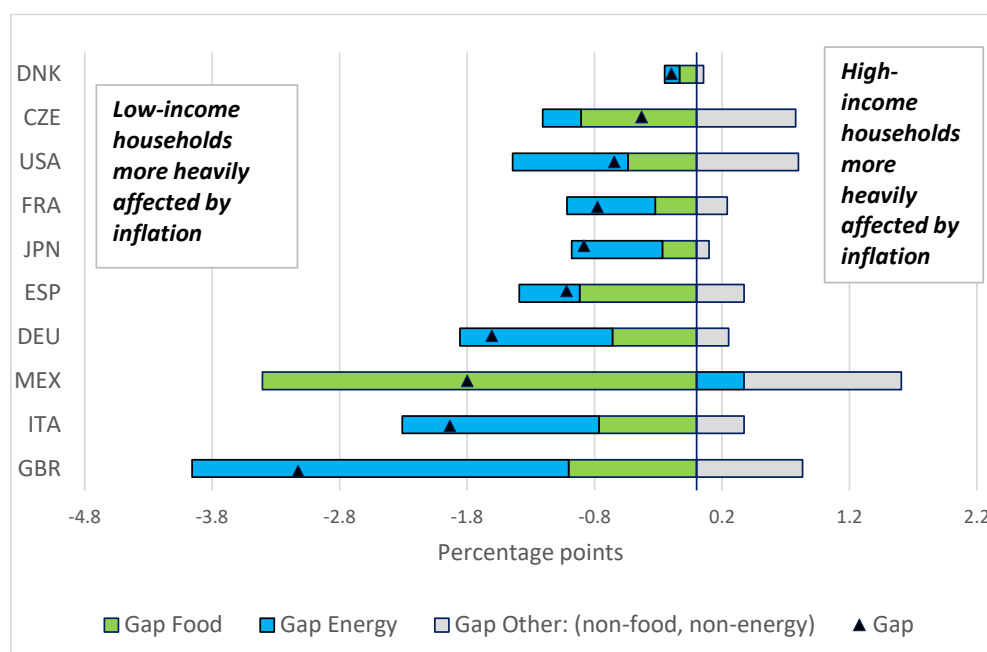
Energy price inflation is strongly regressive in all countries except Mexico, where it weighs relatively more on high-income households; this is consistent with the fact that in Mexico the share of spending on energy increases across the distribution (Figure 2).¹⁴

Food price inflation is also regressive but less so than energy price inflation in most countries covered. Mexico stands out, again, since food price inflation is the single major driver of regressivity. The disequalising effect of food price inflation is also more marked than that of energy price inflation in the Czech Republic and Spain.

The effect of non-food non-energy price inflation is progressive, i.e., weighing more on high relative to low-income households, which is why the total gap is lower than the sum of the energy and food gaps.

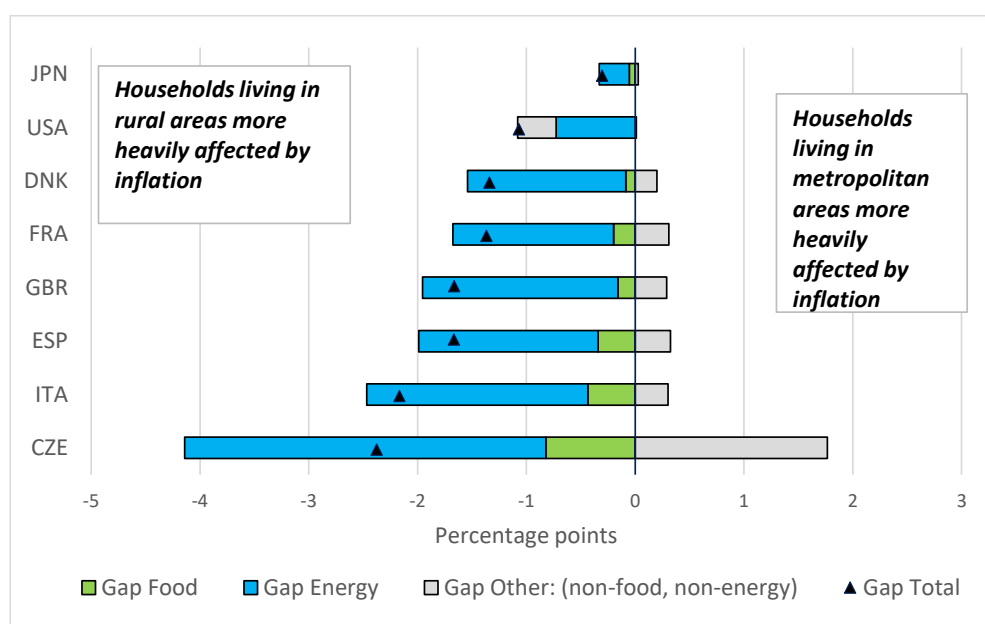
Figure 5. Differences in purchasing power effects between various types of households (pp)

Panel A. Differences between households' income groups

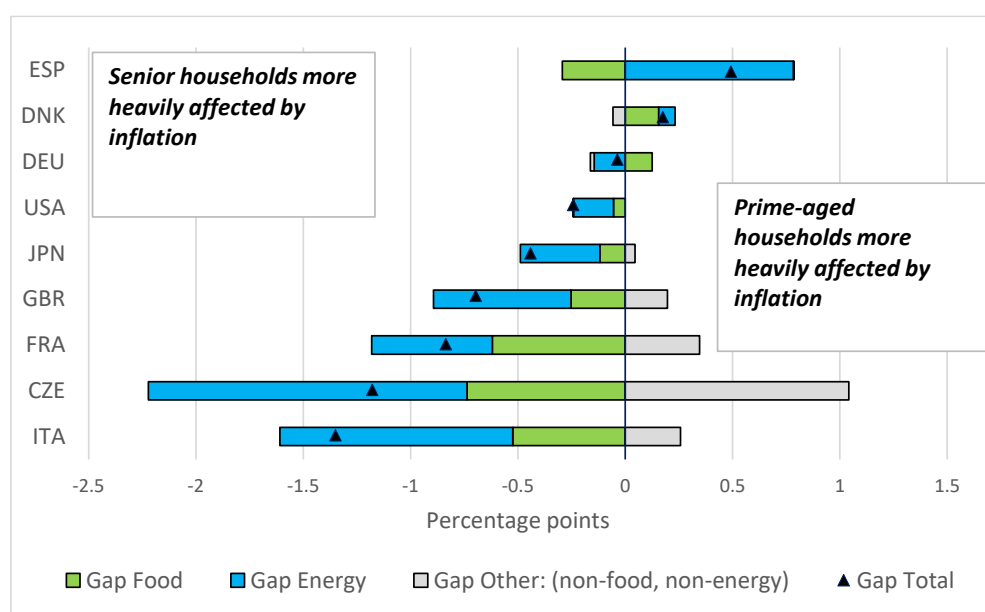


¹⁴ These distributional effects can be nuanced to the extent that they may differ by energy carrier, see (Flues and Thomas, 2015_[27]).

Panel B. Differences between households' places of residence



Panel C. Differences between households' age groups



Note: How to read: in the United Kingdom, the decline in purchasing power following changes in consumer prices between August 2021 and August 2022 was 3.1 percentage points (pp) higher for low relative to high-income households (a negative 3.1 pp gap). This total gap is driven by three effects: the effect of changes in energy prices (a negative 2.9 pp gap), the effect of changes in food prices (a negative 1 pp gap) and the effect of changes in non-energy non-food consumer prices (a positive 0.8 gap). Due to limited data availability, Mexico cannot be covered in Panels B and C, and Germany in Panel B. See Annex for country-specific definitions of high versus low-income, rural versus metropolitan, and senior versus prime-aged households (age always refers to that of the household reference person).

Source: National HBS and CPI. See Annex.

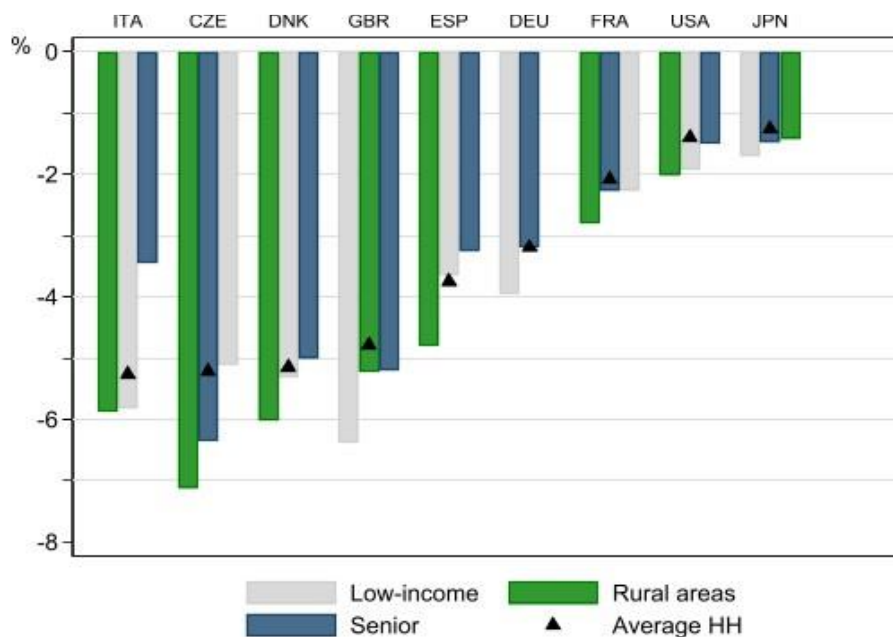
Living on limited income resources is not the only and often not the first factor of vulnerability to the current inflationary picture. Living in a small, isolated village is a major vulnerability factor. Inflation tends to disproportionately affect rural households and thus to amplify spatial inequalities. In most countries, the purchasing power gap between rural and metropolitan households tends to be larger than that between low and high-income households and this gap is driven by energy (Figure 5, Panel B). Age is another factor

of vulnerability to energy and food price inflation, as indicated by the finding of larger purchasing power losses for senior relative to prime-aged households in all countries except Denmark and Spain (Figure 5, Panel C). But age-related gaps are generally lower than place of living and income related gaps.

In summary, Figure 6 reports the purchasing power loss associated with rising energy prices for the three vulnerable groups covered in the analysis, i.e., low-income, rural and senior households. Main insights are:

- Low-income, rural and senior households are more exposed to rising energy prices than the average household but the variation in purchasing power losses across these three vulnerable groups is highly heterogeneous across countries.
- In most countries, rural households are more vulnerable than low-income households to energy price inflation, in particular in the Czech Republic, Spain, and France.
- Senior households tend to experience milder purchasing power losses than low-income and rural households, in particular in Italy and in the United States.

Figure 6. Purchasing power losses from energy price increases: low-income, rural, senior households (%)



Note: The chart shows the change in purchasing power between August 2021 and August 2022. How to read: in Denmark, households living in rural areas experienced a 6 % decline in purchasing power, low-income households a 5.3% decline in purchasing power and senior households a 5% decline in purchasing power following changes in energy prices between August 2021 and August 2022.

Source: National HBS and CPI. See Annex.

Granular analysis of non-energy-non-food price inflation

The evidence in the baseline analysis is that inflation is regressive because energy and food price inflation is strongly regressive, while non-energy non-food price inflation tends to be progressive, thus somewhat mitigating (but not offsetting) the effect of rising energy and food prices. The question is then what drives such non-energy non-food purchasing power effects.

A granular analysis, giving illustrative insights, is possible for France, Germany, Italy and the United Kingdom, based on the collection of more granular data.¹⁵ Detailed HBS and CPI data are combined to compute the compensating variation (CV) for each of the COICOP-99 one-digit expenditure categories, net of food (COICOP-99 category 1) and energy (COICOP-9 categories 4.5 and 7.2.2) expenditures. The sum of the resulting CVs corresponds to the CV of the category “Other” in Figure 4, up to a small approximation margin. Performing this exercise for each income bracket sheds light on the distributional effects of changes in major non-food non-energy price items. The results are presented in Figure 7 and summarised below.

Average household effects (Figure 7, Panel A)

- Rising prices of recreation and restaurants and of non-energy transport (e.g., buying a car or an airline ticket) are major drivers of purchasing power losses for the average household across the sample of countries considered.
- Rising prices of non-energy housing (i.e., mostly actual and, in some countries, imputed rentals) have a significant effect in Germany and, to a lesser extent, the United Kingdom. Rising prices of housing furniture add to purchasing power losses for the average household.

Distributional effects (Figure 7, Panel B)

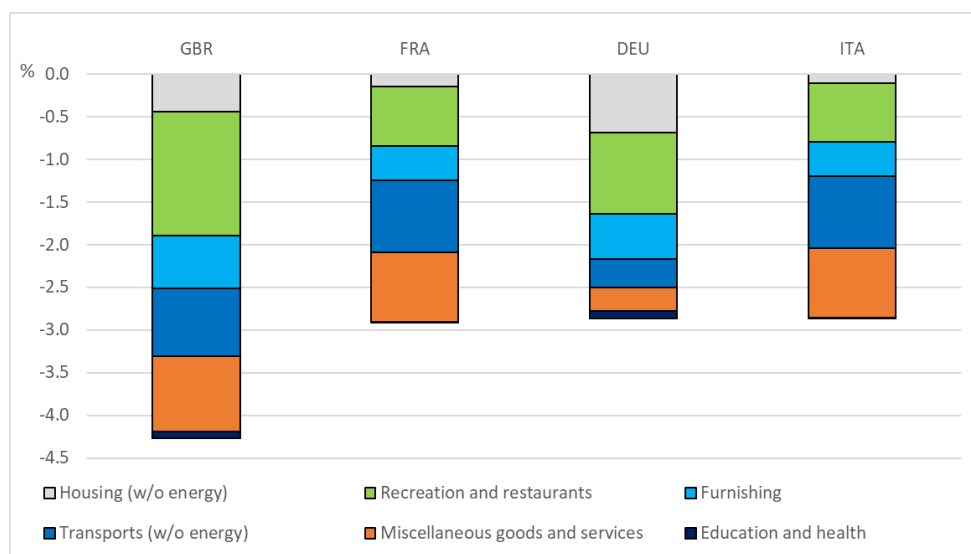
- The effect of rising prices of recreation, restaurants, furnishing and non-energy transport is progressive, i.e., weighting more on high relative to low-income households.
- The progressivity of non-energy transport price inflation is particularly marked for Germany. This reflects the significantly large share of expenditures on non-energy transport, especially on the purchase of vehicles, among German high-income households (over three times that of low-income households).
- Non-energy housing price inflation is regressive i.e., weighing more on low relative to high-income households, but the purchasing power difference between high and low-income households is minor relative to all other spending categories; and housing furniture has a progressive effect.¹⁶

¹⁵ Major methodological and data-driven obstacles, which are even more constraining in a cross-country perspective, precluded an examination of these, in particular, cross-country differences in consumer items classification: while most countries rely on the COICOP-99 classification (United Nations, 2000), Japan and the United States adopt a different classification, raising complex mapping issues. In addition, cross-country and within-country differences in the treatment of housing expenditure and prices: some countries cover only actual rentals in HBS data (e.g. France), while others cover both actual and imputed rentals (e.g. Germany). In addition, a few countries include imputed rentals in HBS but not in CPI data. This is the case for Italy and the United Kingdom.

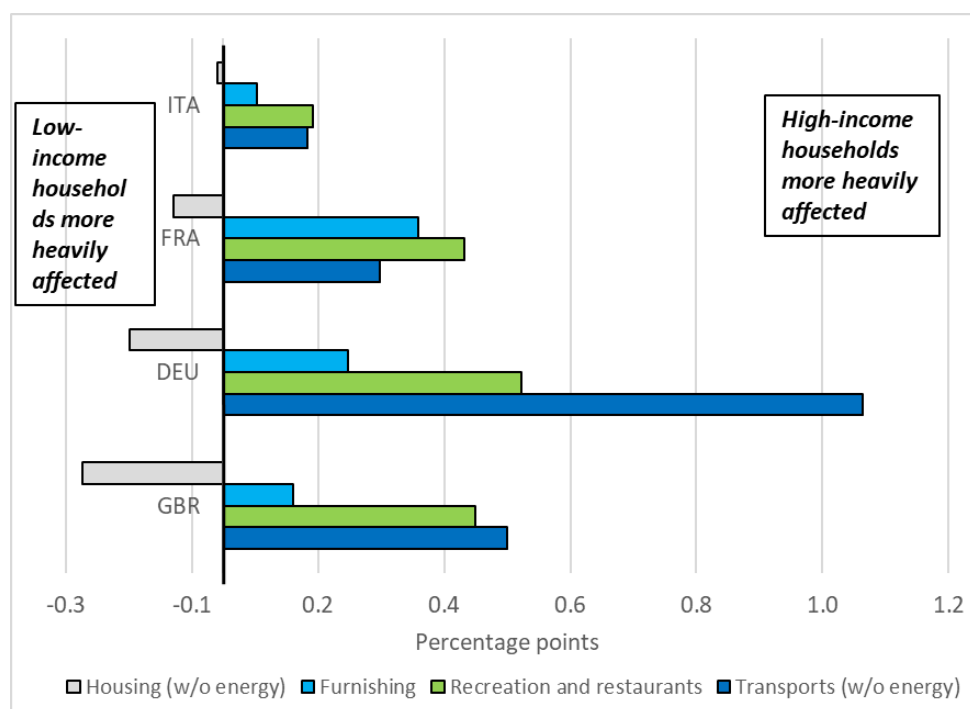
¹⁶ Such housing effects should be interpreted with caution, owing to cross-country differences in the coverage and measurement of owner-occupied housing costs (imputed rentals), as already mentioned. For instance among the countries covered, Germany is the only country for which the data and thus the analysis include imputed rentals.

Figure 7. Non-energy non-food price inflation tends to weigh relatively more on high than low-income households

Panel A. Purchasing power changes from non-energy non-food price inflation for the average household (%)



Panel B. Differences in purchasing power changes from non-energy non-food price inflation between high and low-income households (pp)



Note: For Germany, "Housing" includes imputed rental costs. See Annex for details.

Source: National HBS and CPI. See Annex.

One key implication of this analysis is the need to improve the consistency, granularity, and timeliness of the data, as a basis for research and all the more for policymaking. Reliable timely information on consumption patterns would allow to quantify the reactions of demand to price shifts and expectations. At

the moment, detailed data by consumption category is published with a lag. For example, the latest harmonized HBS data released by Eurostat refer to 2015.

Policy discussion

Governments across the OECD and in key non-member economies have rolled out significant support to shield households and firms from the impacts of high energy prices. Support measures fall under two categories: income support (including transfers and tax credits to consumers) and price support (including reduced taxes and reduced or regulated prices). As documented in (OECD, 2022^[8]) and illustrated in Figure 8, price support dominates income support and is largely untargeted. Income support tends to be targeted to vulnerable households, mostly on the basis of income and in some cases on the basis of age or disability status.¹⁷ However, non-targeted income support measures are not infrequent, e.g., private transportation subsidies for employees driving to work.

Government support to cushion high energy prices should become more targeted. While relatively simple to introduce and communicate, measures that act to lower the price of energy weaken incentives to reduce energy use when supply is tight. If prices remain elevated and as they become more volatile in the transition to a low-carbon economy, governments need to shift to more targeted measures, especially income support for vulnerable households. Well-designed income support can limit the burden on government budgets as they preserve price signals for energy savings while providing a financial lifeline to those who need it the most (OECD, 2022^[8]). This policy approach may improve resilience to price swings and energy efficiency in the longer term.

Figure 8. Governments' responses to cushion households from rising energy prices

Number of measures tallied



Note: Information on 284 measures was collected for 42 OECD and key partner economies. The period covered is October 2021 – December 2022. See (OECD, 2022^[8]) for details.

Source: OECD tracker of policy responses to energy price shocks”, prepared by Assia Elgouacem (Economics Department), and Hamza Belgroun and Grégoire Garsous (Trade and Agriculture Directorate) with inputs from the OECD’s Economics Department Country Desks.

¹⁷ For example, in Greece low-income pensioners and beneficiaries of disability benefits have received support through a series of interventions introduced after December 2021, while in Latvia, from November 2021 to March 2022, additional transfers were introduced to support persons of retirement age or disabled, especially if living alone.

Well-targeted policy support is complex administratively, reflecting several issues and challenges. Targeting implies identifying ex-ante those households most exposed to rising energy prices, such as those with limited financial resources and possibilities to substitute, at least in the short run. Targeting income is crucial but may be complicated and insufficient:

- Targeting income can be complicated in some countries because of under-developed administrative data and tools to reach and identify low-income people: those claiming social benefits but also those entitled to but not-claiming social benefits due to various informational obstacles (for instance in the case of migrant families). To ensure effective targeting, policy interventions in this area may require improvements to existing administrative data along with transfer and social welfare systems.
- Targeting income may be insufficient because vulnerability to high energy prices is multi-dimensional, not only income-driven. One important dimension in this respect is the area of residence and in particular whether it is rural, as shown in this paper. Yet targeting households living in rural areas is also likely to be crude, as e.g., affluent retirees in the countryside are less vulnerable to rising energy prices than younger people looking for a job in rural areas. Other dimensions of vulnerability that could not be covered in the current analysis also matter, like housing quality (e.g., energy efficiency) and access to public transport. The implication is that better data for identification and innovation in transfer mechanisms are needed to reach households who need adequate and timely support while limiting fiscal costs.
- The digital transformation provides an opportunity to build agile targeting instruments based on data collection and management. Progress in this area could leverage on innovative digital tools introduced by tax administrations to navigate the COVID-19 crisis.¹⁸

Income support policies based on household fossil-fuel energy consumption are in principle distortionary (OECD, 2022^[9]). These interventions shelter households from rising energy prices but weaken incentives to consume less carbon-intensive energy. Associated measures should be temporary and targeted to households that have no other option in the short run. For example, workers living in rural areas can have no option but to drive a car to work, as suggested by the results presented in the previous section. Over time, priority should be given to investing in capacities for energy users, especially the most vulnerable ones, to adapt their energy consumption and shift to alternative fuels.

In this context, price support measures, if pursued, need to become more targeted and in line with the goal of shifting households consumption towards clean energy sources. This approach may not fix the current cost-of-living squeeze but it is fundamental in the transition to net-zero emission targets. This includes incentives for improving energy efficiency in housing; such measures should be targeted, e.g., based on income, energy diagnostics and area of residence. One example is the French program “MaPrimeRénov’ Sérénité”, which provides a grant to low-income households wishing to undertake house renovation work if this leads to energy savings of at least 35%. In 2023, this program will also include a compulsory project management assistance, in order to ensure adequate quality standards (OECD, 2021^[10]). Financial support to spur the use of electric light-duty vehicles is another relevant area of policy intervention, for example Sweden recently increased funding for the climate bonus for environmentally friendly vehicles. Such measures should become targeted, i.e., means-tested, and complemented with public investment in electric vehicles charging stations (IEA, 2021^[11]).

Reforms in this area need also be made more acceptable than in the past. New large-scale micro-based survey evidence on individual attitudes towards climate change and climate change policies sheds light on people’s perceptions and concerns in this area (Dechezlepretre et al., 2022^[12]), which can help addressing political economy concerns. The survey shows that policies that tend to visibly increase the relative price of fossil-fuel energy are among the least popular. But it also shows that the use of revenue from

¹⁸ See (OECD, 2021^[29])

environmental taxes matters substantially. In fact, carbon taxes with revenue used to fund environmental infrastructure, subsidize low-carbon technologies, reduce income taxes or step-in transfers to the most constrained households receive majority support in most countries surveyed. While challenges and priorities depend on country context and social preferences, this suggests that using the revenues from environmental taxes to fund investment in green infrastructure or low-carbon technology is one way to increase public support while shielding households from energy price shocks.

Some countries have been pursuing earmarking. One often-quoted experience is the British Columbia carbon tax, the first comprehensive and substantial carbon tax in North America, introduced in 2008. One key aspect of this tax is its intended revenue-neutrality: it operates as a tax shift, wherein carbon tax revenues are countered by cuts in other taxes or direct transfers to households (Murray and Rivers, 2015^[13]). Another, more recent example is Switzerland, where one third of carbon tax revenues are used for energy efficiency renovation spending while the remainder is directly redistributed to Swiss residents through lower health insurance premiums.¹⁹ As the earmarking principle may be difficult to implement efficiently from a tax administration perspective, general taxation revenues can be used to fund green investments, as this would also contribute to economic resilience. In any case, to be successful at gaining political support for climate-related reforms, countries' preferred policy approaches require effective information and communication about policy design, expected effectiveness and distributional implications.

¹⁹ Swiss Federal Office for the Environment, 2021; [Redistribution of the CO2 levy \(admin.ch\)](#), see also Box 2.5 in (OECD, 2021^[10])

References

- Ari, A. et al. (2022), “Surging Energy Prices in Europe in the Aftermath of the War: How to Support the Vulnerable and Speed up the Transition Away from Fossil Fuels”, *IMF Working Papers*. [19]
- Ari, A. et al. (2022), *Surging Energy Prices in Europe in the Aftermath of the War: How to Support the Vulnerable and Speed up the Transition Away from Fossil Fuels*. [6]
- Blake, H. and T. Bulman (2022), *To come*. [26]
- CBO (2022), *How Inflation Has Affected Households at Different Income Levels Since 2019*, <https://www.cbo.gov/publication/58426>. [24]
- Claeys, G. and L. Guetta-Jeanrenaud (2022), *bruegel Blog - Who is suffering most from rising inflation?*. [20]
- Deaton, A. (1989), “Rice prices and income distribution in Thailand: a non-parametric analysis”, *The Economic Journal*, Vol. 99.395, pp. 1-37, <https://www.jstor.org/stable/1805222>. [2]
- Deaton, A. (1989), “Rice prices and income distribution in Thailand: a non-parametric analysis”, *Economic Journal*, p. Economic Journal. [18]
- Dechezlepretre, A. et al. (2022), *Fighting Climate Change: International Attitudes Toward Climate Policies*. [12]
- Flues, F. and A. Thomas (2015), “The distributional effects of energy taxes”, *OECD Taxation Working Papers*, No. 23, OECD Publishing, Paris, <https://doi.org/10.1787/5js1qwkgqrbv-en>. [27]
- IEA (2021), *Global EV Outlook 2021: Accelerating ambitions despite the pandemic*, <https://doi.org/10.1787/3a394362-en>. [11]
- IEA (2021), *World Energy Outlook 2021*, OECD Publishing, Paris, <https://doi.org/10.1787/14fcb638-en>. [1]
- INSEE (2022), *Dans les principales économies de la zone euro, l'énergie reste le premier facteur d'inflation, mais avec des différences entre les pays*. [23]
- INSEE (2022), *Guerre et Prix*. [15]
- INSEE (2022), *La flambée des prix de l'énergie : un effet sur l'inflation réduit de moitié par le « bouclier tarifaire »*. [25]
- Jaravel, X. (2019), “The unequal gains from product innovations: evidence from the US retail sector”, *The Quarterly Journal of Economics*. [17]
- Klick, J. and A. Stockburger (2021), “Experimental CPI for lower and higher income households”, *BLS WORKING PAPERS*, Vol. Working Paper 537. [22]
- Luu, N. et al. (2020), “Mapping trade to household budget survey: A conversion framework for assessing the distributional impact of trade policies”, *OECD Trade Policy Papers*. [21]
- Luu, N. et al. (2020), “Mapping trade to household budget survey: A conversion framework for assessing the distributional impact of trade policies”, *OECD Trade Policy Papers*, No. 244, OECD Publishing, Paris, <https://doi.org/10.1787/5fc6181b-en>. [4]

- McGranahan, L. and A. Paulson (2006), *Constructing the Chicago Fed income based economic index–consumer price index: inflation experiences by demographic group: 1983–2005*, Fed. Reserve Bank Chicago. [16]
- Murray, B. and N. Rivers (2015), *British Columbia’s revenue-neutral carbon tax: A review of the latest “grand experiment” in environmental policy*, pp. Pages 674-683. [13]
- OECD (2022), *As Energy Price Hikes Persist, Better Targeting of Support Becomes Imperative*, OECD Publisher. [8]
- OECD (2022), *OECD Economic Surveys: Greece 2022*. [7]
- OECD (2022), *Support for fossil fuels almost doubled in 2021, slowing progress toward international climate goals, according to new analysis from OECD and IEA*. [9]
- OECD (2021), *OECD Economic Surveys: France 2021*, OECD Publishing, Paris, <https://doi.org/10.1787/289a0a17-en>. [10]
- OECD (2021), *Tax Administration: Digital Resilience in the COVID-19 Environment*, <https://doi.org/10.1787/2f3cf2fb-en>. [29]
- OECD/KIPF (2014), *The Distributional Effects of Consumption Taxes in OECD Countries*, OECD Tax Policy Studies, No. 22, OECD Publishing, Paris, <https://doi.org/10.1787/9789264224520-en>. [3]
- Orchard, J. (2022), *Cyclical Demand Shifts and Cost of Living Inequality*, <https://doi.org/10.2139/ssrn.4033572>. [28]
- Porto, G. (2006), “Using survey data to assess the distributional effects of trade policy”, *Journal of International Economics*, Vol. 70/1, pp. 140-160, <https://doi.org/10.1016/j.jinteco.2005.09.003>. [5]
- United Nations Department of Economic and Social Affairs (2000), *Classification of individual consumption according to purpose (COICOP)*, Statistical Papers Series M No. 84. [14]

Annex A.

Information on data sources

The two main data sources used in the analysis are the national Household Budget Surveys (HBS) and the Consumer Price Indexes (CPI) databases. While the CPI's are typically computed on the basis of HBS data, often combined with National Accounts data, important differences exist in the underlying concepts, the methodology, and the statistical coverage of HBS and CPI. For example, for most countries, the CPI does not include owner occupied housing costs (i.e. imputed rents), while those can be included in HBS.

Table A 1 and Table A 2 provide further details on the sources and methodology of CPI and HBS data.

Table A 1. CPI data

Country	Data source for CPI	Treatment of housing
CZE	OECD CPI	Actual rents
DEU	OECD CPI for the baseline. Destatis CPI by COICOP 2-5-digit hierarchy. Table 61111-0004 for the granular extension.	Actual and imputed rents
DNK	OECD CPI	Actual rents
ESP	OECD CPI	Actual rents
FRA	OECD CPI for the baseline. Insee CPI by COICOP 2-5-digit hierarchy for the granular extension.	Actual rents
ITA	OECD CPI for the baseline. ISTAT Harmonized index of consumer prices for the granular extension.	Actual rents
JPN	Statistics Bureau of Japan.	Actual rents
MEX	OECD CPI	Actual and imputed rents
GBR	OECD CPI for the baseline. ONS Harmonized index of consumer prices for the granular extension.	Actual rents
USA	Bureau of Labour Statistics.	Actual and imputed rents

Source: National Statistical Offices and OECD Database on Consumer Price Indices

Table A 2 shows that for most countries the categories of expenditures used for HBS data follow the COICOP-98 classification (United Nations Department of Economic and Social Affairs, 2000^[14]). Japan and USA represent an exception, as they use their own classifications. The energy component of transportation costs is "Fuels and lubricants for personal transport equipment" (COICOP1998 07.2.2) but needs to be proxied with "Operating of personal transport equipment of private transports" (COICOP1998 07.2) for Denmark, Spain, and Mexico.

Table A 2. HBS data

Country	HBS year	HBS Data sources	Energy consumption categories (COICOP codes)	Treatment of housing
CZE	2020	Czech Statistical Office - Household Budget Survey	04.5 + 07.2.2	Actual rents
DEU	2020	Destatis - Laufende Wirtschaftsrechnungen Einkommen Einnahmen und Ausgaben privater Haushalte	Housing energy ("Energie") + 07.2.2	Actual and imputed rents. Housing does not include the category "Water supply, misc. services related to the dwelling"
DNK	2020	Statistics Denmark - Household Budget Survey	04.5 + 07.2 (data for 07.2.2 not available)	Actual rents
ESP	2020	National Institute of Statistics - Household Budget Survey	04.5 + 07.2 (data for 07.2.2 not available)	Actual rents
FRA	2017	National Institute of Statistics and Economic Studies - Enquete Budget de Famille	04.5 + 07.2.2	Actual rents
ITA	2020	National Institute of Statistics - Indagine sulle spese delle famiglie	04.5 + 07.2.2	Actual and imputed rents

JPN	2020	Statistics Bureau of Japan - Family Income and Expenditure Survey	Housing energy ("Fuel, light & water charges" excluding "Water and sewerage charges")	Actual rents
MEX	2020	INEGI - Encuesta Nacional de Ingresos y Gastos de los Hogares	Housing energy ("Electricidad y combustibles") and Transports energy ("Refacciones, partes, accesorios, mantenimiento, combustibles y servicio para vehículos")	Actual and imputed rents
GBR	2020	Office for National Statistics - Living Cost and Food Survey	Housing energy ("Electricity, gas and other fuels") and transport energy ("Petrol, diesel and other motor oil")	Actual rents
USA	2020	Bureau of Labour Statistics - Consumer Expenditure Survey	Housing energy ("Utilities, fuels, and public services" excluding "Telephone services" and "Water and other public services") and Transport energy ("Gasoline, other fuels, and motor oil")	Actual and imputed rents

Note: All countries follow the COICOP classification, except for US and Japan which follow a national classification. Mexico follows the COICOP classification except that Food not consumed at home (COICOP11) and alcoholic beverages (COICOP 2) are included in the category "Food" (COICOP1)

Source: National Statistical Offices.

Analytical approach for assessing the impact of price changes on consumers

When assessing the impact of price shocks on consumers, the literature essentially relies on one of two alternative approaches. The first approach is to compute a CPI index of inflation for each household, where household's expenditure shares are used as CPI weights (INSEE, 2022^[15]), (McGranahan and Paulson, 2006^[16]), (Jaravel, 2019^[17]). The second approach, favoured in the present analysis because it is theoretically founded and interpretable from a welfare perspective, relies on the compensated variation (CV) framework:

$$\frac{CV_i}{C_i} = \frac{\sum_k q_k^i p_k * \frac{dp_k}{p_k}}{C_i} = \frac{\sum_k q_k^i p_k * \frac{dp_k}{p_k}}{C_i} = \sum_k sc_k^i * \frac{dp_k}{p_k}$$

where C_i refers to the total expenditure of the household i ; p_k and q_k refer to the price and quantity of the consumption item k , respectively; $\frac{dp_k}{p_k}$ refers to the percentage variation in prices of the item k ; and sc_k refers to the expenditures spent on category k as a share of the total expenditure. The CV framework was developed by (Deaton, 1989^[18]) to measure the impact of price changes on consumers' welfare. This approach has been widely used in the literature: recently by the IMF to assess the effect of surging energy prices on European households' cost-of-living (Ari et al., 2022^[19]) and similarly but on smaller scale by Bruegel (Claeys and Guetta-Jeanrenaud, 2022^[20]); by the OECD to assess the effect of trade policy-driven prices changes on consumers' purchasing power (Luu et al., 2020^[21]).

The main analysis in the paper is based on three consumption categories: food, energy, and other (all goods and services excluding food and energy) and applied to all households and to various household groups, defined and aggregated based on relevant socioeconomic characteristics such as income. The total CV for household group i is hence computed as:

$$\frac{CV_i}{C_i} = sc_{Food}^i * \frac{dp_{Food}}{p_{Food}} + sc_{Energy}^i * \frac{dp_{Energy}}{p_{Energy}} + sc_{Other}^i * \frac{dp_{Other}}{p_{Other}}$$

where sc_k indicates the share of expenditures spent by household group i on category k , and $\frac{dp_k}{p_k}$ the percentage variation in prices for this category.

For France, Germany, Italy, and UK, the paper is extended with a granular analysis at the COICOP-1-digit level. This requires to properly separate the energy components from COICOP categories 4 (Housing,

containing category 4.5 “Electricity, gas and other fuels”) and 7 (Transports, containing category 7.2.2 “Fuel and lubricants”). In order to achieve this, the analysis exploits CPI and HBS data at the 3-digit COICOP level and applies the following formula:

$$CV_i = \sum_{k=COICOP1}^{COICOP12} sc_k^i * \frac{dp_k}{p_k}$$

where the contributions for non-energy COICOP 4 and COICOP 7 are computed as:

$$CV_{i,COICOP\ 4} = sc_{COICOP\ 4.1}^i * \frac{dp_{COICOP\ 4.1}}{p_{COICOP\ 4.1}} + sc_{COICOP\ 4.3}^i * \frac{dp_{COICOP\ 4.3}}{p_{COICOP\ 4.3}} + sc_{COICOP\ 4.4}^i * \frac{dp_{COICOP\ 4.4}}{p_{COICOP\ 4.4}}$$

and

$$CV_{i,COICOP\ 7} = sc_{COICOP\ 7.1}^i * \frac{dp_{COICOP\ 7.1}}{p_{COICOP\ 7.1}} + sc_{COICOP\ 7.2.1}^i * \frac{dp_{COICOP\ 7.2.1}}{p_{COICOP\ 7.2.1}} + sc_{COICOP\ 7.2.3}^i * \frac{dp_{COICOP\ 7.2.3}}{p_{COICOP\ 7.2.3}} \\ + sc_{COICOP\ 7.2.4}^i * \frac{dp_{COICOP\ 7.2.4}}{p_{COICOP\ 7.2.4}} + sc_{COICOP\ 7.3}^i * \frac{dp_{COICOP\ 7.3}}{p_{COICOP\ 7.3}}$$

For Italy an additional adjustment is necessary, because imputed rents are included among the expenditure categories in HBS data, but not among price categories in CPI data (see tables 1 and 2). To ensure internal consistency, the expenditure shares of all other categories in Italy are therefore first re-scaled so that their total (excluding imputed rents) sums to 100%. The rescaled shares are then multiplied by the corresponding price index, according to the formulas above. A minor adjustment is required for Germany: the category “Water supply, misc. services rel. to the dwelling” has to be excluded, as it is not recorded in HBS data.

Definition of socio-economic groups

Table A 3 reports details concerning the country-specific definitions of the income brackets used for the analysis. Whenever possible, the analysis is carried out at the quintile-of-income level. When such categorization is not available, the analysis is carried out based on the original definition of income groups by the statistical department releasing HBS data.

Table A 3. Income

Country	Income definition	Income categories
CZE	Net money income per person	Quintiles
DEU	Net monthly household income	Up to 1300 euro, From 1300 to 1700 euro, From 1700 to 2600 euro, From 2600 to 3600 euro, From 3600 to 5000 euro, 5000 euro or more
DNK	Household annual total income	Up to 250000 DKK, From 250000 to 449999 DKK, From 450000 to 699999 DKK, From 700000 to 999999 DKK, 1000000 DKK or more
ESP	Monthly net household income	Up to 499 euro, From 500 to 999 euro, From 1.000 to 1.499 euro, From 1.500 to 1.999 euro, From 2.000 to 2.499 euro, From 2.500 to 2.999 euro, From 3.000 to 4.999 euro, 5.000 euro or more
FRA	Equivalent household disposable income	Deciles
ITA	Income proxied by education	Lower secondary, Upper secondary, Tertiary education
JPN	Annual household income	Quintiles
MEX	Quarterly total household income	Deciles
GBR	Equivalent household disposable income	Deciles
USA	Income before taxes, defined as the combined income of all consumer unit members (14 years of age or over) during the 12 months preceding the interview	Quintiles

Source: National Statistical Offices.

Table A 4 reports the country-specific definitions of areas of residence.

Table A 4. Place of residence

Country	Definition basis for Rural and Metropolitan areas	Rural	Metropolitan
CZE	Number of inhabitants	Less than 1999 inhabitants	More than 50000 inhabitants
DNK	Population density & Eurostat regional classification	Nordjylland	Hovedstaden
ESP	Number of inhabitants	Less than 10,000 inhabitants	100,000 or more inhabitants
FRA	INSEE-HBS classification directly available	Rural	Paris complex
ITA	ISTAT-HBS classification directly available	Other municipalities up to 50,000 inhab. (different from metropolitan area suburbs)	Metropolitan area - centre
JPN	Statistics Bureau of Japan classification directly available	Small cities, towns and villages	Major cities
GBR	Population density and Eurostat regional classification	North-East	London
USA	BLS-CEX classification directly available	Rural	Central city

Source: National Statistical Offices.

Table A 5 reports the country-specific definitions of age groups.

Table A 5. Age

Country	Age definition	Senior	Prime-age
CZE	Labour market status as a proxy for age	Pensioner	Employed
DEU	Age of the household head	65 to 69 years old	35 to 44 years old
DNK	Age of the household head	60 to 74 years old	35 to 44 years old
ESP	Age of the household head	65 and over	35 to 44 years old
FRA	Age of the household head	65 to 74 years old	35 to 44 years old
ITA	Labour market status as a proxy for age	Retired	Employed
JPN	Age of the household head	65 and over	30 to 39 years old
GBR	Age of the household head	65 to 74 years old	30 to 49 years old
USA	Age of the household head	65 to 74 years old	35 to 44 years old

Source: National Statistical Office.

Shifts in consumption shares during COVID-19

This section compares 2019 and 2020 consumption shares for 1-digit COICOP categories of high-income and low-income groups by country, for the countries for which data are available to perform this exercise. The definition for high-income and low-income categories can be found in Table A 3.

Table A 6. Czech Republic

CZE	2019			2020		
Description	Low income %	High income %	Delta in pp	Low income %	High income %	Delta in pp
Food and non-alcoholic drinks	20.09	16.58	3.51	22.57	17.53	5.04
Alcoholic drink, tobacco and narcotics	2.72	2.81	-0.09	3.06	3.01	0.05
Clothing and footwear	4.59	5.18	-0.59	4.73	4.89	-0.16
Housing, fuel and power	25.00	22.20	2.80	25.10	22.72	2.38
of which Electricity, gas and other fuels	11.20	9.95	1.25	9.89	9.17	0.72
Household goods and services	5.82	6.57	-0.75	5.70	8.34	-2.65
Health	2.43	2.74	-0.31	2.76	2.81	-0.05
Transport	10.23	11.55	-1.33	9.31	11.49	-2.18
of which Fuels and lubricants for personal transport equipment	4.46	4.76	-0.30	3.99	3.96	0.04
Communication	4.50	4.21	0.29	4.75	4.14	0.61
Recreation and culture	9.97	11.00	-1.03	9.04	9.78	-0.73
Education	1.53	1.25	0.28	1.15	0.69	0.45
Restaurants and hotels	7.00	7.25	-0.25	5.34	6.65	-1.31
Miscellaneous goods and services	6.12	8.65	-2.53	6.50	7.95	-1.45

Source: Czech Statistical Office.

Table A 7. Denmark

DNK	2019			2020		
Description	Low income %	High income %	Delta in pp	Low income %	High income %	Delta in pp
Food and non-alcoholic drinks	12.18	11.14	1.05	12.37	11.53	0.84
Alcoholic drink, tobacco and narcotics	2.66	1.84	0.82	2.84	1.97	0.87
Clothing and footwear	3.54	4.05	-0.51	4.38	3.42	0.95
Housing, fuel and power	42.14	29.22	12.92	43.23	28.75	14.48
of which Electricity, gas and other fuels	10.64	5.54	5.10	9.61	4.95	4.66
Household goods and services	4.13	5.32	-1.18	4.57	6.06	-1.49
Health	3.04	2.06	0.98	3.08	2.28	0.81
Transport	8.33	16.05	-7.72	7.22	17.57	-10.35
of which Operation of personal transport equipment	3.75	7.80	-4.05	3.43	7.80	-4.37
Communication	2.90	2.07	0.83	3.32	2.10	1.22
Recreation and culture	8.48	10.80	-2.33	7.83	10.48	-2.65
Education	0.57	0.95	-0.38	0.61	0.84	-0.22
Restaurants and hotels	5.32	7.35	-2.03	3.95	5.48	-1.53
Miscellaneous goods and services	6.71	9.15	-2.44	6.61	9.52	-2.92

Source: Statistics Denmark.

Table A 8. Italy

ITA	2019			2020		
Description	Low income %	High income %	Delta in pp	Low income %	High income %	Delta in pp
Food and non-alcoholic drinks	20.22	13.69	6.53	22.37	15.98	6.39
Alcoholic drink, tobacco and narcotics	2.19	1.37	0.82	2.20	1.56	0.65
Clothing and footwear	4.27	5.04	-0.77	3.72	4.41	-0.69
Housing, fuel and power	34.34	34.65	-0.30	37.19	38.66	-1.46
of which Electricity, gas and other fuels	5.09	3.38	1.71	5.22	3.59	1.63
Household goods and services	4.00	4.81	-0.81	4.11	5.03	-0.92
Health	4.61	4.12	0.49	4.53	4.21	0.32
Transport	11.65	12.00	-0.35	9.63	9.46	0.17
of which Fuels and lubricants for personal transport equipment	5.57	4.35	1.22	4.74	3.40	1.34
Communication	2.54	1.96	0.58	2.55	2.06	0.50
Recreation and culture	4.32	6.20	-1.88	3.54	5.11	-1.57
Education	0.45	1.05	-0.59	0.41	1.01	-0.60
Restaurants and hotels	4.24	6.87	-2.63	2.88	4.43	-1.55
Miscellaneous goods and services	7.16	8.26	-1.10	6.87	8.09	-1.22

Note: High-income and low-income categories are proxied by high-education and low-education.

Source: ISTAT.

Table A 9. Japan

JPN	2019			2020		
Description	Low income %	High income %	Delta in pp	Low income %	High income %	Delta in pp
Food	28.28	22.85	5.43	28.66	24.94	3.72
Housing	20.30	10.87	9.43	20.94	12.01	8.93
of which Fuel & light	8.23	4.47	3.76	8.21	4.78	3.43
Furniture & household utensils	3.73	3.65	0.08	4.20	4.44	-0.23
Clothing & footwear	2.82	4.45	-1.64	2.42	4.01	-1.59
Medical care	5.74	4.05	1.69	5.80	4.41	1.39
Transportation & communication	10.99	15.57	-4.59	10.69	14.72	-4.03
Education	0.27	6.08	-5.80	0.30	5.83	-5.53
Culture & recreation	9.61	11.15	-1.54	8.82	9.50	-0.68
Other consumption expenditures	18.27	21.33	-3.06	18.16	20.15	-1.98

Note: The category "Fuel & light" originally also comprehended water charges (Fuel, light & water charges), however for comparability reasons with the other countries the contribution of water charges is not considered. Likewise, the category "Fuel, light & water charges" is treated as a subcategory of "Housing" despite being a separate category according to the classification of the Statistics Bureau of Japan.

Source: Statistics Bureau of Japan.

Table A 10. Mexico

MEX	2019			2020		
Description	Low income %	High income %	Delta in pp	Low income %	High income %	Delta in pp
Food and non-alcoholic drinks	45.12	15.35	29.76	46.15	22.19	23.96
Alcoholic drink, tobacco and narcotics	0.20	0.17	0.03	0.19	0.18	0.02
Clothing and footwear	3.61	4.90	-1.28	2.22	3.44	-1.22
Housing, fuel and power	10.20	8.58	1.62	12.69	9.79	2.90
of which Electricity, gas and other fuels	5.58	3.14	2.44	5.80	4.06	1.74
Household goods and services	6.58	7.05	-0.47	6.45	7.88	-1.43
Health	2.60	3.09	-0.49	4.17	5.08	-0.91
Transport	9.96	17.58	-7.62	8.20	14.79	-6.59
of which Fuels and lubricants for personal transport equipment	2.25	9.56	-7.31	2.65	8.91	-6.26
Communication	2.34	4.70	-2.36	3.58	5.51	-1.93
Recreation and culture	1.47	5.90	-4.42	1.19	2.37	-1.18
Education	4.35	11.07	-6.72	2.43	9.79	-7.36
Restaurants and hotels	4.64	9.88	-5.24	3.86	6.11	-2.25
Miscellaneous goods and services	7.45	7.49	-0.04	7.62	8.23	-0.61
Other expenditure items	1.46	4.24	-2.78	1.23	4.63	-3.40

Note: 2019 not available.

Source: National Institute of Statistics and Geography.

Table A 11. Spain

ESP	2019			2020		
Description	Low income %	High income %	Delta in pp	Low income %	High income %	Delta in pp
Food and non-alcoholic drinks	17.17	10.37	6.80	19.95	13.28	6.67
Alcoholic drink, tobacco and narcotics	2.60	1.25	1.35	2.17	1.29	0.88
Clothing and footwear	3.20	5.14	-1.94	2.01	4.16	-2.15
Housing, fuel and power	45.80	27.36	16.13	48.80	32.02	14.49
of which Electricity, gas and other fuels	5.20	2.89	2.31	5.51	3.22	2.29
Household goods and services	2.99	6.41	-3.42	2.83	6.62	-3.79
Health	2.07	3.23	-1.16	2.66	3.15	-0.49
Transport	6.03	13.90	-6.31	5.00	10.81	-4.79
of which, operation of personal transport equipment	4.85	6.41	-1.56	4.27	5.29	-1.02
Communication	3.50	2.28	1.22	4.00	2.69	1.31
Recreation and culture	2.65	6.62	-3.97	1.91	4.51	-2.60
Education	n.a	3.52	n.a	n.a	4.42	n.a
Restaurants and hotels	4.23	12.30	-8.07	1.79	9.06	-7.27
Miscellaneous goods and services	6.42	7.45	-1.03	5.51	7.88	-2.37

Note: Data on education spending share not available for low-income households.

Source: National Institute of Statistics.

Table A 12. United Kingdom

GBR	2019			2020		
Description	Low income %	High income %	Delta in pp	Low income %	High income %	Delta in pp
Food and non-alcoholic drinks	13.90	7.20	6.70	15.00	7.40	7.60
Alcoholic drink, tobacco and narcotics	3.40	1.70	1.70	3.20	1.70	1.50
Clothing and footwear	4.20	3.80	0.40	4.20	3.90	0.30
Housing, fuel and power	21.90	9.20	12.70	21.70	10.40	11.30
of which Electricity, gas and other fuels	7.30	2.80	4.50	7.60	2.70	4.90
Household goods and services	6.30	9.00	-2.70	5.40	6.50	-1.10
Health	1.20	1.20	0.00	0.90	1.60	-0.70
Transport	11.20	15.40	-4.20	10.10	14.50	-4.40
of which Operation of personal transport equipment	3.20	3.10	0.10	3.40	2.70	0.70
Communication	4.20	2.50	1.70	4.50	2.60	1.90
Recreation and culture	9.80	13.50	-3.70	10.70	14.00	-3.30
Education	0.40	2.00	-1.60	n.a	1.40	n.a
Restaurants and hotels	6.80	9.90	-3.10	7.40	10.00	-2.60
Miscellaneous goods and services	6.50	7.70	-1.20	6.60	7.90	-1.30
Other expenditure items	10.10	16.90	-6.80	10.20	18.20	-8.00

Note: Data on education spending share not available for low-income households in 2020.

Source: Office for National Statistics.

Table A 13. United States

USA	2019			2020		
Description	Low income %	High income %	Delta in pp	Low income %	High income %	Delta in pp
Food at home	9.73	5.86	3.87	10.79	6.81	3.98
Alcoholic beverages and Tobacco	1.77	1.20	0.57	1.50	1.19	0.31
Apparel and services	2.85	2.94	-0.08	2.65	2.46	0.20
Housing	36.93	26.36	10.57	39.65	27.59	12.05
of which Utilities and fuels	4.80	2.27	2.53	5.26	2.38	2.88
Household furnishings and equipment	3.29	3.50	-0.21	3.23	4.32	-1.08
Healthcare	9.96	6.92	3.04	9.66	6.91	2.75
Transport	15.98	15.77	0.21	15.19	14.63	0.56
of which Gasoline, other fuels, and motor oil	3.48	2.63	0.85	2.84	1.91	0.93
Personal care products and services	1.27	1.16	0.11	1.05	1.02	0.03
Entertainment and Reading	4.08	5.74	-1.66	4.39	5.35	-0.96
Food away from home	5.62	5.64	-0.03	3.48	3.85	-0.37
Education	2.68	3.35	-0.67	2.22	3.09	-0.88
Miscellaneous	1.43	1.38	0.05	1.46	1.37	0.09
Personal insurance and pensions	2.16	16.34	-14.18	2.12	17.37	-15.25
Cash contribution and personal insurance and pensions	2.26	3.83	-1.57	2.61	4.05	-1.43

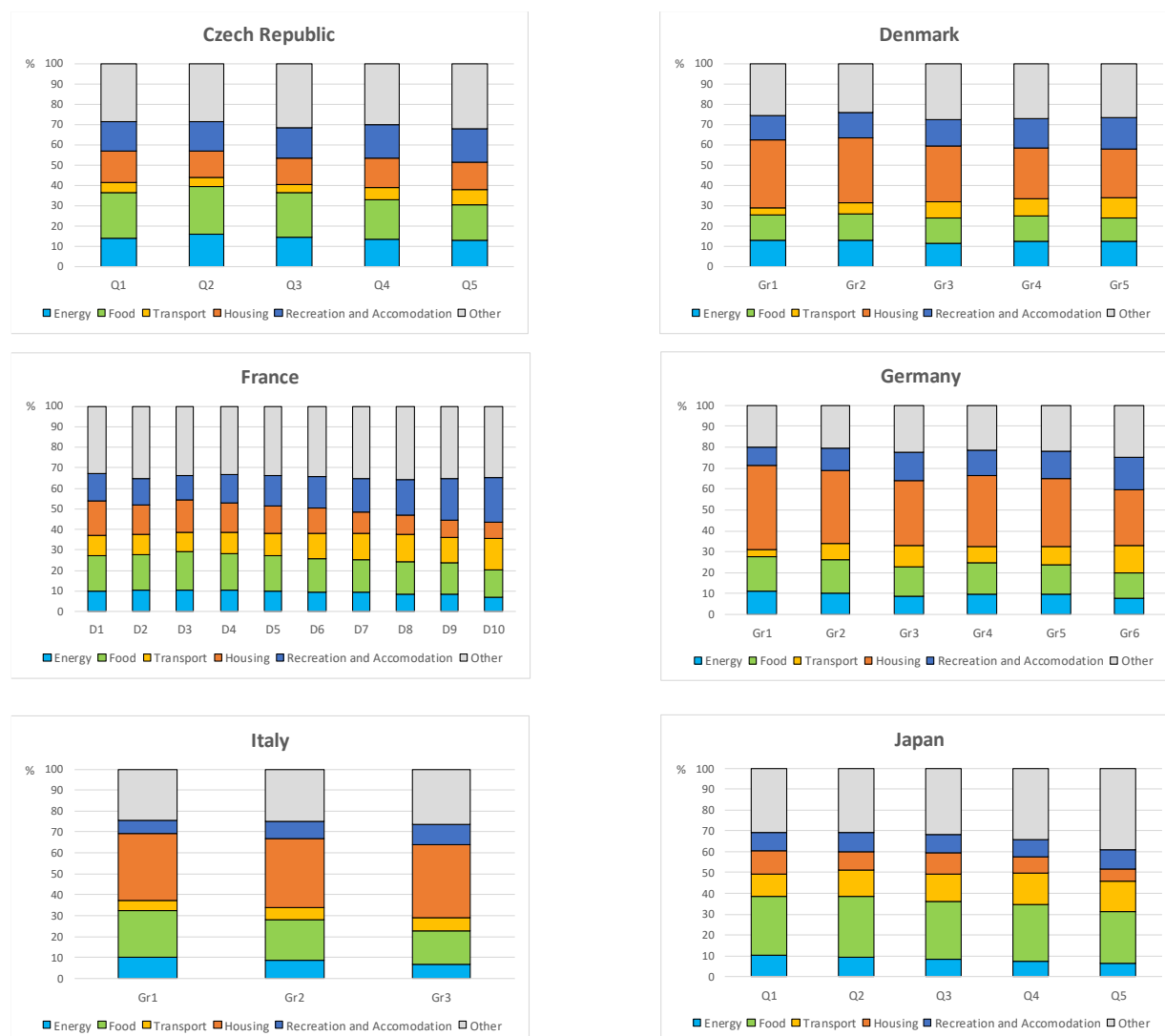
Note: The category "Utilities and fuels" originally comprehended also Telephone services and Water and other public services (Utilities, fuels, and public services), however for comparability reasons with the other countries the contribution of water charges is not considered. Likewise, the category "Household furnishing and equipment" which would be a subcategory of Housing is treated as a separate category.

Source: Bureau of Labour Statistics.

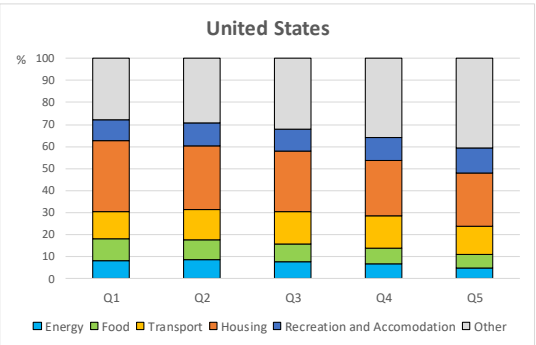
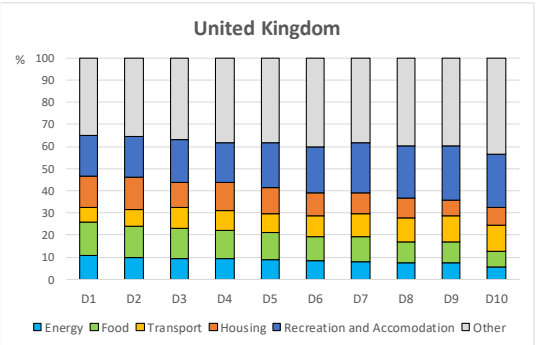
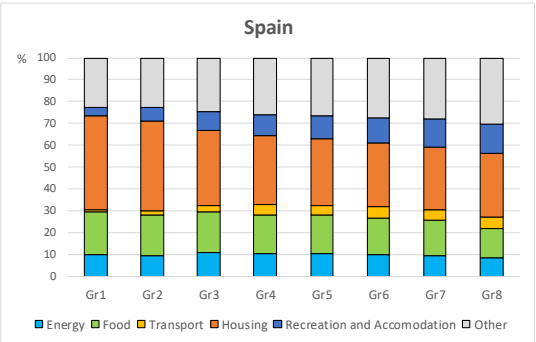
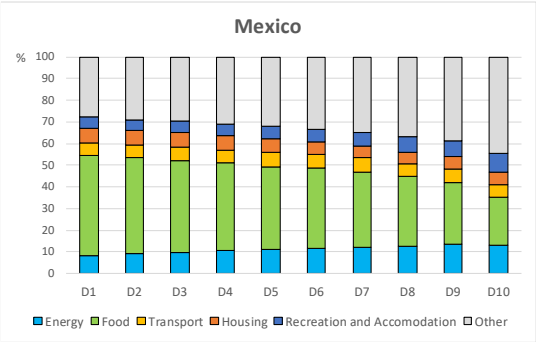
Additional country-by-country descriptive material and results

This section contains additional country-by-country results on the expenditure shares and the inflation-driven purchasing power losses across income groups, where the definition of income categories can be found in Table A 3.²⁰ Specifically, five expenditure categories are considered in Figure A 1: Energy, Food, Transport, Housing, Recreation and Accommodation, and Other. In Figure A 2, showing the changes in purchasing power across income groups, the categories considered are: Food, Energy, Other (non-food, non-energy) and Total.

Figure A 1. Country-by-country expenditure shares across income groups



²⁰ Detailed materials and results by area of residence and age groups are available upon request.



Source: National HBS.

Figure A 2. Country-by-country purchasing power losses across income groups



Source: OECD calculations based on National HBS and CPI.
Invalid source specified.