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We analyze the distributional impact of the substantial fiscal measures implemented in Austria to support household incomes amidst the sizable increase in inflation in 2022. A large part of these measures were universal transfers benefiting all households. Therefore, when we look at absolute amounts, low-income households profited from the fiscal measures to a similar extent like high-income households. When we look at the ratio of transfers to disposable incomes, low-income households profited much more. Furthermore, within the lower income quintiles, households more affected by the inflation shock received lower additional transfers than those less affected by the inflation shock. Overall, the fiscal measures did not fully offset the inflation-induced increase in consumption expenditure for households severely affected by the inflation shock across the income spectrum, including those in the bottom quintile.

JEL classification: H53, D30, E31

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Due to the exceptionally high consumer price inflation rate, real disposable household incomes would have declined substantially in Austria in 2022 without fiscal support measures (see Prammer and Reiss, 2022). However, there has been an ongoing debate about whether, or to what extent, the comprehensive fiscal “anti-inflation” measures have been targeted. Following an approach similar to that in our study on the distributional impact of the COVID-19 fiscal measures on household incomes (Maidorn and Reiss, 2021), we try to answer the following two questions with respect to the fiscal support measures introduced and effective in 2022: First, to what extent have households with lower incomes profited more than households with higher incomes? And second, within income quintiles, have households subject to larger inflation shocks profited more than households subject to lower inflation shocks?

Our paper is structured as follows: Section 1 gives an overview of the fiscal measures included in our analysis. Section 2 discusses the methodology used, and section 3 shows the distributional effects by income quintiles, while section 4 provides results broken down by households’ exposure to inflation, and section 5 concludes.

1 Overview of the analyzed fiscal measures

The focus of our analysis is the combined household-level effect of inflation and fiscal support measures implemented under the various “anti-inflation” packages in 2022. These measures are special in that they are intended to temporarily support

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real household incomes, as in 2023 (and 2024), the high inflation in 2022 and 2023 will entail high (expected) increases in average pensions and agreed wages, and the structural inflation indexation of family benefits and the most important income tax parameters will come into effect; these factors are expected to contribute to an improvement in real household incomes (see also Prammer and Reiss, 2022).

The fiscal measures to support real household incomes in 2022 come in two forms:

- transfers or cuts in income-related taxes to increase nominal household income and
- cuts in taxes on products (like VAT, energy taxes) to directly decrease consumer prices.

Table 1 lists the fiscal measures covered in our analysis and shows the volume of measures deemed directly relevant for households in 2022² (for more details on the measures see Prammer and Reiss, 2022, as well as Budgetdienst, 2022a and 2022b). Focusing on 2022 means that we exclude the inflation indexation of family benefits and of income tax brackets and tax credits, which will come into effect in 2023. Furthermore, we also exclude the subsidy on electricity, which comes into effect

Table 1

Temporary measures to support household incomes in 2022¹

	Official cost estimates		Simulated effect on households
	2022	2023	2022
	EUR billion		
<i>Cuts in energy taxes</i>	1.7	1.0	0.9
Temporary suspension of ecological surcharge on electricity	0.9	0.5	0.5
Temporary reduction of excise duties on electricity and natural gas by around 90%	0.6	0.5	0.3
Postponement of implementation of carbon tax from 1 July 2022 to 1 October 2022	0.2		0.1
<i>One-off payments to recipients of social benefits²</i>	0.4		0.4
Payments in early 2022	0.2		0.2
Payments in 2 nd half of 2022	0.2		0.2
<i>Vouchers for energy bills</i>	0.6		0.6
<i>One-off payments/tax cuts for people with low incomes</i>	0.5	1.0	1.2
Reduction in social contributions for self-employed and farmers	0.1		0.1
One-off payment to pensioners with low pensions	0.4		0.5
Negative income tax for employees with low wages		1.0	0.6
<i>Increase in climate bonus plus inflation bonus</i>	2.8		2.7
<i>One-off transfer to families</i>	0.3		0.3
<i>Increase in commuter allowance</i>	0.1	0.2	0.3
<i>Bringing forward of increase in family tax credit ("Familienbonus")</i>	0.1	0.2	0.4
<i>Total of all measures</i>	6.6	2.4	6.7

Source: Budgetdienst (2022a and 2022b), Federal Ministry of Finance, OeNB, Office of the Fiscal Advisory Council.

¹ Excluding subsidy of electricity prices in December 2022 ("Strompreisbremse") and tax exemption of "inflation bonuses" paid by employers.

² Recipients of unemployment benefits, minimum pensions, basic social assistance, student assistance.

² The temporary suspension of the variable part of the ecological surcharge on electricity was quasi-automatic due to high (projected) electricity prices, while the suspension of the lump-sum part was implemented via a discretionary law. We decided to include the full amount as a measure due to the distributive effect of the suspension (certain low-income households are always exempt from this surcharge and therefore did not benefit from the suspension).

in December 2022 and therefore only has a small impact in 2022.³ We also exclude the “eco-social” tax reform, which came into effect in 2022 but was adopted earlier and not in response to high inflation.

Measures implemented by the Austrian government that do not directly affect real household incomes (especially the buildup of the strategic gas reserve and the support measures for enterprises) are not considered in this paper. Cuts in energy taxes also benefit enterprises and are therefore only partly impacting energy consumed by households, as can be seen from the difference in the official cost estimates and the simulated effect on households in table 1.⁴ At the same time, we assigned some amounts paid out in 2023 to 2022 in our simulations, because economically, they belong to this year. Most importantly, the temporary increase in the negative income tax for employees with low wages in 2022 can only be retrieved after the final tax assessment for 2022. Furthermore, parts of the increase in the family tax credit (family bonus) and the commuter allowance will only lead to payments after the final tax assessment.

2 Methodology

Price increases in consumer goods are calculated with the consumer price index (CPI) for the categories of products provided by the Classification of Individual Consumption by Purpose (COICOP). For Austria, Statistics Austria reports the monthly results of the CPI by detailed COICOP expenditure groups. These expenditure groups match the data of the Household Budget Survey, which covers the expenditures of around 7,000 households; the most recent data are from 2019–20⁵.

In order to simulate inflation-induced rising consumption expenditures in 2022, we apply monthly rates of change of the CPI at the 4-digit level to the data of the Household Budget Survey. To capture the excessive rise of costs due to the inflation shock, we use the difference between average inflation rates from January 2022 to September 2022 (as a proxy for the overall inflation rate in 2022)⁶ and their averages in the years 2016 to 2021 in each expenditure group.⁷ This has somewhat different implications than looking at the levels of inflation, because the historical averages of inflation rates differ substantially among different groups of goods and services. For example, from January to September 2022, price increases were on average slightly higher in hotel and restaurant services than for the overall

³ We also exclude the tax exemption of “inflation bonuses” paid out by employers as we lack the information on which kind of employees profit from this measure in 2022.

⁴ There are also some minor differences in social benefits paid out to all Austrian residents as not all of them live in households (e.g., people in long-term care facilities are not counted as members of households), and as Austrian family benefits and income tax measures also affect some households outside Austria.

⁵ The data of the Household Budget Survey were sampled between June 2019 and June 2020, therefore around 25% of the sampling took place during the first COVID-19 lockdown. This leads to some distortions of consumption expenditures in relation to the year 2022, mainly for restaurant and accommodation services (which were particularly affected by the lockdowns). However, the average price increases for these services have been close to overall inflation so far in 2022, so these distortions have only a small impact on our analysis.

⁶ The WIFO macroeconomic projections of September 2022 assume an average CPI inflation rate of 8.3% for January to December 2022, while the average from January to September 2022 is 7.8%. Therefore, our approach slightly underestimates the overall inflation rate for 2022.

⁷ We included the relatively high inflation rates of late 2021 into the reference inflation, as overall, we interpret them as a normalization of price levels after the very low inflation rates before 2021.

consumption basket, but as the medium-term average of inflation is higher for restaurant services than for overall consumption, the increase in inflation has been somewhat below average for restaurant services.

For an evaluation of the effectiveness of the fiscal measures in absorbing the impact of inflation, the best method would be to compare the transfers and tax credits for the most affected households to those for the least affected households. Unfortunately, the data in the Household Budget Survey do not include enough information on households to assign the individual measures analyzed in this paper to individual household groups. We therefore use the Office of the Fiscal Advisory Council's microsimulation model (FISKSIM), currently based on AT-SILC⁸ 2018 to 2020 household data, to simulate these measures. Households are grouped by quintiles of equivalized disposable household income. The AT-SILC data, in turn, do not contain detailed consumption data that make it possible to identify the households with the lowest and highest inflation rates. Therefore, in section 4, households are additionally grouped within the income quintiles by further characteristics, especially by the population density of the area where their primary residence is located and their heating system. This is a second-best solution that enables us to apply inflation shocks derived from the data of the Household Budget Survey to households grouped by characteristics driving their specific inflation. We then contrast the average cumulated quantitative effect of the fiscal measures on household incomes⁹ within these subgroups with these households' average inflation-induced rise in consumption expenditure.

The comparison of the effects of rising prices computed on the basis of the Household Budget Survey and the effects of fiscal measures, which were mostly computed in FISKSIM¹⁰, within income groups required an adjustment of household incomes recorded in the Household Budget Survey to match them with household incomes recorded in the AT-SILC data. In the Household Budget Survey, households report their monthly disposable incomes, whereas AT-SILC data provide yearly incomes. Persons that are unemployed when surveyed, for example, tend to have higher monthly incomes in other months of the year when they are in employment. Disposable household incomes indicated in the Household Budget Survey were adjusted in line with AT-SILC data accordingly. Finally, characteristics of commuting between work and home needed to be simulated in both datasets in accordance with information given by the wage income tax statistics on commuter allowances, income levels and regions.

3 Distributional effect of fiscal measures by income quintiles

We can quantify the distributional effects of the fiscal measures and their effectiveness in absorbing the rising costs of consumption by comparing the increase in disposable incomes to the rise in consumption expenditure due to above-average inflation (assuming unchanged consumption baskets).

⁸ EU Statistics of Income and Living Conditions (SILC) of Statistics Austria with regard to Austrian data.

⁹ The reduction of energy taxes, while being part of the fiscal measures considered in this paper, did not increase nominal household incomes but decreased expenditures by directly reducing inflation.

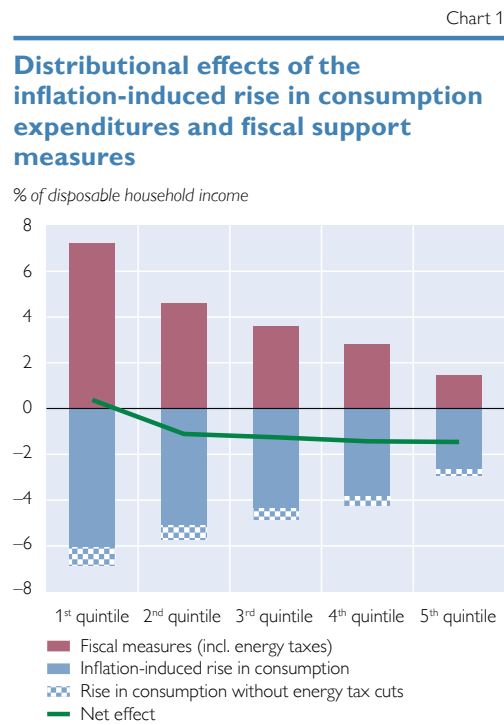
¹⁰ The reductions in energy taxes for each household were calculated on the basis of the Household Budget Survey.

Chart 1 shows these effects in relation to disposable household income for the quintiles of equalized¹¹ disposable household incomes. Average inflation rates (i.e., the increase in consumption expenditure induced by price increases divided by the previous year's consumption) at household level are relatively similar over the income distribution (see also Fessler et al., 2022). However, the consumption ratio is significantly higher for low-income households, rising above unity in the lowest quintile and increasing the ratio of inflation-induced additional consumption expenditure to disposable income. Overall, the inflation effect decreases with rising incomes. Looking at the averages in each quintile, households in the lowest quintile have to spend about 6% of their disposable income to cover the (above-average) inflation-induced rise in consumption expenditure, whereas households in the top quintile spend only about 2½% (solid blue bars in chart 1). Without the cuts in energy taxes, the increase in consumption expenditure would have been higher by between – approximately – ¼ percentage points (top quintile, dotted blue bars) and about ¾ percentage points (bottom quintile).¹²

The sum of the fiscal measures included in this study (red bars in chart 1) slightly exceeds the additional expenses in the bottom quintile by ½ percentage points (green line). From the second quintile upward, the measures clearly do not compensate the increase in expenditure.

The fiscal measures introduced to absorb the rising costs of living were designed to reach all households (chart 2). Overall, all income groups benefited from the measures to a similar extent in absolute terms¹³, so that lower-income households benefited more from the measures only relative to their incomes.

The combined payout of the inflation bonus and the increased climate bonus were the largest measure (pink bars) along the income distribution in our analysis. The bonuses were explicitly targeted at all households, and they accounted for almost 3% of disposable income in the lowest quintile and still around ¾% in the top quintile. Furthermore, the one-off payment of family benefits (orange bars) was not subject to means testing, and the means-tested vouchers for energy bills (dark blue



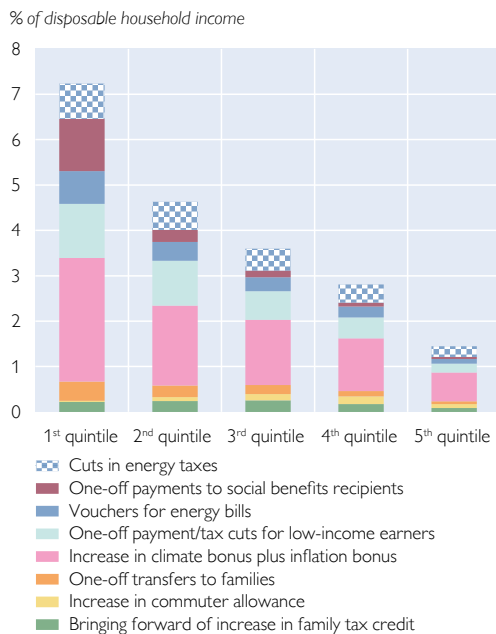
¹¹ Equalized household income is computed by dividing total household income by the weighted number of household members according to the “OECD-modified scale” (1 for the first adult, 0.5 for each additional adult, 0.3 for each child).

¹² We add this effect in dotted blue bars to the inflation effect in chart 1 (and also in chart 4). Otherwise, we would not be able to include the energy tax cuts as measures within the red bars.

¹³ The average sum of transfers and tax credits for households in the top quintile amounted to around EUR 1,400, as compared to around EUR 1,500 for all households on average.

Chart 2

Distributional effects of fiscal support measures by instruments



Source: Office of the Fiscal Advisory Council, OeNB.

shock. We see large differences in the impact of inflation on households within quintiles: The 25% of households in the lowest quintile most affected saw an additional increase in consumption expenditure by around 11% (dark green bar in chart 3), while this increase was only about 3% for the least affected 25% (light green bar in chart 3), that is, we see a spread of 8 percentage points. This spread narrows for higher-income households: In the top quintile, the difference in additional expenditure between the households most and least affected by the inflation shock is only about 2½ percentage points (for a more detailed analysis of inflation rates by income and other socioeconomic characteristics, see Fessler et al., 2022).

Given that AT-SILC data do not provide sufficient information for computing detailed inflation rates (see section 2), we divide income quintiles by characteristics correlated with the abovementioned inflation differentials, namely the degree of urbanization of where a household lives and the heating system it uses.¹⁵ The former factor is an important determinant of car ownership and – in case of car ownership – of the amount of fuel consumption. Similarly, the average inflation-induced

bars) only excluded households at the very top of the income distribution. There have been some measures explicitly targeted at recipients of certain social benefits (purple bars) and recipients of low pension, self-employment and wage incomes (light blue bars); the former group is overrepresented in the first quintile, while the latter three are overrepresented in the first two quintiles.¹⁴ At the same time, however, the increase in the commuter allowance (yellow bars), the increase in the family bonus (green bars) as well as the cuts in energy taxes (dotted blue bars) have benefited higher-income households more in absolute terms.

4 Distributional effect of fiscal measures by exposure to inflation

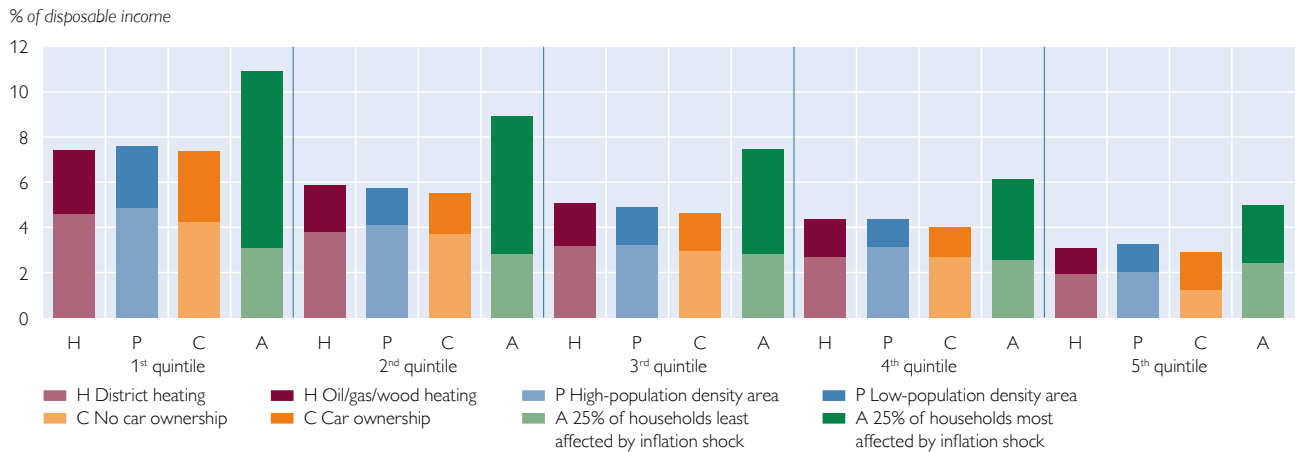
Overall, the majority of fiscal measures supported households regardless of how affected they were by the inflation

¹⁴ The relatively small share of means-tested transfers in the overall package is also due to the fact that Austria currently lacks the means of a quick implementation of means-tested benefits for all households/persons with low incomes.

¹⁵ We could have used more pronounced extremes of being severely or less affected by the rise in energy prices, respectively. This would come at the cost of a large reduction in the number of cases involved and households represented by them (e.g., by replacing the degree of urbanization with car ownership). The approach to look at the 25% most and least affected households cannot be applied to AT-SILC data, however, as they do not contain data on consumption expenditures.

Chart 3

Inflation-induced rise in consumption expenditure by household type



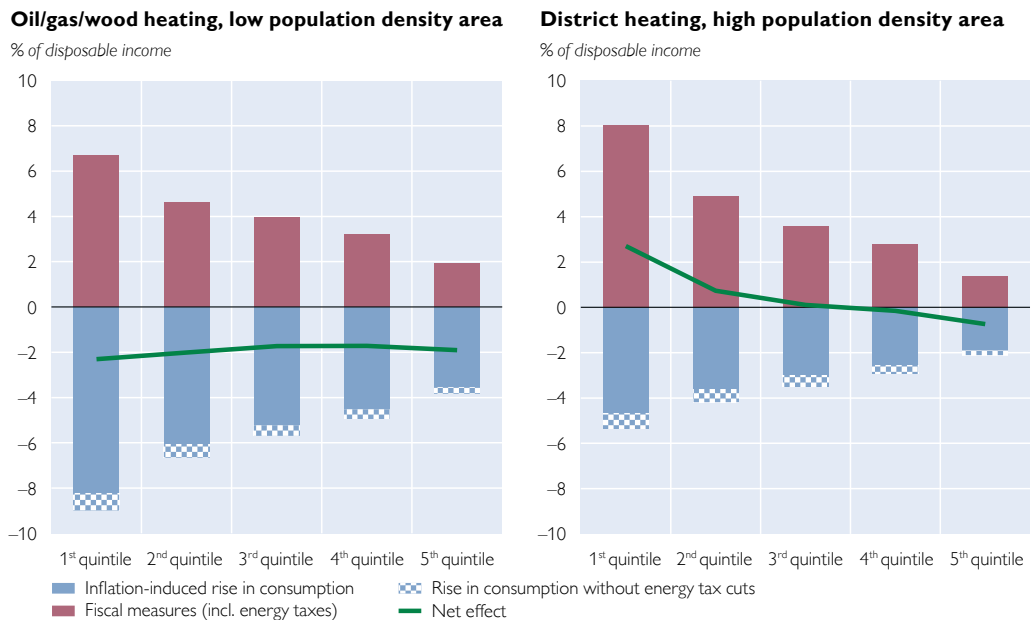
Source: Office of the Fiscal Advisory Council, OeNB.

increase in expenditure is around 2 percentage points higher for households dependent on gas, oil or wood heating than for households with district heating, as it is for households living in thinly populated areas than for those in highly populated areas (chart 3). The differences are most pronounced in the lowest quintile, where 21% of the least affected and 76% of the most affected households own a car. Among the least affected households, 9% live in thinly populated areas, whereas it is 59% of the most affected households. In the following, we treat households in thinly populated areas that have gas, oil or wood heating as severely affected by inflation, and households in densely populated areas that have district heating as less affected. The results should not be interpreted as households with district heating not having been affected by rising costs of household energy at all; rather, on average, they felt the impact of significant price increases much later than other households, and therefore the contribution of energy prices to their individual inflation rates will be much lower in 2022.¹⁶

Chart 4 displays the differences in the rise in living costs and transfers and tax credits received between the households severely affected and those less affected, respectively, within quintiles. It shows that the combined effect of the degree of urbanization and the heating system on the inflation-induced increase in consumption expenditures amounts to almost 4 percentage points of disposable income in the lowest quintile, which falls to around 2 percentage points in the other four quintiles (comparison of blue bars in the left- and the right-hand panels of chart 4). At the same time, households less affected by inflation benefit substantially more from the fiscal support measures in the lowest quintiles of the income distribution (comparison of red bars in the left- and the right-hand panels of chart 4). This also holds, albeit to a much smaller extent, for the second quintile, while we see the opposite effect in the other three quintiles (gray line in chart 5). Overall, house-

¹⁶ In September 2022, large price increases for district heating in Vienna contributed to a big jump in the price index for this subcomponent, but the year-on-year inflation rate for district heating in September 2022 is still far below the rates for heating with gas, oil or wood in this month.

Inflation-induced rise in consumption expenditure and fiscal support measures by household type



holds severely affected by inflation in all income quintiles have not been compensated for the increase in consumption expenditure (green line in left panel of chart 4), while households less affected by inflation in the bottom two quintiles have been overcompensated (green line in the right-hand panel of chart 4).

Chart 5 shows that the main drivers of these differences in the impact of measures in the lower two income quintiles are the increase in the climate bonus (plus inflation bonus) as well as the targeted transfers to recipients of certain social benefits. The original climate bonus was designed to be higher in rural areas, while the bonus actually paid out in 2022 was the same for all adults. This change benefits households in urban areas (which are, on average, less affected by the inflation shock) more than households in rural areas. One should note, however, that the originally intended regional differentiation in the climate bonus would have been hard to justify in 2022: From 2023 onward, this transfer is meant to be a redistribution of the revenue from the CO₂ tax, but in 2022, the sum of the transfers is far higher than the generated tax revenue (as the tax came into effect only on 1 October). Furthermore, before 2022, inflation rates tended to be higher in urban areas (see also Fessler et al., 2022).

The targeted transfers to recipients of social benefits are de facto on average more advantageous to households in urban areas. Within the low-income quintiles, the share of recipients of these benefits (particularly of unemployment benefits and basic social assistance) is higher in urban areas than in rural or suburban areas. Within higher quintiles, the shares of recipients of social benefits are much smaller and roughly the same regardless of the degree of urbanization of their area of residence.

While the increase in the commuter allowance is actually among the smallest measures included in our analysis (table 1), it has, by construction, a larger impact on households more strongly affected by the inflation shock due to their high expenditure on fuel. This indicates an important policy dilemma: on the one hand, the commuter allowance is well targeted by the metric used in our paper, on the other hand, it encourages the environmentally harmful phenomenon of urban sprawl.

The remaining fiscal measures were broadly equally distributed among households regardless of their exposure to inflation, so that they hardly reduced the gap between the net effect of inflation and compensation measures for the most affected and the least affected households. As the cuts in energy taxes only marginally affected fuel prices (via a part of the postponement of the carbon tax by three months), even the cuts in energy taxes had an only marginal impact in this regard.

5 Conclusions

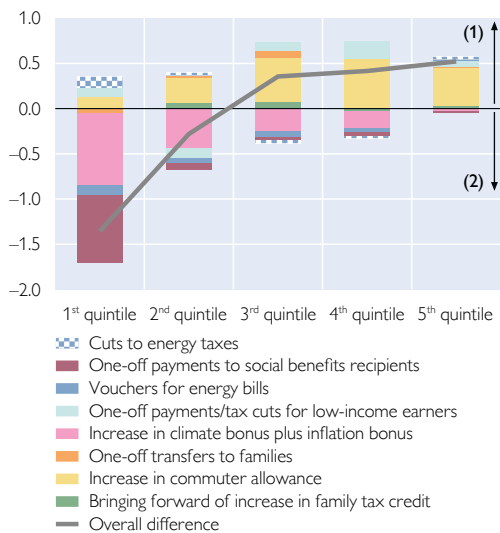
In 2022, the Austrian government took a number of substantial fiscal measures to avoid a significant decline in real disposable household incomes amidst the sizable increase in inflation. A large part of these measures were untargeted transfers benefiting all households. Therefore, it is not surprising that the absolute effect of these measures is similar across all household income quintiles, and that low-income households profited much more relative to income.

At the same time, the measures were not targeted with respect to the differences in the effect of inflation within income groups either. Within the lower income quintiles, households more affected by the inflation shock received lower additional transfers than those less affected by the inflation shock. This was largely due to the increase in the climate bonus as well as targeted transfers to recipients of social benefits, which both benefited households in urban areas more than those in rural areas. Therefore, households severely affected by inflation have not been fully compensated by fiscal measures across the income spectrum, including those in the bottom quintile.

Chart 5

Difference in impact of fiscal support measures between household types

Effect of measures on households with oil/gas/wood heating in low population density areas minus effect on households with district heating in high population density areas in % of household income



Source: Office of the Fiscal Advisory Council, OeNB.

Note: (1) Households with oil/gas/wood heating in low population density areas benefit more
(2) Households with district heating in high population density areas benefit more

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