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Reassessing Welfare Impacts of Bulgarian Fiscal Policy through a Child Poverty Perspective

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Abstract

This paper delves into Bulgaria's persistent issue of child poverty, even amidst policy efforts at the European Union (EU) and national levels. The study updates a comprehensive fiscal incidence analysis using the Commitment to Equity (CEQ) model, considering COVID-19's impact and a child-focused perspective, and simulates child-related policy interventions' effectiveness in alleviating child poverty. Our results show that Bulgaria's fiscal system has a limited impact on the overall at-risk of poverty rate, though it shows potential in reducing poverty for lower income deciles. Bulgaria's fiscal system reduces inequality compared to other countries with similar income levels, primarily driven by the substantial influence of direct transfers, education, and health allocations. Nevertheless, the redistributive effect of direct taxes and transfers remains comparatively modest within Europe. The study emphasizes the progressive nature of Bulgaria's fiscal components, benefiting the poorest through social benefits. When applying a child lens, our results show that fiscal policy is not very effective in addressing child poverty, as it reduces it by just 0.3 percentage points. However, means-tested programs targeting families and children play a significant role in mitigating child poverty. This research also underscores that specific households in Bulgaria face heightened vulnerability and may not receive optimal support from fiscal measures, including households with three or more children and lone-parent households, especially those headed by lone females. Microsimulation results suggest that enhancing child tax deductions among low-income earners and refining the design of child benefits to improve targeting effectiveness and generosity can notably contribute to child poverty reduction. The paper offers insights into more equitable policy design in Bulgaria's pursuit of combating child poverty.

This paper is a product of the Poverty and Equity Global Practice. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at http://www.worldbank.org/prwp. The authors may be contacted at mrobayo@worldbank.org, atribinuribe@worldbank.org, and joliva@fusades.org. A verified reproducibility package for this paper is available at http://reproducibility.worldbank.org, click **here** for direct access.

Reassessing Welfare Impacts of Bulgarian Fiscal Policy through a Child Poverty Perspective [1]

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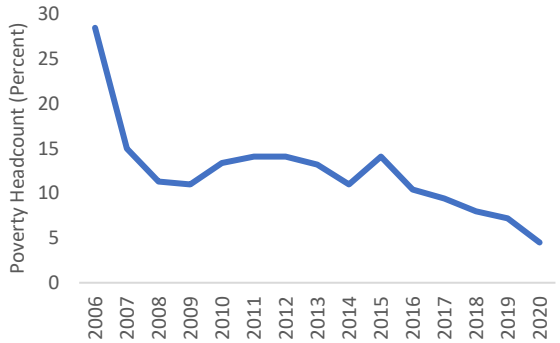
I. Introduction

Between 2015 and 2020, economic growth in Bulgaria positively impacted the living standards of the average and the poorest 40 percent of households, despite the COVID-19 shock. During this period, economic growth contributed to a decrease in absolute poverty. Notably, Bulgaria experienced an acceleration in economic growth before the COVID-19 pandemic, benefiting various income groups, especially those with lower incomes. Despite the COVID-19 shock, GDP per capita increased by 2.4 percent annually from 2015-2020. As a result, real incomes steadily approached the average levels of the European Union (EU), reaching more than 50% of the EU average. Incomes witnessed a significant rise among the bottom 40 percent of households, with an average annual increase of 10.1 percent from 2015 to 2020. This growth rate slightly exceeded the overall average. Moreover, the bottom 20 percent of households experienced even faster income growth, with an average annual increase of 13.6 percent over the same period. The median household's income growth also performed well, rising at a rate of 8.1 percent annually.

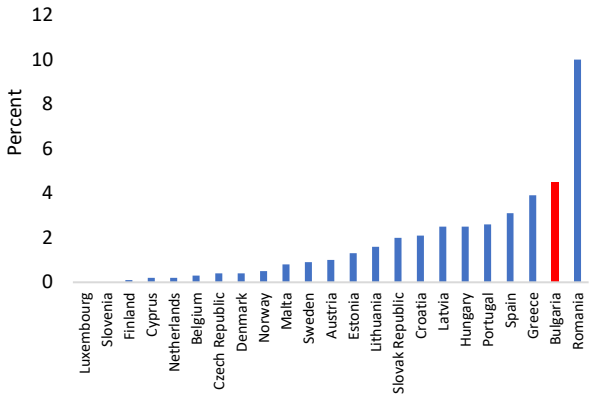
Due to these improvements, Bulgaria made noteworthy progress in reducing poverty over the past decade; however, levels are high by EU standards. International poverty in Bulgaria notably decreased, with poverty incidence based on the US$6.85 2017 PPP poverty line declining by 9.6 percentage points over 2015-2020 (figure 1, panel a)**.** Despite these positive developments, poverty levels in Bulgaria remain relatively high compared to EU standards (figure 1, panel b)**.** The anchored at-risk-of-poverty rate (fixed in 2019) has also experienced substantial declines in recent years.

Figure 1. Bulgaria Poverty and Inequality Trends and EU Comparison

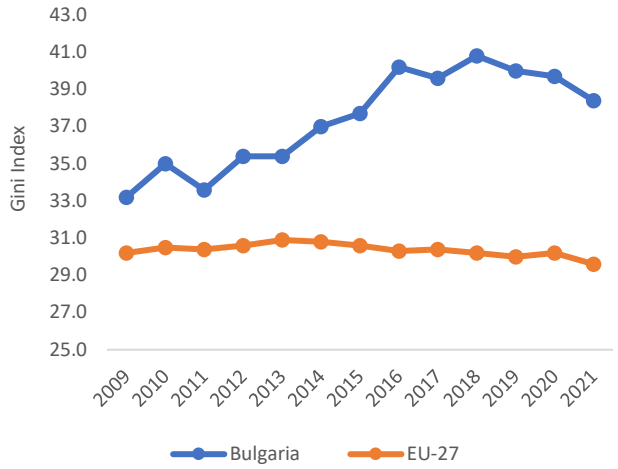
a. Income-based poverty rate, upper-middle income (UMI) poverty line ($6.85 per day, 2017 PPP), Bulgaria, 2006-2020, Percent



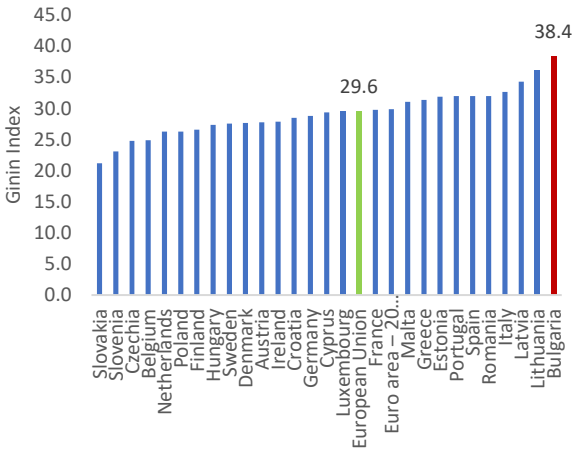
b. Income-based poverty rate, upper-middle income (UMI) poverty line ($6.85 per day, 2017 PPP), Selected EU countries, 2020, Percent



c. *Gini Index of equivalized disposable income, Bulgaria, 2009-2021*



d. *Gini Index of equivalized disposable income, EU27, 2021*



Source: Panel a and b: World Bank estimates based on 2007-2021 EUSILC. The income year is reported here, not the survey year. Panel c and d: Eurostat.
Note: For panels a and b figures, 2021 estimates are still unavailable. All figures reflect income year, not survey year.

Moreover, while there has been a slight reduction in inequality in recent years, the country still retained the highest income inequality among EU countries in 2021. Between 2015 and 2018, income inequality in the country increased, but it has been decreasing since then. The per adult equivalent Gini Index, a measure of income inequality, rose from 37.7 in the income year 2015 to 40.8 in the income year 2018, in contrast to the overall stable trends of inequality among EU countries (figure 1, panel c). Nevertheless, while there has been a recent decline in income inequality, the level of inequality remains persistently high, positioning the country as the most unequal within the European Union (figure 1, panel d). Despite experiencing strong income growth among poorer households, this growth has not been inclusive enough to narrow the income gap. The at-risk-of-poverty rate (AROP), which reflects income inequality rather than absolute poverty, has shown an upward trend, with 22.9 percent of the population falling below the national poverty line in 2021 (income year), ranking one of the highest within the EU. Persistent disparities in labor market outcomes, insufficient coverage of the social protection system, and a fiscal system characterized by limited progressivity have all been identified as reasons for the persistently high inequality rates (Vaughan & Cabrera, 2022).

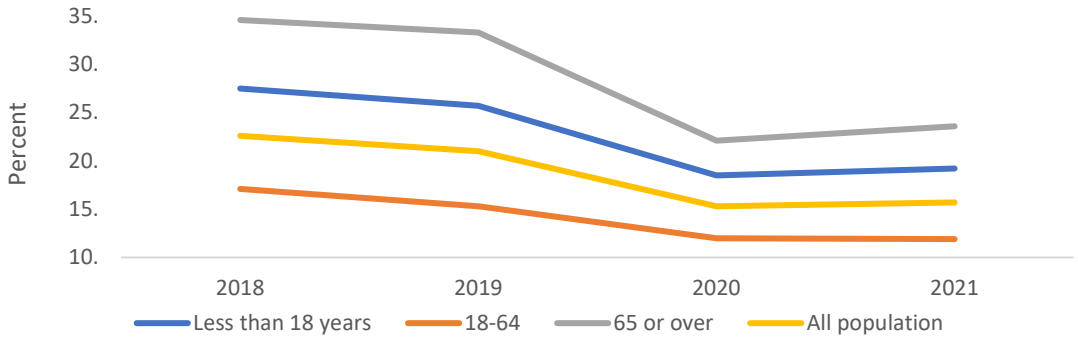
Despite some policy initiatives at the EU and national level, child poverty is a significant issue in Bulgaria, reaching among the highest rates in the EU, with potential long-term implications. The EU Strategy on the Rights of the Child and the European Child Guarantee is the main European Commission's policy to protect children and ensure their rights are observed (UNICEF, 2022). Bulgaria has implemented various policies to address child poverty, including means-tested allowances, such as social assistance and child benefits, to protect the poor and those at risk of poverty (Tasseva, 2016). However, as of 2023, the National Strategy for Children has not been updated. The sustainable development goal (SDG) 1 includes a commitment "to reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions by 2030 according to national definitions" (UNICEF, 2022). Bulgaria aims to reduce child poverty between 2015 and 2030 from 25.4% to 12.7%[2], using as an indicator the AROP poverty rate for the population under 18 years, implying a substantial poverty reduction. Despite these

[2] 2015 is the survey year. This is measured with the at-risk of poverty rate, not anchored at a fix point in time.

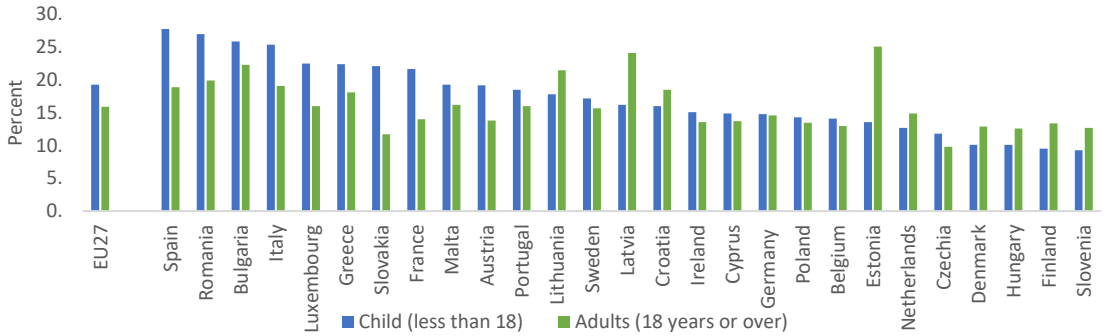
policy efforts and some recent improvements in the anchored child poverty rate (Figure 1 panel a)[3], child poverty continues to be high. In 2021[4], 25.9% of children (aged less than 18) in Bulgaria were at risk of poverty compared with 22.3% of adults (aged 18 and over). This is also higher than the poverty rate for the whole population (22.9%). This rate is among the highest rates in the EU, together with Spain and Romania, and significantly higher than the EU average (19.3%) (figure 2 panel b). Similar results hold when looking at the risk of poverty and social exclusion[5], where the rates reached 33.9% of children compared to 31.8% of adults (aged 18 and over) (Eurostat 2022). This is concerning, as global evidence suggests that income-based child poverty has life-long consequences for individuals and society, including long-term impacts on key development outcomes, such as deteriorating education and physical and mental health, as well as worse labor market outcomes later in life (Schmidt et al. 2021; Fergusson et al., 2007; Lesner, 2018; Cho & Heshmati, 2015; Duncan & Magnuson, 2013; Hallaert et al, 2023).

Figure 2. Child Poverty, Evolution, and EU Comparison

a. Anchored at-risk-of-poverty rate (fixed at 2019), Total and by Age groups, Bulgaria, 2019-2021



b. At-risk-of poverty rate, Children and Adults in the EU, 2021



Source: Eurostat, ILC_LI02__custom_6710772

Note: These figures present income year, not survey. The at-risk-of-poverty threshold is set at 60% of the national median equivalized disposable income. For the estimation of the anchored AROP rates, the at-risk-of poverty threshold is calculated in the standard way for the selected base year (2019) and then adjusted for inflation.

[3] The anchored at-risk of poverty rate (fixed at 2019) among children decreased by 8.3 percentage points between 2019 and 2022 (Eurostat).

[4] 2021 income year, 2022 survey year.

[5] The at-risk of poverty and social exclusion (AROPE) indicator includes the persons who are either at risk of poverty, or severely materially and socially deprived, or live in a household with a very low work intensity.

Global evidence to date on the impact of the fiscal system on child poverty, including in Europe, is limited overall. Child poverty is a complex issue that requires a multi-dimensional approach and coordination across policy domains (Jacquet et al., 2021). Avram & Militaru (2016) examined the anti-poverty effect of child contingent policies in Romania and the Czech Republic, paying particular attention to their sensitivity to population characteristics and the tax-benefit system they are embedded in. Further evidence (Pezer, 2022) explored the effects on child poverty of generosity and family size considerations of the child transfers in Croatia, Greece, Germany, the Slovak Republic, Sweden, and the United Kingdom. This evidence contributes to understanding the fiscal system's effects on child poverty, identifying which transfers have higher marginal effects on child poverty reduction, and the degree to which some households benefit from fiscal policy. The findings for these countries validate that the most effective approach to reducing poverty and offsetting costs involves a blend of universal and targeted support, whether through family benefits or social assistance programs. Aziz et al. (2013) examine income distribution and fiscal effects by age and gender in New Zealand using a micro-simulation model. The study highlights lifecycle trends, gender differences, and varying fiscal impacts, revealing complexities in taxation patterns.

Few studies have used fiscal incidence analysis (CEQ) to identify policies to alleviate child poverty. Cuesta et al. (2021) integrated fiscal, poverty, and child well-being metrics for a child-centered fiscal incidence analysis with a proof of concept for Uganda (CEQ for children (CEQ4C) (Cuesta et al., 2021)). Results show that Uganda's budget for child-related expenses is limited and has a modest impact on reducing poverty and inequality. Social spending, subsidies, and taxes collectively decrease child poverty by around five percentage points. The primary impact stems from in-kind benefits in health and education, with cash transfers having a negligible effect on monetary poverty. Another CEQ4C study in Belarus (Bornukova et al., 2022) found that the fiscal system in Belarus effectively mitigates monetary poverty among children, primarily through child benefits. Without these direct transfers, child poverty would be twice as high, reaching 25.8%. Notably, child benefits for children aged 0-2 years are crucial in reducing child poverty by 5.7 percentage points. Moreover, child benefits for children aged 3-18 and associated preferences contribute significantly, reducing child poverty by 1.2 and 1.3 percentage points, respectively. The results show that the current child benefits system favors families with young children, leaving vulnerable groups such as those with multiple children, single-parent families, and older children with significant gaps in coverage. Social assistance for households with children needs improvement through targeted assistance and benefits for vulnerable groups. Fiscal policies in Kenya initially increase poverty among children, but education and healthcare services provide significant in-kind benefits for those in poverty. Social spending for children in poverty has mixed results: education spending tends to benefit poorer children, while secondary education spending primarily benefits wealthier children; health spending is not pro-poor, except for primary healthcare investments. Social assistance programs in Kenya are pro-poor but small (Fiala, 2021).

The evidence on the role of the fiscal system in mitigating child poverty is scarce for Bulgaria. UNICEF (2022) identified that larger families and lone parents have a higher risk of falling into Bulgaria's at-risk-of-poverty category. Additional evidence for EU countries, including Bulgaria (Hallaert, J. et al., 2023), investigates the drivers of child poverty using regression analysis and the potential role of fiscal policy, labor policy, and public investments. The fiscal policy analysis focuses on the potential role of social spending on severe material deprivation for a set of countries using panel regressions. The tax side, or the entire fiscal system, is not analyzed. The main results show that to counteract the potential long-term

consequences of child poverty, there is a need to implement policies that focus on increasing parental work and income, along with increasing the efficiency of social protection spending on families and children, while maintaining the level of spending. The regression results for the whole EU also show that non-means tested benefits could have a more significant impact on child poverty than means-tested benefits[6]. Additionally, public investments in education, childcare, health, and housing are essential to mitigate the lasting effects of child poverty. There is no comprehensive evidence to date for Bulgaria on the combined incidence and impacts of taxes and public spending focusing on households with children and child poverty.

In this context, Bulgaria needs to implement sound and equitable fiscal policies and ensure their effectiveness in promoting growth, expanding opportunities, reducing inequality, and accelerating poverty reduction, including among children. This requires a comprehensive approach to fiscal reforms that not only focus on economic growth but also address poverty and inequality at both the overall and specific group levels, particularly households with children.

To gain a deeper understanding of the distributional effects of individual programs and policy measures, as well as the overall impact of Bulgaria's fiscal policies, the World Bank conducted the first comprehensive fiscal incidence analysis (CEQ) in 2018; this paper provides an update of this analysis to provide a dynamic picture of the impact of fiscal policies on poverty and inequality, considering the effects of the COVID-19 pandemic and introduces some methodological improvements on the social transfer side. The analysis uses the Commitment to Equity (CEQ) framework to examine how the fiscal system, as a whole and in its components, affects poverty and inequality in Bulgaria. The CEQ approach allows for assessing the net effects of various policies and programs in the country's fiscal framework. Building on the existing CEQ 2018 (Vaughan & Cabrera, 2022), the World Bank updates the analysis using the latest available data on the COVID-19 pandemic, including the 2021 Survey on Income and Living Conditions (SILC) and the 2021 Household Budget Survey (HBS)[7]. This analysis not only updates previous work using the CEQ framework but also expands the analysis of social protection transfer. We evaluated changes over time by comparing the pre-COVID CEQ results with the updated CEQ, providing insights into how fiscal policies have evolved and adapted to the challenges posed by the pandemic. This comparative analysis offers valuable information on the effectiveness of fiscal measures in addressing poverty and inequality during the COVID-19 crisis. In addition, the standardized CEQ framework allows Bulgaria's fiscal system to be benchmarked against other countries. By refining and updating previous work, this analysis takes advantage of the most up-to-date household survey data, administrative data, and macro data on fiscal accounts, and improved modeling techniques on the social transfer side, allowing a more comprehensive and updated evaluation of social protection transfers.

In addition to updating the CEQ, we expanded the analysis by incorporating an assessment of the impacts of fiscal policy on child poverty and using microsimulation techniques to simulate the potential

6 The analysis cited only considered the statistical association of child poverty reduction of cash mean-tested, cash non-means-tested, in-kind mean-tested, and in-kind non-means-tested benefits. Coefficients are more significant for non-means-tested cash and in-kind benefits compared to means-tested, all of them being positive. It does not consider when the benefits are recaptured via income tax payments. This effect could be relevant depending on the cash benefits if they are part of taxable revenue for income tax purposes.

7 The 2021 Survey on Income and Living Conditions (SILC) captures income in the year 2020. Unfortunately, the 2020 HBS is not available, so we use the 2021 HBS to approximate consumption in 2020.

welfare impacts of public policies supporting families with children. In this paper, we incorporate a child-focused perspective into fiscal incidence analysis to provide valuable insights into the impact of the entire fiscal system on child poverty. By examining fiscal incidence through the lens of children, this approach offers a valuable diagnostic tool that can aid decision-makers in identifying specific areas within fiscal policy that require reform to address child poverty effectively. Furthermore, we simulate the potential impacts of fiscal reforms on child poverty in Bulgaria. By running various policy scenarios, we can assess the potential effects of different policy options and identify measures that could effectively reduce child poverty rates in the country. The objective is to provide policymakers with evidence-based insights and recommendations for designing effective fiscal policies that promote economic growth, reduce poverty, and mitigate inequality, focusing on improving the well-being of children and vulnerable households.

In this study, our primary focus lies in comprehending the effectiveness of child-related interventions aimed at reducing child poverty. However, we also recognize the significance of examining the entire fiscal system, encompassing interventions not exclusively aimed at families with children, as these policies can interconnect and impact child poverty outcomes. It is essential to avoid evaluating anti-poverty transfer policies in isolation from the taxes that households contribute to financing them. Recently, there has been a growing awareness of the crucial connection between anti-poverty policies and the corresponding tax mechanisms used to fund them, highlighting the need for a more comprehensive and interconnected approach to address poverty and its associated interventions.

The paper is organized as follows. In Section II, an outline of social protection programs aimed at families with children in Bulgaria is provided. Section III outlines the methodology, emphasizing income concepts, data, assumptions, and the creation of various household typologies to adapt the CEQ methodology for a child-centric perspective. Sections IV and V then showcase the primary findings and simulations of potential policy changes to mitigate child poverty. Finally, the paper concludes in Section VI, summarizing the key takeaways and policy implications.

II. Overview of the Bulgarian fiscal system to identify components that affect the welfare of families with children

In this section, we first provide a summary of the fiscal system in 2020[8] tailored to address the specific needs of households with children. Our analysis focuses on the array of programs and policies designed to support families with young children, including those during the maternity leave period and parental leave, as well as those aimed at assisting families with older children and adolescents, including targeted social assistance and in-kind benefits and tax deductions targeting households with children. By examining the diverse range of initiatives within the social protection and tax framework, we aim to understand how the fiscal system adapts to the varying needs of families at different stages of the child's development.

The Family Allowances for Children Act (FACA) establishes various family support policies, such as pregnancy allowances, child-raising allowances, and school attendance allowances. Some of these policies are universal, while others are based on income and assets tests (means-tested) or other criteria. The FACA also covers family allowances for children with disabilities, single-parent families, foster families, and kinship care families, regardless of income. On the other hand, the Social Insurance Code regulates

[8] This summary is based on (European Union, 2021) and (Tosheva, E. et al., 2022)This is the baseline year for this analysis, given the micro data availability. Some changes in the social protection system occurred between 2020 and 2022.

contributory Family and Child benefits. These benefits include maternity and paternal leave, pregnancy and childbirth benefits, and child-raising benefits. Additionally, there are educational and health benefits and personal income tax allowances for families with children.

Below is a summary of policies designed to assist and support families with young children in Bulgaria in 2020.

Child and Family Benefits

Contributory benefits

Bulgarian mothers are entitled to 410 days of paid maternity leave, which begins 45 days before the due date of childbirth. Fathers are entitled to 15 days of paid paternity leave from the date of childbirth[9]. The daily cash benefit is 90% of the average daily contributory income for 24 calendar months preceding the leave. The amount cannot be lower than the statutory minimum wage or exceed the average net remuneration. The benefit received by fathers during their leave is calculated in the same way. In order to receive pregnancy, and childbirth benefits, workers have to have at least 12 months of insurance contributions. There is an additional contributory periodical benefit for raising a child up to 2 years of age, and the amount is established each year in the State Social Insurance Budget Act[10]. Besides, adoptive parents are entitled to 365 days of leave upon adoption of a child up to 5 years of age, starting from the date of the adoption.

Non-contributory and means-tested benefits aiming to support low-income families with children.

The main benefits in this category are:

- *Monthly child allowance:* This benefit is a conditional transfer paid to families with children up to 18 (or 20 years if the child is enrolled in school). Several eligibility conditions apply. The family must have a permanent residence in this country and an average monthly gross income per family member of no more than BGN 510 (€261) in 2020. The total amount of the benefit is paid if the income is below BGN 410 (€210), and 80% of the benefit is paid if the income is between BGN 410.01 (€210) and BGN 510 (€261). The monthly benefits for families with children vary based on the number of children. In the year of the analysis, 2020, for families with one, two, three, four, or more children, the benefits (full amount) were 40 BGN, 90 BGN, 135 BGN, 145 BGN, and an additional BGN 20 for each child after the fourth. In 2022, the government introduced a reform of the child allowance, increasing the benefit size[11].
- *Monthly allowance for raising a child under the age of one:* This benefit is paid to uninsured mothers who have a child under the age of one who undergoes regular health check-ups. The mother must have an average monthly gross income per family member of no more than BGN 450 (€230) in 2020.
- *Targeted allowance for schoolchildren enrolled in 1st grade at a state or municipal school.* This refers to a non-contributory lump-sum financial grant that is provided to families with at least one child attending 1st grade in state or municipal schools during the given calendar year.

[9] If the birth occurs earlier, the mother could use the remaining days can be used after the birth. Besides, when the child reaches the age of six months, the father may assume care of the child and receive cash benefits from the mother for the remainder of the maternal leave.

[10] For 2020 the amount was BGN 380 (€194) per month.

[11] As of 2022, the allowance per child was raised to 50 BGN for families with one child, 110 BGN for those with two, 165 BGN for three, 175 BGN for four, and an additional 20 BGN for each subsequent child.

- *Other non-contributory and means-tested benefits include a lump-sum pregnancy grant for uninsured mothers and financial support to prevent the abandonment of a child or bringing up of a child by relatives or foster family*. The pregnancy benefit is paid to uninsured mothers who are pregnant or have given birth within the last six months, and the mother must have an average monthly gross income per family member of no more than BGN 450 (€230) in 2020. The other benefit is paid to relatives or foster parents who care for a child at risk of being abandoned by their biological parents. The relative or foster parent must have an average monthly gross income per family member of no more than BGN 450 (€230) in 2020.

Non-contributory and non-means tested benefits.

Several lump-sum benefits are included in this category. These include childbirth allowance paid to mothers upon childbirth regardless of the family income (with the amount depending on the number of born children), an allowance for raising a child until one year of age for mothers who are regular tertiary students, and an allowance for raising twins until one year of age. Other benefits in this category are a monthly allowance for a child without a right to a survivor's pension, a targeted allowance for schoolchildren enrolled in 8th grade at a state or municipal school, and a lump-sum allowance in case of adoption, granted to adoptive parents of Bulgarian children.

In-kind benefits (education and health) and child tax deductions

There are some social protection, family, and children benefits like child day care, free education and health services. Besides, a tax incentive exists for families with children and children with disabilities. The tax incentives for children allow for deductions from the parent's total annual tax base calculated under the personal income tax. In 2020, the tax incentives for children provided for the reduction of the total annual income tax base by the following amounts: BGN 200 for one child who has not reached the age of majority, BGN 400 for two children, BGN 600 for three and more children, and 2,000 for permanently disabled children. The sums to be received were up to BGN 20, 40, 60, and 2,00 BGN, respectively, when income was received during the year, taxed at 10%. In 2021 and 2022, the tax deduction for dependent children increased significantly compared to the previous years[12].

Other Social protection benefits

There are other elements in the fiscal system not directly targeted to children but benefit or affect them indirectly. These include means-tested social assistance and heating allowances, other social protection benefits, indirect subsidies (electricity and gas), and direct and indirect taxes.

Means-tested social assistance benefits and Heating Allowance

The Guaranteed Minimum Income (GMI) is a non-contributory allowance granted to low-income households. The allowance is given to households whose average gross income per member is below the Differentiated Minimum Income (DMI) threshold. The DMI threshold varies based on age, health, family,

[12] In 2021, the reductions in the annual tax base for one, two and three children or more children increased to 4,500 BGN, 9,000 BGN and 13,500 BGN, respectively. Additionally, the threshold for a disabled child changed to BGN 9,000. In 2022, they were increased further to 6,000, 12,000, 18,000, respectively, and 12,000 for disabled children. These amounts remained valid for 2023.
Source: https://nra.bg/wps/portal/nra/taxes/godishen-danak-varhu-dohdite/Danuchni_oblekchenia_za-deca-za-2022

and educational status and is calculated as a proportion of the GMI threshold[13]. The benefit amount is the difference between the DMI and the gross family income from all sources, net of specific exceptions. The Council of Ministers set the GMI amount for 2018 at BGN 75 per month (38 Euros), and remained the same in 2020. The heating allowance is a non-contributory allowance granted to low-income households. During the cold season (from November to March), the Heating Allowance is given to eligible individuals. The right to a targeted heating allowance is granted to persons with income lower than the Differentiated Minimum Income for Heating (DMIH), which varies based on family demographics. The Minister of Labor and Social Policy determines the benefit amount for each heating season, lasting five months from November 1st to March 30th. For the 2020/2021 heating season, the corresponding benefit was BGN 99.16 monthly during the heating season. In 2022, the Bulgarian government implemented a reform to broaden individual access to social support. This involved raising the differentiated minimum income threshold (DMI) to 25% of the relative poverty line, impacting related programs like the Guarantee Minimum Income (GMI) and heating allowance.

Other social protection benefits

In addition to the family and social exclusion benefits mentioned above, the social protection system in Bulgaria also includes disability, old-age, unemployment, survivor, and housing benefits. These benefits are not directly intended to benefit children, but they can provide benefits to families with children. These indirect benefits can play an important role in supporting families with children and helping them to overcome financial hardship.

Indirect subsidies (electricity and gas) and direct and indirect taxes

Other important elements of the fiscal system can indirectly affect children. These include indirect subsidies related to electricity and gas consumption, direct taxes comprising personal income taxes and social security contributions, and indirect taxes such as VAT and excises, covering fuel, alcoholic beverages, and tobacco.

Our fiscal incidence analysis includes most of these fiscal interventions, building upon previous work by Vaughn and Cabrera (2020) but with a more detailed examination of benefits for families and children. In this analysis, we included different interventions that allow for a fiscal incidence analysis, such as those included in the work of Vaughn and Cabrera (2020). A more detailed analysis of benefits for families and children is incorporated. For this category of social protection, the modeling detail was the one permitted by the SILC survey information and available administrative figures. Some programs appear "grouped," meaning they could not be identified individually. On the other hand, although some programs directly benefit children, since the CEQ methodology does not have an approach to measure the effect of in-kind transfers, they were not considered in the monetary poverty analysis. They are included in the inequality analysis. The interventions included in the CEQ and child poverty analysis are summarized in Table 1, Panel A. Moreover, we identify child-relevant budgets, that is, public spending or tax revenues that explicitly target child well-being (Cuesta et al., 2021), as well as those that indirectly affect them (table 1 panel b).

[13] See Annex 1 for detailed parameters.

Table 1. Fiscal interventions included in the CEQ and child poverty analysis and child-relevant budgets

Panel a. Fiscal interventions included

	Included in the CEQ analysis (yes/no / grouped*)	In child poverty analysis (Yes/No)
Direct effects on children		
Child and Family Benefits		
Contributory		
Pregnancy & childbirth	Yes	Yes
Bringing up a child up to the age of 2	Yes	Yes
Other contributory /1	Grouped	Yes
Non-contributory and means-tested		
Child allowance	Yes	Yes
Allowance for raising a child up to the age of 1	Yes	Yes
School-age children enrolled in 1st grade	Yes	Yes
Other non-contributory means-tested /2	Grouped	Yes
Non-contributory and non-means-tested		
Birth grant	Yes	Yes
Allowance for mothers who are regular tertiary students (children until one year)	Yes	Yes
Allowance for raising twins until one year of age	Yes	Yes
Other non-contributory non-means-tested /3	Grouped	Yes
In-kind transfers		
Education	Yes	No
Health	Yes	No
Childcare	No	No
Direct taxes		
Child tax deduction	Yes	Yes
Indirect effects on children		
Social protection		
Social exclusion	Yes	Yes
Disability	Yes	Yes
Old age pensions	Yes	Yes
Survivors	Yes	Yes
Unemployment	Yes	Yes
Indirect subsidies	Yes	Yes
Indirect taxes	Yes	Yes

Panel b. Child-relevant Expenditure

	% of GDP	CEQ included (yes/no / grouped*)	Child budget
Total Expenditures	41.5		
Defense	1.5	No	No
Social protection	11.1		
Contributory pensions	6.4	Yes	No
Child and Family Benefits	*2.2*		
Contributory	0.6		
Pregnancy & childbirth	0.4	Yes	Direct
Bringing up a child up to the age of 2	0.1	Yes	Direct
Other contributory /1	0.0	Grouped	Direct
Non-contributory and means-tested	0.3		
Child allowance	0.2	Yes	Direct
Allowance for raising a child up to the age of 1	0.0	Yes	Direct
School-age children enrolled in 1st grade	0.0	Yes	Direct
Other non-contributory means-tested /2	0.0	Grouped	Direct
Non-contributory and non-means-tested	1.4		
Birth grant	0.0	Yes	Direct
Allowance for mothers who are tertiary students	0.0	Yes	Direct
Allowance for raising twins until one year of age	0.0	Yes	Direct
Other non-contributory non-means-tested /3	0.7	Grouped	Direct
Childcare	0.6	No	Direct
Non-contributory pensions	0.0	Yes	Indirect
Disability	1.1	Yes	Indirect
Unemployment fund	0.5	Yes	Indirect
Other (survivors, social exclusion)	1.0	Yes	Indirect
Indirect subsidies	3.3		
Electricity	2.9	Yes	Indirect
Gas	0.4	Yes	Indirect
In-kind transfers	9.8		
Education /4	3.9		
Pre-school & Primary	0.7	Yes	Direct

Secondary	2.1	Yes	Direct
Tertiary	0.7	Yes	No
Other n.p.c.	0.4	No	No
Health /4	5.8	Yes	Indirect
Housing	0.0	No	Indirect
Other expenses	15.7	No	No

Source: authors
Note:
*Grouped includes benefits that could not be individually identified or simulated using SILC information.
/1 Includes Cash benefit in case of adoption of a child up to the age of 5 and other family and children's contributory benefits
/2 Includes lump sum pregnancy allowance, financial support for preventing abandonment, bringing up of a child by relatives or foster family and other family, and children's non-contributory benefits.
/3 Includes monthly allowance for a child without a right to a survivor's pension; targeted allowance for schoolchildren enrolled in 8th grade at a state or municipal school; and lump sum allowance in case of adoption, granted to adoptive parents of Bulgarian children.
/4 Poverty effects were not estimated.

III. Methodology: Expanding the Equity Commitment Assessment to understand fiscal policy with a child lens

The CEQ approach

The fiscal incidence approach is a comprehensive assessment method for analyzing the tax/benefit system. It employs a diagnostic tool called the Commitment to Equity Assessment (CEQ) to evaluate the fiscal system's welfare impacts. The World Bank Poverty and Equity group has collaborated with the Economics Department at Tulane University to implement the CEQ in various countries across different regions. This approach represents one of the pioneering efforts to assess developing countries' tax/benefit systems thoroughly. It takes into account indirect subsidies, taxes, and in-kind benefits like free education and healthcare. The assessment aims to enable comparisons across countries and, over time, provide insights into the key obstacles hindering effective poverty and inequality reduction through tax and benefit policies.

This paper's CEQ analysis encompasses seven distinct definitions of income. In all instances, the per adult equivalent value was utilized**.** From a conceptual perspective, each type of income is defined as follows:

- Market income includes household income, wages, and other income not derived from labor, such as private transfers, without considering any aspect of fiscal policy.
- Market income plus pensions entails the previously mentioned income along with pensions.
- Gross income represents the total market income plus pensions and direct transfers.
- Net income is computed by subtracting income tax and social security contributions from market income plus pensions.
- Disposable income can be calculated by adding direct transfers to net income or deducting direct taxes and social security contributions from gross income.
- Consumable income is achieved by adding indirect subsidies and deducting indirect taxes from disposable income.
- Final income is the consumable income combined with the monetary value of public services received in education and health.

To carry out this comprehensive fiscal incidence analysis, the following data was used:

- *Household-level data*: This includes the 2021 Survey on Income and Living Conditions (SILC) for the income year 2020 and the 2021 Household Budget Survey (HBS)[14]. These datasets provide information at the individual and household level, allowing for a granular examination of the tax/benefit system's impact on different households.
- *Administrative data*: Information on the number of beneficiaries per program and the number of taxpayers is essential. This data helps in understanding the specifics of the social protection system. The EUROMOD Bulgaria country report for the years 2018–2021 and the European System of Integrated Social Protection Statistics (ESSPROS) serve as sources for this data.
- *Data on the tax system*: Data regarding the tax system is sourced from the Ministry of Finance (MOF) of Bulgaria and the EUROMOD. This data provides insights into the structure and characteristics of the tax system, including revenue collection mechanisms.
- *Fiscal data:* Data from various sources such as the International Monetary Fund (IMF), Organization for Economic Co-operation and Development (OECD), and Eurostat is utilized. The IMF's GFS Main Aggregates, GFS Revenue datasets, and the OECD's Tax Revenue Statistics contribute to the fiscal data. Eurostat, a statistical office of the European Union, also provides relevant data for analysis.

A comprehensive evaluation of Bulgaria's tax/benefit system can be conducted by combining the datasets above and employing micro-simulation analysis techniques. This analysis enables a comparison of the system's performance before and during the COVID-19 pandemic, specifically for the years 2018 and 2020.

The model encompasses a wide range of taxes and government expenditure items - comparable to other countries- capturing a comprehensive view of the fiscal system. This analysis covers 60% of the total expenditure and 69% of the total revenues for Bulgaria in 2020. It uses a CEQ scenario where pensions are treated as a deferred income rather than a direct government transfer (See Lustig, 2023).[15] This analysis includes the following fiscal interventions: direct taxes (personal income tax), contributions to social security, social protection transfers, subsidies, indirect taxes, and in-kind transfers (health and education). The analysis used the 2021 EU-SILC for the main income components and the 2021 HBS, which provides expenditure details of the goods subject to indirect taxes and consumption.

This analysis encompasses implicit subsidies associated with electricity and gas consumption, as in Vaughan and Cabrera 2022. First, we estimate the electricity and gas expenditure per household from the 2021 Household Budget Survey (HBS). Then, the current residential tariff structure, including all associated taxes, is employed to underpin household kilowatt-hour consumption. Subsequently, to quantify the direct impacts of the electricity subsidy, the subsidy is estimated as the product of the consumed kilowatt-hours multiplied by the difference between the price and the production cost per unit. The estimates of the production cost stem from the International Monetary Fund's (IMF) Fuel Subsidies

[14] The 2021 Survey on Income and Living Conditions (SILC) used 2020 as the reference year. However, the 2020 Household Budget Survey was not available from the National Statistics Office. Therefore, the 2021 Household Budget Survey was used to approximate spending in 2020.

[15] In the CEQs, there are two contrasting scenarios: 1. Pensions as Deferred Income (PDI) - This is the baseline scenario, where pensions are considered part of pre-fiscal income, and contributions are seen as individual savings; and 2) Pensions as Government Transfer (PGT) - In this scenario, pensions are treated as direct transfers, and contributions are treated as direct taxes.

Template, which compiles information on fuel subsidies for 192 nations from 2015 to 2025. To estimate the indirect effects, this analysis draws upon data from the input-output matrix, incorporating the IMF's industry subsidy ratios and the approach devised by Jellema and Inchauste (2018) for estimating these secondary impacts. For gas subsidies, our estimates incorporate the subsidy ratio based on consumer prices, as estimated by the IMF. In this calculation, the indirect effects are estimated by applying the rate above to industries, while the direct effects are calculated from the explicit subsidy applied to households.

We assume the following on the distribution of tax burden and evasion. Regarding tax burden, it is assumed that workers carry the economic weight of personal income taxes. At the same time, employees shoulder the burden of social security contributions, encompassing employer and employee contributions. Additionally, the weight of consumption taxes is placed on consumers. These assumptions are robust but strongly assume that labor supply exhibits perfect inelasticity and that consumers possess perfectly inelastic demand. While this may not align with real-world behaviors, these assumptions provide a practical approximation and are widely employed in the literature for analytical purposes. On tax evasion, Personal income taxes (PIT) and social security contributions (SIC) evasion are assumed to occur. Individuals earning below the minimum wage and those not contributing to SIC are categorized as informal workers and, consequently, are excluded from paying PIT and SIC, reflecting a potential form of evasion. Regarding indirect taxes, the Value Added Tax (VAT) calculation is determined using the effective tax rate. However, our analysis does not account for potential evasion of either VAT or excises due to a lack of information on the place of purchase in the 2021 HBS. Transactions in informal places, typically within the informal market, often evade VAT payments. Unfortunately, the Bulgaria HBS does not provide data on whether VAT is paid in these informal market transactions, limiting a more detailed assessment of indirect tax evasion.

It is important to highlight that this fiscal incidence analysis (CEQ) offers insights into how fiscal policy affects monetary income poverty, measured by the at-risk- of poverty (AROP) and international poverty lines; other non-monetary welfare measures are not analyzed. It is essential to acknowledge that this analysis does not extend to providing evidence on potential effects on non-monetary indicators, such as severe material deprivation, as they are not encompassed within the modeling framework. Consequently, our study lacks simulations or results about the composite indicator of being at risk of poverty or social exclusion, commonly referred to as AROPE. Moreover, it does not look at multidimensional poverty measures.

Identifying the child incidence of fiscal interventions

Although fiscal incidence analysis is the most widely used methodology to assess the distributional effects of fiscal policies, it is not common to have a child or even a gender lens, given the methodological challenges that emerge once we need to reconcile individual and household-level concepts; this means some assumptions need to be made on how these fiscal resources are allocated within the household. While examining fiscal incidence by age or gender, it is essential to consider the individual as the primary unit of analysis; however, it is important to acknowledge that most household transfers and expenditures occur at the household level. This introduces a challenge in the analysis, as one must make certain assumptions about how fiscal resources are allocated within the household. Since fiscal policies often target households as a whole, resources may not be evenly distributed among family members. Some individuals within a household might receive more benefits or bear a higher burden than others. For

instance, specific social welfare programs may be intended to support families with children, but the allocation of those resources among children or parents could vary significantly.

Several approaches in the literature rely on household-level data and apply various methodologies to estimate intra-household resource allocation. These methods usually involve assuming equal sharing, per capita allocation, or considering specific demographic factors influencing household resource distribution, such as adult equivalent scales. However, it is crucial to recognize that these assumptions are not universally applicable, and the actual distribution of resources within households may differ based on cultural norms, income dynamics, and individual preferences. For example, the equal sharing approach is generally not suitable for examining the gender or child impact of taxes and transfers since it overlooks the reality that resources within a household are not always equally distributed across genders or among adults and children. Therefore, while analyzing fiscal incidence at the household level is pragmatic, it is essential to acknowledge the limitations and uncertainties arising from making assumptions about household resource allocation. As research progresses, efforts to refine methodologies and gather more granular data will aid in developing a more accurate understanding of how fiscal policies impact individuals within diverse household settings.

Prior initiatives have aimed at customizing the CEQ methodology specifically to examine child poverty. Notably, the CEQ for Children (CEQ4C) approach, as described by Cuesta et al. in 2020 and Bournokova et al. in 2022, tailors the fiscal incidence analysis to focus on child poverty-related policies and public finances. The CEQ4C approach includes three elements: (a) identify child-relevant budgets, (b) use multidimensional child poverty metrics, and c) take children as the unit of analysis.

Given the Bulgaria data available, identifying a child-relevant budget is not a trivial task. This is more straightforward on education spending as they directly benefit children of different cohorts. However, many of the other benefits (health, social assistance) combine benefits aiming to reach children and benefit children indirectly. On the revenue side (i.e., taxes), it is even more difficult as we do not have expenditure patterns at the individual level. Additionally, in our analysis, we are interested in child-specific budgets and fiscal measures (either transfers or taxes) that can indirectly affect children or interact with families with children. In-kind transfers, especially education, are critical for children. However, the household survey does not allow to identify children attending the public school system, so some assumptions were made for this differentiation between public and private schooling. Nevertheless, we attempt to identify child-relevant budgets (see Table 1).

As for the child poverty indicator, we use AROP among children, as this is the official poverty measure used in the country for monitoring and targeting purposes. This is also used for comparability issues, that is, to have comparable metrics with the previous CEQ, which uses AROP as the primary measure. Moreover, to identify the changes in welfare post-fiscal policy, we fix the AROP poverty line. Therefore, the welfare distribution changes due to fiscal policy but is compared against a fixed threshold or benchmark. As mentioned above, we abstract from multidimensional poverty measures among children and literacy, stunting, and other non-monetary measures.

Given the nature of the HBS and EU-SILC data, which collects household income and expenditure, this analysis is first done at the individual level, assuming adult equivalence scales, and then at the household level; with the latter approach, we identify the subgroups of households, rather than the subgroup of children that bear the burden of fiscal policy and deserve more policy attention. Understanding the underlying child/adult relationships requires information on individual expenditure

and decision-making patterns, which we do not have. The same applies to income data from EU-SILC. Therefore, allocating at the individual level requires significant assumptions. In our case, we assume adult equivalence scales. Given the strong assumption, we also conduct the analysis at the household level. We transition our focus away from exclusively examining child poverty to encompass a broader perspective that considers poverty within households where children reside. This shift allows us to explore and understand the dynamics of poverty within the context of families and households, taking into account not only the well-being of children but also the overall economic and social circumstances of the entire household unit. By adopting this broader perspective, we aim to gain a more comprehensive understanding of the complexities and interdependencies that shape poverty experiences in households with children.

This paper contributes to the existing literature on fiscal incidence for children by proposing an approach where households are categorized based on their demographic characteristics; these household profiles allow us to assess the unique challenges and vulnerabilities faced by this demographic group before and after fiscal policy, and design targeted policies or interventions to address their specific needs. We extend the standard CEQ methodology by constructing household typologies based on sociodemographic profiles. These household typologies and information on quintiles provide a helpful picture of the differential impact of tax/transfer systems on poverty among households with different sociodemographic profiles. For example, we can identify that some groups of Bulgarian households with children remain vulnerable and do not necessarily receive sufficient support from fiscal policy. These are households that deserve more attention from a social policy standpoint. This fundamental policy question cannot be answered, lacking typologies. Finally, because the household categories are shared across a broad range of countries, this methodology can be easily replicated by analysts and policymakers interested in gaining a more accurate picture of tax incidence. This approach has been recently used in the recent gendered fiscal incidence literature (Robayo-Abril et al., 2023; Greenspun, 2019; Grown and Valodia, 2010).

We created four household profiles to analyze the impact of fiscal policy on poverty. We create household profiles for those categories showing higher child poverty vulnerability in Bulgaria and other countries (See Hallaert, J. et al., 2023). The first profile compares households with children to households without children, with an additional category interacting with households with and without the elderly. This particular category is of significant importance due to the heightened vulnerability of older adults to the risk of poverty and the increasingly aging population. The second profile compares households with different number of children. The third profile compares households with single parents to households with two parents, including a distinction between lone female and male parents. The fourth profile compares households with children of different ages.

This paper starts revisiting the overall impact of the fiscal system on poverty and inequality in 2020 and the progressivity and poverty and inequality reduction of each fiscal intervention. Then, it will examine the role of age in fiscal incidence using children as a unit of analysis, reflecting the different income and expenditure needs of a household of different sizes and compositions. This provides a useful child-specific lens on the equity analysis of public finance to understand the impact of fiscal policy on child poverty. This section of the analysis aims to answer the following questions:

(i) How progressive/regressive is the current tax and transfer system, and how can they contribute to reducing child poverty?

(ii) Who benefits the most from public services (e.g., education, health, etc.)?
(iii) How equalizing/pro-poor is each tax or transfer? What are their marginal impacts on child poverty?
(iv) Can public taxes and expenditures better redistribute opportunities so that a more equitable system reduces child poverty?

This paper then presents an alternative approach using households as a unit of analysis that involves classifying households as "child-type" or "non-child type" based on specific demographic characteristics and then analyzes the tax incidence on the individuals within these households. The fundamental principle is that the type of households in which children live is a fundamental factor affecting their risk of falling into poverty. To understand better child poverty, it is essential to identify different household typologies. These can include households with or without children (including those with elderly), households with different number of children (no children, one, two, three, four, five or more children), single-parent households, and households with children of different ages. We then analyze the incidence of taxes and transfers in these household types. This will help identify which households bear the burden of taxes and transfers and how families with children and specific socioeconomic profiles are more affected by fiscal policy, both on the transfer and tax side. Note we also used per-adult equivalent scales in this analysis, as we looked at child poverty using a measure of equivalized, not per capita, income. This approach has been used in other countries to analyze fiscal incidence by gender. By using this approach, this section will help answer the following questions to understand the distributional impact of taxes and public spending for households with specific sociodemographic profiles:

a. How does the overall fiscal system impact poverty among households with different profiles?

b. What is the role of direct and indirect taxes and transfers in redistributing income among households with different economic/demographic profiles? Zoom in on children/family benefits and education spending.

c. Given the fiscal resources used, how effective are tax and transfer policies at distributing income among households with different economic/demographic profiles?

d. What would be the impacts on child poverty of a fiscal package with several measures (child-relevant simulations)?

Before presenting the fiscal incidence findings, it is crucial to emphasize some limitations of this analysis.

First, in both approaches, we cannot accurately estimate separate incidences for children and adults as individuals due to the lack of knowledge regarding the intrahousehold allocation of expenditure and consumption. Therefore, some assumptions are made to identify the incidence of the fiscal system among households with different economic/demographic profiles and intrahousehold allocation using adult equivalence scales. By focusing on household typologies, we are concentrating on shifting our focus to vulnerable households with children rather than vulnerable children.

Moreover, this analysis does not incorporate labor supply or other behavioral responses. However, they can play a role in either enhancing or diminishing the poverty-alleviating effects of various programs and policies. For example, the child tax credit can operate as a subsidy for earned income, with its benefits gradually tapering off as income levels rise. Within the subsidy range, it provides a substantial boost to

earned income. For example, for a family with two children falling within the subsidy range, the credit can represent a substantial increase in their income, which increases with the number of children. Therefore, for some individuals who were previously not in the workforce, the earnings subsidy provided by the tax credit can create a financial incentive substantial enough to motivate them to join the labor force or work more hours. This increase in earnings, combined with the child tax credit amount, amplifies the poverty-reduction impact of the initial income boost. Consequently, it can sometimes lift a family's income above the poverty line. If the policy creates a disincentive effect, the poverty effect goes in the other direction. International evidence on the disincentive effect of such policies is mixed and varies based on the specific policies and context.[16]

IV. Main Results

What is the net impact of fiscal policy on overall poverty and inequality in 2020? Has the impact changed from 2018 to 2020?

Despite facing the challenges posed by the COVID-19 crisis, Bulgaria's fiscal system demonstrated limited impact to reduce the at-risk-of-poverty rate; however, it has the potential to mitigate poverty among lower income deciles, as measured by the lower poverty lines. The fiscal system has shown the capacity to reduce inequality, albeit direct taxes and transfers have a lower ability to reduce inequality compared to other EU countries. Results from this updated CEQ for the year 2020 are consistent with the previous CEQ fiscal analysis conducted for the year 2018. Regrettably, the country's fiscal policies still do not significantly contribute to reducing relative poverty. Despite various tax and transfer mechanisms in place, the level of relative poverty persists and fails to be substantially reduced with the fiscal system. On the positive side, the system can improve welfare levels among the bottom deciles, as shown by its ability to reduce poverty when using a lower poverty line ($ 6.85 a day). Fiscal policy in Bulgaria effectively diminishes overall inequality, surpassing countries with comparable income levels. This proves pivotal in fostering social cohesion and sustainable economic growth. Despite this, the redistributive effects of direct taxes and transfers remain comparatively minimal within Europe.

The fiscal system continues to be poverty-increasing when measuring poverty using the at-risk-of-poverty (AROP) poverty line, the measure used throughout the EU, primarily due to the limited redistributive role of direct taxes and transfers, as this population at risk of poverty pays more in taxes than what they receive in transfers. The impact of fiscal policy on poverty will depend on the size and incidence of government spending and revenues along the income distribution. The fiscal system raises poverty (using the AROP [17]poverty line) by 3.8 percentage points, from 25.3 percent to 29.1 percent (Figure 3, panel a). The largest increase in poverty is due to changes between disposable and consumable income due to indirect taxes, which are not fully compensated by transfers. Indirect taxes and transfers increase poverty by 6.9 percentage points, while direct taxes and transfers reduce it by only 3.1 percentage points. Compared to 2018 (the year the previous CEQ was available), the subsidies to market

[16] Brandon et al (2023) and Baker and Messacar (2021) observed no labor supply response to child tax benefits in the US and Canada, respectively. Kayser (1999) found no impact on labor force participation from tax deductions for single-parent households in Germany. Tamm (2009) discovered that a child benefit reform in Germany led to reduced working hours for certain groups of mothers but didn't affect participation rates. On the other hand, Bettendorf (2011) noted that an earned income tax credit for single parents in the Netherlands increased participation rates and hours worked. Overall, the evidence is mixed.

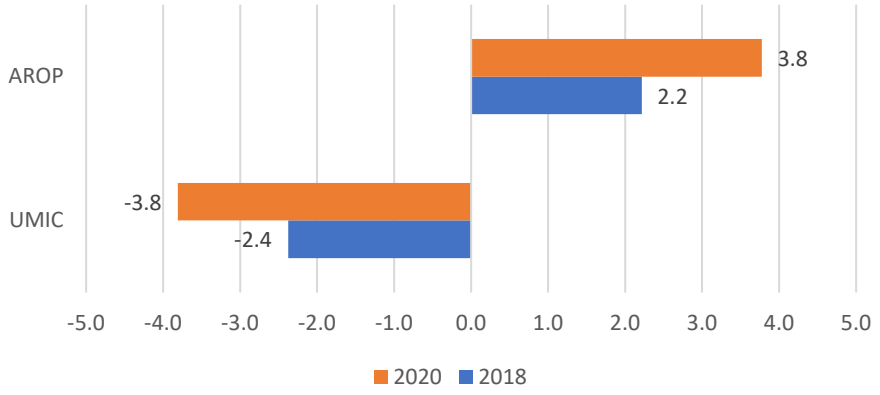
[17] The AROP poverty line was equivalent to US$20.5 in 2017 PPP per day in 2020.

income plus pensions (MYPP) have a smaller impact on poverty, and the indirect taxes have a similar effect (Figure 3 panel b and table A.1 in annex).

However, similar to the previous results, the fiscal system is not unambiguously poverty-increasing, as it can still reduce poverty when measured using lower poverty lines, capturing that households in these lower-income deciles continue to be net beneficiaries of the fiscal system. The overall fiscal system reduces poverty by using 3.8 percentage points when using the upper-middle countries' poverty line (US$6.85 2017 PPP per day) (Figure 3, panel a). Bulgaria performs favorably compared to other countries with similar income levels.[18] This is due to the direct taxes and transfers that lower poverty by 4.6 percentage points, which outweighs the impact of the indirect taxes and transfers that raise poverty by 0.8 percentage points. The net effect is reducing poverty from 9.2 percent to 5.4 percent. The difference in poverty impacts is because the AROP line - an upper line - captures more net payers into the fiscal system as a higher line. In contrast, the US$6.85 line captures more households who are net recipients of the fiscal system. This is consistent with the fact that the net cash position of households varies across the income distribution, with lower-income deciles being net beneficiaries and higher-income deciles being net contributors to the fiscal system.

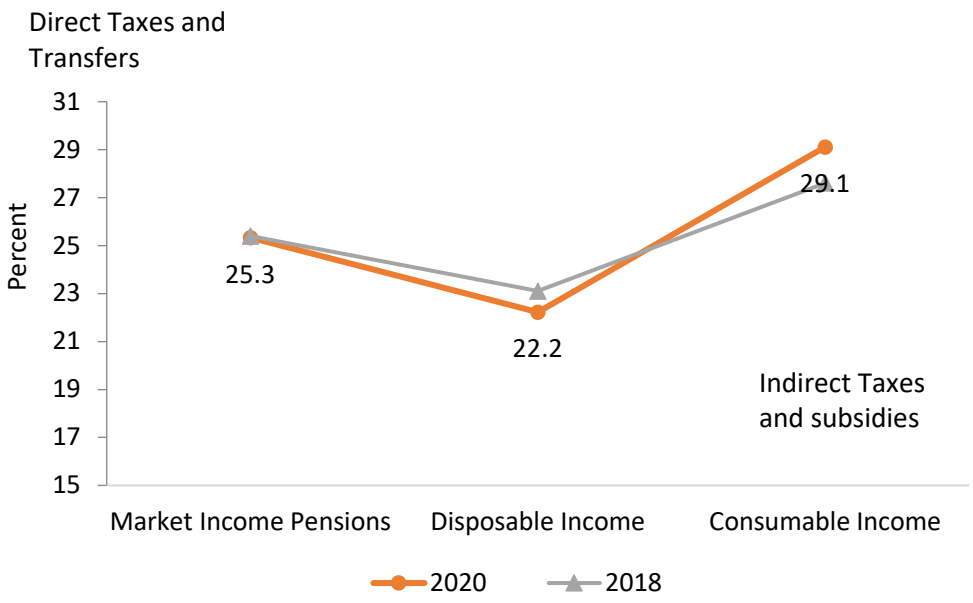
Figure 3. Poverty Changes, Pre vs. Post Fiscal Incomes, by CEQ income concept

Panel a. Percentage Change in Poverty rate due to Fiscal Policy using AROP (at-risk of poverty) and UMI (Upper-Middle Income) Poverty Lines, 2018 vs. 2020.



[18] Bulgaria performs favorably in reducing poverty when using the international poverty threshold of USD 5.5 PPP 2011 per person per day for upper middle-income nations (Annex 2, figure A.1 panel b).

Panel b. Poverty Rates by CEQ Income Concepts using the AROP Poverty Line (equivalent to US$20.5 2017 PPP per day in 2020).



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Overall, Bulgaria's fiscal system leads to a decline in inequality, with direct transfers, education, and health transfers still making the most significant difference. Bulgaria's fiscal policy in 2020 contributes to reducing market income inequality. The Bulgarian fiscal system has shown greater capacity to reduce inequality compared to countries with similar income levels (Annex 2, figure A.1 panel a). When considering all taxes and transfers (direct taxes and transfers, subsidies, indirect taxes, and the monetized value of health and education benefits), the Gini coefficient declines from 0.454 to 0.322—13 Gini points. Excluding the monetized value of education and health services, the improvement in inequality is still significant, with the Gini falling from 0.454 to 0.385, i.e., 7 Gini points.

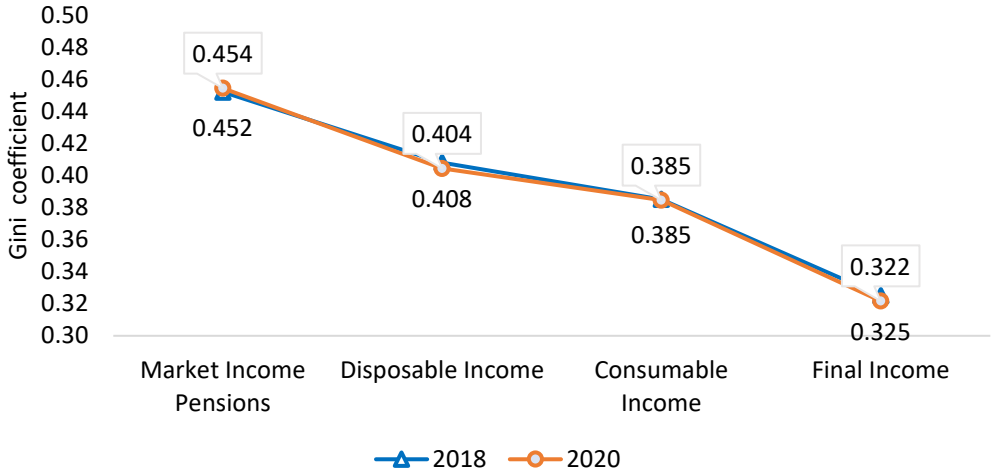
The cumulative impact of direct transfers, direct taxes, and social contributions (excluding pensions) results in a 5-point reduction in the Gini coefficient when comparing market income plus pensions with disposable income. Most of the impact comes from direct transfers, especially child benefits (non-contributory and means-tested), unemployment insurance, disability benefits, and other non-contributory and means-tested transfers. The direct tax effect is non-significant in terms of inequality reduction. Also, subsidies and indirect taxes reduce the Gini coefficient from disposable to consumable income by 1.9 Gini points, with an individual positive effect of VAT. The most considerable effect comes from in-kind transfers (health and education) that help reduce inequality by 6.3 Gini points (See Figure 4 panel a). Specifically, the most significant effects come from health and upper-secondary education. Similar results were obtained in the 2018 CEQ.

However, the redistributive impact of direct taxes and transfers continues to be among the lowest in Europe. Overall, Bulgaria's redistributive impact through direct taxes and transfers ranks among the lowest in Europe. With results second only to Hungary, Bulgaria falls within the group of countries achieving minimal redistribution through direct taxes and transfers, excluding contributory pensions. The

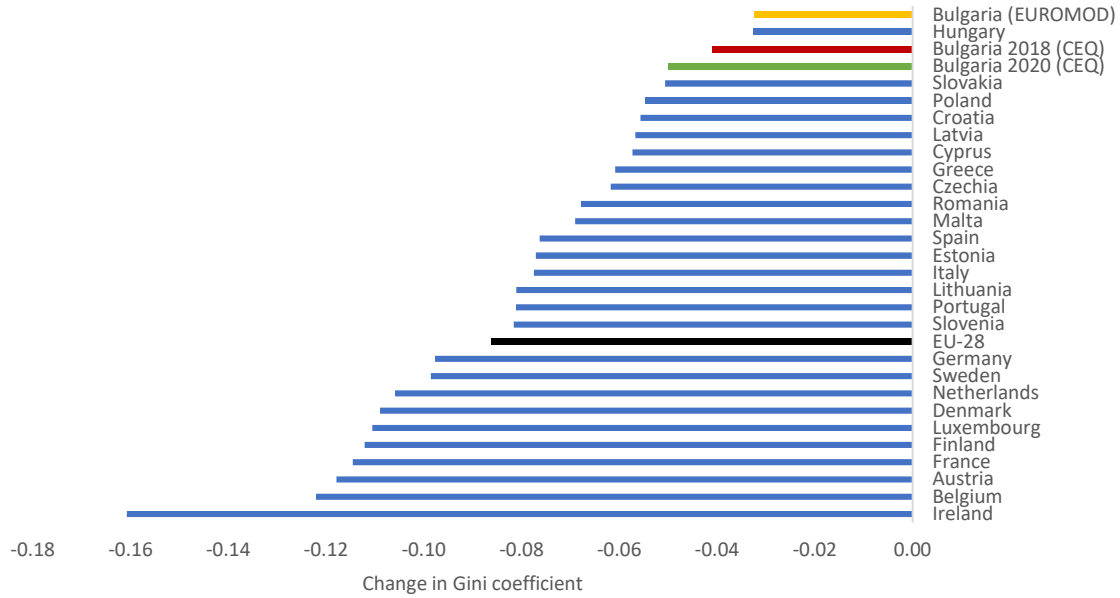
effect of direct taxes and transfers, excluding contributory pensions, leads to a mere 0.05 reduction in the Gini coefficient, highlighting the limited impact of these measures in addressing income inequality.

Figure 4. Inequality Changes, Pre vs. Post Fiscal Incomes, by CEQ income concept

Panel a. Change in Inequality due to Fiscal Policy using Gini Coefficient, 2018 vs. 2020



*Panel b. Change in Gini coefficient due to Direct Taxes and Transfers*2020, EU countries*



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.
Note: Original or pre-fiscal income refers to the income before any taxes and transfers are accounted for. The original income is Market Income plus pensions for the pension as deferred income (PDI) scenario. The original income is Market Income for the PGT (Pensions as Government transfer) scenario. Panel A captures changes in Gini between market income plus pensions and final income. In contrast, panel b captures changes between market income plus pensions and disposable, so inequality reduction in both panels is not strictly comparable.

How equalizing are the different components of the fiscal system, and what is their impact on poverty and inequality?

The effectiveness of a program or fiscal policy in reducing poverty depends on three interconnected factors: targeting the poorest effectively, ensuring substantial coverage of the poor population, and providing adequate benefits. For a program to successfully reduce poverty, it must not only reach the targeted poor population but also concentrate resources among them and offer benefits that match or exceed the severity of poverty experienced by those households. For example, direct transfers can be tailored to target the poor or vulnerable groups, resulting in high coverage among them. However, if the allocated resources for this group are insufficient compared to the depth of poverty, the impact on poverty reduction will be limited. Conversely, if a substantial amount of resources is allocated across various population segments but with weak targeting, the effect on poverty reduction will also be minimal. The complexity increases when households receive multiple types of transfers, some well-targeted and others with weaker targeting approaches. In such cases, the overall impact on poverty depends on how these different types of transfers interact and complement each other in addressing the needs of the impoverished population. In our study, we adopt the concept of marginal contribution to poverty and inequality, as formulated in the CEQ methodology. This measure effectively synthesizes all the aspects above into a single comprehensive metric.

A comprehensive analysis of the fiscal system is fundamental to capture the full impact of the net tax system. The progressiveness of a fiscal measure alone no longer provides insight into whether it would increase or decrease inequality. When there is only one intervention in the system, the Kakwani index (which gauges progressiveness) is enough to provide an answer. For a tax to achieve equality (or inequality), it must possess a positive (negative) Kakwani index—a necessary and sufficient condition. However, the approach above becomes insufficient when the system includes taxes and expenditures. A regressive tax can still have an equalizing effect if the resources generated are directed toward funding progressive transfers. Tables A.2 and A.3 present the impacts on poverty and inequality of each fiscal intervention, together with the size and the Kakwani coefficient, a standard measure of progressivity.

Direct Transfers

Our results show that social protection transfers (direct transfers) in Bulgaria significantly impact poverty and inequality when considered as a whole, but their impact is modest when examined individually. Most direct transfers are pro-poor, except family non-contributory and non-means-tested allowances for mothers in tertiary education, which are only progressive but, due to their small size, do not contribute to poverty reduction. When considering each intervention, the marginal effect of all family and children's allowances is small, but the combined effect of those direct transfers is significant. However, the family and children mean-tested child benefit and other family and children means-tested transfers have the highest effect on inequality. Unemployment, disability, and heating allowance transfers significantly contribute to the redistributive effect. The GMI social assistance is the most progressive, but its size makes its marginal contribution to poverty and inequality negligible (Table A.2).[19]

Direct transfers are progressive, but their impact on poverty reduction is limited. Direct transfer programs such as child & family non-contributory and other social security benefits exhibit progressivity, with over 50 percent of benefits reaching the poorest quintile. Nevertheless, there remains a notable

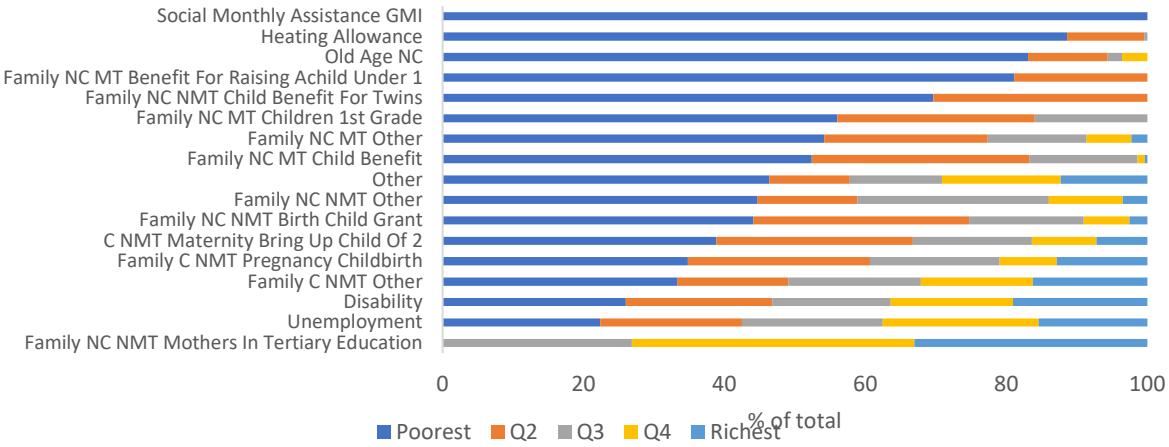
[19] This reflects the performance of the GMI before the GMI reform was implemented in 2022.

issue of significant leakage to the wealthiest households (Figure 5 Panel a). The size of the transfers is essential in their contribution to poverty reduction: disability and unemployment are not the most progressive of all direct transfers, but their contribution is among the highest; GMI and old-age non-contributory pensions are the most progressive, but their impact on poverty is negligible due to their small size; the heating allowance and family child benefit (mean-tested) are relatively small programs but with significant effect in poverty reduction. Three of four programs contributing less to poverty reduction are non-means tested (Figure 5, panels b and c).

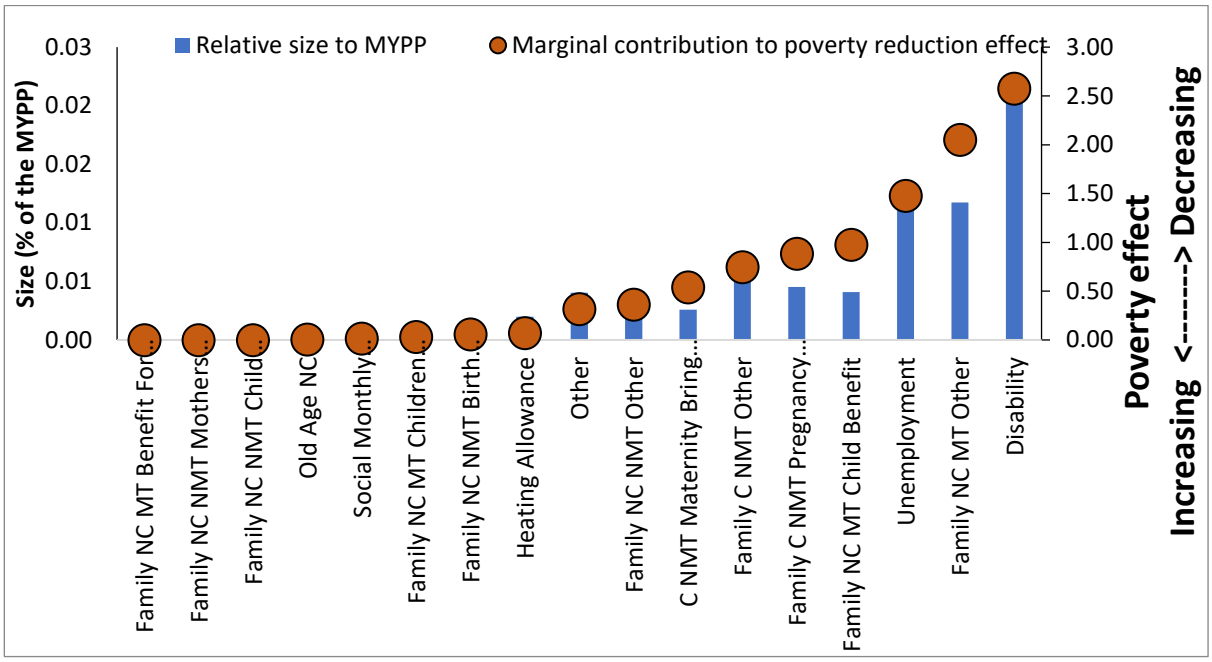
Direct transfers reduced the Gini coefficient by 0.056 and the AROP poverty rate by 10.0 percentage points. The most significant impacts were from other mean-tested family and children transfers and disability transfers, which lowered poverty by more than two percentage points each and inequality by 0.011 Gini points. Other family and child transfers (mothers in tertiary education, birth child grant, and children in first grade) and old-age non-contributory benefits had the most minor effects on poverty and inequality. The social assistance programs, which include the main last resort poverty reduction program (GMI) and the heating allowances, had a negligible impact on inequality, and only the heating allowance had a negligible impact on poverty (0.07 percentage points) (Figure 5 panel b and c).

Figure 5. Incidence, Size, Progressivity and Marginal Contributions of Direct Transfers to Inequality and Poverty Reduction

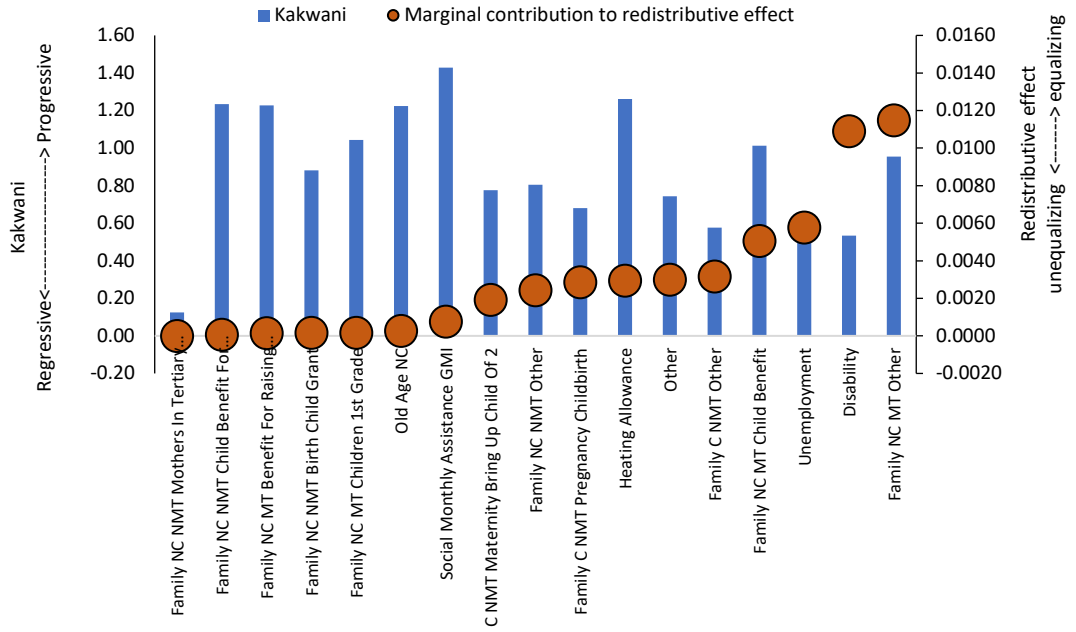
Panel a. Incidence of direct transfers by income quintile



Panel b. Size and Poverty Reduction Effect



Panel c. Kakwani Coefficient and Redistributive effect



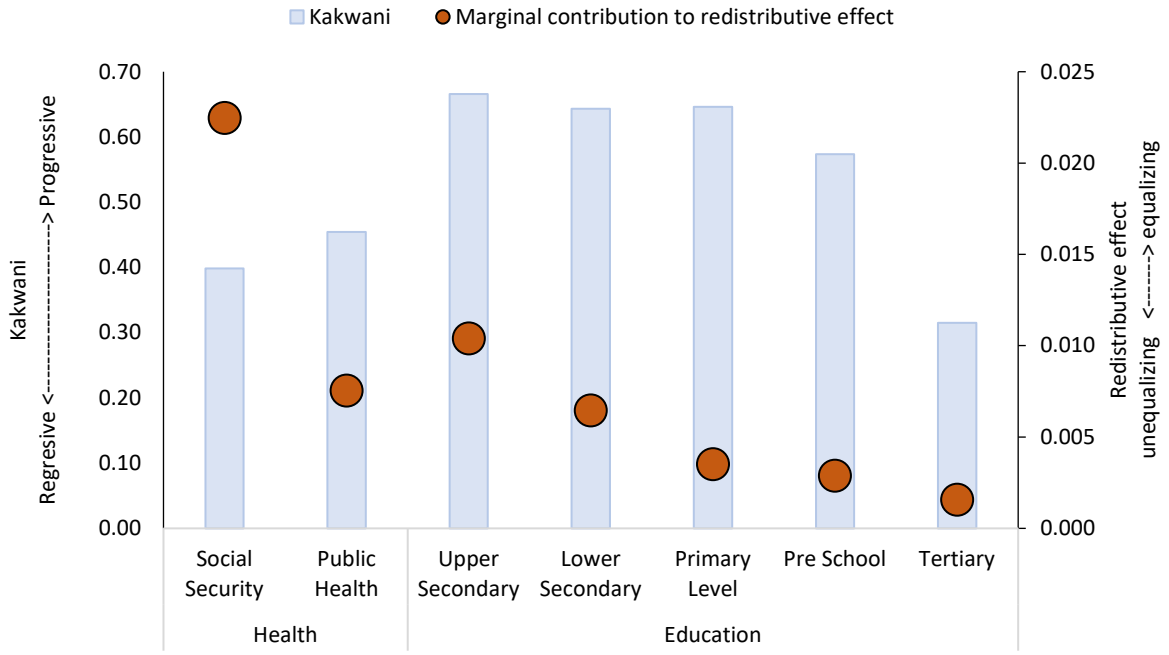
Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Health and education in-kind benefits

Health and education in-kind benefits significantly contribute to lower inequality, as they are progressive and equalizing, except tertiary education, which does not reduce inequality. Health and education benefits account for 15.3% of market income plus pensions (MIPP), the largest share of any program. The Gini coefficient decreases by 0.031 points due to health services and by 0.026 points because of education services. These are the most effective fiscal instruments for redistribution. The reason is that health and education services are equally available to all income groups, but they are more valuable for the lower-income groups concerning their MYPP. For example, health services account for 35.6% of the income of the poorest quintile but only 3.9% of the income of the wealthiest quintile. This makes these services quite progressive and redistributive. All education levels, except for tertiary, benefit the poor more. The tertiary level is only relatively progressive and does not reduce inequality. The most equalizing marginal contribution comes from upper-secondary (almost 1 Gini point), followed by lower-secondary (half a Gini point). Health is relatively progressive, but their marginal contributions are significant. Health from Social Security insurance reduces the Gini by two points (Figure 6).

Figure 6. Size, Progressivity, and Marginal Contributions of Education and Health to Inequality Reduction

Panel a. Size and Poverty Reduction Effect



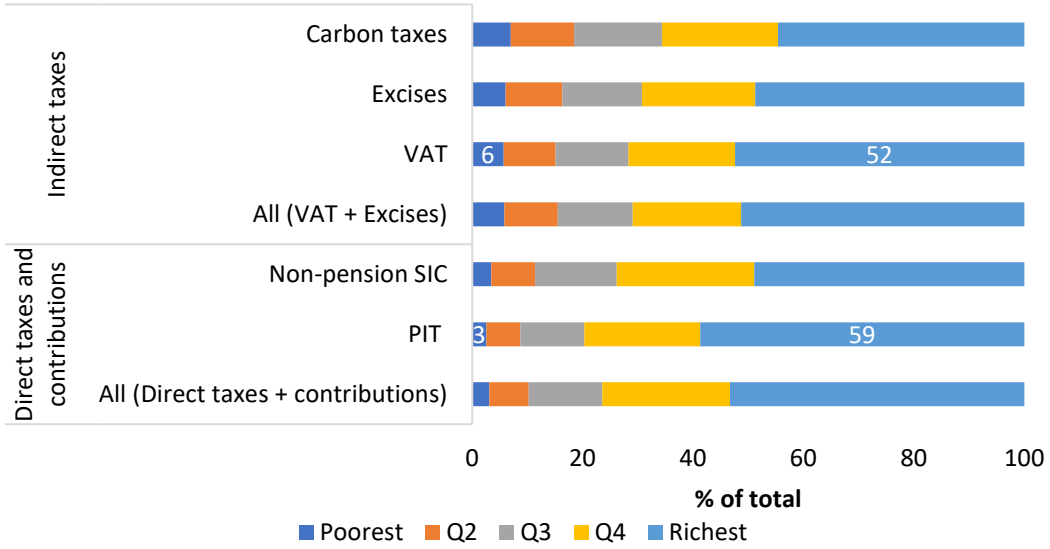
Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Direct and Indirect Taxes

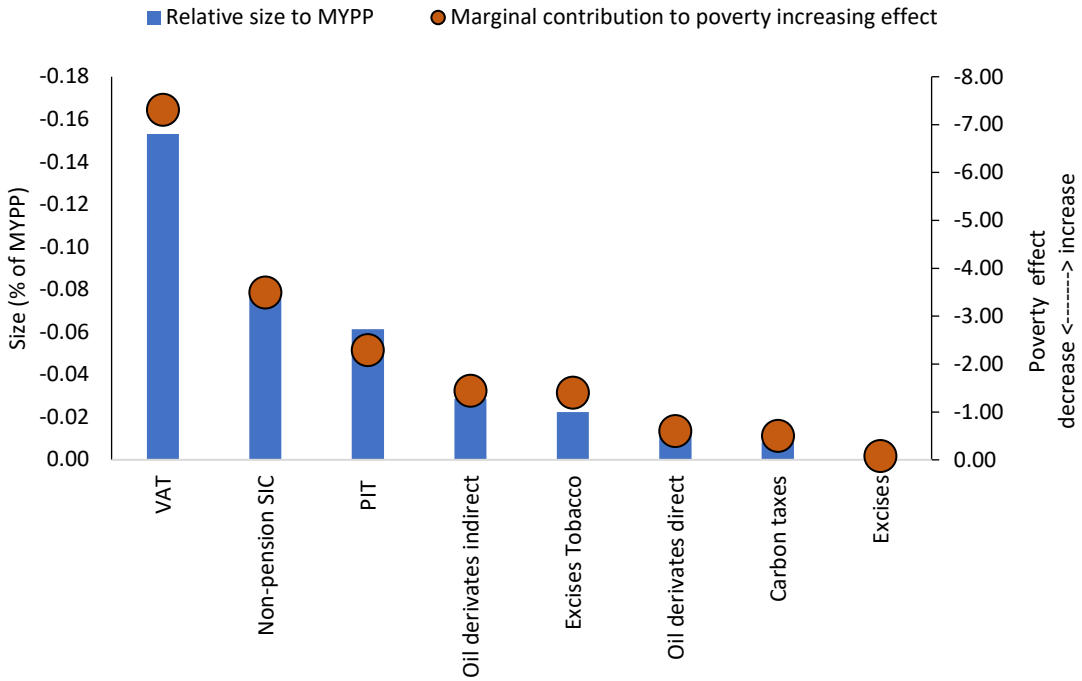
The progressivity of the Personal Income Tax (PIT) is evident as more affluent individuals contribute a more significant portion of the total collected amount; indirect taxes, such as VAT, have a negligible effect on reducing inequality, but they contribute to a significant increase in poverty. Direct taxes, such as personal income tax, are progressive and have a significant marginal contribution to poverty reduction. About 59% of the PIT revenues originate from the top quintile compared to 3% from the bottom quintile (figure 7 panel a). However, the overall impact of social security contributions is regressive, with own-account workers' social insurance contributions (SIC) having the most significant negative impact. The sum of all non-pension social security contributions is an increase of 3.5 percentage points in poverty when using the AROP poverty line. Among all taxes, the VAT contributes the most to rising poverty (7.3 percentage points), primarily due to its large size. This is mainly because VAT represents a relatively high proportion of income for people in lower-income deciles. Tobacco excises are regressive, and the direct effects of fuel taxes are progressive, but the marginal impact on poverty and inequality is negligible (figure 7 panels b and c). Personal Income tax, VAT, and oil derivative taxes are progressive and neutral.

Figure 7. Incidence, Size, Progressivity and Marginal Contributions of Direct and Indirect Taxes to Inequality and Poverty Reduction

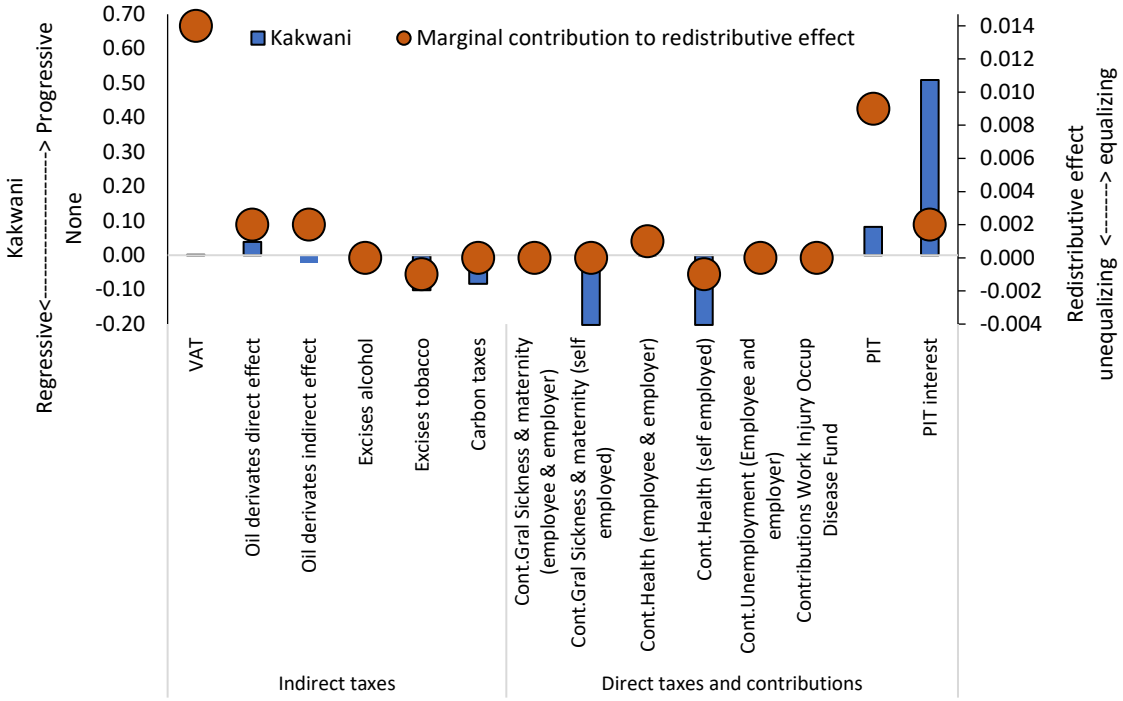
Panel a. Incidence of direct taxes and contributions by income quintile



Panel b. Size and Poverty Reduction effect



Panel c. Kakwani Coefficient and Redistributive effect



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Indirect subsidies (gas and electricity)

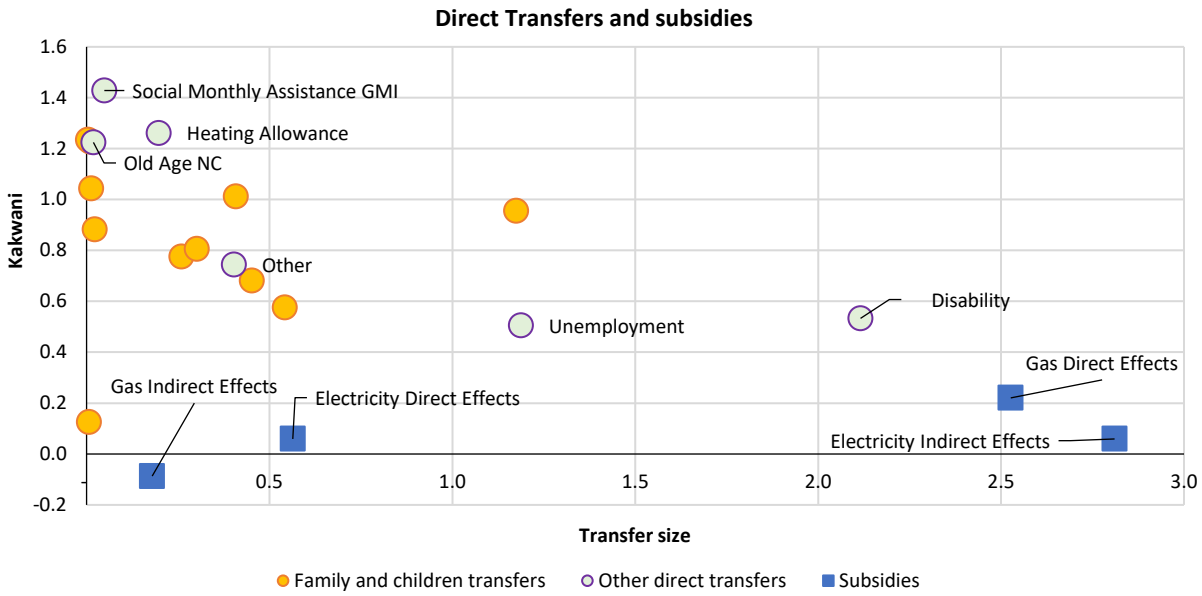
The distributional impact of indirect subsidies on gas and electricity becomes evident when considering their progressivity, size, and effects on poverty and inequality. Electricity subsidies, although less progressive when compared to most direct transfers, stand out due to their larger scale. In contrast, gas subsidies are less progressive and relatively minor in magnitude. While displaying a progressive nature, family transfers are limited in size, as depicted in Figure 8a.

Indirect subsidies play a role in poverty reduction but contribute to small inequality reductions. However, the influence of gas subsidies in this regard is minimal. Indirect subsidies, which reach low-income households below the poverty line, reduce poverty, as illustrated in Figure 8b. When viewed collectively, the group of indirect subsidies contributes to a progressive impact on the overall distribution. This is reflected in a slight reduction of the Gini coefficient, indicating a move towards greater equality. Figure 8c provides insights into this, showing that the direct effects of electricity subsidies follow a progressive trend, whereas those of gas subsidies are regressive.

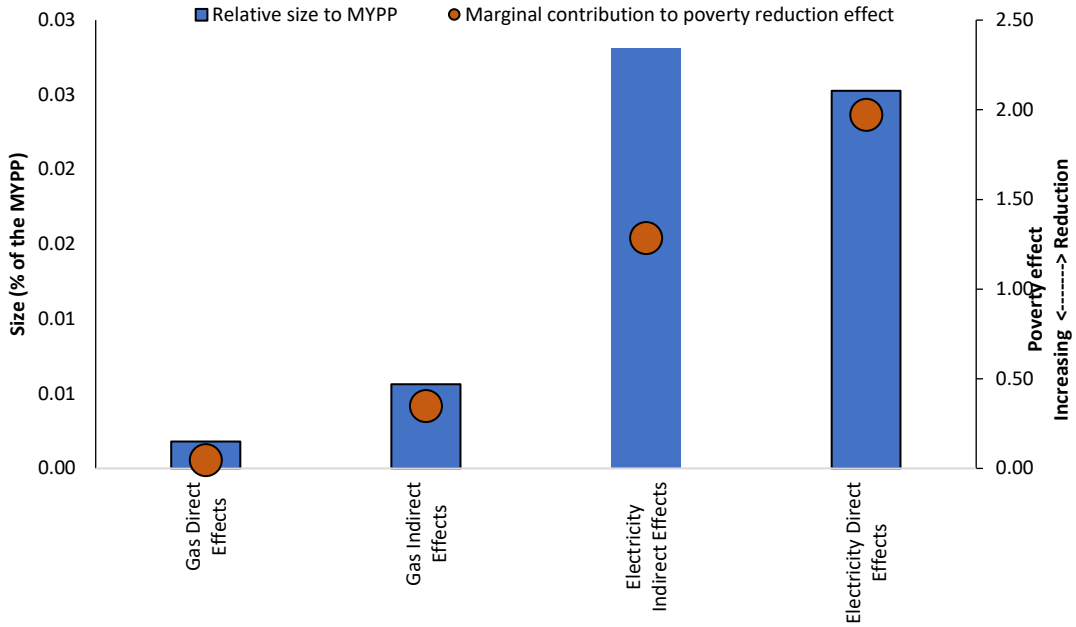
In essence, the comprehensive analysis of these subsidy programs underscores the trade-off between their progressivity, size, and effects on poverty and inequality. While larger subsidies like electricity may be less progressive than direct transfers, they still have a considerable impact due to their scale. On the other hand, the contribution of gas subsidies to poverty reduction and overall distributional improvement is relatively limited.

Figure 8. Incidence, Size, Progressivity and Marginal Contributions of Direct and Indirect Subsidies (Gas and Electricity) to Inequality and Poverty Reduction

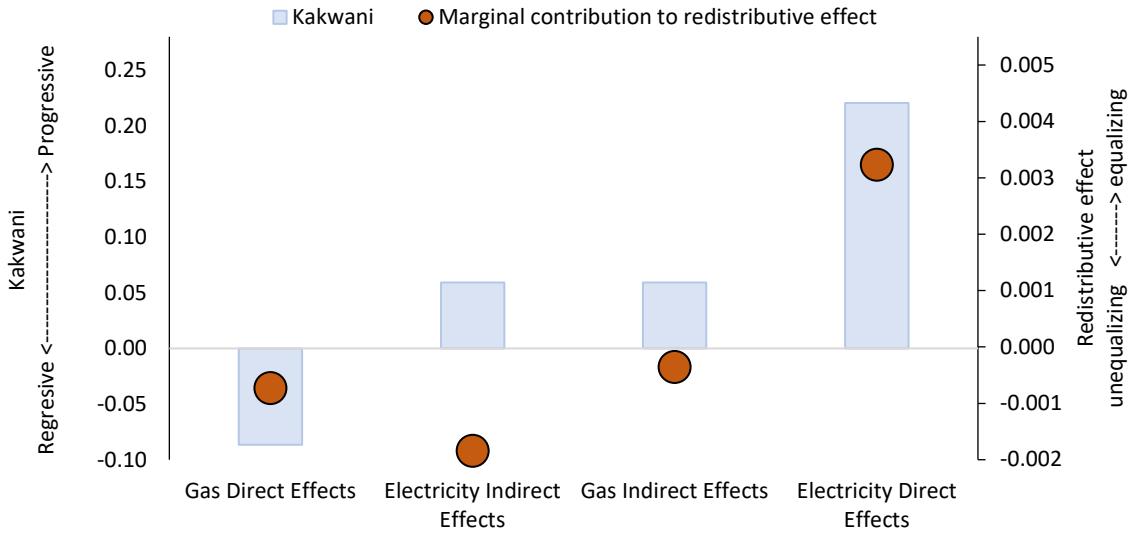
Panel a. Progressivity and size of direct transfers and subsidies



Panel b. Size and Poverty Reduction Effect



Panel c. Kakwani Coefficient and Redistributive Effect



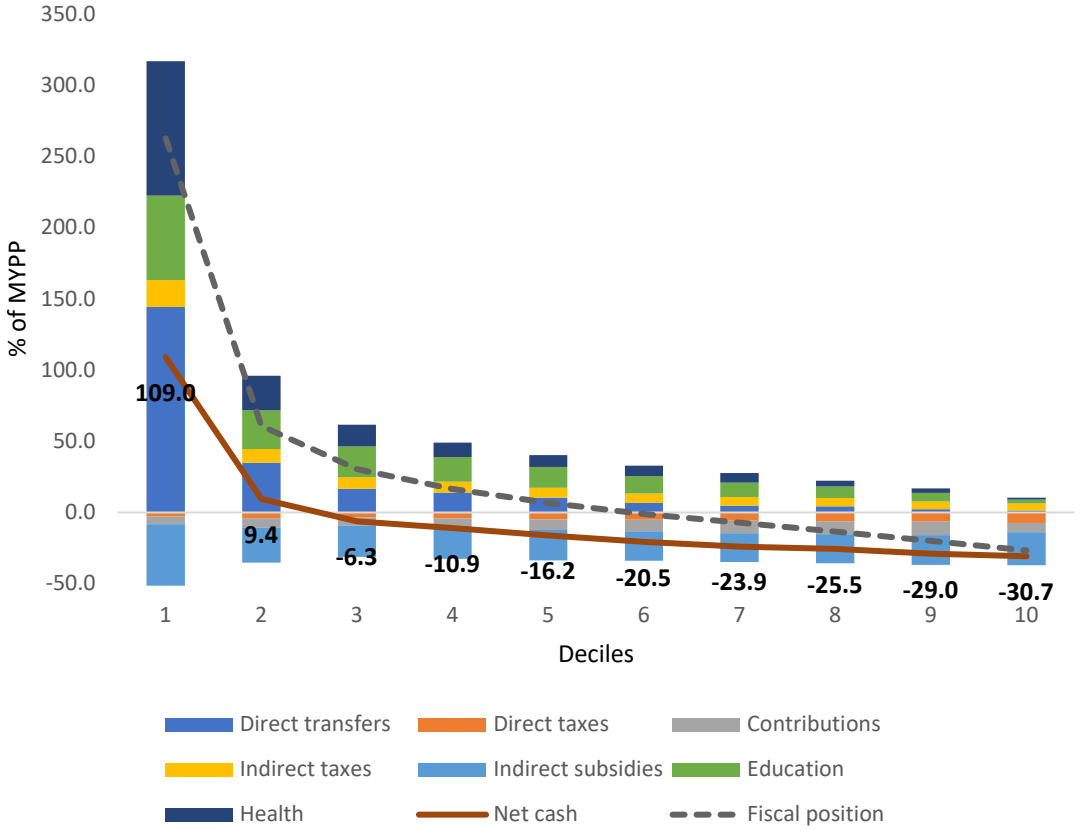
Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

It is worth noting that the size of some fiscal interventions explains their ability to reduce inequality. For example, indirect subsidies for electricity are less progressive but larger than all direct transfers. Gas subsidies are even less progressive and smaller than electricity subsidies. Due to disaggregation, family and child transfers are highly progressive, but their size is small, limiting their impact. Some transfers like GMI and non-contributory pensions have high progressivity but small size. The heating allowance is also very progressive and has more resources allocated to it. Unemployment and disability have a sizeable individual size and are progressive, so their impact on inequality reduction is significant.

Incidence of Taxes and Transfers

Finally, most components of the fiscal system in Bulgaria are progressive, with the poorest being net recipients of social benefits; beginning with the third decile, Bulgarians contribute more to the fiscal system than they receive in cash benefits, resulting in a negative net cash position. The net cash position, which measures the difference between MIPP and consumable income as a percentage of MIPP, is favorable for the first and second deciles. However, starting from the third decile, Bulgarians become net contributors to the fiscal system, as their tax payments exceed their cash benefits. Therefore, the net cash position is negative for 80% of the population. However, when in-kind benefits such as health and education are included, the net position changes for the bottom half of the income distribution, as they receive more benefits than they pay in taxes. The tax burden is relatively higher for the first decile because direct transfers increase the disposable income, i.e., their consumption capacity. So, even though they pay less indirect taxes as a share of their disposable income than top deciles, the indirect taxes are higher than market income plus pensions. The total net position curve (see annex) shows a decreasing pattern, from the poorest receiving net benefits equivalent to 109.0% of their MYPP to the richest paying about 31% of their income (figure 9).

Figure 9. Net cash and fiscal position, 2020



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

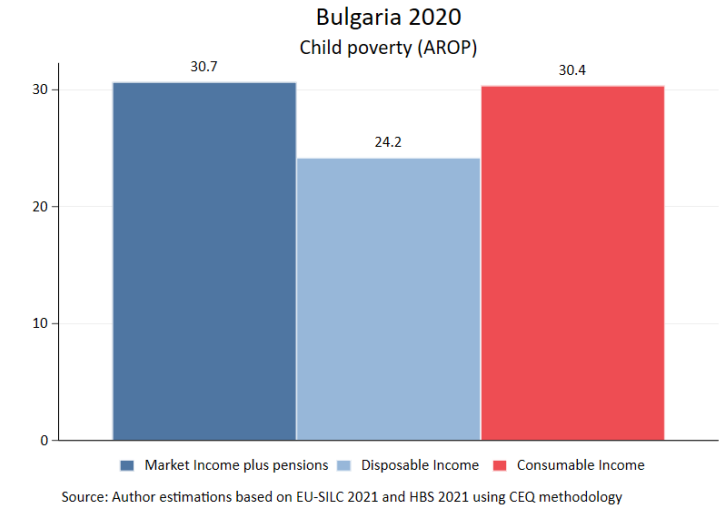
Note: This study categorized the population into ten groups based on their market income plus pensions (pre-fiscal income). For each group, the figure displays the incidence of fiscal measures relative to their market income plus pensions. Fiscal measures that result in increased household income are depicted above the zero axis, encompassing direct transfers and non-monetary education and healthcare benefits. Conversely, fiscal measures leading to reduced household income appear below the zero axis, including direct taxes, indirect taxes, and indirect subsidies. The net cash position illustrates the overall financial stance, which sums up all monetizable interventions (encompassing all taxes, direct transfers, and indirect subsidies) for each group. Additionally, the total fiscal position comprises all monetizable interventions and non-monetary benefits.

What is the impact of the fiscal system on child poverty, and which programs contribute more to child poverty reduction?

As mentioned above, child poverty is a significant issue in Bulgaria, and fiscal policy is not very effective in reducing it. In 2020, child poverty stood at 30.7% before fiscal policy interventions, showing a marginal decrease to 30.4% after the impact of fiscal measures (see Figure 10). This child poverty rate is notably higher than the overall poverty rate for the entire population, which was 25.3% before fiscal policy interventions and increased to 29.1% after these policy measures were applied. These results can be attributed to the impact of indirect taxes, such as VAT, which have a negative effect on poverty reduction. However, it is worth highlighting that the impact of VAT on children is mitigated to some extent, as reduced rates are applied to essential goods consumed by children, including baby food, school supplies, and books. In contrast, direct transfers positively influence poverty reduction, particularly among low-

income households that include children. Consequently, direct transfers are crucial in diminishing child poverty in Bulgaria.

Figure 10. Child poverty (AROP), before and after fiscal policy (% Children aged less than 18 at risk of poverty)

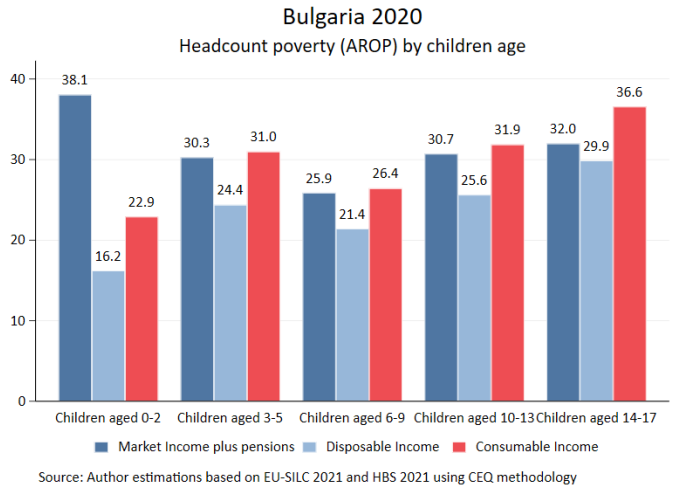


Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Note: These poverty estimates in the CEQ pre and post-fiscal policies may slightly differ from the official AROP for children in the 2021 survey year (24.2%), as the welfare aggregates used differ.

Among households with children, those with children aged 0-2 years experience the highest child poverty levels before fiscal policy interventions. Nevertheless, following the implementation of fiscal measures, these children encounter the lowest post-fiscal child poverty compared to other age groups. Households with children aged 0-2 and adolescents (14-17) encounter higher child poverty rates prior to fiscal policy implementation when compared to other groups. Notably, fiscal policy tends to increase poverty rates across various age groups of child households, except for those aged 0-2, due to the pronounced welfare impact driven by social protection benefits. In contrast, households with children in the age group 14-17 experience the slightest reduction in child poverty from direct transfers yet exhibit a substantial net effect arising from indirect taxes and subsidies (Figure 11). These findings suggest that the current fiscal framework seems to prioritize supporting families with children aged 0-2, potentially resulting in relatively less assistance for households with older children.

Figure 11. Child Poverty by Children's Age, 2020



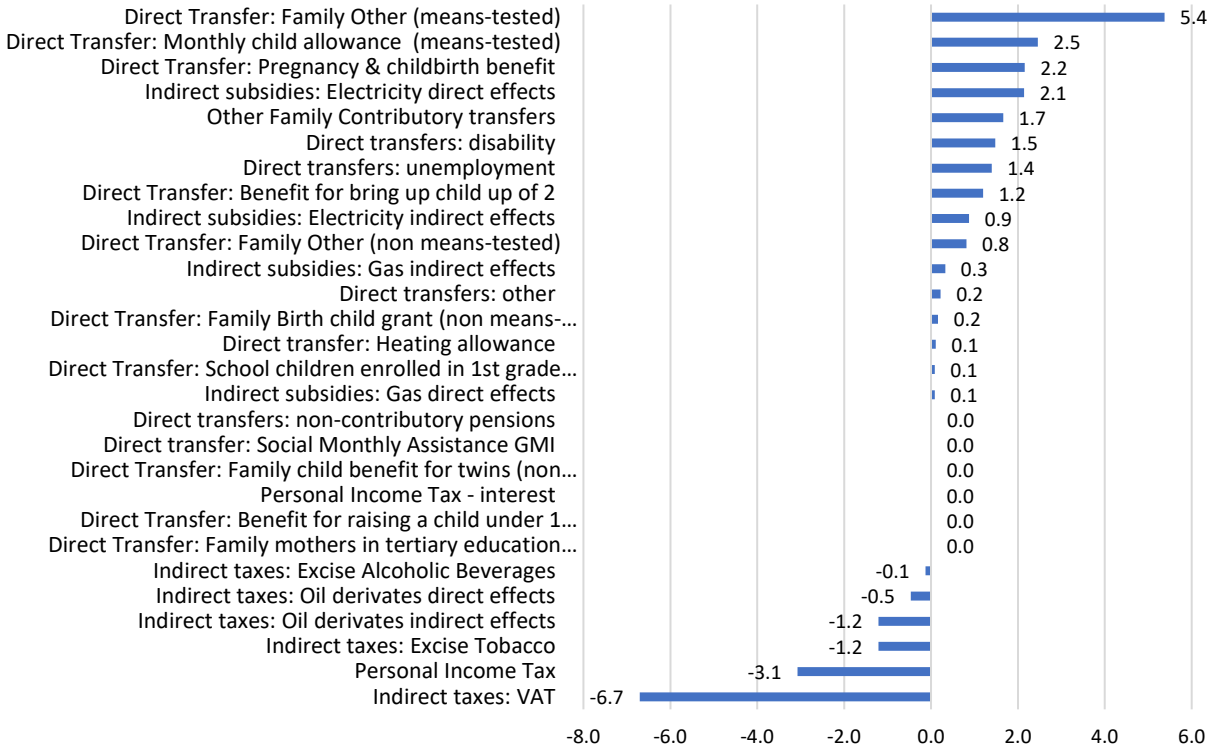
Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

When looking at family and children means-tested programs, our results show that they significantly reduce child poverty by providing financial assistance to low-income households with children who meet specific eligibility criteria. Of all direct transfers, the sum of other means-tested family programs has the highest marginal contribution to child poverty[20]. In second place, the monthly means-tested child benefit contributes to a two-point child poverty reduction. This program is a means-tested allowance that depends on the number of children. In third place, the pregnancy and childbirth periodic allowance (contributory and non-means tested), which serves as income maintenance before and after childbirth, contributes to close to two percentage points in poverty reduction. With a lower impact, the benefit of raising a child up to 2 years of age reduces child poverty by more than one point. As children and pregnancy and childbirth benefits, the allowances with more impact on poverty reduction are means-tested or periodical. Other child and family social protection transfers have minor effects on child poverty reduction (figure 12).

Other programs indirectly supporting children also contribute to poverty reduction. Electricity subsidies, with direct and indirect effects, reduce the electricity bills for low-income households, which can help them meet other basic needs. However, this is primarily due to their large size rather than their targeting effectiveness and progressivity. Disability and unemployment transfers provide income support to households with children who have a disability or are out of work. In contrast, VAT, tobacco excise, and oil taxes raise poverty by taking more income from lower-income households. These taxes increase the prices of goods and services that low-income households consume, which reduces their purchasing power and living standards (figure 12).

[20] Those programs were not individualized in the survey as specific programs and include lump-sum grant for pregnancy, financial support for bringing up a child by relatives or foster family, and other family and child non-contributory mean tested transfers.

Figure 12. Marginal Contributions to Child Poverty (AROP), 2020



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

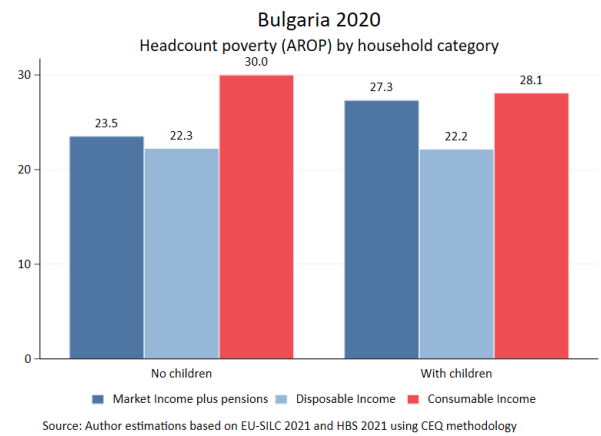
Note: MT and NM refer to non-contributory means-tested and non-means-tested programs.

How does the overall fiscal system impact poverty among households with different socioeconomic profiles?

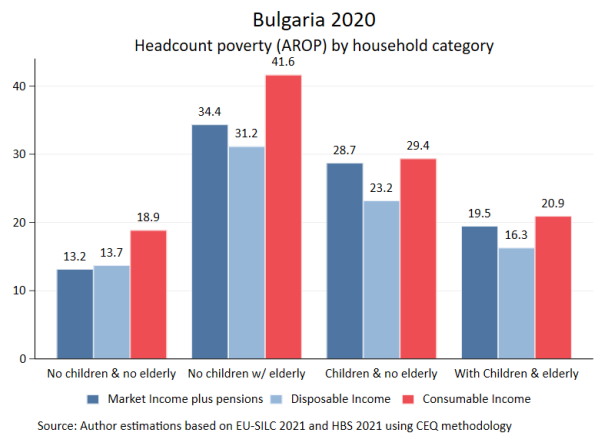
Fiscal policy favors families with children: households with children display notably higher pre-fiscal income poverty rates than those without; however, after fiscal policy measures, households lacking children see a pronounced upswing in child poverty rates, ultimately resulting in elevated poverty levels in contrast to households with children (figure 13, panel a). Fiscal support is relatively limited for childless households compared to those with children, partially due to a lack of family and child social protection benefits, along with other factors. The elevated VAT payments and fewer electricity subsidies for households without children contribute to their heightened poverty rates, as the reduced VAT rate on baby food, books, and baby-related items results in lower VAT payments for households with children. Additionally, electricity subsidies fail to offset the increased VAT payments for childless households fully**.**

Figure 13. Poverty (AROP) by household category, 2020

Panel a



Panel b



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Households with no children and elderly are more likely to live in poverty than other households (Figure 13 panel b). Overall, social protection benefits help reduce poverty but are not enough to offset the taxes and contributions Bulgarian households must pay. This effect is substantial for households with no children and elderly, which are significantly more likely to be poor before fiscal policy and experience a significant increase in poverty after fiscal policy is incorporated. Close to 40% of households with elderly are in the third to fifth quintile, making them more vulnerable to poverty. In contrast, 60% of the population in households with no children or elderly are in the top four deciles.

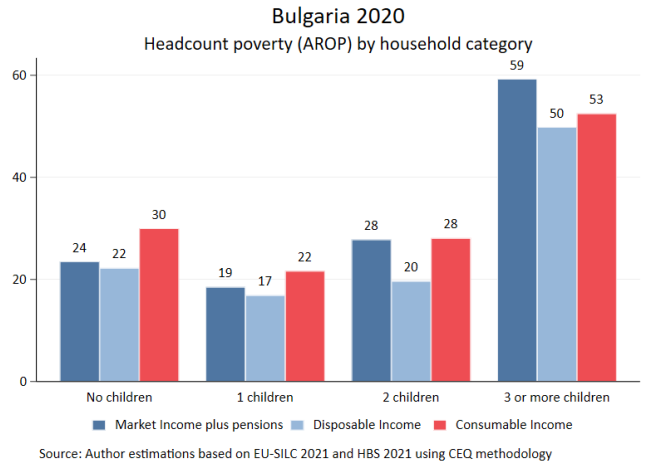
Specific Bulgarian households with children remain notably vulnerable and do not necessarily receive substantial support from fiscal policy, particularly those with three or more children, who bear a disproportionate burden of poverty, even after fiscal policy. Poverty tends to be more pronounced in households with more children (figure 14). For instance, households with one child experience a lower poverty rate than those with multiple children. Households with three or more children (constituting approximately 6.0% of all households) experienced notably elevated poverty rates even before the influence of fiscal policy. While fiscal measures reduce poverty for these groups more than others, the impact falls short of achieving parity with comparable groups. Consequently, fiscal policy must prioritize providing substantial support to these groups.

Households with two children tend to receive more family and children's benefits, so they tend to experience a pronounced fall in poverty due to social transfers as they move from market income plus pensions to disposable income (Figure 15). Meanwhile, larger households tend to receive more targeted family and social assistance benefits (GMI), as is to be expected, given their less favorable economic position regarding initial poverty. In contrast, households with one child capture more contributory family benefits. For households without children, disability, old age, and unemployment benefits are the most critical.

Higher unemployment rates are observed in households with many children. Although the participation rates of the population aged 18 years and older belonging to households with children have similar participation rates (between 75 and 80%), the unemployment rate of households with three or more

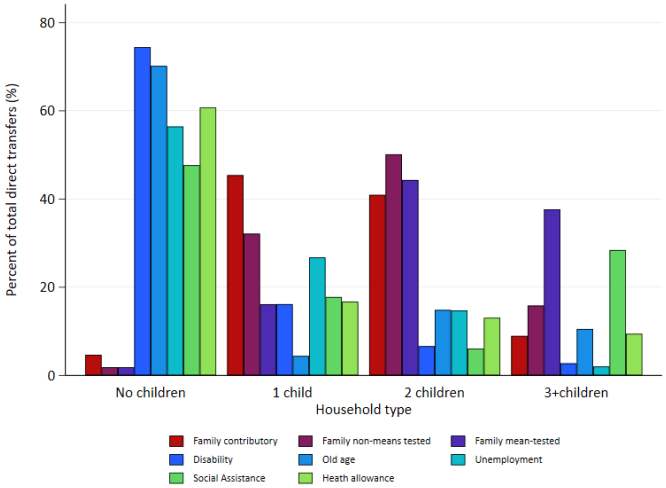
children is higher (over 25%), as well as the proportion of people engaged in domestic work is the highest (14% compared to 6% for households with two children and 3% for those with only one child). In households without children, economic participation is lower since many members of those households have already retired.

Figure 14. Poverty headcount (at -risk-of poverty rate) for households with different number of children, 2020



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Figure 15. Distribution of direct transfers among households with different number of children, 2020

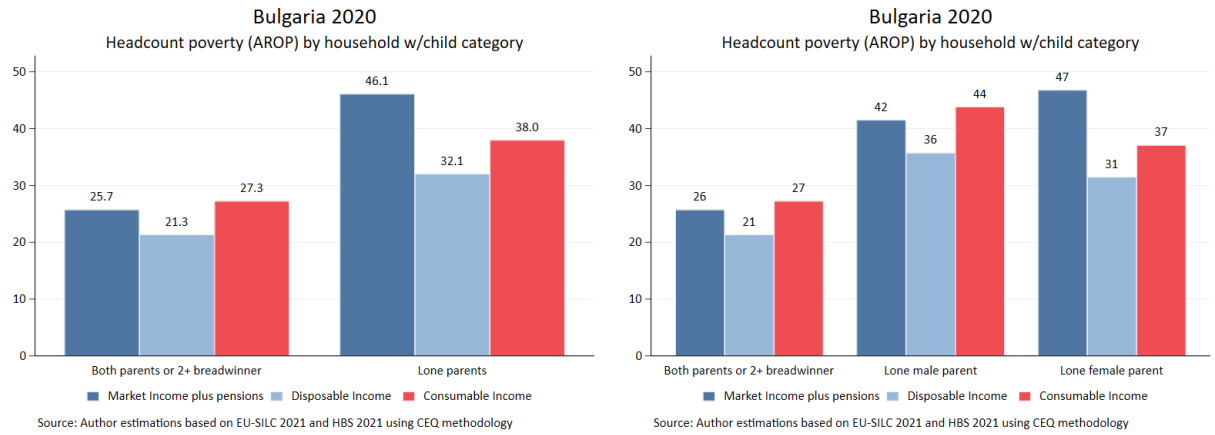


Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Lone-parent households are significantly more likely to be poor to start with, and fiscal policy helps but falls short of achieving equivalent levels. Lone female parents are particularly vulnerable. Single-parent households start with notably elevated poverty rates before fiscal policy intervention. This discrepancy is particularly pronounced among single female parents, with a poverty incidence 5 and 21 percentage points higher than single male parents and two-parent households, respectively. Fiscal policy aids in

diminishing poverty to a greater extent among single male and female parents than households with two parents, although it falls short of achieving equivalent levels. Hence, fiscal policy should prioritize supporting lone parents (Figure 16).

Figure 16. Poverty headcount (at-risk-of-poverty rate) for household category (lone or both parents)



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Families led by single female parents exhibit reduced labor force participation and heightened unemployment, indicating weaker labor market attachment. Their participation rate is 60%, notably lower than lone male parents and households with two parents (as indicated in Table 2). More individuals within single-female-parent households are engaged in domestic responsibilities and face work limitations due to health reasons compared to other household types. Poverty is more pronounced in lone-parent households due to their diminished participation rates and a more significant proportion of retired individuals, in contrast to households with two parents or multiple income earners. This is important, as it suggests that fiscal policy needs to be combined with labor market policy to tackle the issue of child poverty among these households, as suggested by previous evidence for Bulgaria (Hallaert et al., 2023).

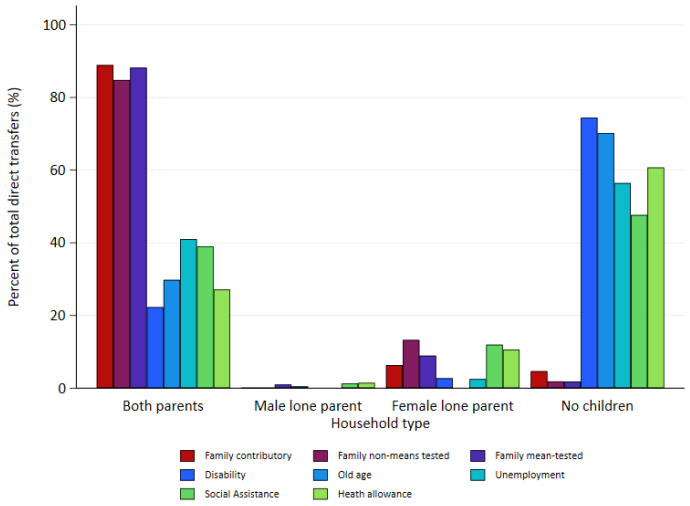
Table 2. Bulgaria 2020: Self-defined economic status, 18+ years, by household type, percentages

	Both parents or 2+ breadwinners	**Male lone parent**	**Female lone parent**
Employed	71.0	67.9	49.6
Unemployed	9.5	4.9	11.5
Retired	6.8	14.0	9.1
Unable to work due to long-standing health problems	1.7	3.3	4.7
Student, pupil	4.0	10.0	7.4
Fulfilling domestic tasks	5.2	0.0	10.1
Other	1.8	0.0	7.6
Participation rate	*80.5*	*72.7*	*61.1*
Unemployment rate	*11.8*	*6.7*	*18.9*

Source: author estimations based on EU-SILC 2021

The participation of male and female parent households in social protection programs is limited; expanding benefit coverage for female lone parents could play a role in alleviating poverty. Both female and male lone-parent households experience higher poverty rates than households with both parents. Nevertheless, social protection measures are more advantageous for female lone parents, as non-contributory family transfers (both means-tested and non-means-tested) and social assistance programs (such as GMI and health allowances) benefit them to a greater extent than their population share (7%). The participation of lone male parents in social protection programs is limited (as shown in Figure 17). However, it's important to interpret this cautiously, given that they constitute only 1% of the household population in SILC 2021.

Figure 17. Distribution of direct transfers among different household types, 2020



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Summary of child poverty and inequality effects

We categorized fiscal interventions into six groups based on their impact on child poverty and inequality reduction (see Table 3). The first-best interventions can improve national welfare to the greatest extent, that is, those able to reduce both child poverty and inequality (in green). Two groups of interventions reduce child poverty or inequality but cannot reduce both (in yellow and blue, respectively), so they are considered second-best. A fourth group shows mixed effects, reducing child poverty but increasing inequality (in orange). A fifth group includes interventions that worsen child poverty (in red). Lastly, the last set of interventions has no significant effects on child poverty and inequality reduction. (in white).

Table 3. Summary of child poverty and inequality effects

Fiscal intervention	Effect	Marginal contribution to child poverty reduction	Marginal contribution to redistributive effect	Kakwani
Direct Transfer: Family Other (means-tested)	Direct	5.4	1.1	1.0
Direct Transfer: Monthly child allowance (means-tested)	Direct	2.5	0.5	1.0
Direct Transfer: Pregnancy & childbirth benefit	Direct	2.2	0.3	0.7
Other Family Contributory transfers	Direct	1.7	0.3	0.6
Direct Transfer: Benefit for bringing up a child up of 2	Direct	1.2	0.2	0.8
Direct Transfer: Family Other (non-means tested)	Direct	0.8	0.2	0.8
Direct Transfer: Family Birth child grant (non-means tested)	Direct	0.2		0.9
Education Upper Secondary*	Direct		1.0	0.7
Education Lower Secondary*	Direct		0.6	0.6
Education Primary Level*	Direct		0.4	0.6
Education Pre-School*	Direct		0.3	0.6
Direct Transfer: Family child benefit for twins (non-means tested)	Direct			1.2
Direct Transfer: Benefit for raising a child under 1 (means-tested)	Direct			1.2
Direct Transfer: School children enrolled in 1st grade (means-tested)	Direct			1.0
Direct Transfer: Family mothers in tertiary education (non-means tested)	Direct			0.1
Indirect subsidies: Electricity direct effects	Indirect	2.1	0.5	0.2
Direct transfers: disability	Indirect	1.5	1.1	0.5
Direct transfers: unemployment	Indirect	1.4	0.6	0.5
Direct transfers: other	Indirect	0.2	0.3	0.7
Direct transfer: Heating allowance	Indirect	0.1	0.3	1.3
Indirect subsidies: Gas indirect effects	Indirect	0.3		0.1
Health Social Security*	Indirect		2.2	0.4
Health Public Health*	Indirect		0.8	0.5
Direct transfer: Social Monthly Assistance GMI	Indirect		0.1	1.4
Indirect subsidies: Gas direct effects	Indirect	0.1	0.0	-0.1
Indirect subsidies: Electricity's indirect effects	Indirect	0.9	-0.1	0.1
Indirect taxes: Excise Alcoholic Beverages	Indirect	-0.1		
Indirect taxes: Oil derivates direct effects	Indirect	-0.5	0.2	
Indirect taxes: Oil derivates indirect effects	Indirect	-1.2	0.2	
Indirect taxes: VAT	Indirect	-6.7	1.4	0.0
Indirect taxes: Excise Tobacco	Indirect	-1.2	-0.1	-0.1
Direct transfers: non-contributory pensions	Indirect			1.2
Education Tertiary*	No		0.2	0.3

Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Note: * Poverty effects not estimated.

1	Child poverty and inequality reduction
2	Child poverty reduction
3	Inequality reduction
4	Child poverty reduction but unequalizing
5	Child poverty increasing
6	No child poverty or inequality effects

The first group comprises fiscal interventions targeting children that significantly reduce child poverty and inequality. This includes the monthly child allowance, pregnancy and childbirth benefits, benefits for raising a 2-year-old child, and various means-tested and non-means-tested family and children's benefits. Additionally, indirect child benefits like social protection transfers for disability, unemployment, health allowance, and electricity subsidy (indirect effects) are part of this group.

The second and third group include those that reduce child poverty or inequality, but not both. For instance, the Family Birth Child Grant (non-means tested) significantly reduces child poverty but does not have an equalizing effect. Conversely, education contributes to reducing inequality, but its effect on child poverty reduction was not estimated. The same applies to indirect child benefits such as health and GMI social assistance transfers.

Some interventions have mixed or adverse effects. Subsidies on gas (direct effects) and subsidies on electricity reduce child poverty but exacerbate inequality. As expected, taxes indirectly negatively impact child poverty, although some, like VAT and oil taxes, positively affect inequality reduction. These interventions are part of the fifth group. The sixth group includes five out of the seven transfers with the smallest size that do not significantly affect poverty and inequality. The Birth Child Grant slightly impacts child poverty reduction, while social assistance and GMI affect inequality.

V. Simulations of Policy Reforms to Reduce Child Poverty.

Various countries implement distinct public policies aimed at supporting families with children, all with a common objective of enhancing the well-being of the children. In this section, we assess the potential impact of the Bulgarian government reforms introduced in 2022 (see Box 1 for details) using microsimulation techniques and the CEQ model. In addition to simulating these government reforms, this paper aims to evaluate several policy scenarios[21] to reduce child poverty in Bulgaria, informed by the maing results of the fiscal incidence analysis presented in section IV.

Box 1. Distributional impact of recent reforms to social protection programs in Bulgaria

In 2022, the Bulgarian government implemented a reform to expand the reach and effectiveness of social support programs. One key aspect involved raising the Differentiated Minimum Income (DMI) threshold to 25% of the national relative poverty line. This change influenced means-tested programs like the Guarantee Minimum Income Scheme (GMI) and the heating allowance. Furthermore, adjustments were made to the monthly means-tested child allowance. Families with children now receive a monthly allowance of 50 BGN for one child, 110 BGN for two, 165 BGN for three, 175 BGN for four, and an additional 20 BGN for each extra child. The tax deduction for dependent children also experienced a significant increase compared to previous years.

According to Robayo-Abril and Cabrera (forthcoming), the DMI changes could potentially reduce national poverty by up to 0.3 percentage points. However, the poverty reduction impact of GMI and the heating allowance on child poverty is higher, reaching up to 0.8 percentage points. Additionally, the reform has the potential to decrease the poverty gap by 0.9 percentage points for the entire population and 1.5 percentage points for children, presenting a significant improvement in the well-being of these vulnerable groups.

On the other hand, our estimates suggest that increasing the monthly child allowance and modifying personal income tax child deductions could reduce national poverty by 1.2 percentage points and child poverty by 2.9 percentage points.

In summary, these recent reforms appear to have a positive impact on poverty reduction. The most significant influence of the DMI reforms is in narrowing the poverty gap. At the same time, child allowance and child tax deductions seem to notably reduce child poverty, with a comparatively smaller impact on overall national poverty.

[21] Policies expanding education and health spending could have important distributional effects and have the potential to reduce poverty. However, though included in the analysis, they are not part of the policy simulations, as the goal of the simulations was to find options to reduce child poverty and the CEQ methodology does not allow to measure poverty effects of education and health.

Policy Scenario 1 - Expanding income-dependent child tax credit deductions.

This simulation scenario assesses the potential effects of the 2022 child tax credit reform on child poverty. As outlined in Section 1, the deductions for child tax credits for families with dependent children experienced substantial growth in 2021 and 2022 (Table 4). In the year 2020, the tax incentives associated with children resulted in reductions to the total annual tax base by the following amounts: BGN 200 for a single child below the age of majority, BGN 400 for two children, BGN 600 for three or more children, and BGN 2,000 for permanently disabled children. By 2022, the thresholds for families with one, two, and three or more children were raised to BGN 6,000, BGN 12,000, and BGN 18,000, respectively, while the threshold for disabled children was set at BGN 12,000. These thresholds remained through 2023. This reform concentrates the assistance on the poorest households with multiple children (shown to be highly vulnerable in the typology analysis).

Table 4. Tax Allowances (annual amounts)- Standard Child Deduction

Allowances or reductions in the total annual tax base	2020	2021	2022	2023
For 1 Child (BGN)	**200**	4500	**6000**	6000
For two children (BGN)	**400**	9000	**12000**	12000
For three or more children (BGN)	**600**	13500	**18000**	18000
For a permanently disabled child	**2000**	9000	**12000**	12000

Moreover, this simulation also examines the potential outcomes of an alternate expansion of child tax credits, which focuses proportionately more resources on vulnerable households (those with taxable incomes[22] up to the minimum salary in 2020). This policy adjustment aims to concentrate the assistance on low-income households with multiple children. In this proposed scenario, the deduction amounts would be reduced by half for households having taxable incomes exceeding the specified thresholds, while those below the threshold keep the same deductions as under the reform scenario.

Microsimulations indicate that the 2022 child tax deduction reform has the potential to reduce child poverty. The anticipated outcome of the 2022 child tax reduction reform suggests a decrease in the proportion of income tax paid by the lowest-income groups. This result arises from higher deductions benefitting lower-income individuals compared to the baseline scenario (Figure 18, panel a). This reform also triggers a decline in the overall incidence of income tax, particularly noticeable among the lower income deciles (ranging from one to five) (Figure 18, panel b). Consequently, there is an observed reduction in the overall poverty rate. Notably, a considerable decrease in child poverty becomes more evident due to the deduction amount being linked to the number of children within a household (Figure 18, panel c). Inequality reduction is minimal, while the reduction in the poverty gap is substantial (figure 18, panel c). However, this reform is expected to decrease fiscal revenue by roughly 285 million Euros,

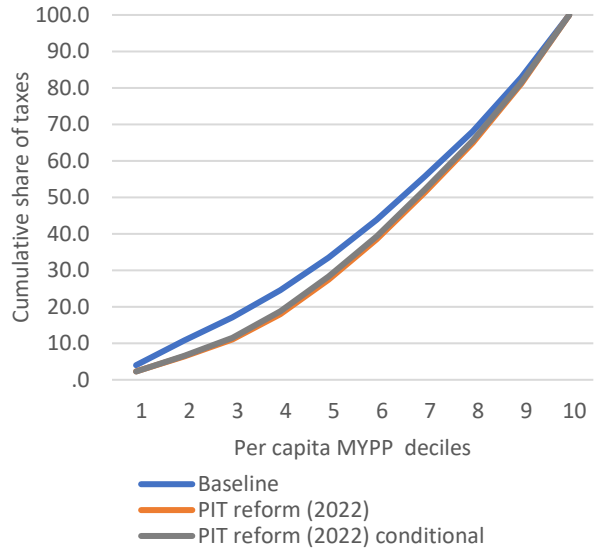
[22] For earnings from a labor contract, the taxable income is equal to gross earnings less social insurance contributions (SIC). For self-employment income, taxable income is the equivalent of gross earnings minus normatively recognized expenditures and SIC.

accounting for a 14 percent reduction compared to the estimates in the baseline scenario without any policy adjustments**.**

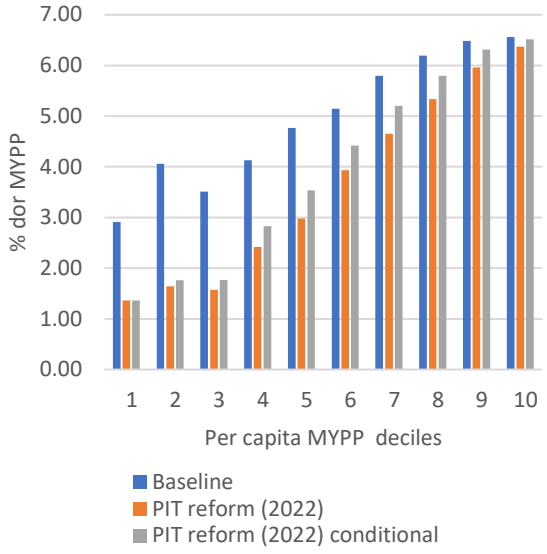
An alternative reform scenario with a more precise targeting mechanism could yield a comparable reduction in child poverty, all while incurring substantially reduced fiscal expenses. In this alternative scenario, tax deduction benefits are, by design, more limited among upper-income quintiles, thereby increasing their tax burden compared to the reform scenario (Figure 18, panels b and c)**.** Importantly, this alternative scenario achieves the same degree of poverty reduction while utilizing significantly fewer fiscal resources. By limiting the deduction increase to specific households, this alternative approach mitigates the extent of revenue loss from taxation, with fiscal revenue projected to decrease by approximately 176 million Euros (Figure 18, panel d).

Figure 18. Scenario 1. PIT conditional allowance

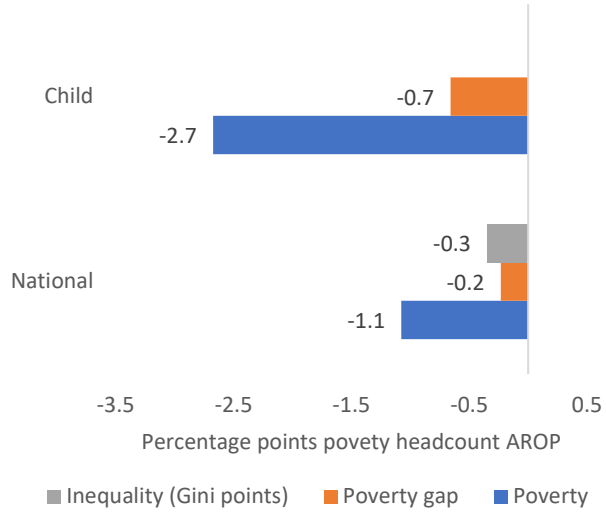
a. Cumulative share of PIT



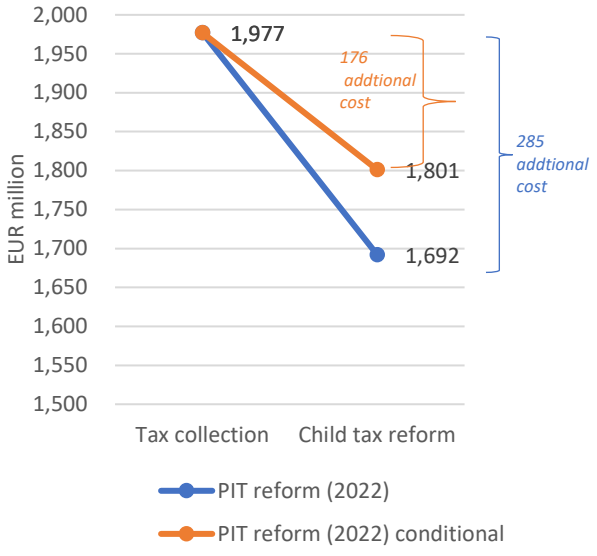
b. Fiscal incidence of taxes (% of MYPP)



c. Poverty, poverty gap, inequality change (percentage points)



d. Fiscal cost (EUR million)



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Note: PIT reform refers to child deduction reform 2022, and PIT reform conditional is the alternative targeted version for poorer households

Policy Scenario 2 - Change in design of the monthly means-tested child allowance[23] to improve targeting effectiveness and generosity.

The evidence shown in this paper shows that means-tested family programs make the most substantial incremental contribution to child poverty reduction of all the direct transfer programs. Following closely behind, the monthly child allowance secures the second position among all fiscal instruments regarding its effectiveness in mitigating child poverty. Conversely, non-means-tested programs exhibit significantly lower capacity to alleviate poverty. Additionally, our analysis shows that there is scope for improving targeting effectiveness and generosity for this to have more sizable poverty and distributive impacts.

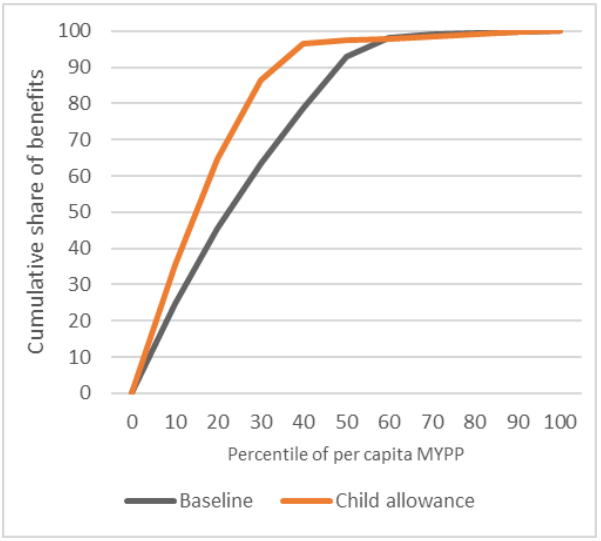
This policy simulation scenario focuses on improving the targeting effectiveness and generosity of the monthly child allowance while aiming for fiscally neutral outcomes by tightening eligibility conditions (reducing the income threshold) and using those resources to improve benefit size. The simulation involves reducing the income threshold required to be eligible for the benefit to decrease the number of recipients (and coverage) and improve targeting while concurrently increasing the recipient's benefit (and generosity). The primary aim is to leverage the enhanced targeting efficiency to bolster the level of benefits, all while keeping the fiscal spending relatively contained. This endeavor focuses on optimizing the allocation of fiscal resources to ensure that the benefits provided to recipients are increased without any increase in the fiscal allocation. The goal is to effectively utilize available funds, resulting in a more impactful and equitable distribution of benefits to the intended beneficiaries. To determine the income threshold reduction and consequent increase in benefit level, we employ a sensitivity analysis to pinpoint a combination of parameters that achieves maximum poverty reduction with minimal changes in the fiscal envelope (less than 10% of expenditure increase). This exercise allows us to determine a 70% adjustment of the income threshold from its 2020 level and a corresponding 50% increase in the benefit amount per household. For example, the benefit for households with a single child increases from 40 to 60 BGN, while households with two children experience an increase from 90 to 135 BGN.

Microsimulation results show that improving the targeting and generosity of the child benefit has only limited impacts on child poverty reduction. The second policy scenario is expected to significantly increase the proportion of benefits received by the poorest five income deciles due to the increase in benefits and the reduction of the maximum income applicable to qualify for the benefit. The change in benefit eligibility is most intense in the first income decile and is reduced from the fourth decile of market income plus pensions, as some current beneficiaries would be excluded because their income level would exceed the new limit (Figure 19 panel a). This measure also reduces poverty in general, although child poverty is reduced significantly less than in the case of the first scenario. The reduction in national poverty is only a fraction of that experienced by children. The poverty gap and inequality reduction are similar to scenario 1 (Figure 19 panel b). The net cost of this measure is relatively tiny compared to the first scenario, at only 12.7 million Euros (Figure 19 panel c). However, it implies increasing the program's cost by a similar proportion, i.e., by 10%.

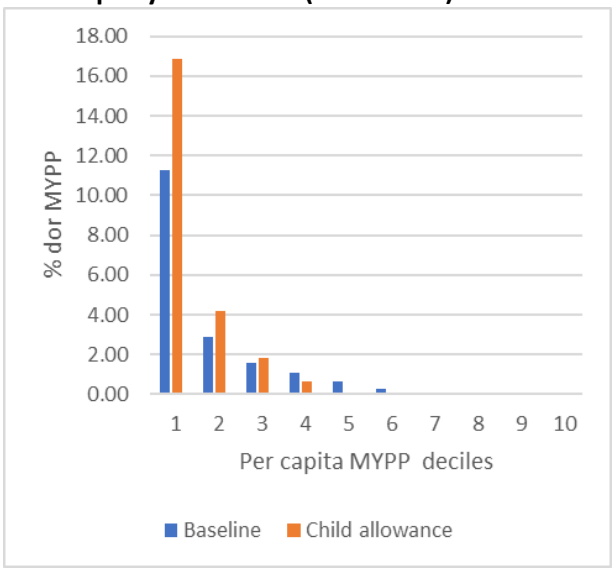
[23] This refers to the monthly child benefit for raising a child until completion of secondary education.

Figure 19. Scenario 2. Monthly child allowance

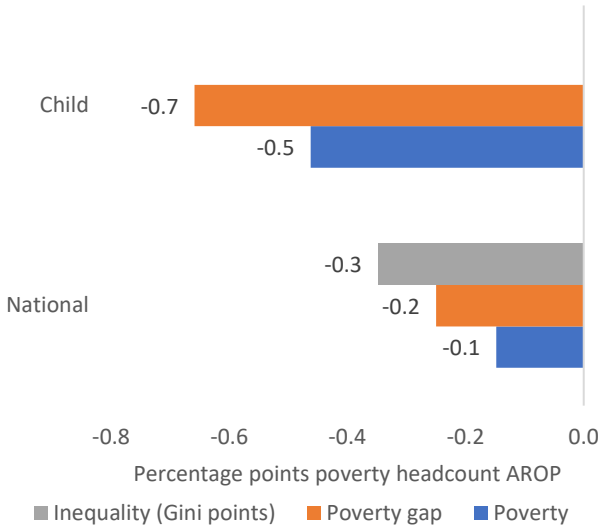
a. Cumulative share of child benefit



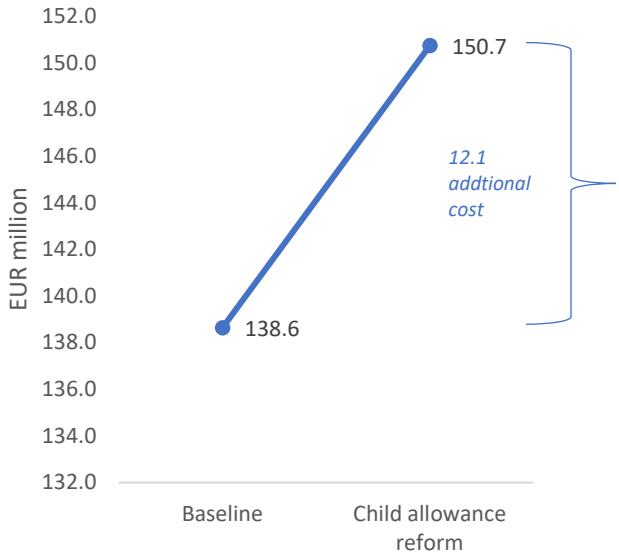
b. Adequacy of benefits (% of MYPP)



c. Poverty, poverty gap, inequality change (percentage points))



d. Fiscal cost (EUR million)



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

Policy Scenario 3 - Expand income-dependent child tax credit deductions and change the design of the monthly means-tested child allowance to improve targeting effectiveness and a substantial change in generosity.

This simulation scenario includes an ambitious policy package aimed at making a significant impact on child poverty and includes:

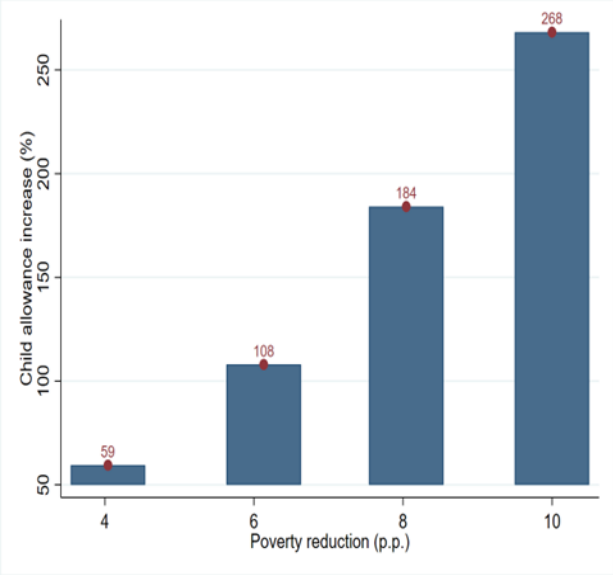
- Expansion of Income-Dependent Child Tax Credits (as in Policy Scenario 1)
- Redesign of Monthly Child Allowance: we propose improvements to the monthly means-tested child allowance to enhance targeting efficiency (as in Policy scenario 2) but a significantly higher increase in benefit size, with the ultimate goal of reducing child poverty significantly. Through sensitivity analysis, we ascertain the necessary increase in the monthly child allowance benefit (as part of the fiscal policy package) to achieve a reduction in child poverty ranging from 2 to 10 percentage points. Therefore, this scenario is not fiscally neutral but aims to shed light on the fiscal resources needed to decrease child poverty substantially**.** Therefore, this is considered an aspirational policy scenario**.**

The microsimulation results underscore the necessity of a policy package featuring a child tax credit deduction and a redesigned child allowance with substantial increases in generosity to reduce child poverty significantly. The findings emphasize that curbing child poverty requires expanding child benefits and implementing a conditional allowance within the personal income tax structure. This policy scenario is anticipated to notably benefit the poorest five income deciles by increasing the proportion of benefits they receive. Achieving a more considerable reduction in both child poverty and the poverty gap entails significantly augmenting the child allowance's size. For example, a 59 percent increase in the benefit size and other fiscal measures are expected to lead to a 4-percentage point reduction in child poverty. Alternatively, increasing the benefit size by a sizable 184 percent (although arising from a very low starting point) is expected to lead to an 8-percentage point reduction in child poverty, from 30.4 to 22.4% (figure 20 panel a). This is a sizable reduction compared to the SCD target, which aimed to reduce child poverty by half and is therefore assumed to be the baseline scenario presented in panels b, c, and d.

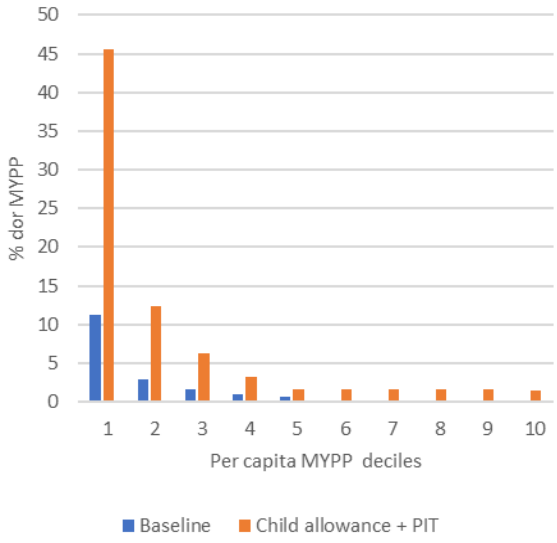
Nonetheless, the reduction in inequality remains relatively tiny, akin to the earlier scenarios. The amplification of benefits and the introduction of a personal income tax allowance will benefit the entire population, with the most prominent change in benefit eligibility observed in the first income decile (figure 20 panel b). However, excluding some current beneficiaries from the fourth decile of market income plus pensions will reduce the number of people eligible for the benefit. This policy adjustment will lead to up to a 3.2-percentage-point reduction in overall poverty (figure 20 panel c). The total cost of this fiscal package is estimated to be 570 million Euros. This is due to a decrease in tax collection by 176 million compared to the baseline and an increase in expenditure of 255 million, attributed to the redesigned child allowance (figure 20 panel d).

Figure 20. Scenario 3. PIT conditional allowance and increased child benefit generosity

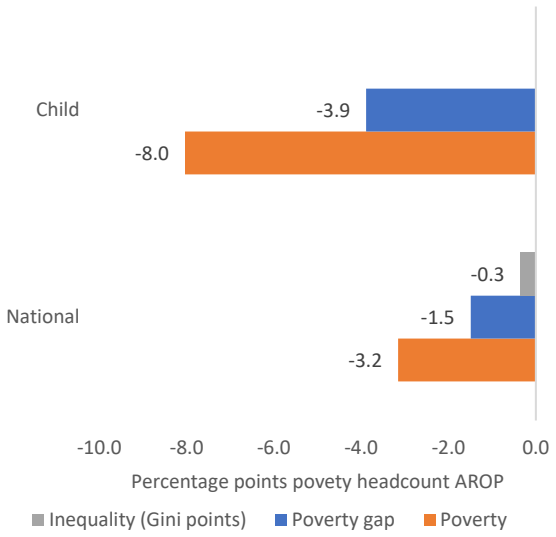
a. Poverty reduction and child allowance increments



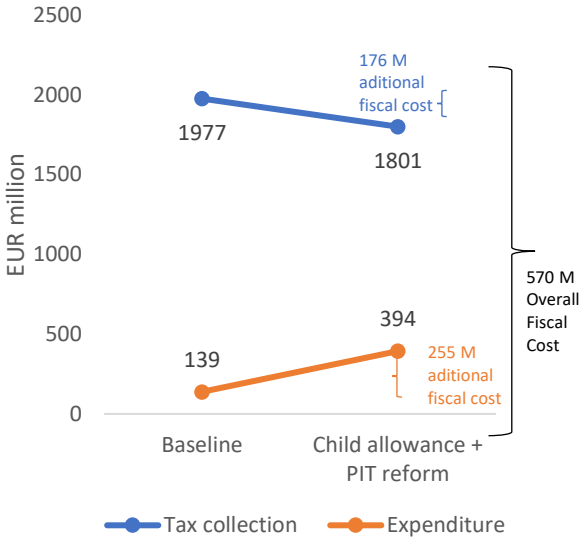
b. Fiscal incidence of tax reduction and child allowance (% of MYPP)



c. Poverty, poverty gap, and inequality change (percentage points)



d. Fiscal cost (EUR million)



Source: Authors' estimates based on 2021 EU-SILC, 2021 HBS and CEQ Methodology.

There are several transmission channels for the impact of the proposed policies on household welfare and poverty. Regarding personal income tax deductions, enhancing tax credits would positively impact household disposable income and reduce child poverty because it benefits low-income families with children. An alternative version of this reform, which reduces the tax deduction for high-income households with children, would help alleviate concerns about tax revenue collection. This approach would simultaneously enhance disposable income for low-income households with multiple children while limiting tax credits to individuals with higher incomes. The child benefit allowance encompasses

three mechanisms: i) Decreasing the income threshold would curtail beneficiary numbers, ii) reallocating funds from reduced expenditure could finance larger benefit amounts, and iii) mirroring the tax deduction approach, larger benefits would be directed toward households with many children, who are shown to be highly vulnerable in this analysis. However, a balance must be reached when adjusting the maximum qualifying income for beneficiaries; if set too low, specific economically vulnerable households might not receive benefits and could experience increased vulnerability after accounting for the negative impacts of indirect taxes. Therefore, the envisioned scenario finds a middle ground, reconciling the intervention's fiscal impact limitations and its potential for reducing child poverty. Finally, a substantial increase in the generosity of child benefits is expected to yield significant welfare increases among eligible families with children.

VI. Summary and Policy Recommendations

Child poverty is a pressing social issue in Bulgaria, standing among the EU's highest rates, with significant implications for several long-term development outcomes. The country exhibits a strikingly high (albeit diminishing) occurrence of child poverty within the European Union. Yet, while fiscal incidence analysis is a frequently employed approach, it often overlooks the perspective of children or gender, owing to the intricate methodological challenges involved in reconciling individual and household-level concepts. It is critical to understand the role of fiscal policy in reducing overall poverty and child poverty in particular, and the efficacy of family-oriented interventions in reducing child poverty.

This paper revisits the previous fiscal incidence analysis of Bulgaria. It formulates a specialized fiscal incidence analysis focusing on children to measure the current effects of public expenditure and taxation on overall poverty and child poverty. The World Bank conducted a comprehensive fiscal incidence analysis (CEQ) for 2018 to comprehensively assess the distributional implications of fiscal policies and programs. This analysis is now revisited and updated to offer a dynamic perspective on the impact of fiscal policies on poverty and inequality, considering the effects of the COVID-19 pandemic. The study extends its scope by introducing an evaluation of how fiscal policies influence child poverty, employing microsimulation techniques to gauge the potential welfare effects of policies geared toward families with children. This work builds upon prior research by Vaughn and Cabrera (2020) but emphasizes a more detailed exploration of benefits for families and children.

Our main results show that, despite the obstacles posed by the COVID-19 crisis, Bulgaria's fiscal system displayed restrained effectiveness in reducing the at-risk-of-poverty rate. Consistent with the precovid-19 findings, the fiscal system tends to increase poverty when measured using the EU's at-risk-of-poverty (AROP) line due to the limited redistributive capacity of direct taxes and transfers. Nonetheless, the system is not unequivocally poverty-increasing, demonstrating a capacity to reduce poverty when considering lower poverty lines, especially for lower-income deciles.

Bulgaria's fiscal system contributes to inequality reduction, with significant contributions from direct transfers, education, and health-related transfers; however, the redistributive impact of direct taxes and transfers remains comparatively low within the European context. This evidence underscores the importance of social protection transfers to reduce poverty and inequality. While individual components may have modest individual impacts, their combined effect is substantial. Our results show that most elements within Bulgaria's fiscal system are progressive, with the poorest being net recipients of social

benefits. Nonetheless, the redistributive influence of direct taxes and transfers remains relatively modest when considered within the European context.

Fiscal policy exhibits limited effectiveness in diminishing child poverty, reducing it by only 0.3 percentage points. Initiatives primarily focused on children make a slightly more notable contribution to alleviating poverty, mainly those specifically targeted to children, although other direct non-targeted benefits also play a role. Child-related programs aimed at low-income households exhibit the potential to significantly diminish child poverty by providing financial assistance based on specific eligibility criteria. Additional indirect subsidies and programs support the decline of child poverty, including (implicit) electricity subsidies, disability assistance, and unemployment benefits. Conversely, consumption taxes substantially amplify child poverty. Simultaneously, a subset of social protection programs directed at families and infants do not exhibit substantial effectiveness in reducing child poverty.

Notably, specific households in Bulgaria are especially at risk of poverty, including households with three or more children and lone parents' households, particularly those headed by women; these households have poverty levels that are already above average, and although fiscal measures provide some relief from poverty, they do not fully equalize their circumstances with other groups. Starting with a notably higher poverty rate before fiscal policy, households with three or more children (representing around 6.0% of all households) are highly vulnerable. Although fiscal measures do significantly diminish poverty within these groups more prominently than in others, their impact is insufficient to align them with other groups. Lone-parent households, especially single females, start with high poverty rates pre-fiscal policy. Despite fiscal measures reducing their poverty more than that of two-parent households, their poverty levels continue to be higher, underscoring the need for focused support for single parents. Households with children aged 0-2 years, while initially facing high pre-fiscal poverty levels, experience comparatively lower post-fiscal poverty after implementing fiscal policies. These findings emphasize the need for targeted and comprehensive policies to address child poverty in Bulgaria, focusing on these vulnerable households.

When crafting strategies to address child poverty, it's crucial to consider the specific characteristics of the most economically disadvantaged households. For instance, one effective policy approach for reducing poverty could involve enhancing financial support for children, particularly for families with several dependents. Adjusting the parameters related to personal income tax allowances is another viable avenue for implementation. Additionally, providing an allowance specifically for single-mother households could be worth considering. In this paper, we simulate the first two policy options.

Microsimulations show that increasing child tax deductions and enhancing the targeting and generosity of child benefits could yield positive outcomes for child poverty reduction. According to our microsimulations, the welfare impact of higher child income tax deductions, such as the ones implemented between 2020 and 2022, can be high and can positively affect the welfare of lower-income households with children. Further improvements in the targeting effectiveness of the tax deduction benefit can also lead to the same child poverty but at a lower fiscal cost. Efficiency can be augmented and leakage to the non-poor minimized by targeting poorer households with children. Moreover, Bulgaria can better tailor existing benefits to have a more significant impact on child poverty. An exercise conducted by changing the parameters of the targeted child benefit shows that while these changes would not significantly alter poverty at the national level, they have the potential to reduce child poverty.

The results of the different policy scenarios suggest that fiscal policies that are relatively modest or nearly budget-neutral reduce child poverty to a certain extent but are unlikely to significantly alleviate child poverty. The simulations conducted suggest that the most notable reductions in child poverty stem from a combination of expanded child tax credit deductions and redesigned child benefits, with enhanced targeting, along with a substantially increased generosity in the benefits. It is crucial to emphasize that merely refining targeting mechanisms may lead to only marginal improvements in poverty reduction unless there are substantial increases in the generosity and adequacy of the benefits.

In conclusion, the insights obtained from our microsimulations suggest a promising direction for policy initiatives to alleviate child poverty. By increasing child tax deductions for lower-income households and refining the targeting effectiveness and generosity of child benefits, the potential for favorable outcomes in terms of child poverty reduction becomes evident. The significant welfare enhancement resulting from adjustments in child income tax deductions can benefit the lower-income segment of the population at minimal fiscal cost. While Bulgaria's government efforts to combat child poverty are commendable, exploring the impact of modified parameters for targeted child benefits underscores their potential to curtail child poverty substantially, even though their influence on national poverty levels might be relatively moderate. This underscores the value of targeted and well-considered policy changes to address the complex issue of child poverty.

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Annex 1. Additional Figures and Tables

Table A.1. Poverty and inequality indicators, by CEQ income concept, 2018 vs. 2020

		2020		2018	
Income Concept	**Gini**	**National Poverty (AROP)**	**International Poverty ($6.85 PPP 2017)**	**National Poverty (AROP)**	**International Poverty ($6.85 PPP 2017)**
Market Income Pensions	0.454	25.3	9.2	25.4	11.3
Net Market Income	0.449	30.6	10.6	29.8	13.3
Disposable Income	0.404	22.2	4.6	23.1	7.8
Consumable Income	0.385	29.1	5.4	27.6	8.9
Final Income	0.322				

Source: Authors' calculations. The year refers to income year, not survey year.

Table A.2. Impact of direct transfers, subsidies, and in-kind transfers on poverty and inequality, 2020

			Marginal contribution		
	Size (% of MYPP)	**Kakwani**	**Redistributive effect**	**Poverty reduction (US$ 6.85 2017 PPP)**	**Poverty reduction (AROP poverty line)**
Direct transfers	**7.2**	**0.701**	**0.056**	**7.67**	**10.05**
Family NC NMT Mothers In Tertiary Education	0.0	0.125	0.000	0.00	0.00
Family NC NMT Child Benefit For Twins	0.0	1.235	0.000	0.03	0.00
Benefit For Raising a Child Under 1 NC Mt	0.0	1.227	0.000	0.07	0.00
Family NC NMT Birth Child Grant	0.0	0.882	0.000	0.00	0.06
School Children Enrolled In 1st Grade NC Mt	0.0	1.043	0.000	0.00	0.03
Old Age NC	0.0	1.225	0.000	0.05	0.01
Social Monthly Assistance GMI	0.0	1.428	0.001	0.06	0.02
Benefit For Bring Up Child with Up to 2 years	0.3	0.775	0.002	0.17	0.54
Family NC NMT Other	0.3	0.805	0.002	0.41	0.36
Pregnancy Childbirth Benefit	0.5	0.681	0.003	0.04	0.89
Heating Allowance	0.2	1.261	0.003	0.73	0.07
Other	0.4	0.744	0.003	0.59	0.32
Family C NMT Other	0.5	0.576	0.003	0.58	0.74
Monthly Child Allowance NC Mt	0.4	1.012	0.005	0.99	0.98
Unemployment	1.2	0.505	0.006	0.78	1.48
Disability	2.1	0.533	0.011	1.33	2.58
Family NC MT Other	1.2	0.955	0.011	1.59	2.05

Subsidies	**6.1**	**0.122**	**0.004**	**1.77**	**4.49**
Gas Direct Effects	0.2	-0.087	-0.001	0.02	0.05
Electricity Indirect Effects	2.8	0.059	-0.002	0.50	1.29
Gas Indirect Effects	0.6	0.059	0.000	0.07	0.35
Electricity Direct Effects	2.5	0.220	0.003	0.92	1.97
Health	**9.2**	**0.411**	**0.031**		
Social Security	7.0	0.398	0.022	n/a	n/a
Public Health	2.1	0.454	0.008	n/a	n/a
Education	**6.1**	**0.585**	**0.026**		
Pre School	0.6	0.574	0.003	n/a	n/a
Primary Level	0.7	0.646	0.004	n/a	n/a
Lower Secondary	1.6	0.643	0.006	n/a	n/a
Upper Secondary	2.2	0.666	0.010	n/a	n/a
Tertiary	1.1	0.315	0.002	n/a	n/a

Source: Authors' calculations.

Table A.3. Impacts of direct taxes, SIC, and indirect taxes on poverty and inequality, 2020

			Marginal contribution		
	Size (% of MYPP)	**Kakwani**	**Redistributive effect**	**Poverty increasing (US$ 6.85 2017 PPP)**	**Poverty increasing (AROP poverty line)**
Indirect taxes	**22.0**	**-0.009**	**0.016**	**-1.43**	**-10.3**
VAT	15.3	0.002	0.014	0.96	7.31
Oil derivates direct effect	1.5	0.039	0.002	0.01	0.60
Oil derivates indirect effect	2.9	-0.021	0.002	0.23	1.44
Excises alcohol	0.1	-0.007	0.000	0.01	0.08
Excises tobacco	2.2	-0.102	-0.001	0.20	1.40
SIC	**7.6**	**0.003**	**0.004**	**-0.43**	**-3.52**
Direct taxes	**6.1**	**0.104**	**0.011**	**0.28**	**0.28**

Source: Authors' calculations.

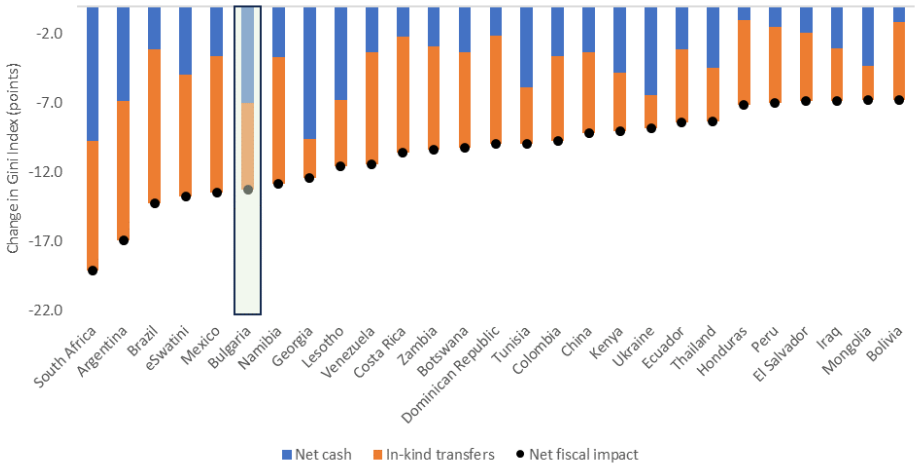
Annex 2. International Comparisons

Bulgaria stands out among upper-middle-income countries in the CEQ database for its ability to reduce inequality. In Figure A.1, we can see the impact of budgetary policies on redistributing income, considering both cash transfers and in-kind health and education benefits. Specifically, Bulgaria's Gini coefficient decreased by 7.0 points, surpassing the UMIC database average of 4.2 points, and securing a commendable third rank among the 27 UMICs analyzed. When including in-kind transfers, Bulgaria exhibited a notable inequality reduction of 13.3 Gini points, outperforming the sample average of 10.5 Gini points and securing an eighth position among UMICs.

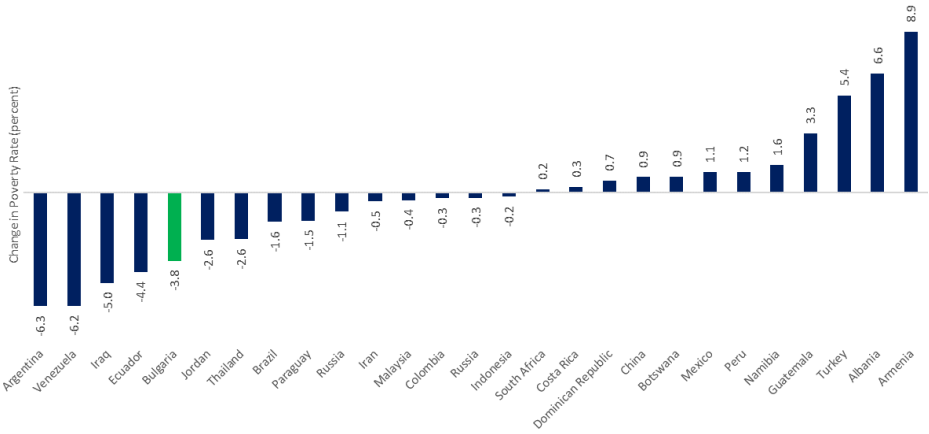
Bulgaria ranks well in its ability to reduce international poverty, using the international poverty line of USD 5.5 PPP 2011 per person per day for upper middle-income countries[24]. Figure A.1 panel b shows a cross-country comparison. Bulgaria's fiscal system effectively reduced poverty by 3.8 percentage points, surpassing the sample average of 0.2 percentage points. In this regard, Bulgaria ranks fifth out of the 27 UMICs included in the sample.

Figure A.1 Inequality and poverty changes in selected countries

a. Inequality reduction (from MYPP to final income)



a. Poverty reduction international poverty line (USD 5.5 PPP 2011)



Source: CEQ Data Center

[24] There are no available estimates for the USD $6.85 per day in 2017 PPP.