Simulating Welfare Impacts of Changes in the Monthly Social Allowance Scheme and Heating Allowances in Bulgaria

Monica Robayo-Abril
Maynor Cabrera
Abstract

Bulgaria still ranks among the EU countries with the highest levels of poverty and inequality. Before 2023, Bulgaria’s Social Assistance / Monthly Social Allowance scheme had limited coverage, strict eligibility criteria, and limited impact on poverty reduction. Additionally, it was not adjusted or linked to inflation. The Bulgarian government introduced a reform in 2022 aimed to increase the scope and access of individuals to social support by increasing the basis for determining the differentiated minimum income threshold (now 30 percent of the relative poverty line) and the parameters linked with age, health condition, and social status, affecting the social programs anchored to it, such as the Monthly Social Allowance and the heating allowance. This paper assesses this reform’s potential ex-ante poverty and distributional impacts, relying on a comprehensive tax/benefit system assessment called the Commitment to Equity and microsimulation techniques. The changes in the legal basis for determining access to social assistance introduced with the reform are expected to create some relief from the indexation of the benefits over time. They will now be tied to the evolution of the relative poverty line and, therefore, linked to the evolution of median income. The results of the policy simulations show that the combined effect of the changes in the Monthly Social Allowance and the heating allowance contributes to a slight reduction in the poverty gap but not enough to move a sizable share of people out of poverty, as shown by the negligible impact on the at-risk-of-poverty rate. Inequality is barely affected. Compared with a Bulgarian food basket, the results show that eligibility thresholds are still restrictive. These results suggest further scope for improvement in the design of these programs, including anchoring them to an absolute poverty line or basic consumption basket.

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 and mcabrera1@worldbank.org.
Simulating Welfare Impacts of Changes in the Monthly Social Allowance Scheme and Heating Allowances in Bulgaria

Monica Robayo-Abril
Maynor Cabrera

JEL classification: H22, H31, I31, I38, D31, D63
Keywords: Guaranteed Minimum Income, means testing, poverty, fiscal incidence, social spending, Bulgaria

* This analysis was prepared as part of the Poverty and Equity Program of the World Bank in Bulgaria. The study was carried out by a team composed of Monica Robayo-Abril (Senior Economist, World Bank), and Maynor Cabrera (Senior Consultant, World Bank and Commitment to Equity Institute). The authors are grateful for the valuable comments given by Lucian Bucur and Desislava Nikolova.
I. Introduction

Despite recent improvements, Bulgaria continues to have some of the highest levels of income poverty in the European Union (EU). From 2016 to 2020\(^1\), economic growth led to improved living standards for the average household and the poorest 40 percent, resulting in a significant decrease in absolute poverty (using the USD 6.85 2017 PPP poverty line). During this period, Bulgaria's economic growth accelerated, benefiting the entire income distribution, particularly the poor, and reducing international poverty by 5.9 percentage points (Figure 1, panel a). Real incomes moved steadily towards the EU average, surpassing 50% of that level. In 2021, this trend reversed, with poverty increasing by 1.2 percentage points due to the pandemic's lingering effects, the expiration of temporary COVID-19 measures, inflationary pressures, and a decline in employment among less-educated individuals. Despite these positive trends, poverty levels remain high by EU standards (Figure 1, panel b). Moreover, the anchored at-risk-of-poverty (AROP)—the proportion of individuals with income less than 60 percent of the national median equivalized disposable income (after social transfers), anchored using the 2019 threshold —followed similar trends\(^3\) (Figure 1, panel c). Substantial declines in poverty are also observed when using higher poverty lines. Despite the recent economic slowdown, incomes grew rapidly among the bottom 40 percent of the income distribution (6.6% average annual rise over 2016-2021) and even faster among the bottom 20 percent (7.4% average annual rise), outpacing the median household income growth rate (5.8% annually).

In addition to high rates of monetary poverty, the country has consistently reported high measures of non-monetary poverty; the incidence of energy poverty and food insecurity is also high for EU standards. On all the measures of economic strain, Bulgaria consistently ranks higher than the EU-27 average. Consensual indicators of energy poverty show high levels for EU standards, with about 22.5 percent of households in Bulgaria being unable to keep their homes warm in 2022, the highest rate in the EU. The proportion of individuals reporting economic strain is most pronounced among households in the lowest income quintile, with reports as much as 11 times higher than households in the wealthiest income quintile (World Bank, 2021). Even before COVID-19 and the Ukraine crisis, food insecurity was persistently high. Bulgaria ranks 29th of 113 on the 2022 Global Food Security Index.\(^2\) Though there have been some improvements in food insecurity since 2012, the country ranks behind other countries in the EU.

Figure 1. Poverty decreased during the pre-covid-19 period, but levels are still high for EU standards

(a) Income-based poverty rate, upper-middle income (UMI) poverty line ($6.85 per day, 2017 PPP), Percent, 2006-2021

(b) Income-based poverty rate, upper-middle income (UMI) poverty line ($6.85 per day, 2017 PPP), Percent, Selected EU countries, 2021

---

\(^1\) These estimates were produced by the World Bank using 2017-2022 EU Surveys on Income and Living Conditions (EU-SILC). No more recent estimates of absolute poverty are available.

\(^2\) It is only among the moderate-performing countries compared to the rest of the countries in the region. It performs significantly better than Romania, which ranks 45, but worse than Poland, which ranks 21.
Income inequality rose between 2015 and 2018 but has declined since then. Despite the recent positive trends, income inequality persists at a notably high level, ranking the country as the most unequal country in the EU. Despite solid income growth among poorer households, growth has not been inclusive enough. The per adult equivalent Gini Index increased from 37.7 in the income year 2015 to 40.8 in the income year 2018, in contrast to the trends in inequality in the region, which remain primarily stable (Figure 2, panel a). More recently, income inequality has decreased, but the country continues to have the highest inequality among EU countries (Figure 2, panel b). The at-risk-of-poverty rate (AROP), a measure of income inequality rather than absolute poverty, has shown an upward trend, with 22.9 percent of the population having incomes below the national poverty line in 2021 (income year), the highest in the EU (Figure 2, panel c). Most of the observed inequality increase can be attributed to widening disparities in labor market income, with poorer individuals tending not to work or to be concentrated in lower-wage occupations. By contrast, the tax ratio, share of adults employed, pension income, and social income have only marginally helped slow the increase in the Gini coefficient (World

3 Similar trends are observed using the per capita Gini Index.
High inequality rates have been attributed to persistent disparities in labor market outcomes, inadequate coverage of the poor by the social protection system, and a fiscal system characterized by limited progressivity (Vaughn & Cabrera, 2022).

Figure 2. Rising inequality in recent years, reaching the highest inequality in the EU

a. Gini Index of equivalized disposable income, Bulgaria, 2009-2021
b. Gini Index of equivalized disposable income, EU27, 2021
c. At-risk-of-poverty (AROP) rate, EU27, 2021

Note: Estimates are based on adult equivalents of disposable income. More recent estimates are not yet available.

Some groups continue to be left behind, reflecting in part uneven service delivery across regions and groups, consistent with the recent deterioration in inequality indicators. Public service provision is adequate in the capital city and several other well-developed areas, but in other regions, especially the Northwest region, more limited access to quality social and municipality services has undermined both the inclusiveness and strength of growth (World Bank, 2021). There is a significant variation of poverty by district. In the 2021 income year, the districts with the most significant proportion of individuals facing a risk of poverty are Stara Zagora at 33.9%, Dobrich at 27.0%, Lovech at 26.8%, and Pernik at 25.5%. Conversely, the districts with the lowest percentage of people at risk of poverty are Shumen at 12.9%, Veliko Tarnovo at 15.8%, Silistra at 16.1%, and Targovishte at 16.2%. In the 2021 income year, about 81.6 percent of Roma were at risk of poverty and social exclusion, compared to only 32.2 percent among the overall population, and more than half of the Roma could not afford to keep their home adequately warm,
compared to 22.5 percent among the overall population. Human capital and living conditions for these communities continue to lag behind the population average by a large margin.

Though no more recent estimates of absolute poverty are available, poverty and inequality were expected to face significant downside risks in 2022 as Bulgaria grappled with the Russian Federation's invasion of Ukraine and supply chain disruptions; amid rising food and fuel inflation, Bulgarian households faced substantial financial pressure through both direct and second-order impacts. Food price inflation – 22 percent on average in 2022 - disproportionately impacted poorer households as they spend significantly higher shares of their income on food items. Higher heating prices are likely to be particularly challenging, especially since even before the fuel crisis, just under a quarter of Bulgarians could not keep their homes adequately warm. Results from microsimulations show that international poverty ($6.85 2017-PPP) can increase by up to 1 percentage point due to higher food and energy inflation in the short term (Prasad et al., 2023). Effects could be higher in the medium term if inflationary pressures are prolonged.

The main poverty-targeted program serves as a critical mechanism for mitigating the adverse impacts of economic shocks on vulnerable population segments, particularly in countries characterized by high poverty and inequality levels, such as Bulgaria. The main poverty-targeted program in the country, the Guaranteed Minimum Income program (henceforth, Monthly Social Allowance), assumes a pivotal role in such a context by acting as a vital lifeline for those grappling with poverty. Ensuring individuals and families maintain a minimum income is a buffer against sudden income losses. This is especially vital when economic downturns or crises unfold, as the program provides a fundamental safety net that helps shield individuals and families from the dire consequences of sudden income loss. Likewise, heating subsidies, particularly in countries with high income inequality and energy poverty, are essential for protecting the poor. If well-designed, they help address the reality that vulnerable households often struggle to afford the basic necessity of keeping their homes warm during the colder months. These subsidies, if well designed, might alleviate some of the burden of energy poverty, ensuring that low-income families can access the warmth they need for their well-being, health, and overall standard of living, even amid challenging financial circumstances. International evidence also supports the implementation of income support programs (guaranteed minimum income schemes or basic income to address food insecurity, as insufficient income can be a driver of food insecurity (Deschner (2018), Penne (2020), Emery (2013)).

Yet, previous evidence (Hallaert, 2020) shows significant scope for improving the effectiveness of the social protection system in Bulgaria, as it has limited mechanisms to protect the population from certain social risks. One of the risks associated with low levels of protection is the last resort mechanism of income support or a guaranteed minimum income scheme. The evidence shows low coverage for the bottom 20% of the population and limited adequacy of the last resort income support program (World Bank, 2021). As a result, this can result in limited marginal poverty impacts.

The Bulgarian government implemented a reform to expand the outreach and effectiveness of social support programs by shifting the benchmark for basic social assistance from the former Guaranteed Minimum Income (GMI) indicator to the national poverty line (30% of the relative poverty line),
effective from June 1, 2023. For comparison, in 2021, the GMI indicator – fixed at BGN 75 for years - was equal to 14.3% of the poverty line. The new poverty line-linked benchmark will be updated every year to be consistent with changes in the relative poverty line. This approach is intended to enhance the adequacy and coverage of the minimum income support scheme.

This paper evaluates the performance of the Monthly Social Allowance (MSA) and heating schemes before the reform and provides evidence of the potential ex-ante welfare impacts of the reform under different policy scenarios. It uses standard fiscal incidence analysis (with the Commitment to Equity Model, CEQ) and microsimulation techniques to assess how the reform could affect household incomes across income distribution, poverty, inequality, and government fiscal spending. Considering that the reform of the social support system increases the GMI base, it is expected to relax eligibility conditions of the Monthly Social Allowance scheme (MSA) and the heating allowance by increasing the levels of the Differentiated Minimum Income (DMI) and the Differentiated Minimum Income for heating (DMIH) thresholds. This is expected to increase coverage, potentially leading to more households receiving the MSA and the heating allowance, affecting welfare levels among new recipient households and overall poverty and inequality. Likewise, this reform could lead to a higher take-up rate of the MSA, which could have additional welfare effects. Given that the take-up of this social program after the reform is uncertain, we assume different take-up scenarios and analyze the sensitivity of the results. The scenarios are as follows: i) The monthly level of the MSA base increases from 75 BGN to 30% of the at-risk-of-poverty (AROP) line, assuming constant take-up rate; ii) The monthly level of MSA base increases from 75 BGN to 30% of the at-risk-of-poverty (AROP) line, as in scenario 1, but now we assume an increase take up (100% take-up rate), so all eligible households participate and receive the benefit. This scenario is not intended to be realistic but instead provides an upper-bound estimate of the potential impacts.

The remainder of the paper is organized as follows. Section II provides an overview of the MSA and heating allowance programs, including key performance indicators of social protection, poverty mitigation, and recent trends. Section III describes the methodology and data used. Section IV presents the results, including an assessment of how restrictive the new income thresholds are after the reform, compared to the minimum consumption basket, the performance of the current schemes, and the ex-ante poverty and distributional impacts of the reform. Section V concludes and presents vital policy insights.

---

4 Individuals or families eligible for monthly cash social support are those whose income in the previous month falls below the Differentiated Minimum Income (DMI). Before the reform, this was calculated by multiplying the guaranteed minimum income (GMI) by the individual coefficient assigned to each person or family, which varies depending on the person’s age, marital status, health, and property status. (see Annex 2 for details).

5 This national relative poverty line is set at 60 percent of equivalized median disposable income after social transfers.

6 For households to be eligible for the MSA and heating allowances, the average gross income per member must be below the Differentiated Minimum Income (DMI) and the Differentiated Minimum Income for heating (DMIH) thresholds, respectively (see annexes 2 and 3 for details).

7 Following the literature, we define the take-up rate as the fraction of those eligible for a program who participate and receive the benefit.

8 The literature discusses different factors affecting take-up of social programs, including levels and duration of benefits (more generous benefits granted for longer periods lead to higher take-up), information about a program’s rules and application procedure, delays and uncertainties about the application outcomes, and social and psychological factors such as stigma (Hernanz et al., 2004). Behavioral barriers can also play a role.
II. Overview of the Monthly Social Allowance (MSA) Scheme and the Heating Allowance

Bulgaria maintains an extensive income support program system that protects households from income fluctuations and the risk of poverty, which aligns with the practices of many European countries. Bulgaria manages a range of non-contributory social benefit schemes under three budget programs administered by the Agency for Social Assistance (ASA). These programs include (1) Social Assistance for Low-income families and persons, (2) Support for people with disabilities, and (3) Support for children and families (World Bank, 2020). This array of programs encompasses social insurance schemes, such as unemployment benefits, which provide a safety net for individuals facing income loss due to unemployment. Simultaneously, social assistance transfers, including universal child benefits and means-tested assistance, are designed to prevent financial hardship and offset increased expenditures for vulnerable households.

Expenditure on social protection benefits increased from 2019-2021, reaching 18.3 % of GDP in 2021\(^9\), about ten percentage points below the EU average; mean-tested cash benefits represent a small share. Consistent with EU patterns, most of Bulgaria’s total expenditure on social protection was made in the form of cash payments. Overall, in 2021, total cash benefits (mean and non-means tested) represented 12.2 percent of GDP, significantly lower than the EU average of 18.7 percent.\(^10\) The ratio between means-tested and non-means-tested cash benefits was heavily skewed in favor of the latter, primarily due to pension benefits. In 2021, the value of cash benefits that were not means-tested was about 35 times as high as that for means-tested cash benefits. While this is the case for most EU member states, this ratio was only about eight times as high in the EU. Total mean-tested cash benefits were only 0.3 percent of GDP (Eurostat).

The country has implemented various income-tested criteria within its social protection programs. One such criterion is the Guaranteed minimum income (GMI)-linked indicator, specifically designed for social inclusion programs. This applies to several schemes, including the monthly social allowance, the heating allowance, and the "Monthly benefit for bringing up children accommodated in families of relatives and friends" as part of the Family and Children benefits (Table 1). Another income-testing criterion is based on the poverty line, primarily used in disability programs. Furthermore, specific income-testing threshold amounts, determined by the government, are applied to specific family and children programs and scholarships.

Table 1. Bulgaria’s Income-tested social protection programs

<table>
<thead>
<tr>
<th>Social protection program</th>
<th>Income testing criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poverty line</td>
</tr>
<tr>
<td>Disability</td>
<td>Targeted allowance for the purchase of a personal vehicle</td>
</tr>
</tbody>
</table>

9 Source: Eurostat.  

10 Source: Eurostat.  
The Guaranteed Minimum Income (GMI) Indicator was determined by the Council of Ministers until mid-2023 and lacked anchoring in any national or international poverty, consumption, or income measure indicative of an adequate living standard, indicating a discretionary indexation. The level set was notably low and was not updated for years, staying at BGN 75 (EUR 38) – leading to insufficient coverage and adequacy of the Monthly Social Allowance scheme, heating allowance, and other associated social payments. Beyond the low benefit level, the GMI design failed to adapt or link social assistance to fluctuations in purchasing power and general living standards, as it remained unadjusted and unindexed for inflation. Consequently, this has resulted in diminishing benefit adequacy over time, with GMI indicators as a percentage of the AROP poverty line decreasing from 21.4 percent in 2016 to 14.3% in 2021 (Figure 3). Given this, the design of the GMI-linked basic income support has long called for improvement. Possible policy choices included anchoring the GMI indicator to a poverty line (preferably an absolute poverty measure) or a basic consumption basket and establishing ad-hoc indexation rules to establish changes over time. Such a parametric reform was expected to result in higher coverage of the poor, better targeting, and potentially higher impacts on poverty. The magnitude of the impacts naturally depended on the parametric design features.
The government reformed the MSA scheme by introducing a new “base/benchmark for assistance,” equal to 30% of the poverty line, aiming to increase the coverage and adequacy of the benefits linked to it. While this reform could affect other programs linked to the GMI, this paper focuses on two critical programs designed to assist low-income families and individuals: the Monthly Social Allowance (MSA) scheme and the targeted heating allowance. The MSA is the main poverty-targeted program in the country, and the heating allowance is also critical to protect the energy poor, which is critical in the current context of rising energy prices. The Monthly Social Allowance (MSA) program is specifically crafted to address the modern social risks of poverty and social exclusion, offering a critical last resort benefit to ensure subsistence while still incentivizing employment. The primary objective of the MSA scheme is to provide households with an income sufficient to shield them from poverty.

**Monthly Social Allowance Scheme**

The Monthly Social Allowance Scheme (MSA) is a means- and asset-tested national non-contributory scheme that grants non-contributory allowance to low-income households. The means test seeks to establish and measure the need of an individual or a Bulgarian family for benefits. Principal eligibility for income support is established by assessing a family’s income level and potential sources (such as support for family members or potential revenues from the sale of assets). 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, and educational status and is calculated as a proportion of the GMI threshold. Certain types of income are not considered in the means test of the GMI. 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 in 2018 at BGN 75 per month (38 Euros), and the level was not adjusted until mid-2023 with the reform. It is important to note that GMI and DMI were not adjusted for price levels or cost of living (Coady et al., 2021; Vaughn & Cabrera, 2022; World Bank, 2020, 2021). Additional eligibility conditions include restrictions on assets, which are also subject to a test, and registration of the unemployed in the Employment Agency (see Annex 2 for details).

Previous evidence suggests that before the reform, the MSA in Bulgaria had limitations in terms of low spending, limited coverage and generosity due to restrictive eligibility criteria, and limited impact on poverty reduction.

Social assistance spending in Bulgaria for low-income families and individuals was low compared to other European and Central Asian countries. Social assistance spending for low-income families and individuals is at most 0.17 percent of GDP, which is lower than similar social assistance schemes in low-spending ECA countries such as Serbia, Montenegro, or North Macedonia (World Bank, 2020, based on SPEED data). According to estimates based on National Statistical Office information, MSA benefits for 2018 were only 0.03% of GDP. Furthermore, spending on the MSA program has been decreasing in recent years.

The MSA program in Bulgaria was small, covering only a small percentage of the poorest quintile, and while targeting accuracy was good, the scheme’s generosity was particularly low. In 2020, coverage

---

11 See Annex 1 for parameters in 2018.
declined to under 2 percent of the population (24,000 households). Surprisingly, this low coverage persisted in 2020 despite the economic challenges posed by the COVID-19 pandemic on people's earnings. The MSA scheme had limited coverage, with only 4.9 percent of the poorest quintile covered in 2011 (World Bank, 2020) and 2 percent of the population (World Bank, 2021, p.76). The MSA scheme's generosity was particularly low in 2013/14, representing only 1.3 percent of total household income and 1.9 percent of household income in the poorest quintile. While targeting accuracy for social assistance schemes, including MSA, was good, it was mainly due to low coverage rather than effective beneficiary identification methodology (World Bank, 2020).

The coverage of the MSA program dropped to less than 2 percent of the population (24,000 households) in 2019 and remained the same in 2020 despite COVID-19's impacts on earnings (World Bank, 2021); the limited coverage and generosity of means-tested social assistance programs have led to a limited impact of the program on poverty reduction. The direct beneficiaries of the scheme peaked in 2014-2015 (around 52,000) but gradually contracted to close to 20,000 beneficiaries in 2021-2022. In 2018, means-tested benefits represented 20 percent of benefits for the poorest 20 percent of beneficiaries' disposable incomes, down from 24 percent in 2016. As a result of the combined decline in coverage and adequacy, means-tested programs reduced the poverty gap by only 25 percent and the Gini coefficient by only 1.3 percentage points after considering all other social protection transfers (World Bank, 2021). Recent evidence (Almeida et al., 2022) has documented very low generosity of the minimum income scheme in Bulgaria compared to other EU countries when using the 40% poverty line as a criterion and even more with the 60% poverty line. This is also the case when comparing benefits with the median disposable income in a sample of OECD countries (Figure 4).

A significant limitation to higher coverage of the MSA scheme in Bulgaria arose from strict eligibility criteria, including income-related conditions and other limiting factors. Only a small fraction of the poor population qualified for MSA because of the low threshold for available income as an eligibility criterion. The program's design was restrictive and conservative, and systematic indexation was not applied, making it challenging to adapt to macroeconomic environment changes during different economic cycle phases. There were also no clear rules for setting the GMI level and percentage system or methods for regularly updating them for various beneficiary types. Consequently, the coverage was low and decreasing (European Commission, 2018; World Bank, 2021). Therefore, there was a need for reforms to improve the coverage, adequacy, and impact of the program on poverty reduction in Bulgaria (European Commission, 2018; Vaughn & Cabrera, 2022; World Bank, 2020; World Bank, 2021).

Figure 4. Adequacy of minimum income benefits (% of median disposable income), 2022
Heating Allowance

The heating allowance is a non-contributory allowance granted to low-income households in Bulgaria. The heating allowance is given to eligible individuals during the cold season (from November to March). In the 2019-20 season, the amount of the monthly allowance was determined to be sufficient to pay for 500 kWh of energy consumption per month, which could cover the cost of running a 2 kW heater for 8 hours a day for a month, enough to heat a space of approximately 24 m². This allowance is provided to lone persons or households with low incomes. 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 2018/2019 heating season, the corresponding benefit was BGN 74.83 monthly during the heating season (Vaughn & Cabrera, 2022).

Before the reform, eligibility for the heating allowance was also linked to the GMI. Still, the minimum income thresholds to determine eligibility (Differentiated Minimum Income for Heating - DMIH) were 2 – 3 times higher than those in the MSA scheme (Differentiated Minimum Income). More details of the eligibility conditions are in Annex 3. Therefore, the program covered about 8 percent of the population and roughly one in four poor in 2018. (World Bank, 2021, pp. 77–78). According to previous estimates from the World Bank (2020) with 2013/14 SILC data, the coverage of the heating allowance was in the range of 4.7 – 4.9 percent of the population in heating seasons 2012/13 and 2013/14, and the range of 15.4 – 15.9 percent of the poorest quintile respectively (World Bank, 2020).

Nevertheless, the lack of a monthly electricity consumption threshold and the absence of GMI level indexing with inflation have constrained access to the heating allowance program, suggesting there is scope for policy improvements. Energy poverty is estimated to impact the poor in Bulgaria significantly. In 2022, 42.7% of poor households (measured by the at-risk-of-poverty rate) could not afford adequate home heating, ranking second highest in the EU. Additionally, in 2021, over half of households spent more than 10% of their income on energy. Recent microsimulations on rising energy prices suggest a potential increase in energy and income poverty (Robayo-Abril and Rude, forthcoming). While Bulgaria's heating...
allowance program offered some relief against energy poverty for the poor before the reform, there is room for improvement in its effectiveness. Challenges such as low coverage of social assistance programs, stringent eligibility criteria, and a lack of clear administrative rules for the heating allowance program likely contributed to limitations in its effectiveness.

III. Methodology and Data

Data

This study uses microdata from different sources, including an income survey, a household budget survey, budget data from fiscal accounts and other administrative registries, and estimates of a minimum consumption basket from previous studies.

This study relies primarily on the cross-sectional component of the 2021 Bulgaria SILC (Survey on Income and Living Conditions). The primary aim of the income and living conditions survey, as part of the European Statistical System, is to furnish timely and comparable data on income distribution and social inclusion. The nationally representative survey delivers insights into current (cross-sectional data) and longitudinal changes in income, poverty levels, and social exclusion. The reference population for EU-SILC comprises all private households and their residents within the country's territory during the data collection period. Individuals in collective households and institutions are generally excluded from the target population. Until 2015, the survey operated on a four-year rotational panel from private households, with a sample size of approximately 7,300 addresses/households distributed across all regions annually. All members aged 16 years or more in the sampled household are surveyed. Household participation spans four consecutive years, with a rotational design that facilitates both cross-sectional (current year data) and longitudinal (data for households participating in the survey for at least two consecutive years) insights. Each year, one rotational group is replaced by another to maintain the continuity of data collection. The survey methodology encompasses various social areas, including basic demographic characteristics of households and their members, monetary indicators reflecting living standards and social stratification, non-monetary indicators related to living standards, economic activity, employment, unemployment, social services or programs, and household participation in them.

Since the EU-SILC focuses mainly on income, the study also relies on the 2021 Household Budget Survey, which provides critical consumption data to estimate consumable income in the commitment to equity (CEQ) model. The household budget survey in Bulgaria aims to gather data on income, expenditure, consumption, and living standards, focusing on understanding changes over the years. The unit of observation is an ordinary household, whether consisting of a single person or multiple individuals sharing meals and an expected budget. The sample size has varied over the years, with 3,000 households observed up to 2009 and a subsequent adjustment to 3,060 households divided into three subsamples since 2010. The selected households participated in the survey for one year, with a rotation sample method implemented.

Additionally, the study relies on external EC estimates of the consumption basket and administrative data on beneficiaries of social programs. The consumption basket serves as a reference basket to evaluate the restrictiveness of the income thresholds. As there is no official measurement of the
representative food basket in Bulgaria\textsuperscript{12}, as a relative poverty line is used for official poverty measurement in the EU\textsuperscript{13}, we use the Bulgarian food basket recently estimated by the EC within the European Reference Budget network. This food basket outlines the monthly budget for adequate food intake for three reference households (children and working-age individuals in good health, without disabilities, and residing in Sofia). The basket covers expenses for food and kitchen equipment essential for preparing, serving, consuming, and preserving the food. Additionally, it considers the budget required for physical activity and other aspects of food, such as its social function—the estimation of the Bulgarian basket under the European Reference Budget network\textsuperscript{14} in 2015. The administrative data is used to model the program beneficiaries in the surveys. Frequently, the survey figures related to population variables, income, consumption, fiscal interventions, etc., do not align with the totals derived from administrative accounts.

Commitment to Equity Model (CEQ) and Modeling of Social Transfers

This study uses the CEQ model and infrastructure developed by Robayo and Cabrera (2024). The fiscal incidence approach aims to help through a comprehensive tax/benefit system assessment using a diagnostic tool called the Commitment to Equity Assessment (CEQ). The CEQ approach is among the first efforts to comprehensively assess the tax/benefit system in developing countries (including indirect subsidies and taxes and in-kind benefits in the form of free education and health care) and to make the assessment comparable across countries and over time.

The analysis uses a national poverty measure, specifically the "at-risk of poverty" indicator, as its primary metric and investigates how policy reforms can influence this measure. In the European Union context, this evaluation generally involves a comparative analysis of the "at-risk-of-poverty" rates with and without the proposed policy reforms. Both poverty rates are determined using the same poverty threshold, set at 60 percent of the national median adult equivalent disposable income as of 2020. It's important to note that the estimates presented in this report are based on the data from CEQ Bulgaria (Robayo-Abril & Cabrera, 2023). The findings from this updated analysis reveal that, despite the policy reforms considered, the impact of fiscal measures on poverty and income inequality remains relatively limited.

There are several advantages of using the CEQ and not individual microsimulation of the MSA reform scheme. The CEQ approach considers the whole fiscal system, taking into account not only social transfers

\textsuperscript{12} The Bulgaria NSI publishes the Price Index of a Small Basket (PISB), which comprises about 100 goods and services considered socially useful and vital for living. The aim is to gather representative country data on prices paid by households for these items and calculate indices reflecting their changes over time. The PISBs focus on goods and services essential for the biological and social existence of individuals or households with relatively low incomes, using expenditure data from the lowest income 20\% of households. The methodology aligns with the calculation procedure for the Consumer Price Index (CPI). However, this Index of consumer basket measures only the change of prices and, therefore, is defined as a "pure price change" index. They do not measure the cost of living and are not the cost of living indices.

\textsuperscript{13} In countries where official poverty is measured using consumption, national extreme poverty lines are anchored to the cost of a food basket.

\textsuperscript{14} Reference budgets have been developed across the EU by the Herman Deleeck Centre for Social Policy, University of Antwerp, and DG Employment, Social Affairs and Inclusion, with the purpose of assessing income support – in particular minimum income schemes – in the EU. https://ec.europa.eu/social/main.jsp?catId=1092&intPageId=2312&langId=en
but also tax policy and public spending, as well as the interaction between these policies. In contrast, individual microsimulations focus only on a single program or policy and do not account for the broader fiscal context. Furthermore, the CEQ approach evaluates the combined impact of different policies on poverty and inequality, which is especially important given that many households receive multiple social transfers and are affected by multiple tax policies. By analyzing the entire fiscal system, policymakers can identify where the system is failing to address poverty and inequality adequately and can design more effective policies to address these challenges.

**Given the purpose of this paper, we refine and improve the modeling of social transfers to better identify social program beneficiaries using eligibility conditions.** In the 2018 CEQ (Vaughn & Cabrera, 2022), most social protection transfers were assessed using the direct identification method, an important limitation for assessing social transfers. This method primarily relies on the responses provided by households in the survey concerning social exclusion transfers. However, these responses typically lack the granularity needed to discern the exact nature of the transfers received. In other words, the dataset does not specify whether the reported transfers pertained to the heating allowance, the Monthly Social Allowance (MSA) scheme, or other non-contributory, means-tested programs. Furthermore, when comparing the reported figures related to social exclusion transfers, a significant discrepancy emerged between the total expenditure calculated from the dataset and the figures reported in the Survey on Income and Living Conditions (SILC). This discrepancy further complicates the accurate assessment of the effectiveness and impact of various social protection programs.

**In addition to identifying individual social programs, using self-reported information on household surveys to capture beneficiaries of social programs may lead to bias due to measurement error, as documented in the literature.** Survey data capturing social benefits, such as the SILC data, often undergo harmonization processes. Still, it may exhibit bias because lower-income households tend to underreport the benefits they receive. This underreporting is typically attributed to difficulties in recalling specific benefit details or a reluctance to disclose such information due to social stigma or other factors, such as survey respondents confusing social benefits with earnings (Bargain et al., 2012; Figari et al., 2012; Lynn et al., 2004; Bollinger & Tasseva, 2023, Meyer, 2019). Survey underreporting of transfer programs carries significant implications for our analyses of low-income populations, as this bias may result in an underestimation of the actual level of support offered by Minimum Income (MI) programs. Relying solely on survey data markedly understates the income of poor households, which could lead to a skewed and inaccurate representation of their welfare. Moreover, it can distort our comprehension of how effectively these programs are targeting those in need, and, perhaps most importantly, it can significantly downplay the actual impact of anti-poverty initiatives. In essence, survey underreporting undermines our ability to

---

15 In the SILC, mean-tested noncontributory programs are captured in the variable HY063 (means-tested, non-contributory social exclusion not elsewhere classified). These include means-tested social assistance (GMI), heating allowances, and other benefits aiming to support low-income families with children, including the monthly child allowance, the monthly allowance for raising a child under the age of one, targeted allowance for schoolchildren enrolled in 1st grade at a state or municipal school, and other non-contributory and means-tested benefits including 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 GMI and the heating allowances cannot be directly identified from the household survey. Therefore, these benefits need to be simulated in the survey using eligibility conditions and administrative data on beneficiaries.
assess, understand, and gauge the actual effectiveness of these vital programs in alleviating poverty and enhancing the livelihoods of disadvantaged individuals and families.

**Considering the abovementioned constraints and limitations, this paper adopts a distinct approach to address the issue.** Instead of relying solely on survey data, we employ a simulation method to assess the performance of the Monthly Social Allowance (MSA) and heating allowance programs. This simulation draws upon eligibility criteria and administrative data to accurately represent the benefits provided to eligible households. The simulation involves utilizing several household-level variables in the Survey on Income and Living Conditions (SILC) to determine potentially eligible households using the program's parameters specific to 2020. These are used to calculate the DMI coefficient factor. Subsequently, this factor is multiplied by the base amount for 2020/2021, which stood at 75 Bulgarian leva (BGN) before the reform. The result is a more precise estimation of the benefits that these social assistance programs would provide. This approach allows us to access valuable information about DMI for various categories of individuals, ensuring a more nuanced and accurate evaluation of the MSA and heating allowance programs. By mitigating the reliance on survey data and introducing administrative parameters, we enhance our ability to understand and analyze the impact of these programs on the targeted beneficiaries, providing a more comprehensive and reliable assessment of their effectiveness.

With this approach, we can identify information about DMI for the following categories of persons:

- people over the age of 75 living alone
- people over the age of 65-75 living alone
- people over 65 years old cohabiting with others
- people under 65 years living alone
- people under 65 years old living with others
- people with reduced working capacity (50% or more)
- people with reduced working capacity (75% or more)
- all children and youth in education
- for children attending school
- for children not attending school

**Since not all households that meet the potential eligibility criteria receive the benefits, estimating the take-up rate for the Monthly Social Allowance (MSA) scheme is important.** To determine this take-up rate, we compare the estimates of beneficiaries based on administrative data with those from the simulated survey data. In our estimation, we calculated the number of beneficiaries and the total benefits derived from the survey data. Notably, these figures were higher than the corresponding administrative data figures reported by the government, particularly for the MSA program, and slightly higher for the heating allowance. These disparities can be attributed to various factors, including the lack of modeling

---

16 We thank Lucian Bucur for previous versions of the Stata code to model the GMI, which was further developed and incorporated into the CEQ model infrastructure for this estimation.

17 See Annex 1 for details.

18 According to the survey, the beneficiaries were 42,600 households, but according to Bulgaria’s government administrative data, the coverage was 23,702 in 2020. Regarding the heating allowance, the beneficiaries were 264,771 in the household survey and 283,680 in administrative data. For heating allowance, we assumed 99% take-up in the baseline scenario, and the total beneficiaries were 265,896. The GMI estimated benefits were higher than
of additional eligibility conditions that were not included in our modeling due to a lack of available data (i.e., asset test, as explained below). These unmodeled conditions further restrict the number of households eligible to apply for the program, leading to differences in the number of beneficiaries between the administrative and survey data.

To estimate the take-up rate, we exploit the difference between the simulated number of potentially eligible households, as estimated from the Survey on Income and Living Conditions (SILC) data, and the total number of beneficiaries, as reported in the administrative data. In this process, we randomly assign beneficiaries among potential eligible households to match the administrative records. This approach helps us account for the complexities associated with eligibility criteria and take-up rates, allowing for a more comprehensive and nuanced assessment of the MSA and heating allowance programs.

**Microsimulation Techniques**

Finally, we use microsimulation techniques to evaluate policy scenarios and identify the most significant impact on poverty and inequality reduction. The simulation of policy reforms involves modeling the impact of policy changes on poverty and inequality indicators by comparing pre-reform vs post-reform income distributions. This analysis helps policymakers understand the effects of different policy packages on poverty and inequality and identify the most effective interventions to reduce them. This approach can help inform the design of more effective and equitable social policies and ensure that resources are targeted to those most need them.

Changes in social assistance programs, such as the Monthly Social Allowance (MSA) scheme and heating allowance, can impact household and individual welfare through several transmission channels. These channels can be categorized into three main components: eligibility, transfer size, and program take-up.

- **Eligibility:** Changes in the eligibility criteria of social assistance programs can directly influence which households or individuals qualify for the benefits. If, for example, the reference value for the MSA is increased, a more significant portion of the population would meet the new eligibility requirements, thus expanding the pool of potential beneficiaries. In the context of the heating allowance and the MSA scheme, specific income thresholds mainly determine eligibility, and altering these thresholds could affect the number of households eligible for this assistance.

- **Transfer Size:** The transfer size refers to financial assistance provided to eligible households or individuals. When the reference value for a program like the MSA is increased, it leads to larger benefit payments to those who qualify. Each eligible household's transfer size usually remains the same regarding the heating allowance. This factor is essential for assessing the overall impact of social assistance programs since larger transfers can provide more substantial financial relief to recipients by pushing them out of poverty or reducing the depth of poverty, i.e., how close they are to the poverty line.

- **Program Take up:** Program take up reflects the extent to which eligible individuals or households actually apply for and receive the assistance they are entitled to. A more generous or attractive social assistance program, whether the MSA or the heating allowance, will likely encourage greater take-up. For instance, higher benefits through the MSA may motivate more eligible individuals to enroll in the program. However, as noted, this aspect might not be as relevant for

---

Administrative data, 53.9 million vs. 28.4 million BGN. For the heating allowance, the estimated benefits were 131.3 million vs. 140.2 million BGN in administrative accounts.
the heating allowance since its take-up rate is already close to 100%; according to SILC 2021, nearly all eligible households are already receiving the benefit.

In summary, while the MSA may impact all three channels, the heating allowance primarily operates through changes in eligibility, given that the transfer size is typically fixed, and program take-up is already relatively high.

In assessing the impact of policy changes related to social assistance programs like the Monthly Social Allowance (MSA) and heating allowance, we evaluate various outcomes to gain a comprehensive understanding of the implications of the reform. The simulations aim to comprehensively assess the proposed policy change to determine the overall effectiveness and social impact. The outcomes included in this analysis can be broken down into several key components:

- **Program Coverage**: This refers to the number of households receiving assistance under the revised policy. When changes are made to programs like the MSA or heating allowance, it is essential to determine how many more households would become beneficiaries due to these adjustments. A higher number of beneficiaries reflects the expansion of the program's reach. Coverage is a percentage of households participating in the program by income decile (calculated as market income plus pensions).

- **Program Adequacy/Generosity**: Adequacy assesses whether the benefits provided under the new policy are sufficient to address recipients' needs. It examines how the increased benefits can alleviate financial hardship and improve the well-being of eligible individuals or households. This is crucial for determining the real impact of the policy change on those it is intended to help. Adequacy is measured as the total transfer amount received by all beneficiary households in each decile as a share of the total income of beneficiaries in that group.

- **Impacts on Inequality**: One key objective of social assistance programs is to mitigate income inequality. The impact on inequality assesses whether the policy changes lead to a more equitable income distribution. It is measured as the per adult equivalent Gini index change before and after policy.

- **Impacts on Poverty Rate**: Poverty reduction is a primary goal of many social assistance programs, particularly poverty-targeted programs. By estimating the impact on poverty, policymakers can understand whether the policy changes effectively lift individuals or households out of poverty, ultimately improving their quality of life. The impact is measured as the change in the AROP rate before and after the policy change (with a fixed poverty line before the policy change).

- **Impact on the Poverty Gap**: The poverty gap measures the depth of poverty experienced by individuals or households. It quantifies how far below the poverty threshold their income falls. A reduction in the poverty gap indicates a positive effect of the policy change as it indicates that those in poverty are moving closer to the threshold. It is measured as the change in the AROP gap rate before and after policy (with a fixed poverty line). The at-risk-of-poverty gap is calculated as the difference between the median equivalized disposable income of people below the at-risk-of-poverty threshold and the at-risk-of-poverty threshold, expressed as a percentage of the at-risk-of-poverty threshold (cut-off point: 60% of national median equivalized disposable income).

- **Total Benefits (Fiscal Cost of the Policy Change)**: This aspect involves estimating the total cost to the government associated with implementing the policy change. It considers the increased
financial burden resulting from higher benefit amounts and a more significant number of beneficiaries.

Limitations

Despite its usefulness, this study suffers from some modeling limitations.

First, estimates of coverage may be interpreted as an upper bound. Due to limited information in the household survey data, the study did not estimate the factor for some groups: Identifying orphans, children accommodated with another family, or pregnant women 45 days before the term was not possible. Additionally, it is important to note that some crucial parameters of the DMI were not included in the simulation, and this omission may have implications for the overall results. The DMI has different scores if children attend school, and the survey lacks this data for ages between 11 and 13. So, we assumed all children from that age group went to school. Furthermore, additional asset and employability criteria were not included in the model due to insufficient data available from the household survey. While we have data on the unemployed, specifics regarding their registration with the employment agency are unavailable. The exclusion of these parameters may affect the accuracy and comprehensiveness of the analysis. Moreover, the survey does not comprehensively account for income from capital. Given these additional eligibility constraints, our coverage estimates may be an upper bound.

Second, the model does not consider behavioral responses, which may include a higher program take-up or a more substantial disincentive effect. An increase in the take-up rate of benefits is possible, though the extent of this increase remains uncertain. Encouragingly, higher take-up rates could mean that more eligible households access the assistance they are entitled to, potentially leading to a broader positive impact on poverty reduction. Additionally, the model does not estimate the potential disincentive effects of the MSA reform. The evidence on the disincentive effects of Monthly Social Allowance programs across Europe is mixed. Terracol (2009) reveals that the French guaranteed income program, the RMI, initially exerts a strong disincentive effect, particularly in the first few months of participation. Still, this effect tends to diminish after approximately six months. Moreover, household composition appears to influence how program participation impacts individuals. Coady (2021) delves into the design of means-tested Monthly Social Allowance schemes in various European nations, highlighting the delicate balance between alleviating poverty and managing work disincentives. Many countries prioritize employment incentives over poverty reduction by combining low-benefit generosity with modest benefit withdrawal rates. Lastly, Gouveia (1999) examines the impact of the Portuguese Minimum Guaranteed Income Program (RMIG) and identifies a small, positive effect on reducing inequality and poverty. However, the gains are somewhat offset by labor supply effects.

19 These include restrictions on assets, which are also subject to a test, and registration of the unemployed in the Employment Agency (see Annexes 2 and 3 for detailed eligibility criteria). In the SILC survey data, we cannot identify the registered unemployed, or the number of months this group is registered in Public Employment Services. In addition, we cannot identify whether the number of homes the household owns, and consequently the number of rooms in the first home. It was not possible to use another survey (e.g., Household budget survey) to estimate the likely magnitude of these limitations, as the income-poor from the HBS are not the same income-poor from the SILC. There are sizable divergences in the incidence of income poverty using both surveys.
Finally, the study’s beneficiaries represent a sample of low-income households eligible for these benefits, with a take-up rate estimated in the baseline year (2020). However, given the lack of detailed information about the characteristics of households that are more likely to receive benefits, selecting beneficiaries was conducted randomly. While this approach provides a reasonable approximation, further research on the specific attributes of benefit recipients could enhance the precision of the findings and inform more targeted policy adjustments.

IV. Results

This section presents the main results. First, it examines the effectiveness and poverty-reduction impact of the Monthly Social Assistance (MSA) and Heating schemes before the policy reform of the social support system. Then, it assesses the potential impacts of the reform by assessing how restrictive the income thresholds are compared to the consumption basket and using microsimulation techniques to evaluate the potential welfare impacts of the reform. By delving into different policy scenarios, we aim to gain a deeper understanding of the potential implications and ramifications of these policy adjustments, particularly in their impact on poverty incidence, poverty gap, and income inequality.

Assessment of the MSA and Heating Scheme effectiveness and poverty reduction impact under Baseline Scenario (before the Policy Reform)

Our analysis indicates that the take-up of the MSA is significantly lower than the heating allowance. Our estimated take-up rates are 56% for MSA and 99% for the heating allowance. These findings bear significant policy implications, suggesting potential areas for intervention to tackle barriers to enrollment in safety net programs.

Our results show that while the MSA scheme exhibits strong targeting, its coverage of the poor and generosity are relatively low. In this baseline scenario, we simulate the benefits in line with the 2020 income data, which is part of the CEQ fiscal incidence analysis. We consider the existing MSA rules and replicate the total number of beneficiaries based on administrative data. This scenario illustrates that the MSA benefit reaches only 11.5% of households in the first decile (Figure 5, Panel a) and extends to just 2.9% of poor households. Regarding benefit incidence, the MSA benefits are concentrated in the first decile (Figure 5, Panel b). When looking at adequacy, the benefits provided by the MSA account for just 4.4% of the pre-fiscal income (Market Income plus pensions) for the first decile, indicating a relatively low level of generosity (Figure 5, Panel c). In terms of its impact, the MSA shows no significant effect on income inequality, and its marginal impact on poverty reduction is relatively modest, with a noticeable reduction in the poverty gap by only 0.11 percentage points.

Comparing these findings to previous assessments, the MSA’s coverage for the first quintile in 2020 mirrors the previous estimate. Although the level of generosity is relatively low, it does exhibit a slight improvement compared to estimates from 2013/2014 (World Bank, 2020). These results underscore the need for further evaluation and potential adjustments to the MSA scheme to enhance its effectiveness in addressing poverty and income inequality.
Conversely, although effective for a limited period each year (five months), the heating allowance exhibits more extensive coverage than the Monthly Social Allowance (MSA). The coverage of the heating allowance extends to households in the fifth decile, with more than half of the benefits going to the first decile and less than one-third being directed to those in the second decile (as indicated in Figure 6, Panels A and B). Notably, this assistance covers approximately one-third of the poor population, surpassing the coverage achieved by MSA, although it remains relatively modest. Despite its broader reach, the heating allowance’s impact on reducing income inequality is barely perceptible. Additionally, its marginal effect on poverty reduction is minimal, with its primary influence observed in a relatively small reduction in the poverty gap (Figure 6, Panel D). While the absolute value of reducing the poverty gap is notable, it underscores the complexity of addressing poverty and inequality and the importance of considering various factors, including the duration and timing of assistance, when designing effective policies to improve the economic well-being of vulnerable populations.
Figure 6. Performance and Poverty and Inequality Impacts of the Heating Allowance under Baseline Scenario (pre-reform)

a. Coverage (% of households in each decile)  

b. Benefit incidence (% benefits allocated to each decile)

c. Generosity (benefits as % of MYPP)  

d. Inequality, poverty, and the poverty gap impact

Source: Own estimates using CEQ and Bulgaria SILC 2021

Note: MYPP refers to Market Income Plus Pensions. Deciles are income deciles. The marginal contribution is calculated by taking the difference between the inequality (or poverty) indicator without the transfer and with it. Marginal contributions to poverty are measured using at-risk of poverty lines (AROP), fixed at the baseline scenario before the reform was implemented.

When considering the combined effect of the Monthly Social Allowance (MSA) and the heating allowance, their aggregate impact on income inequality and poverty is still modest (Figure 7, panel b); this impact is slightly more pronounced than the effect of the heating allowance in isolation. This observation underscores the limited magnitude of change brought about by these transfers in the broader context of income distribution and poverty reduction. Interestingly, one key takeaway is that the primary beneficiaries of this combined assistance are the households in the first decile. This is primarily because the MSA is exclusively directed toward this decile, augmenting the support provided by the heating allowance. In essence, these households in the lowest income bracket experience a more substantial increase in their total assistance due to the combined support of the MSA and the heating allowance (Figure 7 panel a).
Poverty and Distributional Impacts of the Policy Reform

How restrictive are the income thresholds after the Reform? A comparison with the Bulgarian Food Basket

This section examines the stringency of the income thresholds and parameters established for the Monthly Social Allowance (MSA) program. To gauge this, we compare the income thresholds with the cost of a standard Bulgarian food basket. This comparative assessment provides valuable insights into the MSA program’s adequacy in meeting eligible individuals and households’ basic nutritional and sustenance needs.

In principle, the core MSA benefit should guarantee individuals access to a comprehensive set of goods and services that satisfy the minimum living standards accepted by society. This encompassing benefit covers a full consumption basket necessary to meet basic needs. Therefore, to determine the adequacy of a means-tested benefit, the income level of a Bulgarian family can be compared to the amount of income needed to buy a basket of goods and services that a household needs to enjoy a minimum standard of living. The benchmark income for the comparisons is generally created by establishing a basket of minimum goods and services costed at current price levels, usually called the minimum consumption basket. The amount of the minimum basket may vary from the minimum food basket necessary for survival to "comprehensive" baskets, which, in addition to food, include the cost of clothing, shelter, education, and health as minimum preconditions for a life with dignity. Suppose the family’s income falls short of the cost of the basket for the family type. In that case, a household with a specific demographic composition- the difference between the household income or potential income and the basket cost should be the social assistance benefit paid to the family. Adopting an absolute poverty line based on the cost of a minimum basket assists in establishing the adequacy of social benefits. This approach contrasts with the relative concept of welfare (such as a relative poverty line), as it is linked to a minimum living cost rather than being defined by one’s position in the income distribution.
In Bulgaria, the income thresholds determining MSA eligibility vary by household type. Table 2 Panel A shows the differentiated minimum income of each family member before and after the reform (in 2020 currency). The coefficient for different individual types has experienced some changes, while the new benchmark has also been adjusted. Previously, the benchmark was based on the GMI indicator (75 BGN), but it has now shifted to 30% of the at-risk poverty threshold, estimated at 504.3 BGN per month using SILC 2021 data (income year 2020).\(^{20}\) This represents substantial increases in the value of the threshold. Table 2 Panel B below shows the differentiated minimum income of the family (DMI) for different family types, both before and after the reform. To exemplify these rules, the monthly income eligibility threshold for a family composed of a single parent and a child younger than 3 was 158 BGN before the reform. It increased to 332 BGN after the reform. Before the current MSA reform, these nominal thresholds were constant and not adjusted by inflation, so they have decreased in real terms, becoming more restrictive over time.

Table 2. Differentiated Minimum Income (before and after reform)

<table>
<thead>
<tr>
<th>Panel a. Differentiated minimum income of each individual in the family (DMI),</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-reform (Percentage of GMI Indicator)</strong></td>
</tr>
<tr>
<td>Persons over 75 years of age living alone</td>
</tr>
<tr>
<td>Persons over 65 years of age, living alone</td>
</tr>
<tr>
<td>Person up to 65 years of age, living alone</td>
</tr>
<tr>
<td>Persons over 65 years of age</td>
</tr>
<tr>
<td>Adults in multi-adult households</td>
</tr>
<tr>
<td>Person, cohabiting with another person (persons) or family, and for each of the spouses living together</td>
</tr>
<tr>
<td>Children till 16 years of age and if he/she studies – till graduation of secondary education, but not more than 20 years of age</td>
</tr>
<tr>
<td>Orphan child: a child accommodated in a family of close friends or relatives or a receiving family</td>
</tr>
<tr>
<td>For a parent bringing up alone child/children up to 16 years of age, and if he studies – till graduating of secondary or professional education, but not more than 20 years of age –</td>
</tr>
<tr>
<td>Parents bringing up alone child/children up to 3 years of age</td>
</tr>
</tbody>
</table>

\(^{20}\) At the time of this study, 2022 SILC estimates were not available.
Panel b. Differentiated minimum income of the family (DMIf) by family type, BGN per month, 2020

<table>
<thead>
<tr>
<th>Family Type</th>
<th>Percentage of GMI</th>
<th>2020 BGN</th>
<th>Percentage of 30% AROP Poverty Line</th>
<th>2020 BGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Person over 75, living alone</td>
<td>165</td>
<td>123.8</td>
<td>165</td>
<td>249.6</td>
</tr>
<tr>
<td>Single persons over 65 years of age, living alone</td>
<td>140</td>
<td>105.0</td>
<td>165</td>
<td>249.6</td>
</tr>
<tr>
<td>Single Parent with 1 child &lt;3</td>
<td>211</td>
<td>158.3</td>
<td>220</td>
<td>332.8</td>
</tr>
<tr>
<td>Single Parent with one child &gt;16 and studies</td>
<td>191</td>
<td>143.3</td>
<td>220</td>
<td>332.8</td>
</tr>
<tr>
<td>Single Parent with 2 children &lt;3</td>
<td>302</td>
<td>226.5</td>
<td>320</td>
<td>484.1</td>
</tr>
<tr>
<td>Single Parent with 2 children&gt;3 &amp; &lt;16</td>
<td>282</td>
<td>211.5</td>
<td>320</td>
<td>484.1</td>
</tr>
<tr>
<td>Family with two parents with 1 child</td>
<td>223</td>
<td>167.3</td>
<td>300</td>
<td>453.9</td>
</tr>
<tr>
<td>Family with two parents with 2 children</td>
<td>314</td>
<td>235.5</td>
<td>400</td>
<td>605.2</td>
</tr>
<tr>
<td>Single person up to 65 capable of work</td>
<td>73</td>
<td>54.8</td>
<td>165</td>
<td>249.6</td>
</tr>
<tr>
<td>Single persons incapable of work</td>
<td>73</td>
<td>54.8</td>
<td>165</td>
<td>249.6</td>
</tr>
</tbody>
</table>

Source: Own estimates based on OECD (2020) and Rules for Implementing the Law on Social Assistance (amended June 1, 2023).

Note: The reform affected the basis for the Differentiated Minimum Income, from the GMI to 30% of the AROP poverty line. However, it did not change the percentages assigned to each individual. In panel b, the differentiated minimum income of the family (DMIf) is calculated as the sum of the individual DMI of each family member.

The new income eligibility thresholds are still low compared with the estimated value of the Bulgarian food basket, limiting coverage of the bottom quintile. The Bulgarian food basket indicates the monthly budget needed for an adequate food intake by three reference households (consisting of children and people of working age, in good health, without disabilities, and living in Sofia). The basket includes a food budget and kitchen equipment required to prepare, serve, consume, and preserve this food. Furthermore, it considers the necessary budget for physical activity and other food functions, such as its social functions. In 2015, the Bulgarian basket was estimated under the European Reference budget network. The food basket has been developed following nutritionist recommendations and national dietary guidelines and considering the cultural specificities of Bulgarian heating habits. The feasibility and acceptability of the basket have been verified through focus group discussions involving citizens with different socio-economic backgrounds. The estimates show that in 2015, the monthly budget required for

---

21 Notice the food basket does not take into account spatial differences in living standards since it was estimated for those living in Sofia. The specific constitution of the nutritious food assortment aligns with the national dietary recommendations. The Ministry of Health has formulated a National Nutrition Action Plan, assigning the task of creating guidance for wholesome eating to the National Centre of Public Health Protection.

22 Reference budgets have been developed across the EU by the Herman Deleeck Centre for Social Policy, University of Antwerp and DG Employment, Social Affairs and Inclusion, with the purpose of assessing income support – in particular minimum income schemes – in the EU. [https://ec.europa.eu/social/main.jsp?catId=1092&intPageId=2312&langId=en](https://ec.europa.eu/social/main.jsp?catId=1092&intPageId=2312&langId=en)
a healthy diet in Bulgaria was EUR 169 for a single person and EUR 635 for a family of two adults and two children. If the budget needed for physical activity and for the other functions of food (eating out, holidays, etc.) is also taken into consideration, the total monthly food budget amounted to EUR 196 for a single person and EUR 690 for a family of two adults and two children (Table 3). When converted to 2020 Bulgarian Levas using official food CPIs, these monthly food expenditures correspond to BGN 387 for a single person and BGN 1,455 for a family of two adults and two children. In relation to the AROP poverty line, the cost of a food basket for a single person amounts to approximately 76% of the 2021 AROP poverty line (based on the 2020 income year). The corresponding food basket represents about 137 percent of the AROP corresponding poverty line for a family consisting of two adults and two children.

Table 3. Cost of Food Basket Estimates, Monthly Average

<table>
<thead>
<tr>
<th></th>
<th>2015 Euros</th>
<th>2015 BGN</th>
<th>2020 BGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Person</td>
<td>169</td>
<td>330</td>
<td>387</td>
</tr>
<tr>
<td>Single Parent and One Child</td>
<td>330</td>
<td>644</td>
<td>755</td>
</tr>
<tr>
<td>Single parent and Two Children</td>
<td>490</td>
<td>958</td>
<td>1,122</td>
</tr>
<tr>
<td>Family of two adults and one child</td>
<td>499</td>
<td>975</td>
<td>1,142</td>
</tr>
<tr>
<td>Family of two adults and two children</td>
<td>635</td>
<td>1,242</td>
<td>1,455</td>
</tr>
<tr>
<td>Single Person, Including physical activity and other functions</td>
<td>196</td>
<td>383</td>
<td>449</td>
</tr>
<tr>
<td>Family of two adults and two children - Including physical activity and other functions</td>
<td>690</td>
<td>1,349</td>
<td>1,581</td>
</tr>
</tbody>
</table>

Source: Own estimates based on EC reference food baskets, official Food CPI estimates, and a 2015 exchange rate of 0.5114 EUR/BGN.

While significantly less restrictive, the new income eligibility thresholds resulting from the reform are still below the Bulgarian food basket for all household types; this means that Bulgarian families who have insufficient income to satisfy adequate food intake but are still above the current eligibility thresholds are not eligible for the MSA benefit. We compare the food basket’s cost with the family’s differentiated minimum income for different family types before and after the reform (Figure 8). The comparison shows a substantial increase in the minimum income thresholds; however, the food basket cost is still significantly higher than the eligibility thresholds for different family types, suggesting that the post-reform income thresholds are still restrictive. For example, a Bulgarian family of two parents with two children earning more than 605 BGN per month in 2020 is not eligible for the MSA benefit, given that their income surpasses the maximum income threshold. However, the monthly budget in 2020 needed for an adequate food intake for this family is estimated to be 1,455 BGN (Figure 8), while the relative poverty line (AROP) for this type of family was 1,059 BGN (in 2020). Despite being at risk of poverty and unable to buy a minimum food basket, this family cannot cover the shortfall with the MSA benefit under the updated formula. Figure 8 below shows that these restrictive income thresholds disproportionately affect families with more children (2 or 3 children), which are overrepresented among the poor. There is scope for increasing these income eligibility thresholds closer to the levels of the Bulgarian food basket to

24 The yearly official at-risk of poverty thresholds for survey year 2021 and income reference year 2020 are 6,052 BGN for single person households, and 12,709 for a family of two adults with two children younger than 14 years, equivalent to 504 and 1,059 BGN per month.
25 For these types of households, the estimate of the Bulgarian food basket is slightly below the 2019 AROP poverty line (BGN 4,478 per month).
increase coverage among families currently excluded, whose income is still below the minimum income needed for an adequate food intake.

**Figure 8. Differentiated minimum Income of the Family (Pre and Post Reform) vs. Cost of Bulgarian Food Basket by Family Type**

The income eligibility thresholds and benefit levels must be adjusted to increase coverage for the poor. This can be done by closely tying the levels to the value of the Bulgarian food basket; the base needs to be adjusted, and the weights in the equivalence scale so that families with children are not particularly penalized, given their minimum cost of living needs. The Reform is moving in the right direction by relaxing the eligibility threshold, but it is not yet linked to a reference budget.

Next, we present a microsimulation of the recent GMI policy reform, which is critical for evidence-based decision-making, as it offers detailed insights into how changes in GMI parameters affect individuals and households. Microsimulation allows for a detailed, granular analysis of the potential impacts of GMI policy reforms at an individual or household level. Moreover, it provides a way to simulate ex-ante the potential consequences of policy changes by simulating how these changes would affect different demographic groups, income levels, and family compositions to inform evidence-based decision-making. Finally, it helps evaluate the effectiveness of GMI policy reform in achieving its objectives, such as reducing poverty, improving income inequality, and enhancing social well-being. This information is essential for assessing whether proposed reforms will have the desired impact.

**Microsimulations of Policy Reforms**

We conducted two policy scenarios to account for the uncertainty surrounding the take-up of the Monthly Social Allowance (MSA) program, particularly under a parametric policy reform.
The first policy scenario involves modifying the MSA program, explicitly increasing the value of the income thresholds consistent with the reform, assuming the same take-up rate as in the pre-reform scenario. The MSA income threshold was raised from the existing 38 monthly euros (equivalent to 456 euros annually) to a new threshold, which was set at 30% of the at-risk-of-poverty (AROP) poverty line for the year 2020, amounting to an annual income of 928 euros. This change represented a substantial increase in the differentiated minimum income of the family compared to the baseline. Under this scenario, the take-up under the policy reform is the same as the one estimated for the baseline.

The second policy scenario involves the same policy change but with an assumption of a 100% take-up rate. This scenario aims to estimate the maximum potential impact of the MSA reform. Additionally, both scenarios incorporated the effect of adjusting the Differentiated Minimum Income for Heating (DMIH), a related social assistance program. The DMIH uses the MSA as one of its parameters to determine eligibility for a monthly benefit. Specifically, households with incomes below the DMIH threshold were eligible for a monthly heating allowance of 74.83 Bulgarian leva (BGN) during the heating season. The monthly value of the heating allowance for 2022/2023 was increased to 109.39 BGN. These simulations focused on expanding the coverage of households eligible for the DMIH while keeping the monthly benefit amount unchanged.

These two scenarios provide insights into how different policy changes, such as increasing base value or improving take-up rates, might impact social assistance programs' performance and effectiveness in alleviating poverty and reducing inequality in Bulgaria. It allows policymakers to assess the potential outcomes of these changes and make informed decisions regarding the design and implementation of social policies.

Policy Scenario 1: GMI increase and constant take-up.

In this policy scenario, we undertake a simulation consistent with the reform of the Monthly Social Allowance (MSA) program. This implies an increase in the GMI base from its previous value of 75 Bulgarian Leva (BGN) to 30% of the at-risk-of-poverty (AROP) poverty line. This adjustment assumes that the estimated take-up rate from survey data remains constant. This scenario is not limited to the MSA alone. It also considers its interaction with the heating allowance, which is instrumental in addressing seasonal affordability challenges, particularly those related to heating expenses. With the higher threshold, more households would now meet the criteria to access these benefits, based on data from the 2021 Survey on Income and Living Conditions (SILC). We assumed that the take-up rates would remain consistent with our earlier estimates of 56% for MSA and 99% for the heating allowance.

Under this government reform, the increase in the MSA's base value results in a tangible expansion of its coverage. This coverage now extends up to the second decile, encompassing a more significant proportion of the population in need (Figure 9, panel a). Additionally, the financial support provided through these programs witnessed a notable uptick. According to our estimates, the number of households benefiting from these schemes would rise from 24,000 to 84,000, and the total benefits disbursed would increase substantially, reaching nearly BGN 230 million.

However, it is important to note that while these adjustments notably impact the number of beneficiaries and the total resources allocated, the effects on poverty and income inequality remain modest. The primary influence is seen in a more pronounced reduction in the poverty gap, highlighting the challenges of crafting policies that meaningfully alleviate poverty and reduce inequality (Figure 9, panel d). This scenario demonstrates the intricate balance between increasing program coverage and
enhancing the overall impact on poverty, underscoring the need for comprehensive approaches to addressing financial hardship and income disparities.

**Figure 9. Simulated Performance and Poverty and Inequality Impacts of the MSA Scheme under Policy Scenario 1**

- a. Simulated Coverage (% of decile in each decile)
- b. Simulated Benefit incidence (% benefits allocated to each decile)
- c. Simulated Generosity (benefits as % of MYPP)
- d. Simulated Inequality, poverty, and poverty gap impact

Source: Own estimates using CEQ and Bulgaria SILC 2021

Note: MYPP refers to Market Income Plus Pensions. Deciles are income deciles. The marginal contribution is calculated by taking the difference between the inequality (or poverty) indicator without the transfer and with it. The marginal contribution is calculated by taking the difference between the inequality (or poverty) indicator without the transfer and with it. Marginal contributions to poverty are measured using at-risk of poverty lines (AROP), fixed at the baseline scenario before the reform was implemented.

**The changes in the heating allowance are particularly noteworthy in this scenario.** This is primarily because the higher threshold for the Monthly Social Allowance (MSA) now extends its coverage, allowing a more substantial number of households to access the benefit. As a result, the heating allowance’s benefits become perceptible for households in higher income deciles, reaching up to the fourth decile when considering market income plus pensions (Figure 10, panel a).

**Notably, the distribution of these benefits is relatively equitable for the first three income deciles, ensuring that households across these groups receive similar levels of assistance** (Figure 10, panel b). At the same time, the generosity of the benefits demonstrates an increase, particularly for the first three deciles (figure 10, panel c). In the first decile, this increase exceeds 10% of the household's income, significantly boosting their financial well-being. However, despite the apparent pro-poor concentration of these benefits (as indicated by the negative concentration coefficient), the relatively low incidence or generosity of the heating allowance (equating to 0.26% of market income plus pensions) contributes to the lack of any significant change in income inequality. On the other hand, when considering its impact on poverty, this scenario exhibits a relatively modest marginal effect. Although the marginal contribution
to the poverty gap is more significant than the baseline scenario, the overall income inequality level remains unchanged (Figure 10, panel d).

**Figure 10. Simulated performance and poverty and inequality impacts of the heating allowance scheme under policy scenario 1**

a. Simulated Coverage (% of households in each decile)  

b. Simulated Benefit incidence (% benefits allocated to each decile)

c. Simulated generosity (benefits as % of MYPP)  

d. Simulated Inequality, poverty, and poverty gap impact

Source: Own estimates using CEQ and Bulgaria SILC 2021

Note: MYPP refers to Market Income Plus Pensions. Deciles are income deciles. The marginal contribution is calculated by comparing the inequality (or poverty) indicator without the transfer and with it. Marginal contributions to poverty are measured using at-risk of poverty lines (AROP), fixed at the baseline scenario before the reform was implemented.

The adjustment in the Guaranteed Minimum Income (GMI) significantly impacts the overall transfer coverage, doubling financial assistance. This shift in transfer coverage signifies a strategic effort to reach a broader spectrum of the population and extend the protective umbrella of social support (Figure 11, panels A and b).

The GMI increase, in conjunction with the heating allowance, results in a remarkable generosity level, particularly for households in the lower income deciles. For those in the first decile, this combination accounts for more than 40% of their total income, providing a substantial income boost (Figure 11, panel c). Similarly, the second and third deciles experience increased support, albeit slightly lesser, with close to 4% of their income originating from these transfers. In contrast, the effect is comparatively minor when considering the entire population, constituting only 0.6% of their total income.

However, despite these transfer coverage and generosity changes, their impact on poverty reduction is relatively moderate. The poverty rate decreases by 0.85 percentage points, and the poverty gap
experiences a reduction of 1.4 percentage points (Figure 11, Panel d). This outcome underscores the intricate nature of addressing poverty. It highlights the importance of considering various factors, such as the extent of change in transfer coverage, the generosity of assistance, and the diverse needs of different income groups, when formulating effective policies to reduce poverty and enhance economic well-being.

Figure 11. Simulated performance and poverty and inequality impacts of the MSA and heating allowance schemes under policy scenario 1
a. Coverage (% of households in each decile)

b. Benefit incidence (% benefits allocated to each decile)

c. Generosity (benefits as % of MYPP)

d. Inequality, poverty, and poverty gap impact

Source: Own estimates using CEQ and Bulgaria SILC 2021

Note: MYPP refers to Market Income Plus Pensions. Deciles are income deciles. The marginal contribution is calculated by comparing the inequality (or poverty) indicator without the transfer and with it. Marginal contributions to poverty are measured using at-risk of poverty lines (AROP), fixed at the baseline scenario before the reform was implemented. Notice that the coverage and benefit incidence are the same as in Figure 10, but the impacts of generosity, poverty, and inequality differ.

Finally, the fiscal cost analysis reveals moderate changes between the baseline and Policy Scenario 1. In the baseline scenario, administrative accounts show that the MSA program incurred a cost of 32.3 million BGN and a heating allowance cost of 140.2 million BGN, resulting in 172.5 million BGN. Under Policy Scenario 1, the simulations show a moderate cost increase, with the MSA program cost rising to 230.2 million BGN, heating allowance to 174.5 million BGN, and the total fiscal cost reaching 404.6 million BGN. This reflects a moderate change in fiscal spending, with an increase of 197.9 million BGN for social assistance, 30.3 million BGN for the heating allowance, and a cumulative rise of 34.2 million BGN in the total fiscal cost (table 4). These changes underscore the financial implications of the policy simulation, highlighting a moderate expansion in government expenditure in these support programs.
Table 4. Estimated Fiscal Costs, Baseline vs Policy Scenario 1, Million BGN.

<table>
<thead>
<tr>
<th></th>
<th>Social assistance</th>
<th>Heating allowance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal Cost, Baseline (Million BGN)</td>
<td>32.3</td>
<td>140.2</td>
<td>172.5</td>
</tr>
<tr>
<td>Simulated Fiscal Cost, Policy Scenario 1 (Million BGN)</td>
<td>230.2</td>
<td>174.5</td>
<td>404.6</td>
</tr>
<tr>
<td>Change in Fiscal Cost, Million BGN</td>
<td>197.9</td>
<td>34.3</td>
<td>232.1</td>
</tr>
</tbody>
</table>

Source: Own estimates using administrative accounts for the baseline and CEQ and Bulgaria SILC 2021 for the simulated fiscal costs.

Policy scenario 2: MSA and Heating Allowance increased take-up

In this specific policy scenario, the simulation involves raising the Guaranteed Minimum Income (GMI) base from 75 Bulgarian leva (BGN) to 30% of the at-risk-of-poverty (AROP) poverty line. Importantly, this scenario also assumes 100% take-up, implying that the program successfully fully reaches its intended target population. As a result of this adjustment, the coverage of the MSA extends to a larger share of the population, particularly benefiting households in the first and second deciles, albeit to a greater extent for the former. This broader coverage increases MSA's generosity, rising from 4% to 50% of market income plus pensions. In this scenario, the take-up of the heating allowance increases only marginally (from 99% in the baseline to 100% in the policy scenario).

There is a substantial increase in government expenditure, nearly increasing tenfold from 32 million to 382.6 million BGN compared to the baseline scenario; the impact on inequality remains relatively modest due to the MSA take-up increase, while the poverty impact is moderate. The poverty gap experiences a further reduction in this scenario; the overall effect on inequality appears limited, and the effect on poverty is moderate, emphasizing the complex interplay between program coverage, generosity, and take-up rates in achieving meaningful impacts on societal well-being.

Figure 12. Simulated performance and poverty and inequality impacts of the MSA Scheme under policy scenario 2

a. Coverage (% of decile in each decile)  
b. Benefit incidence (% benefits allocated to each decile)
c. Generosity (benefits as % of MYPP)

In the context of evaluating the impact of both Monthly Social Allowance (MSA) and heating allowances, a substantial portion of households in the lowest income brackets, particularly the first and second deciles, would benefit from at least one of these transfers (figure 13, panel a). Surprisingly, even households in the fourth decile would receive support. For those in the first decile, the level of generosity would be notably high, reaching approximately 28% of their income (figure 13, panel c). However, while the assistance provided to the first decile is substantial, the overall effect on inequality at the societal level remains relatively unchanged. This observation implies that although MSA plays a crucial role in directing assistance to the most financially vulnerable, the scale of its impact on broader income inequality remains limited.

Conversely, the impact on poverty levels is more pronounced than alternative scenarios (figure 13, panel d). The reduction in the poverty gap, which measures the depth of poverty, is particularly noteworthy. Nonetheless, this outcome suggests that to bring about a more substantial reduction in overall poverty rates, a further amplification of MSA or complementary poverty-alleviating measures may be necessary, given that the bulk of MSA benefits primarily the first decile, and its value has only seen marginal increases.

Figure 13. Simulated performance and poverty and inequality Impacts of the MSA Scheme and Heating Allowance under Policy Scenario 2
a. Coverage (% of decile in each decile)  b. Benefit incidence (% benefits allocated to each decile)
Finally, the fiscal cost analysis shows that, with a full take-up, the fiscal cost can increase substantially; this represents an upper bound. Under Policy Scenario 2, the simulations show a substantial cost increase, with the MSA program cost rising to almost 60% more than in the first policy scenario (146.5 million BGN more) and a similar cost for the heating allowance. The simulations show a substantial change in fiscal spending, with an increase of 350.3 million BGN for social assistance, 38.6 million BGN for the heating allowance, and a cumulative rise of 387.0 million BGN in the total fiscal cost (Table 5). These changes underscore the financial implications of the policy simulation, highlighting a substantial expansion in government expenditure in these support programs.

Finally, the fiscal cost analysis reveals that the fiscal cost can increase significantly with full uptake, representing an upper limit. Under Policy Scenario 2, simulations indicate a substantial rise in costs, with the MSA program cost nearly doubling compared to the first scenario (230.2 million BGN versus 382.6 million BGN, respectively) and a similar increase in the heating allowance fiscal cost (the change in take-up changed only from 99% to 100%). The simulations demonstrate a notable shift in fiscal spending, showing an increase of 350.3 million BGN for social assistance and 38.6 million BGN for the heating allowance, resulting in a cumulative rise of 387.0 million BGN in the total fiscal cost (Table 5).

Table 5. Estimated Fiscal Costs, Baseline vs Policy Scenario 2, Million BGN.

<table>
<thead>
<tr>
<th></th>
<th>Social assistance</th>
<th>Heating allowance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal Cost, Baseline</td>
<td>32.3</td>
<td>140.2</td>
<td>172.5</td>
</tr>
<tr>
<td>Simulated Fiscal Cost,</td>
<td>382.6</td>
<td>176.8</td>
<td>559.5</td>
</tr>
<tr>
<td>Policy Scenario 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Fiscal Cost,</td>
<td>350.3</td>
<td>36.6</td>
<td>387.0</td>
</tr>
<tr>
<td>Million BGN</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Own estimates using administrative accounts for the baseline and CEQ and Bulgaria SILC 2021 for the simulated fiscal costs.
V. Summary and Policy Insights

Bulgaria faces persistently high levels of poverty and inequality and ranks at the higher end on both indicators as compared to its EU peers. Economic growth between 2015 and 2020 initially led to improved living standards and decreased absolute poverty, but income inequality increased from 2015 to 2018 and remained high in subsequent years. The country reported elevated levels of non-monetary poverty, such as energy poverty and the inability to afford proper meals, underscoring the need for continued efforts to address these issues. The recent policy reform aimed to increase access to social support by linking the Guaranteed minimum income (GMI) to the national relative poverty line, offering social cohesion benefits. The potential impacts and alternative policy scenarios of this reform are assessed through the Commitment to Equity Assessment (CEQ) model, revealing there is scope for improvement. The context of poverty and inequality, social protection programs, and the simulated impacts are discussed, highlighting the importance of safeguarding vulnerable households and addressing the persistently high challenges in Bulgaria.

Bulgaria's social assistance programs for low-income families and individuals suffer from low spending compared to other European and Central Asian countries. Despite its good targeting accuracy, the MSA program covered only a small portion of the poorest quintile, and its generosity was particularly low. The eligibility criteria for accessing the MSA were strict, contributing to low coverage and a limited impact on poverty reduction. The MSA program's inadequacy led to only a moderate reduction in poverty, and the program's design was not adaptive to macroeconomic changes. It's crucial to reform these programs to improve coverage, adequacy, and their impact on poverty reduction. While providing some relief against energy poverty, the heating allowance faced limitations regarding coverage, eligibility criteria, and overall effectiveness due to restrictions related to the MSA and strict income thresholds.

This paper uses the Commitment to Equity (CEQ) methodology, which allows policymakers to assess various policy scenarios and their potential impact on reducing poverty and inequality. Policymakers can identify effective interventions by modeling the effects of different policy changes on poverty and inequality indicators. The CEQ tool relies on the national poverty measure, typically comparing poverty rates with and without policy reform, using a consistent threshold, such as 60 percent of the national median adult equivalent disposable income. In this study focused on Bulgaria, we used CEQ simulations to evaluate the potential impact of policy reforms and provide insights into how policy changes might affect poverty, inequality, and social assistance programs.

The baseline scenario presented the effectiveness and poverty reduction impact of Bulgaria's Monthly Social Allowance (MSA) scheme before the reform; our results show low coverage of the poorest households and limited effects on reducing poverty and inequality. The heating allowance, although providing more coverage, also had limited effects. In response to these limitations, various policy scenarios were simulated, including increasing the MSA amount, enhancing the take-up rate, and adjusting eligibility conditions.

Our analysis of the income thresholds for the Monthly Social Allowance (MSA) program post-reform reveals a concerning misalignment with the cost of the Bulgarian food basket, indicating potential inadequacies in meeting basic nutritional and sustenance needs. Though showing improvement from the previous static thresholds, the new income eligibility thresholds remain restrictive and fall below the estimated value of the food basket for all household types. This discrepancy excludes families with...
insufficient income to afford an adequate food intake but still above the eligibility thresholds for MSA benefits. Policy implications suggest adjusting income eligibility thresholds and benefit levels, closely tying them to the value of the Bulgarian food basket, to enhance coverage for the poor. While the recent MSA reform moves in the right direction by relaxing eligibility thresholds, it emphasizes the need for further alignment with a reference budget.

The policy simulations consistent with the reform revealed that increasing the MSA value and improving coverage had a limited impact on poverty and inequality. However, combining the MSA and heating allowance and enhancing the take-up rate showed more promising results, reducing the poverty gap and providing greater coverage to households in need. The study highlights the complex interplay between social assistance programs, policy reforms, and their impact on poverty and inequality. While changes to social assistance programs can improve coverage and alleviate poverty, they may not always lead to significant reductions in inequality. Policymakers must carefully consider the trade-offs and implications of different policy scenarios to design more effective and equitable social policies in Bulgaria.

The recent changes in the MSA are expected to create some relief in terms of indexation concerning the evolution of the poverty line, which is linked to the evolution of the median income. The main effect of the MSA reform is the inclusion of households in MSA and the heating allowance because the income threshold has been increased, allowing more households to become eligible for the program. There is another effect due to a higher level of MSA transfer. The budget as a share of GDP is expected to triple when an increased take-up is considered, from 0.14% to 0.46% of GDP, and represent about 0.34% of GDP if the take-up remains as was estimated for 2020.

The outcomes of these simulation scenarios shed light on the collective impact of the Monthly Social Allowance (MSA) and the heating allowance. When considered together, these measures exhibit a modest reduction in poverty levels and contribute to a decrease in the poverty gap. However, they do not appear to have a discernible impact on income inequality in any of the examined scenarios.

It is important to note that the overall effect of these policies hinges on how effectively a higher level of transfers influences the take-up among eligible households. In essence, the success of these initiatives in alleviating poverty and reducing the poverty gap is intricately linked to the extent to which those in need can access and benefit from these programs.

Furthermore, these simulations underscore the primary objective of the new GMI, which is to offer more extensive protection to Bulgarian families. While the goal is primarily to mitigate the adverse effects of poverty, the ability to significantly reduce the overall poverty rate is influenced by many factors, including the level of financial assistance, the mechanisms for reaching those in need, and the broader socio-economic context. These findings highlight the importance of comprehensive, well-targeted social safety nets and the complex interplay of factors determining their effectiveness in tackling poverty and inequality.

As with any modeling device, some limitations apply. First, the disincentives created by a higher level of social assistance are not considered. This effect needs to be correctly estimated. Even if the GMI by design has some activation measures in place\(^{26}\), the order or magnitude of these effects could be significant. This

\(^{26}\) In Bulgaria, similar to other EU Member States, the entitlement to minimum income benefits is conditional on some activation requirements, such as registration with the Public Employment Agency (see Annex 2 for details).
is an important aspect of policy design, as Individuals receiving minimum income generally encounter additional obstacles to integrating into the labor market. As a result, they need tailored support to engage actively in activation measures. Second, this study does not consider the impact of the expansion of the heating subsidy on the welfare of the energy poor, a group deemed protected by the subsidy. It only considers impacts on the income poor. While the heating allowance also increased from BGN 74.83 to BGN 151.29 per month in 2023, energy prices have risen recently, which may have affected energy poverty. Moreover, this research primarily emphasizes benefit design features and does not delve extensively into administrative costs and implementation challenges associated with these programs.

Relying solely on a relative income threshold as the sole indicator for measuring poverty and low income has substantial limitations, particularly when assessing the effectiveness of government policies. In the past decade, two key drawbacks have gained increasing prominence.

First, relying on a "relative poverty line" may fall short of accurately capturing the unique needs of marginalized groups that policymakers intend to assist. This is because such a threshold may not be established at a level that comprehensively accounts for the specific circumstances and challenges these vulnerable populations face. As a result, the yardstick for poverty may need to adequately reflect the realities of those in need.

Second, this approach can be influenced by fluctuations in a given population's average or mean income. Changes in the overall income averages may inadvertently skew the poverty measure over time. For instance, if the average income decreases, it can lead to a reduction in the relative poverty threshold, even if the minimum requirements for sustaining a decent standard of living remain constant. In this regard, the exclusive reliance on a relative income threshold may not accurately reflect whether government policies effectively achieve their objectives of poverty alleviation and income support.

In conclusion, these limitations underscore the need for a more comprehensive and nuanced approach to measuring and addressing poverty and low income. Solely focusing on relative income thresholds can only provide a partial picture of the complex and dynamic nature of poverty and may not adequately gauge the efficacy of government policies in achieving their objectives of improving the well-being of vulnerable populations.
References


http://documents.worldbank.org/curated/en/099051123175082267/P18028109bfab800b0a771047df6c90089


Annexes

Annex 1. Additional Tables and Graphs

Table A1. Key Official Poverty and Inequality Indicators

| Income Reference Year | Survey Year | At-risk-of-poverty (AROP) threshold, monthly average in BGN | Persons below the at-risk-of-poverty threshold - in thousands | At-risk-of-poverty rate (% of the population) | At-risk-of-poverty rate before social transfers (% of the population) | At-risk-of-poverty rate before social transfers with pensions included (% of the population) | Inequality of income distribution (S80/20) | Gini coefficient |
|-----------------------|-------------|----------------------------------------------------------|------------------------------------------------------------|---------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------|
| 2016                  | 2017        | 351.1                                                    | 1665                                                       | 23.4                                        | 44.8                                            | 29.2                                                                                              | 8.2                                      | 40.2           |
| 2017                  | 2018        | 351.11                                                   | 1551                                                       | 22                                          | 45.2                                            | 29.5                                                                                              | 7.4                                      | 39.6           |
| 2018                  | 2019        | 413                                                      | 1586                                                       | 22.6                                        | 42.2                                            | 29.6                                                                                              | 8.1                                      | 40.8           |
| 2019                  | 2020        | 451                                                      | 1660                                                       | 23.8                                        | 41.7                                            | 29.9                                                                                              | 8                                        | 40             |
| 2020                  | 2021        | 504.3                                                    | 1532                                                       | 22.1                                        | 44.3                                            | 31.5                                                                                              | 7.4                                      | 39.7           |
| 2021                  | 2022        | 525.92                                                   | 1572                                                       | 22.9                                        | 44.2                                            | 30.3                                                                                              | 7.3                                      | 38.4           |

Source: Official estimates from the National Statistics Office.

Table A2. Comparison of GMI Indicator and At-risk-of-poverty (AROP) threshold, Pre-Reform

<table>
<thead>
<tr>
<th>Income Reference Year</th>
<th>Monthly GMI Indicator in BGN</th>
<th>At-risk-of-poverty (AROP) threshold, monthly average in BGN</th>
<th>GMI Indicator (% AROP) or Adequacy relative to the poverty Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>75</td>
<td>351.1</td>
<td>21.4</td>
</tr>
<tr>
<td>2017</td>
<td>75</td>
<td>351.11</td>
<td>21.4</td>
</tr>
<tr>
<td>2018</td>
<td>75</td>
<td>413</td>
<td>18.2</td>
</tr>
<tr>
<td>2019</td>
<td>75</td>
<td>451</td>
<td>16.6</td>
</tr>
<tr>
<td>2020</td>
<td>75</td>
<td>504.3</td>
<td>14.9</td>
</tr>
<tr>
<td>2021</td>
<td>75</td>
<td>525.92</td>
<td>14.3</td>
</tr>
</tbody>
</table>

Source: Own estimates from National Statistics Office and OECD Tax Ben data estimates.
Annex 2. Monthly Social Allowance Scheme

This is a non-contributory, means- and asset-tested benefit, not taxable.

**Eligibility conditions**

**Asset Test**

**2020 Rules**

Monthly support is granted if the family meets the following conditions:

1. Their own home is the only one (no second homes), and it is not bigger than:
   - for one person - one room;
   - for two-member and three-member families - two-room;
   - for four-member family - three-room;
   - for five-member and larger families - four-room;
   - for every co-habitant - one room;

2. Do not have any other property, capital, or assets that might be sources of income.

**2023 Rules**

Monthly support is granted if the family meets the following conditions:

1. their dwelling is the only one;
2. not to carry out activity as sole traders and not have a share in the capital of a trading company;
3. not have receivables, income from movable or immovable property, deposits, shares, and securities, the total value of which for the individual or each of the family members exceeds the poverty line for the relevant year, with the exception of bonds or shares of the mass privatization;
4. not to have concluded a contract for the provision of property in exchange for a maintenance obligation and/or viewing; this requirement does not apply in cases where those who have taken on maintenance and/or care obligations are students, unemployed, incapacitated or disabled people;
5. have not transferred residential, villa, agricultural, or forest property and/or common parts thereof for payment or by donation in the last two years;
6. Unemployed persons should be registered in the "Labor Bureau" directorates at least three months before submitting the application declaration for social assistance.

**Income Test**

**2020 Rules**

Right to monthly social support in cash shall have persons or families whose income for the preceding month is lower than the determined differentiated minimum income (DMI). The basis for determining the differentiated minimum income is the Guaranteed minimum income (GMI), whose monthly amount is determined by an Act of the Council of Ministers. The monthly GMI level in 2020 was 75 BGN.

The differentiated minimum income is determined as follows:
• for persons over 75 years of age, living alone – 165 percent of the GMI;
• for persons over 65 years of age, living alone – 140 percent of the GMI;
• for persons over 65 years of age – 100 percent of the GMI;
• for a person cohabiting with another person (persons) or family, and for each of the spouses living together – 66 percent of GMI;
• for a person up to 65 years of age, living alone – 73 percent of GMI;
• for a child till 16 years of age and if he/she studies until graduation of secondary education, but not more than 20 years of age – 91 percent of GMI;
• For an orphan child accommodated in a family of close friends or relatives or a receiving family, it is 100 percent of GMI.
• For a parent bringing up alone child/children:
  a) up to 3 years of age – 120 percent of GMI;
  b) up to 16 years of age, and if he studies – till graduating of secondary or professional education, but not more than 20 years of age – 100 percent of GMI.

2023 Rules
Right to monthly social support in cash shall have persons or families whose income for the preceding month is lower than the determined differentiated minimum income (DMI). The differentiated income is determined based on the support basis, whose monthly amount is 30 percent of the poverty line for the respective year, adjusted with the corresponding percentage for the group to which the individual belongs, as follows:

• For a person living alone - 165 percent;
• For a person cohabiting with another person(s) or family, and for each of the cohabiting spouses - 100 percent;
• For each child up to the age of 18, and if he is studying - until the acquisition of secondary education, but no more than the age of 20 - 100 percent;
• 70 percent of absentees
• If a child from 4 to 16 years of age does not study, it is reduced by 80 percent.
• If a child between the ages of 16 and 18 does not study and is not registered with the Directorate "Labor Office," the monthly allowance is reduced by 50 percent.
• For pregnant women 45 days before giving birth and for a parent raising a child to 3 years of age - 120 percent.

For a parent raising a child/children alone to the age of 18, and if he is studying - up to the acquisition of secondary education, but no more than the age of 20 - 120 percent higher extent shall be applied in the presence of more than one of the above.

The property and living conditions of individuals or families are testified using a Social inquiry carried out by a representative of the Social Assistance directorate.

PES Registration
To qualify for this benefit, the unemployed must be registered for at least six months in the territorial unit of the Public Employment Agency (PEA) before applying for social support, have not refused a job, and be included in qualification courses and re-qualification organized by the Employment Agency.
**Benefit amount**
The amount of the monthly social assistance is determined as a difference between the differentiated minimum income (DMI), or the sum of the differentiated minimum incomes, and the income of the persons or families for the preceding month.

**Benefit duration**
No limitation.

**Means test**
The benefit is income tested. The amount of social assistance in cash depends on the gross income of the individuals for the month preceding the month of the application filing to the Social Support local directorate. Income for granting social support by order of the regulation for implementation of the Law on Social Support is all the gross income derived from:

1. labor activity;
2. activity in the field of agricultural, forest, and water farms;
3. sale and/or exchange of chattel or real estate;
4. sale of stocks, shares, and other participation in trade companies and other forms of joint activity;
5. rent and lease;
6. copyright and license remuneration;
7. dividends and income from shareholding;
8. bonuses and awards from sports events;
9. indemnifications and benefits;
10. pensions;
11. scholarship;
12. monthly benefits for children;
13. adjudicated alimony;
14. others

The amount of social assistance received is not considered as part of this income.

**Tax treatment**
Social support shall be exempt from taxes and fees.

**Interaction with other components of the tax-benefit system**
Social assistance can be received simultaneously as other benefits or incomes provided that their lump sum is lower than the corresponding differentiated minimum income(s) of individuals/ families or that the other benefits are not considered "income."

Source: OECD (2020), and Rules for Implementation of the Law on Social Assistance
Annex 3. Heating Allowance

This is a non-contributory benefit, means-tested, and not taxable.

Eligibility conditions
Support is granted if the family meets the following eligibility conditions:

Income Test
The right to receive social assistance for heating shall have persons or families whose average gross income for the preceding six months is lower or equal to the determined Differentiated Minimum Income for Heating (DMIH).

2020 Rules
The Basic Income for Heating (BIH) was twice the GMI indicator in 2020, i.e. 150 BGN. The DMIH is determined as follows for the 2019/2020 heating season:

1. for a person living alone: 1.3 of BIH (basic income for heating) (i.e., 195 BGN per month);
2. for a single parent bringing up alone child/children up to 18 years of age, and if he/she studies – till graduating of secondary or professional education, but not more than 20 years of age – 1.57 of BIH (235.5 BGN per month);
3. for each of the spouses living together – 1 of BIH (150 BGN per month);
4. for each child until 18 years of age and if he/she studies – till graduation of secondary education or professional high school but not more than 20 years of age – 1.3 of BIH (154.5 BGN per month);
5. for one of the parents who is bringing up a child to 3 years of age - 1.2 of BIH (180 BGN per month);
6. For persons over 65 living alone, it is 1.75 BIH (262.5 BGN per month).

The higher rate applies in the presence of more than one characteristic above.

The BIH is a planned index for the DMIH assessment linked to the MSA indicator. In 2020, the BIH will be double the MSA amount (2 * 75 BGN =150 BGN).

2023 Rules
The differentiated income for heating is determined by the support base, the monthly amount of which is 30 percent of the poverty line for the relevant year (151.32 BGN for 2023), adjusted by the corresponding percentage for the group to which the person belongs, as follows:

1. for a person living alone - 185 percent;
2. for a person cohabiting with another person(s) or family, and for each of the cohabiting spouses - 172 percent;

27 The new rules are determined by an Order by the Minister of Labour and Social Policy, available at: https://lex.bg/laws/ldoc/2135588875
3. for a child up to the age of 18, and if he is studying - until the acquisition of secondary education, but no more than the age of 20 - 130 percent;

4. for pregnant women 45 days before giving birth and for a parent raising a child up to 3 years of age - 180 percent;

5. for a parent raising a child/children alone up to the age of 18, and if studying - up to the acquisition of secondary education, but no more than the age of 20 - 180 percent.

The amount of the monthly heating benefit is set every summer by the social minister with an order; for the 2023/2024 heating season it is 109.39 BGN per month or 546.95 for the entire heating season (https://asp.government.bg/bg/deynosti/sotsialno-podpomagane/otpuskane-na-celeva-pomosh-za-otoplenie-za-otoplitelen-sezon-2022-2023-g/).

**Asset Test**
Eligibility conditions regarding property are the same as for social assistance.

**PES Registration**
Eligibility conditions regarding unemployment registration are the same as for social assistance.

**Benefit amount**
The amount of social support for heating is set in an ordinance of the Minister of Labour and Social Policy. For the 2019/2020 heating season, the monthly amount of this support was 93.18 BGN, and for the whole heating season (from November to March) was 465.9 BGN. It is paid directly to heating companies, electricity companies, and fuel providers or in cash to the beneficiaries.

The benefit size might change later depending on the price of electricity for private consumers.

**Benefit duration**
No limitation.

**Means test**
The benefit is income tested. The income taken into account is the same as for social assistance.

**Tax treatment**
Social support shall be exempt from taxes and fees.

**Interaction with other components of the tax-benefit system**
Social assistance can be received at the same time as other benefits or income provided that their lump sum is lower than the corresponding differentiated minimum income(s) of individuals/ families or provide other benefits that are not considered "income."

**Sources:**


https://lex.bg/laws/ldoc/2135588875