

## Analysis of the effects of social and fiscal policy on incomes during the COVID-19 pandemic in Romania

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**Abstract.** *The increase in income inequalities from one period to another for certain vulnerable groups are realities faced by most countries of the world, and these aspects have been accentuated by the effects of the measures imposed as a result of the COVID-19 pandemic. These situations first oblige governments to take concentrated and integrated actions in order to improve the effects of these phenomena on people's well-being and social inequalities. The main mechanism by which the state ensures a more equitable distribution of income is the system of social benefits, along with the system of direct and indirect taxation. In this study, we evaluated the capacity of the social benefits system, respectively of the direct and indirect taxation systems, to contribute to the reduction of inequalities and the increase of the population's well-being in Romania. For this purpose, income microsimulation techniques were applied on microdata from the Household Budget Survey for Romania and indicators to evaluate income redistribution and progressivity of the tax-benefit system were calculated. The results were discussed for detailed tax and benefit instruments and compared in the light of progressivity and effectiveness in inequality reduction. Following the analysis, no significant changes in the estimated redistributive effects were observed in 2020 compared to previous years, although the year 2020 was affected by the COVID-19 crisis.*

**Keywords:** income inequalities, social transfers, taxation, COVID-19 effects.

**JEL Classification:** J31, H21, H24.

## 1. Introduction

Income inequality is a global problem, and the COVID-19 pandemic has increased the authorities' concerns in trying to mitigate inequalities through social and fiscal policies. Income inequality affects both developed countries and those with an emerging economy, and the Global Wealth 2022 report highlighted a trend of increasing inequality among the population in 2020 compared to 2019. According to this report, in 2020, the top decile of the population (the richest 10 %) owned 55%-75% of global wealth, and the main determining factors of this situation seem to be globalization, labour market reforms, technologies, but also the COVID-19 pandemic.

Within limits that are difficult to calculate and which depend on specific social, economic and historical contexts, social inequalities are desirable because they provide motivations for development and innovation. However, if the phenomenon of social inequalities increases - as has happened in recent years in developed economies, but also in emerging ones (Dabla-Norris et al., 2015), the effects are undesirable. Socially, inequalities lead to a decrease in trust in social institutions, reduction of social cohesion and conflicts (Dabla-Norris et al., 2015). Judging from the perspective of economic development as a whole, social inequalities have a mostly negative influence (Castells-Quintana and Royuela, 2014). The increase in income inequalities, respectively the instability of income levels from one period to another for certain vulnerable groups are realities faced by most countries of the world. This obliges governments first to take concentrated and integrated actions in order to ameliorate the effects of these phenomena on people's well-being, children's development and social inequalities. Thus, even if the level of inequality is not a problem in itself, the causes and consequences of income inequality and its growth must be taken into account. And here we mean a variety of phenomena, from poverty to poorer health and lower life expectancy, crime, breakdown of communities, intergenerational immobility and the propagation of poverty from one generation to another, all of which are of utmost importance to any society (Salverda and Nolan et al., 2009).

In 2020, Covid-19 narrowed the prosperity gap between rich and emerging countries, as countries with strong economies were hit hard at the start of the pandemic. However, in the medium and long term, its consequences could affect emerging markets to a greater extent. The pandemic generated an increase in income inequalities between rich and poor countries because the latter had fewer resources and policies to mitigate the impact of the crisis. In addition, the pandemic has accelerated long-term structural trends that will not be favourable to many emerging economies. In addition, the crisis continues to have an impact on employees and businesses, and the most disadvantaged are those that were struggling even before the crisis. In fact, the crisis has only exacerbated existing social and economic inequalities, undoing the little progress previously achieved and making it considerably harder to implement for sustainable development. These social and economic inequalities, labour shortages and inflation will lead to the creation of medium and long-term "scars" on economies and societies, unless well-targeted efforts are made by policymakers to make the recovery as wide and sustainable as possible.

An analysis of studies on how the COVID-19 pandemic affected income inequality in the US in 2020-2021 found that employment, earnings, and education were affected differently

by demographic groups and occupations. The pandemic has disrupted low-paid service jobs the most, disadvantaging women and lower-income groups at least temporarily, and this may have long-lasting effects. Government policies implemented in response to the pandemic offset much of the effect on revenues. Higher paid workers have been able to earn more from the opportunities created to work online. Income-disadvantaged students experienced greater educational failure due to school closures. The shutting down of schools and kindergartens disrupted the work of many parents, especially mothers. In conclusion, the pandemic may have increased income inequality in the long run, as lasting changes in work, consumer demand, and production will likely benefit higher-income groups and erode opportunities for some less-advantaged groups. Telework has been constantly increasing. High-touch jobs and services may continue to face reduced demand and increased automation. School disruptions were worse for lower-income students and are likely to have persistent negative effects that may increase future inequality within more recent birth cohorts. At the same time, the history of the 1918 flu shows that the effect of a pandemic on income inequality, education, health and wealth depends on the nature of the pandemic and on the behavioural and political responses (Piacentini et al., 2022)

The impact and effects of the COVID-19 pandemic on income inequality have only just begun to be seen globally due to the lack of data on individual and household incomes. The most recent studies in this direction used simulated data or data collected from household surveys (O'Donoghue et al. 2020, Almeida et al. 2021, Clark et al. 2021). Their results suggested that income inequality fell after the outbreak of the pandemic, primarily because of massive government transfers without which inequality would likely have increased as a result of job losses among lower-income and vulnerable workers. However, the history of studies in this area has shown that income inequality tends to increase during pandemics (Furceri et al. 2020, Galletta and Giommoni 2020).

Analysis of data from administrative tax registers shows that the Covid-19 pandemic has increased income inequality in Sweden. Supportive government policies moderated growth, and simulations showed that without these interventions, inequality would have increased two to three times more. There was also evidence that if the Swedish government had distributed the amount of support differently, inequality might have even fallen during the pandemic, as observed in other Western economies (Waldenström, 2021). Some research has also shown that income inequality has increased during the pandemic, mainly due to layoffs and fewer hours among low-income, part-time workers. Supportive government policies significantly mitigated the rise in inequality, but did not reverse it (Angelov and Waldenström, 2021).

The main mechanism by which the state ensures a more equitable distribution of income is the system of social benefits, along with the system of direct and indirect taxation. We can talk about two approaches in this context: the vertical redistribution of income (from the rich to the poor) which is responsible for reducing inequalities in the distribution of income, respectively the horizontal redistribution, which refers to the fluctuations of income for a single person throughout his/her life. The progressivity of taxes and social benefits, but also the focus and generosity of the latter affect the distribution of income not only in terms of disposable income (after transfers and taxes), but also the initial one, the so-called

original (market) income distribution. This is because social benefits and taxes can affect individuals' motivation to work. Considering these aspects, in this paper we have carried out a study based on the evaluation of the effects of social benefits and taxation of personal incomes on the reduction of income inequalities.

## 2. Methodology

The analysis is based on the methodology for assessing the effects of social benefits and taxes developed by the World Bank through the Commitment to Equity (CEQ) approach (Lustig and Higgins, 2017). This considers the following aspects:

- Assessing the degree of income redistribution through fiscal and social benefits policies.
- Individual assessment of the redistributive character of each social benefit and each tax (or group).
- Individual assessment of the progressivity of each social benefit and each tax (or group).

For this, first, some income concepts – the basis of the approach – are defined as follows. *Market income* consists of wages, income from self-employment, income from property, transfers from other households, etc. A related concept is *Market income plus pensions*, which adds pensions to market income but subtracts social security contributions for pensions (since the pension is treated as future income for those paying pension contributions). *Gross income* is obtained by adding social security contributions for pensions to market income plus pensions. *Net income* is obtained by subtracting all direct taxes and social contributions from the Gross Income. Furthermore, *Disposable Income* is calculated by adding social benefits/transfers to Net Income. Finally, *Consumable Income* is obtained by subtracting indirect taxes (VAT, excises) from Disposable Income.

By using these income concepts, the contribution of social benefits and taxes to reducing/increasing inequalities can be determined through the following indicators:

- *The Kakwani index* indicates the progressiveness/regressiveness of a tax or social transfer. In the case of taxes, it is calculated as the difference between the concentration coefficient of the tax and the Gini coefficient of market income. For transfers, it is calculated inversely as the difference between the market income Gini coefficient and the transfer concentration coefficient. The concentration coefficient is calculated based on the cumulative distribution of taxes paid/transfers received and population.
- *Marginal contribution to reducing inequality*, shows how many Gini points an element of tax or social transfer contributes to reducing the Gini index of income inequality. It is calculated as the difference between the Gini index with and without the respective transfer or tax.

This approach was applied to microdata from the Romanian Household Budget Survey (HBS), for the period 2019-2020, provided by the Romanian National Institute of Statistics. In the survey, detailed information is collected on all components of household income and consumption, so that all the income concepts presented above could be determined. It was also necessary to carry out microsimulations to obtain indirect taxes paid by households in the form of value added tax, excise duties on fuels, energy, tobacco, and alcohol. These are

not recorded as such in the database, but could be determined with certain limitations based on detailed household consumption information and fiscal legislation.

Preparing the databases was a complex process that consisted in aggregating data at the household level with those at the individual level, recoding the variables, constructing new variables by processing the existing ones or imputations. This ultimately resulted in a new microdatabase on which the simulations were performed. The simulations were based on the 2018 simulation model built for Romania (Badiani-Magnusson, Militaru, 2022), while the parameters for social benefits and taxes have been updated to 2020.

**Hypotheses.** We assume that direct taxes and social contributions are borne entirely by the earner, while indirect taxes are borne by the final consumer. Information on direct taxation, such as personal income tax and social security contributions can be identified as such in the household survey. As for indirect taxes, its burden has been imputed based on detailed consumption data which is available in HBS and the legal framework in the area of indirect taxation. We have calculated the value added tax (VAT) and the excises applied on alcohol, tobacco, fuel, and energy. In the validation process of imputed data, the comparison with macro aggregates showed a gap between the VAT calculated on survey data and the VAT from national accounts, which can be explained by unregistered consumption. In order to account for this, the VAT rate was adjusted so that the ratio of total tax collections observed in the survey to private consumption is equal to the effective rate observed in the macro data.

Social transfers were directly identified in the survey data which provides detailed information on contributory and non-contributory social benefits beneficiaries and the net amounts received. From the contributory benefits, we mention pensions, temporary work incapacity allowances, maternity allowances, child care allowances, unemployment benefit. The non-contributory benefits are very numerous and include the state allowance for children and other benefits granted to families with children, the minimum guaranteed income, heating aid, minimum pension, disability benefits, and so on. The main transfers, as well as personal income tax and social contributions were also simulated based on policy rules, being then validated with survey data.

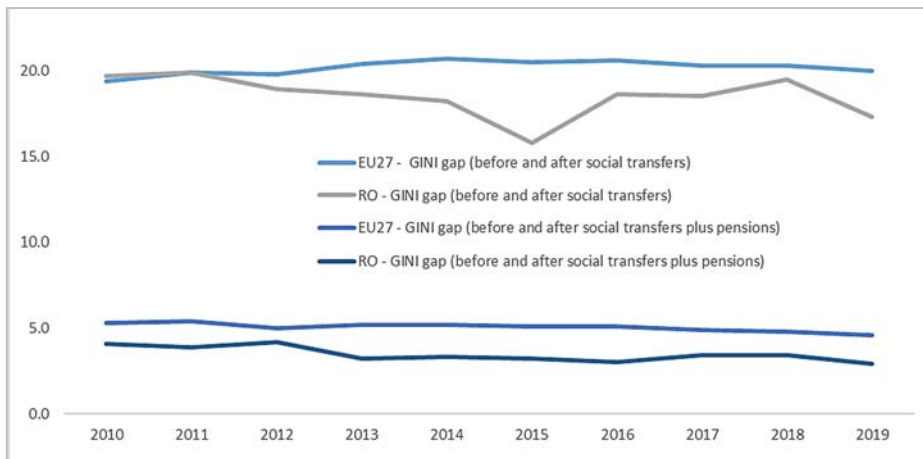
**Limits.** There are some limitations of the analysis that should be mentioned. The analysis does not consider behavioural, life cycle, or general equilibrium effects, estimating the static first order effects. It is assumed that consumer demand and labour supply are perfectly inelastic. We treat overall consumption at household level, while the distribution of consumption within households is not considered due to the lack of data in this respect. Informal incomes are not taken into account; therefore, the real income distribution could be different.

### 3. Results

First, as a starting point for our discussion concerning the general degree of income redistribution through social benefits policy, we must note that the effectiveness of social transfers in reducing inequalities is low in Romania, compared to other EU countries. The

graph below shows the simple differences between the Gini indices before and after transfers in Romania and in the European Union, average for the 27 countries. There are two ideas that emerge. First, social transfers in Romania contribute less to inequality reduction than social transfers in the “average” EU. And second, this gap between Romania and EU average seems to have widened in recent years, after a rather favourable period between 2016 and 2019.

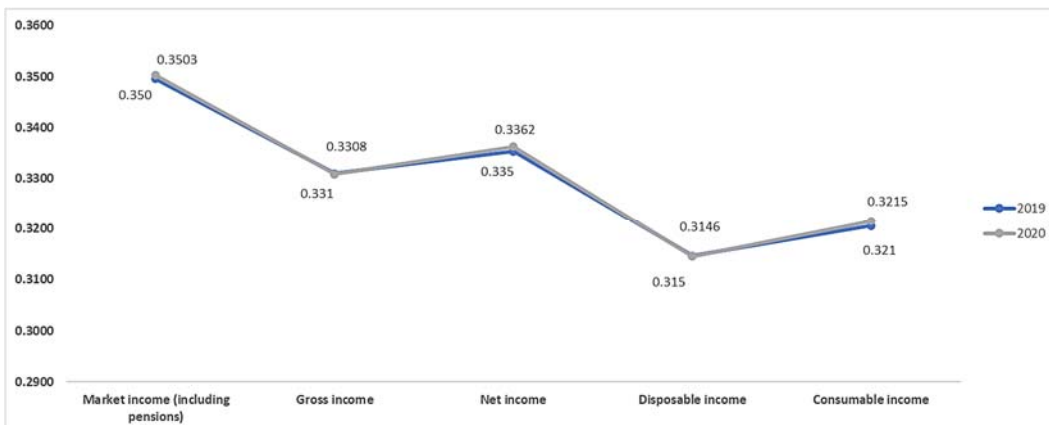
**Figure 1.** Effectiveness of social transfers for inequality reduction, Romania vs. EU27



**Source:** own estimations based on Eurostat data.

If we follow the Gini index calculated on the basis of the income concepts described in the methodology, we can see how, as a whole, the transfer and taxation elements contribute to the reduction of inequalities. Thus, the high level of inequality calculated based on market income plus pensions is reduced towards the disposable income. Interestingly, at the level of consumable income, the degree of inequality increases slightly, which shows that taxation of consumption contributes to increasing inequality.

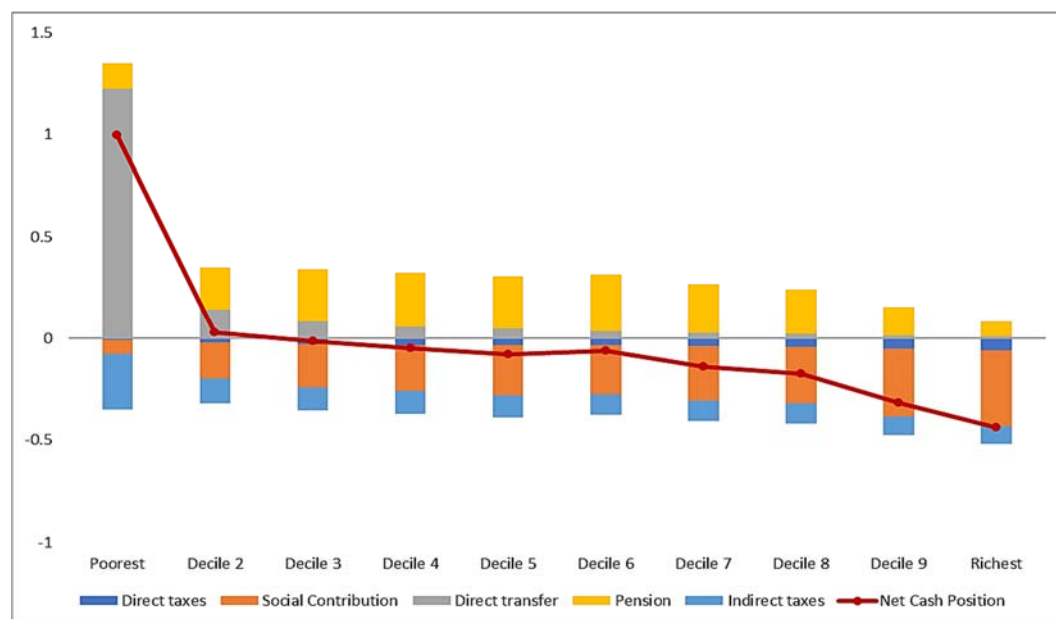
**Figure 2.** Gini coefficient, based on income concepts



**Source:** own estimations based on HBS data for Romania (2020, 2019)

Furthermore, if we look at both the redistribution through social transfers and the one achieved through taxation, we can illustrate the distributional impact of social benefits and taxes by means of a graph broken down by income deciles in which the contribution of social benefits and taxes in the income for each group of households can be observed. Also, the net position of households in relation to the state budget can be determined. From this point of view, we have two types of households: net contributors (if the amounts paid to the state budget in the form of taxes exceed the amounts received in the form of social transfers and pensions) or net beneficiaries (the reverse situation). In the graph below, these contributions are related to market income plus pensions and refer to the year 2020. First, it can be seen that households in the first decile rely to a very large extent on transfers from the state. Then, starting from the fourth decile, households contribute to the state budget more and more in the form of direct taxation, and from the second decile onwards they pay more as social contributions. It is worth noting how indirect taxation affects household incomes, with very poor households bearing the burden to a much greater extent than average or rich households.

**Figure 3.** Net cash position of households, Romania 2020



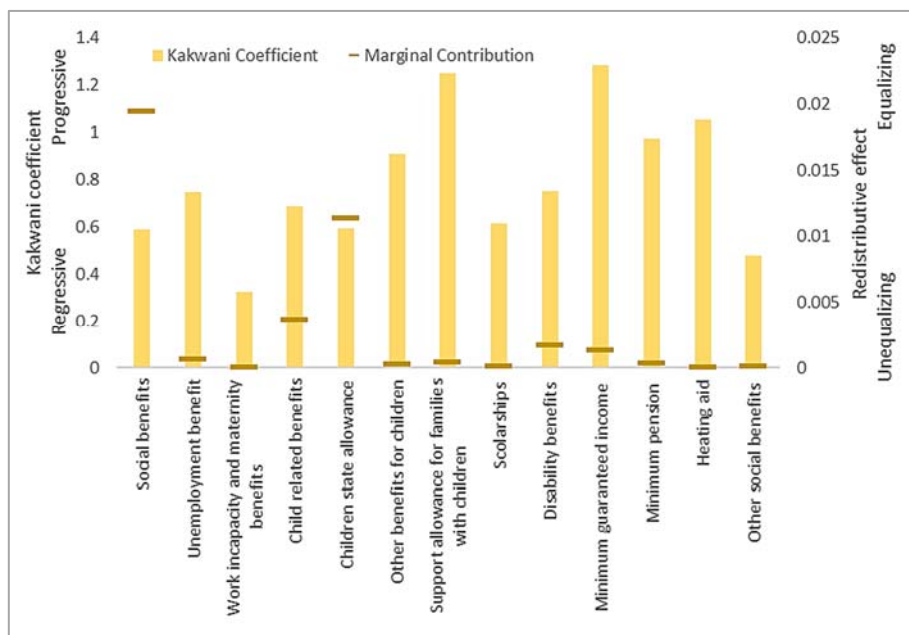
**Source:** own estimations based on HBS data for Romania (2020)

Overall, the assessment of the net position of households in relation to the state budget shows that starting with decile three, households pay more to the budget than they receive. So, basically, only deciles one and two are net beneficiaries, in other words, the poorest 20% of households, the remaining 80% of households are net contributors to the state budget.

It is useful to investigate the elements of taxation and social transfers in more detail because their effects are not necessarily homogeneous, even if they belong to the same category.

Thus, although, overall, all social benefits are progressive and contribute to the reduction of income inequality, there are very important differences between them regarding the size of the effects. The graph below shows the two indicators described in the methodology (Kakwani coefficient and Marginal contribution to the reduction of inequalities) for the main social transfers. We find that the *State Allowance for Children* has the greatest redistributive effect, due to the large amounts allocated to children from poor families, but its progressivity is lower, as poor families are not effectively targeted, even if there is a higher likelihood in their case to have more children. The most progressive transfers are those that are granted with income testing (*Family Support Allowance* and *Minimum guaranteed income*), but these contribute very little to reducing inequalities due to their very small amounts. *Home heating aid* and the *Minimum Pension* are two instruments with a fairly high degree of progressivity (targeting the poor), but their contribution to reducing inequalities is almost null. We note the contribution to the reduction of inequalities of the benefits granted to disabled people due to their significant amounts.

**Figure 4.** *The redistributive effect and progressivity of the social benefit system*

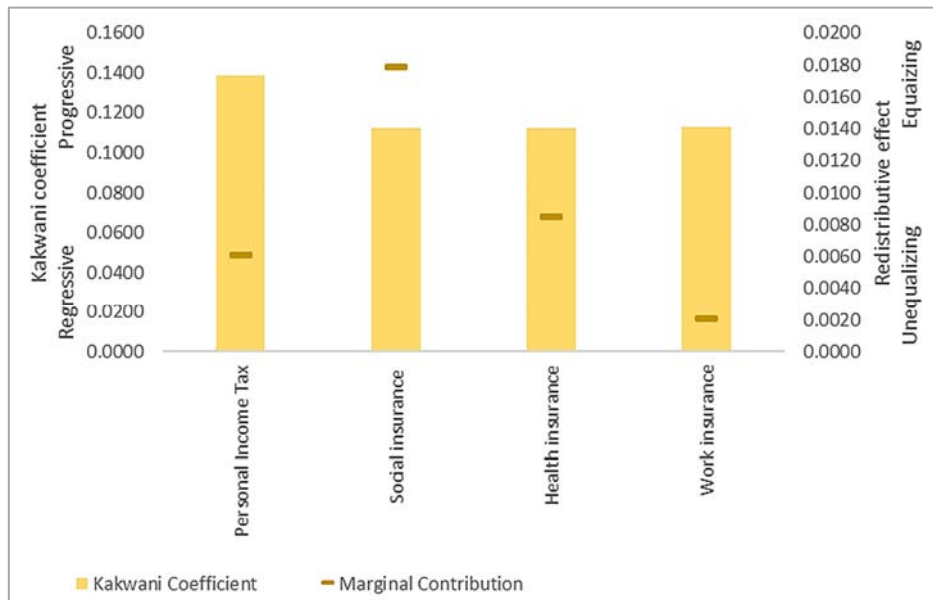


**Source:** own estimations based on HBS data for Romania (2020)

Direct taxation is progressive and helps to reduce inequalities. The personal income tax is more progressive than the social security contribution, but has a smaller inequality-reducing effect compared to the social security contribution which collects more (25% of market income vs. 10% of taxable income). The progressivity of the income tax is mainly the result of the personal deductions it incorporates. The social health insurance contribution and the labour insurance contribution (paid by the employer) are equally progressive, the former contributing more to the reduction of inequalities due to the higher percentage (10% vs. 2.25%).



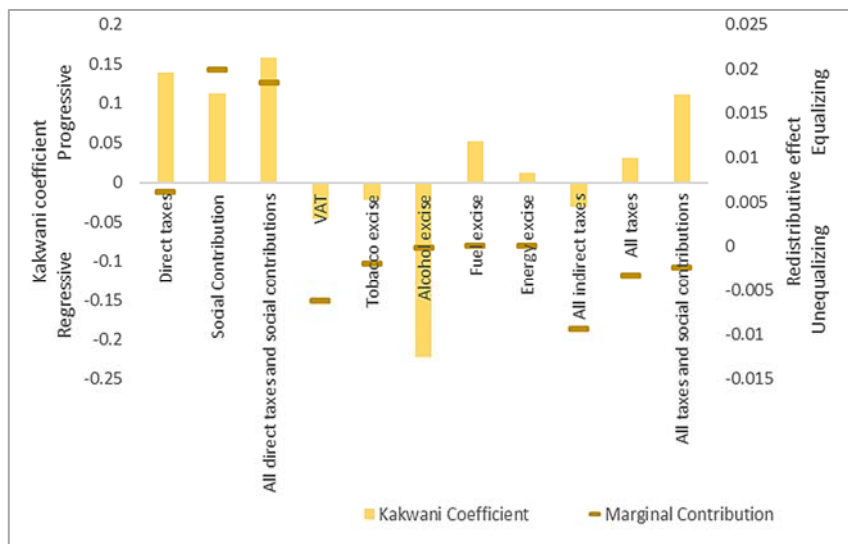
**Figure 5.** *The redistributive effect and progressivity of taxes*



**Source:** own estimations based on HBS data for Romania (2020)

Regarding indirect taxation, we note that it is regressive overall and contributes to the increase of inequalities. Excise taxes on tobacco and alcohol are regressive and contribute to deepening inequalities, as poorer households are more affected in terms of the share of expenditure on the consumption of these products (tobacco, alcohol) in total income.

**Figure 6.** *The redistributive effect and progressivity of taxes, detailed components*



**Source:** own estimations based on HBS data for Romania (2020)

The value added tax (VAT) is the biggest contributor to rising inequality due to the higher share of consumption expenditure in total income for poor households. On the other hand, excise duties on fuels and energy are progressive, being borne more by households with higher incomes, as expected. But even so, excise taxes on energy and fuels contribute to increasing income inequality.

It should be noted that the analysis was carried out for both 2019 and 2020, but no significant differences were observed between the two years in terms of the effects of the social benefits system and taxation on the reduction of income inequalities.

### Conclusions

Inequalities in the labour market consist mainly in wage income inequalities, but they can also be related to other aspects such as employment and underemployment in the labour market, the quality of professional life, job and income security. Factors that contribute to the unequal distribution of labour income are: the unequal distribution of skills and abilities in the employed population, inequalities in access to education, differences in health status, technology and globalization, labour market institutions, including wage unions and agreements between employers, financial deepening or the growth of financial markets (financial deepening), attitudes and beliefs of employees and employers, redistributive policies (Doan, Strazdins and Leach, 2020). Government redistributive policies aim to reduce social inequalities and poverty and can be effective if applied correctly, and these policies have played an important role during the COVID-19 pandemic.

Our research contributes to the development of knowledge regarding the analysis of the effects of social and fiscal policy on income redistribution and the reduction of income inequalities in Romania. Using an approach based on the definition of different income concepts and the evaluation of some indicators that quantify the progressivity and the marginal contribution to the reduction of inequalities, the redistributive effect, and the reduction of inequalities in the case of the different components of the system of social transfers and taxes was determined. The data that formed the basis of the analysis came from the HBS survey of the National Institute of Statistics (NIS). The analysis shows that social benefits are progressive and redistributive, so they contribute to a certain extent to the reduction of inequalities, and so does direct taxation. The most redistributive social benefit is the state allowance for children. Income-tested benefits make a minimal contribution to reducing inequality, although they are progressive, with amounts being very small to produce an effect. Indirect taxes are overall regressive and accentuate inequalities, being a burden especially for poor households. At the same time, we note that no significant changes were observed in the redistributive effect in 2020 compared to previous years, although the year 2020 was strongly affected by the COVID-19 crisis.

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