The Distributional Impact of Taxes and Social Spending in Romania

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Abstract

The combined effect of taxes and social spending in Romania helps to reduce inequality, although less so than in other European Union countries. However, the combination of direct and indirect taxes and transfers leads to an increase in poverty, as direct cash transfers to poor households are not large enough to compensate them for the burden of indirect taxes. This is especially important for rural households and families with children. Moreover, recent reductions in the rates for personal income and value-added taxes are expected to have led to an increase in inequality, as most of

the tax relief accrued to the top of the income distribution. Although these changes likely helped to reduce poverty, they were an expensive way to achieve a small decline in the poverty rate. Higher and better targeted social assistance spending could have achieved better distributional results at a much lower fiscal cost. These results call for greater use of simulation tools that could inform policy makers and the public of the fiscal costs and redistributive impacts of proposed reforms.

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The Distributional Impact of Taxes and Social Spending in Romania

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I. Introduction

Romania's income is well below the EU average and its rates of poverty and inequality are among the highest in the EU. Although poverty rates are declining, poverty and social exclusion persist for young people, the rural population, families with children, people with disabilities, the Roma, and those who are inactive people. Romania's inclusion challenge is predominantly a rural problem, with 75 percent of the poor living in rural areas (World Bank, 2018a). Disparities in endowments (notably human capital) and differences in the returns to endowments combine to shape high levels of social and regional disparities.

However, things are looking up, as the Romanian economy has been on a cyclical upswing for the past three years. Growth has been strong, and unemployment reached its lowest level in more than 20 years in 2017. However, significant challenges remain, and policies are at risk of deteriorating. In line with other developing countries experiencing strong growth, fiscal policy turned pro-cyclical in 2016, reversing past consolidation.² Driven by significant tax cuts and wage and pension increases, the general government deficit increased to 3 percent of GDP in 2017 and is projected to exceed 3 percent of GDP in 2018, placing Romania on a trajectory towards re-entering the EU Excessive Deficit Procedure.³

Recent changes in fiscal and social policies were aimed at fostering private investment, reducing the tax burden on citizens and therefore improving living standards.⁴ In terms of fiscal policies, the government has cut the VAT rate from 20 to 19 percent in 2017, reduced the personal income flat tax rate from 16 to 10 percent beginning in 2018, and raised the tax-free allowance. In addition, the government substantially changed the structure of social contributions by shifting their burden almost entirely to the employees beginning in 2018.⁵ On the expenditure side, public wages and old-age pensions were significantly increased in 2017⁶ and are set to advance further in 2018. To compensate for the shift of social contributions, the government increased the minimum gross wage by 31 percent and requested social partners to re-negotiate the wages in the private sector. While the implications of these policies have led and will continue to lead to important increases in the deficit, less is known about the redistributive impact of these policies and what is expected going forward.

² For an overview of the procyclicality in fiscal policy in developing countries see Kaminsky, Reinhart and Végh, (2004); for recent evidence on the sources of procyclical government spending see Ardanaz and Izquierdo (2018).

³ See IMF Country Report No. 17/133, 2017; European Commission (2018), and World Bank (2018a).

⁴ Government Press release, November 8, 2017, <http://gov.ro/ro/media/comunicate/comunicat-de-presa-edinta-de-guvern-modificari-ale-codului-fiscal-privind-impozitul-pentru-imm-uri-impozitul-pe-venit-i-contributiile-sociale&page=8>).

⁵ Beginning in 2017, social security and health contributions apply to the entire income earned. Health contributions for pensioners have been eliminated, as well as personal income taxes for pensions below RON 2 000 (EUR 440) (EC, 2017). In November 2017 the government adopted Emergency Ordinance No 79/2017 which changed contributions from 22.75 % for employers and 16.5% for employees to 2.25% and 35%, respectively.

⁶ The Unified Wage Law adopted in summer 2017 provides for a 25% gross wage increase for most government employees in January 2018 and additional increases in health and education sectors.

Existing analysis finds that the redistributive impact of direct taxes and transfers is relatively low compared to the EU average.⁷ Focusing on direct taxes and transfers alone, there is evidence that after some improvements in 2016 (Stroe et al, 2017), changes in direct tax and transfers led to a 0.7 percent decline in the disposable income of the poorest deciles in 2017 (Militaru and Tammik, 2017). This was mainly due to increases in health insurance contributions, as the minimum base for contributions increased with the statutory minimum wage. Some of this effect was counterbalanced by the fact that pension income became exempt from health insurance contributions starting in 2017, and the guaranteed minimum social pension increased thanks to a 30 percent increase in its threshold, however the overall effect was negative. Increases in non-means tested child benefits seem to have contributed to income gains for the upper income deciles. For 2018, recent simulations focused on direct taxes and transfers find that the reduction in the PIT rate is likely to increase the degree of redistribution (EC, 2018). The 2017 Emergency Ordinance is expected to increase the degree of redistribution, largely thanks to the increase in the PIT-free allowance and a reduced PIT rate, although there will likely be some losers.⁸

Although this work has been very useful, it has not consistently included the impact of indirect taxes, despite recent important changes.⁹ VAT, excises and customs duties amounted to over 10 percent of GDP in Romania in 2016, making up more than 40 percent of total tax and social contributions.¹⁰ The government has since reduced VAT rates in several steps since 2015, reducing the standard rate from 24 percent to 20 percent in 2016, further to 19 percent in 2017, and there are plans to further reduce it to 18 percent in 2018, but it is unclear how these changes affect the overall impact of policies. These changes were no doubt also over distributional concerns. For instance, De Agostini et al (2017) found that Value Added Taxes were strongly regressive in 2011, but not so for excise taxes. Despite the very useful work on direct taxes and transfers, analysis using more recent data to comprehensively include indirect taxes is not regularly done. Similarly, the impact of in-kind transfers in the form of public education, health and other services on the welfare distribution have not been typically included. Education and health expenditures make up the largest share of social spending after social protection, amounting to about 2.8 and 4 percent of GDP respectively in 2016. Without empirical analysis of the impact of these policies it is difficult to assess the likely impacts of these reforms in combination with other initiatives taken by the government.

This paper aims to fill this knowledge gap through a more comprehensive analysis of the impact of fiscal policy on inequality and poverty in Romania. Building on existing work, the analysis covers the impact of the contributory pension system, direct taxes and transfers, value added and excise taxes, as well as the

⁷ See EUROMOD Statistics on the Distribution and Decomposition of Disposable Income. Version H1.0+. Available at: <https://www.euromod.ac.uk/using-euromod/statistics>.

⁸ Some people will be net losers because they will face an increased burden of social contributions which will not be compensated by the benefits they receive from a higher minimum gross wage, or a higher PIT allowance. Part-time workers are also likely to lose due to the introduction of a minimum contributory base for their social contributions.

⁹ Incorporating indirect taxes into the analysis is not consistently done, although there have been recent advances in this regard. For instance, existing EUROMOD analysis typically uses EU-SILC data which do not have information on household spending. Recent work by De Agostini et al (2017) has tried to use survey-to-survey imputations to combine EU-SILC data with household budget survey data, however this is not regularly done.

¹⁰ Total tax and social contributions amounted to 24.8 percent of GDP in 2017, of which VAT collection amounted to 6.3 percent of GDP, while excise taxes and customs duties amounted to 3.1 and 0.1 percent of GDP, respectively (General Consolidated Budget, Ministry of Public Finance).

impact of education and health spending. The analysis assesses the progressiveness of each fiscal instrument and its contribution to reducing poverty and inequality. The approach follows the Commitment to Equity (CEQ) methodology (Lustig, 2018), allowing for comparisons between Romania and other countries where the CEQ methodology has been applied.¹¹

The analysis is built on the 2016 Romanian Household Budget Survey (HBS) collected by the Romanian National Statistics Office, and data from National Income Accounts and public finance accounts from the Ministry of Finance for 2016. In terms of coverage of components of fiscal policy, the analysis includes 75 percent of total revenue and 52 percent of government spending, in line with other CEQ studies. The analysis does not cover the corporate profit tax and VAT paid by government or institutional consumption as these are difficult to assign to individual households based on the available information. On the spending side, the analysis only covers social spending, as it is very difficult to assign benefits of other types of spending to individual households.

The results suggest that the combined effect of taxes and social spending in Romania help to reduce inequality, although less so than in other EU countries. However, the combination of direct and indirect taxes and transfers leads to an increase in poverty, as direct cash transfers to poor households are not large enough to compensate them for the burden of indirect taxes. This is especially important for rural households and for families with children.

With the objective of encouraging private investment and reducing the tax burden on citizens, and consequently, to contribute to the improvement of living standards, the government has recently reduced the rates for personal income and value added taxes. The combined fiscal effect of these changes is estimated to lead to a 5.4 percent reduction in total revenue and a substantial increase in the primary deficit, holding all other economic variables constant. On the distributional side, our simulations show that these changes have likely led to an *increase* in inequality, as most of the tax relief accrued to the top of the income distribution. Moreover, the reform was a very expensive way to achieve what is actually a very small decline in the poverty rate. In fact, our simulations show that higher and better targeted social assistance spending could have achieved much better distributional results at a much lower fiscal cost. These results are problematic, not only because Romania engaged in procyclical policies that could put its sustainability at risk, but also because much of this fiscal effort was not used to efficiently reduce poverty. It is yet unclear whether these policy changes made a substantial difference in generating higher private investment. More generally, the results of this analysis call for greater use of simulation tools that could inform policy makers and the broader public of the fiscal costs and redistributive impacts of proposed reforms.

The rest of the paper is organized as follows. The next section describes the structure of taxes and social spending in Romania, followed by the general methodology, the data used and assumptions made in estimating the taxes paid by households and the benefits received. Section IV describes the overall impact of fiscal policy on poverty and inequality. The incidence of taxes and spending are presented in section V, followed by simulations of personal income and value added taxes in section VI. Section VII concludes.

¹¹ For more details, see <http://www.commitmenttoequity.org>.

II. The structure of taxes and social spending in Romania: 2016

The Romanian Public Finance System

Public finance in Romania consists of the central and local governments and public enterprises. The revenue structure is shown in Table 1. Total revenue amounted to 29.3 percent of GDP in 2016, with tax collections amounting to nearly 18 percent of GDP and social security contributions amounting to 8 percent of GDP. Our analysis focused on the major tax items, namely personal income taxes, VAT, and excise taxes. These items made up about 83 percent of all tax revenue in 2016. Corporate taxes were not included given the difficulty of attributing the tax burden to specific households.

Direct taxes and social insurance contributions

Personal income tax (PIT) revenues accounted for 3.6 percent of GDP in 2016, which was shared between the central, regional and local self-governments. The personal income tax had a flat rate of 16 percent in 2016 and was paid on employment income, self-employment income and income from investments, while social benefits were exempt. The flat tax rate was reduced to 10 percent in 2018, as discussed further in section VI. For dependent employment, the tax base is the gross wage minus social contributions and tax allowances. For income from self-employment, the tax base is gross income minus deductible expenses and social contributions, and income from investments minus social contributions. Tax allowances for employees vary depending on the level of income and the number of dependents. The system also has deductions for voluntary private pension contributions, and there are other allowances and tax credits (see Appendix 1).

Table 1. Romania. General Government Revenue, 2016

	Fiscal Accounts		Portion of Fiscal Accounts to be analyzed		Amounts in survey	Ratio of total amounts in the survey and external statistics, %
	(in millions of lei)	% of GDP	(in millions of lei)	% of GDP	(in millions of lei)	
Revenue	223,722	29.3%	167,663	22.0%	109,526	49.0%
Taxes and social contributions	197,681	25.9%	167,663	22.0%	109,526	55.4%
Corporate tax	15,442	2.0%				
Personal income tax	27,756	3.6%	27,756	3.6%	19,189	69.1%
VAT	51,675	6.8%	51,675	6.8%	21,100	40.8%
Excises	26,957	3.5%	26,957	3.5%	8,050	29.9%
Customs duties	883	0.1%				
Social security contributions	61,274	8.0%	61,274	8.0%	61,187	99.9%
Other taxes	13,693	1.8%				
Nontax revenue	17,938	2.4%				
Capital revenue	769	0.1%				
Grants 1/	7,332	1.0%				

Source: National Institute of Statistics, Ministry of Public Finance, MFMod, World Bank staff estimates

1/ Includes -financed capital projects

In terms of social contributions, the Romanian pension system is based on a three-pillar system, with the first pillar being the most relevant. The 1st pillar is the public pay-as-you-go scheme and is sustained by mandatory social insurance contributions. The 2nd pillar is a private contributions system, mandatory for people who were aged below 35 years in 2008 when it was introduced and on voluntarily basis for people aged between 36 and 45 years. It is sustained by a share carved out of the mandatory social insurance contribution (5.1p.p. in 2017). The 3rd pillar is entirely voluntary based on accumulation. The contribution rate for the latter should not exceed 15% of individual disposable income.

Social contributions amounted to 8 percent of GDP in 2016, of which old-age pensions was the largest, amounting to 2.1 percent of GDP and health contributions amounted to 1.5 percent of GDP. Social contributions are paid by wage and self-employed workers based on different contribution bases. For wage earners, the social contributions base is equal to the gross employment earnings. Employer contributions include payments for social insurance, whose rate depends on the working conditions ranging from 15.8 to 25.8 percent, 5.2 percent for health insurance, 0.5 percent for unemployment insurance, 0.85 percent for sickness, 0.15 percent for work accident insurance, and 0.25 percent for salary guarantee. Employee social contributions include 10.5 percent for social insurance, 5.5 percent for health insurance and 0.5% for unemployment insurance. For the self-employed, the contribution base is net self-employment income (gross income minus deductible expenses). Self-employed workers can choose between paying the employee contribution rate (10.5%) or the total contribution rate (employee plus employer - 26.3%), but only the latter is equivalent to full rights in the public pension system. The contribution rate for health insurance is the same as for employed workers while unemployment insurance and all the other insurance programs are optional.

Pension income and income from investments were also subject to health insurance contributions in 2016. Since 2017 all income from pensions is exempted from health insurance contribution and the contribution is now being funded by the state budget. Similarly, income from investments (interests, dividends, rents, etc.) was subject to health insurance contribution (rate of 5.5%) up until 2017, when it became exempted (unless it is the only source of income and it exceeds the national statutory gross minimum wage).

Indirect Taxes

VAT is the single largest component of tax revenue, contributing to about 38 percent of total tax collection in 2016. VAT was levied at a standard rate of 20 percent in 2016 on most goods and services, but has since declined to 19 percent beginning in 2017. Reduced rates of 5 and 9 percent apply to a range of goods and services (see Appendix 1).

Excise taxes contributed 3.5 percent of GDP in 2016 and are levied on goods that are deemed to be harmful to the health of the population or create pollution (“sin taxes”). These include: alcoholic beverages, tobacco products, energy products, electricity. Specific excises are imposed on alcohol, and energy products, while tobacco taxes have both specific and an ad valorem rates as detailed in Appendix 1.

Social spending

Overall expenditures in Romania amounted to 31.7 percent of GDP in 2016, down from 35 percent in 2012, but have since increased to 32.2 percent in 2017. A large part of public spending is dedicated to social protection (11.4 percent of GDP in 2016), while education (2.8 percent of GDP) and health (4.0 percent of GDP) are also relatively important (Table 2). The analysis presented below covers 52 percent of all government spending and 91 percent of social spending. In what follows, we describe the main highlights of existing social spending, with details available in Appendix 1.

Contributory benefits include the following programs:

- *Old-age pensions* include the standard old-age pension, (the retirement age is 65 years for men and 63 years for women); early retirement pension (i.e. at most five years until retirement age); survivors pension (for surviving children or spouse of a pensioner or a person who was entitled to a pension in the public pillar); and invalidity pension (for at least 50% loss of working capacity).
- *Unemployment benefits* granted to persons aged above 16 years, not working or retired, available to start work, who have prior contribution to the unemployment insurance system (at least 12 months during the last 24 months).
- *Parental benefits* include a child raising allowance and a child raising incentive. The first is a contributory benefit granted to parents with children up to the age of 2 years (or 3 years for disabled children), who are in child care leave. During the receipt of child care allowance, the parent is not allowed to earn employment income (dependent or independent). The child raising incentive is provided as a work incentive targeted to parents who are benefiting from the child raising allowance in order to return to work before the eligible period for the child raising allowance has expired.
- *Health insurance benefits* include a range of benefits. These include: an indemnity for temporary work incapacity (caused by regular diseases or accidents not related to work), an indemnity for work capacity recovery (after work accidents or professional diseases), a maternity allowance granted to pregnant women or mothers for a total period of 126 days, split before and after giving birth to the child, an indemnity for maternal risk granted to pregnant women in employment whose medical condition prevents them from working, and an indemnity for caring for an ill child.

Direct (non-contributory) transfers include the following programs.

- *Family benefit programs.* These programs include the state allowance for children, a universal benefit granted to children (up to the age of 18 years or up to 26 years if enrolled in education) whose benefit amount is differentiated according to the child's age. It also includes a means-tested support allowance for families with children, subject to an income and an asset test. Benefit levels depend on income, the number of children and whether it is a single-parent home.
- *Social assistance programs* include a guaranteed minimum income program, which is the main means-tested benefit received by poor families. It implies both an income and asset test. The net

monthly income of the family (all income sources, including other social benefits) is assessed and the thresholds are differentiated according to family size. There is also a home heating aid which is received by poor families as a cash support during the cold season (from November to March). The benefit entitlement is subject to income and asset testing and the benefit amount is differentiated according to the type of heating – energy provided in the centralized system, natural gas or wood, coal and oil fuel. Finally, there is a guaranteed minimum social pension, which is received by public pension system retirees if their public pension due or in payment is less than a threshold, and the benefit amount is the difference between the threshold and public pension.

Table 2: Romania: General Government Spending, 2016

	Fiscal Accounts		Portion of Fiscal Accounts to be analyzed		Amounts in survey		Ratio of total amounts in the survey and external statistics, %
	(in millions of lei)	% of GDP	(in millions of lei)	% of GDP	(in millions of lei)	% of GDP	
Expenditure	242,016	31.7%	126,594	16.6%	97,973	12.9%	40.5%
Social Protection	86,719	11.4%	74,651	9.8%	59,619	7.8%	68.7%
Contributory benefits	64,293	8.4%	64,287	8.4%	52,495	6.9%	81.7%
Pensions	59,817	7.8%	59,817	7.8%	50,407	6.6%	84.3%
Old age	49,168	6.4%	49,168	6.4%	39,888	5.2%	81.1%
Early retirement	886	0.1%	886	0.1%	1,998	0.3%	225.5%
Disability	4,400	0.6%	4,400	0.6%	3,306	0.4%	75.1%
Survivors	3,447	0.5%	3,447	0.5%	1,686	0.2%	48.9%
Agricultural workers	1,916	0.3%	1,916	0.3%	3,529	0.5%	184.2%
Unemployment benefit	498	0.1%	498	0.1%	358	0.0%	71.9%
Indemnity for temporary work incapacity	953	0.1%	953	0.1%	67	0.0%	7.0%
Contributory family benefits	3,019	0.4%	3,019	0.4%	1,663	0.2%	55.1%
Maternity allowance	695	0.1%	695	0.1%	67	0.0%	9.7%
Child raising allowance	2,060	0.3%	2,060	0.3%	1,596	0.2%	77.5%
Child raising incentives	264	0.0%	264	0.0%			
Other contributory programs	6	0.0%					
Non-contributory benefits	10,399	1.4%	10,364	1.4%	7,123	0.9%	68.5%
Noncontributory family allowances	5,111	0.7%	5,111	0.7%	4,755	0.6%	93.0%
State allowance for children	4,416	0.6%	4,416	0.6%	4,299	0.6%	97.4%
Support allowance: families w/children	526	0.07%	526	0.1%	263	0.0%	50.0%
Placement allowance for children	169	0.0%	169	0.0%	193	0.0%	114.0%
Minimum social pension	917	0.1%	917	0.1%	455	0.1%	49.6%
Guaranteed minimum income	812	0.11%	812	0.1%	690	0.1%	85.0%
Heating aid	149	0.0%	149	0.0%	52	0.0%	35.1%
Disability benefits	2,297	0.3%	2,297	0.3%	945	0.1%	41.1%
Scholarships	971	0.1%	971	0.1%	83	0.0%	8.6%
Other indemnities	109	0.0%	109	0.0%	143	0.0%	131.6%
Other social benefits	34	0.0%					
Other Social Protection spending	12,027	1.6%					
Education	21,678	2.8%	21,678	2.8%	14,654	1.9%	67.6%
Health	30,265	4.0%	30,265	4.0%	23,701	3.1%	78.3%
Subsidies	6,605	0.9%					
Other expenditures	96,750	12.7%					

Source: National Institute of Statistics, Ministry of Public Finance, MFMod, World Bank staff estimates

1/ Includes -financed capital projects

- *Disability benefits* are granted to people with disabilities and their amounts are differentiated according to the severity of the disability. We mention three such benefits: monthly allowance for

adults with disabilities, complementary personal budget and monthly allowance for covering attendant expenses.

- *Educational grants* are given to children enrolled in education belonging to poor families. There are several types of grants, such as social grants (pre-university and university education), tuition grants (pre-university), scholarships for further learning (pre-university), educational allowance – “Money for high-school” (upper secondary) etc. and their entitlement involves an income test.

Social spending on in-kind transfers in the form of education and health amounted to 6.8 percent of GDP in 2016. The education system is mostly public in Romania (private expenditure on education is small at all levels of education). The Romanian government provides free public education from pre-school and up to tertiary education. There are no direct user fees except for pre-school, though indirect fees in the form of school supplies and uniforms. Compulsory education starts with primary school (at the age of 6 years) and ends with the 10th grade (first level of upper secondary, at the age of 16-17 years).

In terms of health spending, a “minimal” set of free medical services is provided for all its citizens and financed directly from the budget. This minimal package is restricted to emergency cases or potential epidemic diseases, pregnancy, family planning, and prevention. In addition, citizens who contribute and participate in the public health insurance system, receive an extended “basic” set of services, including preventive and curative medical services, health care services, medicines, sanitary materials, medical devices and others. Benefits begin on the first day of illness or accident until complete cure. Dependents who are otherwise not insured can also benefit from these “basic” services, including children up to age 18, students up to age 26 without earnings, spouse or parents without insurance, and persons with disabilities without earnings. The public health insurance system is funded through health insurance contributions, which are mandatory on employment, self-employment and investment income. Before 2017, contributions were also mandatory on pension income above a threshold, as well as on investment income irrespective of its amount and the presence of other sources of income. User fees are charged for health care services, medicines and medical devices which are beyond the scope of “basic” package.

III. Data sources, methods, and assumptions

Data Sources and Approach

The 2016 HBS contains both income and expenditure data, along with demographic and household characteristics, thus enabling the identification of indirect taxes across the distribution. Household survey data are combined with data from National Income Accounts and public finance accounts from the Ministry of Finance. This included information on consolidated central government budgets, local government budgets, and annual reports from the National Statistics Institute on various sectors.

Approach

To analyze the incidence of each fiscal intervention, and the impact of taxes and social spending on poverty and inequality, we follow the Commitment to Equity (CEQ) approach of Lustig (2018) and measure per

capita income before and after each fiscal intervention as described in Figure 1. In particular, for every household we define the following income concepts:

- *Market income* includes pre-tax and pre-contribution wages, salaries, and income earned from capital assets (rent, interest or dividends) and private transfers.
- *Disposable income* is constructed by adding direct transfers and subtracting direct taxes and social contributions to market income. The direct taxes considered in the case of Romania include personal income taxes, and other taxes including union and professional association fees.
- *Consumable income* subtracts indirect taxes from disposable income and adds indirect subsidies. In Romania, indirect taxes included in this analysis include the VAT, excises on alcohol, tobacco, fuel and energy. Existing indirect subsidies in Romania include electricity, heating and transport. However, these were not included in this version of the analysis due to lack of information.
- *Final income* adds in-kind benefits in the form of health and education to consumable income.

Figure 1. Definitions of income underpinning the CEQ Fiscal Incidence Analysis

Source: Lustig, 2018.

One area where there is no clear consensus in the literature is on how to treat contributory old-age pensions and the related contributions. Arguments exist in favor of treating contributory pensions as individual savings or deferred income, while others argue that they should be treated as a government transfer, with the related contributions being treated as a direct tax. Following Lustig (2018), we present two scenarios. Under our “main” scenario we treat old-age pensions as deferred income, and the corresponding contributions are treated as savings. In an alternative scenario, contributory old-age pensions are treated as transfers and added to market income. The corresponding contributions are treated as taxes and thus subtracted from market income to generate disposable income, in line with standard EU measurement of disposable income. The alternative scenarios are presented in Appendix 3.

Assumptions

We assume that the economic incidence of direct taxes and contributions are borne entirely by the income earner. Personal income taxes (PIT) and employee social security contributions across households are in general directly identified in the household survey. However, they were also imputed according to the tax legislation and contribution rules as detailed in Appendix 1, in order to allow for simulations of different scenarios. In all cases, minimum employer contribution rates were assumed – in practice employer contribution rates are differentiated by economic activity and working conditions but this information is not available in the household survey. Statutory rates are used throughout the analysis. To the extent that informality in the payment of PIT and social contributions is high in Romania, the distributional impacts could differ, and the analysis is closer to an analysis of the *de jure* impact of policies. The analysis could further be refined under alternative scenarios on informality.

Social contributions are simulated only for individuals who reported that these were paid (either by employers in the case of wage workers or by themselves in the case of self-employed).

The burden of indirect taxes is assumed to be borne entirely by the consumer. The burden of indirect taxes was estimated by first applying statutory rates to each item in the detailed consumption data in the HBS. However, given informality in consumption taxes, we calculate the effective tax rate for VAT (calculated as total VAT collections divided by total private household consumption) and adjust the VAT rate until the ratio of total tax collections observed in the household survey relative to household private consumption matches the effective rate observed in the National Accounts. Similarly, for excise taxes, we apply statutory rates to consumption of alcohol, tobacco, fuel and energy identified in the HBS to estimate the direct burden of these excises on households.

On the spending side, the HBS provides detailed information on who received payment from contributory and non-contributory social protection programs. In terms of contributory benefits, old-age, family, unemployment, and disability benefits are identified in the survey. In terms of non-contributory benefits, a large number of benefits are directly identified, including the guaranteed minimum income, social pensions, heating aid, disability, scholarships and family benefits including the state allowance for children, the support allowance for children, and the placement allowance for children, and many smaller cash and near-cash programs. All are directly identified in the survey. Since these benefits are not taxable, the reported value can be directly used.

The approach to estimate the incidence of public spending on education followed here is the so-called “benefit or expenditure incidence” or the “government cost” approach. In essence, we calculate per beneficiary input costs by level of education from government spending and the number of pupils in each level and assign the per pupil expenditure to each student. This approach is also known as the “classic” or “non-behavioral approach”, and it amounts to asking the following question: how much would the income of a household have to be increased if it had to pay for the free or subsidized public service at the full cost to the government?

Since the education system is mostly public at all levels of education in Romania and there is no evidence of wide-spread opting-out of public education, benefits were assigned to households according to the

number of children attending each level of education. We use SIRUTA¹² level data on enrollment and public spending on primary and secondary schools (see World Bank 2018b), and national-level data for tertiary education. The cost-per-pupil of delivering education service at each level is calculated for urban and rural areas. Since we are unable to identify households in the survey at the SIRUTA-level, the cost-per-pupil is allocated by differentiating between urban and rural areas.

For health services, all individuals have access to services, so we use the cost of insurance approach and assign a per capita benefit equally to all individuals. This is to ensure that sicker individuals are not seen as being “better off”, simply because they use public services more often. We estimate the individual benefit (minimum and basic) based on administrative data on spending for health services taken from the health insurance budget and the number of beneficiaries of basic and minimum packages. The corresponding value is assigned to individuals depending on whether they are beneficiaries of the basic package. The identification of individuals as beneficiaries of the basic or minimum package depends on their relationship with the health insurance system (insured with contribution paid, other categories insured without contribution due, not insured) and the health insurance legislation. To account for the fact that some households may choose to opt-out of public health care, we identify households with positive expenditures on family/general medicine, dental care, and outpatient specialty services and assume that these households relinquish the benefits associated with these services, which are included in the basic service package. For those cases, we reduce the amount of basic-package allocated to that household by the share of public spending on those items.¹³ Since the amounts of education and health spending are taken from administrative data, they are scaled down to prevent overestimation bias.¹⁴

There are some important caveats about what is not addressed. First, the analysis does not account for any behavioral, lifecycle or general equilibrium effects and focuses on average incidence rather than incidence at the margin. Our tax shifting and labor supply response assumptions are strong because they imply that consumers have perfectly inelastic demand and that labor supply is perfectly inelastic too. Second, the analysis does not account for the intra-household distribution of consumption. Third, the analysis cannot account for the quality of services delivered by the government. In addition, we are unable to include some important taxes and spending. Corporate profit taxes, VAT paid by government or institutional consumption, and spending on infrastructure investments are excluded, even though the impacts of these may be substantial simply because the methods to assign these taxes and transfers are not robust. Finally, the analysis does not capture the growing debate on how asset accumulation and returns to capital impact income inequality.

¹² SIRUTA is the Information System of the Register of Territorial - Administrative Units in Romania, corresponding to LAU 2 classification code.

¹³ The incidence of spending on health is less pro-poor without this assumption. Alternative estimates excluding this assumption are available upon request.

¹⁴ For a detailed description of the scaling down procedure, see Higgins and Lustig (2017).

IV. Impact of taxes and social spending on poverty and inequality

In this section we present the overall impact of taxes and social spending on poverty and inequality and we compare this impact with other countries. The next section then delves deeper to disaggregate the impacts of individual tax and transfers policies.

The impact on inequality

The combined effect of taxes and social spending help to substantially reduce inequality in Romania. Figure 2 shows the change in the Gini coefficient on account of taxes and social spending following the income concepts defined above for 2016. Prior to any fiscal intervention, market income inequality had a Gini of 0.378, if old-age contributory pensions are included and are treated as deferred income, but much higher (0.487) if these pensions are not included. Once direct taxes, social security contributions and noncontributory transfers are accounted for, we end up with a measure of disposable income that has a Gini of 0.334 in both scenarios. The net impact of indirect

taxes and subsidies is unequalizing as the Gini increases slightly for consumable income to 0.340, which includes the impact of VAT and excise taxes.¹⁵ Finally, in-kind transfers in the form of education and health helped to reduce inequality. The overall reduction in inequality was equivalent to 0.068 Gini points from market income to final income when old-age pensions are considered as deferred income, but as much as 0.176 Gini points when pensions are treated as transfers.

The overall redistributive effort in Romania is relatively large compared to other developing countries, but lower than other countries in Europe, with most of the reduction in inequality largely being achieved by pensions (Figure 3). When pensions are considered as deferred income, Romania is less redistributive than Poland and Croatia, in line with the existing literature that has so far focused on the impact on disposable income (see Euromod H1.0). However, once indirect taxes and in-kind transfers are considered, Romania is less redistributive than other countries with similar levels of GDP per capita (in PPP terms) such as Croatia and Chile, but also less distributive than some countries with lower levels of GDP per capita, such as Brazil, Costa Rica, Mexico and Tunisia.

Figure 2. Romania. Gini Coefficient

Source: Own estimates using the Romanian 2016 HBS.

¹⁵ Romania has some indirect subsidy schemes in electricity, heating and transport. However, given their complexity they were difficult to take into account in this exercise.

Figure 3. Decline in Inequality from Market to Final Income

Source: CEQ Data Center on Fiscal Redistribution, 2018 and references therein. Poland: Goraus & Inchauste (2016); Croatia: Inchauste and Rubil (2014); Romania: own estimates using HBS 2016. Pensions are treated as transfers in this figure to ensure comparability with Euromod.

The impact of indirect taxes is relatively important in all cases. Once indirect taxes are taken into account, the redistributive effort is somewhat reversed as the Gini coefficient for consumable income is slightly higher than what is observed for disposable income as indirect taxes tend to be regressive and unequalizing (Figure 4). In the case of Romania, the effect of indirect taxes is less severe than in Poland and Croatia. Spending on education and health further reduce inequality, however, the redistributive effect is much lower than in other countries. This reflects the fact that education spending is less equalizing in Romania, as discussed below.

Figure 4. Emerging markets: Gini Coefficient (pensions as deferred income)

Source: Argentina: Rossignolo (2017); Poland: Goraus & Inchauste (2016); Russia: Lopez-Calvo et al (2016); Croatia: Inchauste and Rubil (2014); United States: Higgins et al (2016), Romania: own estimates using 2016 Romanian HBS.

The impact on poverty

Beyond the impact on inequality, which measures the relative position of households across the distribution, it is important to see the impact on poverty, which depends on the absolute level of income of a household with respect to a poverty threshold. The results suggest that the combination of taxes and social spending was poverty increasing in 2016. The share of the population whose market income (including pensions) was below the per capita US\$5.50 PPP-a-day poverty line was 13.9 percent (Table 3). Once the burdens of direct and indirect taxes are considered, these are larger than the direct benefits received from transfers, so that the share of the population whose consumable income is below the US\$5.50 PPP-a-day poverty line increases to 15.4 percent. Similarly, if one were to use Eurostat's relative poverty line of 60 percent of the median equivalized disposable income, the headcount poverty rate increases from 21.8 percent for disposable income to 27.5 percent for consumable income. Most of the increase in poverty is due to the burden of indirect taxes, as households are not being compensated for this burden through direct transfers. Even for extreme levels of poverty (such as those captured by the US\$3.20-a-day poverty line), social transfers are insufficient to mitigate the burden of taxes so that the level of extreme poverty after taxes and transfers is higher than before taxes and transfers are considered (Table 3). The poverty gap and the severity of poverty decline when going from market to disposable income for the absolute poverty lines, but once indirect taxes are incorporated into the analysis, part of this effect is reversed. Both the poverty gap and the severity of poverty look worse when using the relative line. Given that households do not observe the value of the benefits of in-kind education and health, we refrain from measuring poverty including those benefits, as standard in the literature.

Table 3. Romania. Changes in Poverty on account of taxes and transfers

	Market income + old-age pensions	Disposable income	Consumable income
	(1)	(2) = (1) - direct taxes - social contributions + direct transfers	(3) = (2) - indirect taxes
Poverty headcount			
US \$3.20 PPP-a-day per capita	7.3	3.5	4.9
US \$5.50 PPP-a-day	13.9	12.1	15.4
60% of median equivalized disposable income	22.5	21.8	27.5
Poverty gap			
US \$3.20 PPP-a-day per capita	3.4	0.8	1.3
US \$5.50 PPP-a-day	6.3	3.6	5.0
60% of median equivalized disposable income	34.7	37.3	42.6
Poverty severity			
US \$3.20 PPP-a-day per capita	2.1	0.3	0.6
US \$5.50 PPP-a-day	4.0	1.5	2.3
60% of median equivalized disposable income	21.8	22.0	26.1

Source: Own estimates based on Romanian HBS 2016.

Aggregate indicators of poverty are important, but further disaggregation lends some additional insight. Figure 5A shows the poverty headcount rate for urban and rural households for each income concept. Poverty headcount is strikingly higher in rural areas. The measure of consumable income, which includes the effect of all taxes and social transfers, indicates that 24.9 percent of the rural population was poor at the US\$5.50 PPP line and 42.8 percent was poor at the relative poverty line. In terms of household type, Figure 5B shows that the impact of indirect taxes on poverty was particularly large among households with multiple children.

Figure 5. Romania. Poverty Headcount Rate, 2016

Source: World Bank estimates based on the Romanian 2016 HBS.

V. Progressivity, Marginal Contributions, and Pro-pooriness of Taxes and Transfers

How did each of the fiscal interventions contribute to the observed changes in poverty and inequality? Figure 6 presents the distributional impact of different components of the tax and benefit system as a share of market income (including pensions) in 2016. Most components of the system are progressive, with the bottom 10 percent of the distribution being net receivers of social benefits. However, in cash terms, households beginning in the second decile were net payers to the treasury in 2016, as the share of taxes paid exceeded the cash benefits received for all but the poorest 10 percent of the population.

Figure 6. Romania. Distributional Impact of the Tax and Benefit System in 2016
(benefit/burden as a share of market income + pensions)

Source: Own estimates based on the 2016 Romanian HBS.

The Net Cash position of the household is measured as the difference between consumable and market income plus pensions, and is equivalent to all the cash transfers to households minus all taxes.

Since the influence of specific interventions may be different from that of the overall system, a fundamental question in the policy discussion is whether specific fiscal instruments (or a combination of them) are equalizing. If there were a single fiscal intervention, using the typical indicators such as the Kakwani index¹⁶ to determine whether an intervention is progressive or regressive would be sufficient to unambiguously determine whether that intervention was equalizing. Given there is more than one fiscal intervention, this one-to-one relationship between the progressivity of an intervention and its effect on inequality breaks down. For instance, the proceeds of a regressive indirect tax *could* be used very effectively in a pro-poor transfer, leading to a situation where post-fisc incomes are more equal than in the absence of that regressive tax (Lambert, 2001). One way to calculate the effect of each fiscal instrument on inequality is to calculate its marginal contribution. The marginal contribution of a tax (or transfer) is calculated by taking the difference between the inequality indicator *with* and *without* the tax (or transfer).¹⁷ Table A2.1

¹⁶ The Kakwani index for taxes is defined as the difference between the concentration coefficient of the tax and the Gini for market income. For transfers, it is defined as the difference between the Gini for market income and the concentration coefficient of the transfer. See, for example, Kakwani (1977).

¹⁷ Note that there is path dependence in estimating these marginal contributions, since the order in which each intervention is considered matters for the size of the estimated marginal contribution. The estimation approach uses

in Appendix 2 shows both the Kakwani progressivity index for each tax and transfer in 2016 along with their marginal contribution to reducing inequality and poverty under the scenario where old-age pensions are treated as deferred income. Results for the alternative scenario where old age pensions are considered as transfers are presented in Appendix 2. We describe each of these in turn.

Taxes

Direct taxes and social contributions are progressive and inequality-reducing, however they also place a burden on the poor. That they are progressive can be seen by the fact that the Kakwani coefficient is positive, the fact that they are inequality-reducing can be seen by a positive marginal contribution to the redistributive effort (Table A2.1). Personal income taxes are more progressive and redistributive than social contributions, with health insurance contributions being slightly more progressive and redistributive than other types of contributions

Figure 7. Progressivity and Redistributive Effect of Direct Taxes and contributions
(from market to disposable income)

Source: Own estimates based on the 2016 Romanian HBS.

(Figure 7). However, direct taxes are much less redistributive relative to other countries, such as Croatia, Poland, or Mexico (Figure 8A), either because they collect relatively lower amounts (for instance compared to Poland) or because they are less progressive (with a lower Kakwani when compared to Croatia or Mexico). Moreover, they are also poverty increasing, as shown by a negative marginal contribution to poverty reduction when poverty is measured using the 2011 PPP US\$5.50 a-day line. These results point to potential improvements that could be achieved to improve the progressivity and redistributive impact of direct taxes in Romania.

a Shapely decomposition to address this issue, which involves estimating marginal contributions in every possible path and then taking the average.

Figure 8. Progressivity and Redistributive Effect of Taxes

Figure A. Direct Taxes

Figure B. Indirect Taxes

Source: Armenia: Younger & Khachatryan (2017); Bolivia: Paz Arauco et al (2014); Brazil: Higgins & Pereira (2014); Chile: Martinez Aguilar et al (2017); Colombia: Melendez and Martinez (2015); El Salvador: Beneke et al., (2014); Georgia: Cancho & Bondarenko (2017); Guatemala: Cabrera and Moran (2015); Indonesia: Jellema et al (2017); Jordan: Alam et al (2017); Mexico: Scott (2014); Peru: Jaramillo (2013); Poland: Goraus & Inchauste (2016); Russia: Lopez-Calvo et al (2017); Sri Lanka: Arunatilake et al (2017); South Africa: Inchauste et al (2017); Uruguay: Bucheli et al (2014); Croatia: Inchauste and Rubil (2017); Romania: own estimates using 2016 HBS.
 Note: Old-age pensions are treated as deferred income for all countries shown. Marginal contributions are the difference between the consumable income Gini coefficient with and without indirect taxes.

In contrast, indirect taxes are regressive and contribute to increasing poverty and inequality in 2016. While it is true that regressive taxes can be equalizing,¹⁸ this was not the case in Romania in 2016 (Figure 9). In particular, VAT placed a large burden on low-income households, leading to an overall increase in poverty and inequality. Excise taxes were also regressive, but since they are not as large as VAT, their impact on poverty and inequality was substantially smaller (Table A2.1). When

Figure 9. Progressivity and Redistributive Effect of Indirect Taxes and contributions
(from market to consumable income)

Source: Own estimates based on the 2016 Romanian HBS.

taken together, although indirect taxes are regressive and unequalizing, this effect is smaller relative to other countries, including many other middle-income countries (Figure 8B).

Social Spending

Contributory benefits and direct cash and near-cash transfers are all progressive, reducing both poverty and inequality (Table A2.1). These programs are progressive in both relative and absolute terms – that is, they represent a larger share of the budgets of the poor, and are pro-poor, as most of the benefits are concentrated at the bottom 40 percent of the distribution for almost all categories of benefits (Figure 10). For instance, the state allowance for children spent 0.6 percent of GDP in 2016 and concentrated 59 percent of benefits to the bottom 40 percent of the distribution. Similarly, 65 percent of the 0.3 percent of GDP spending on disability benefits went to the bottom 40, while 70 percent of the 0.1 percent of GDP spending on the minimum social pension did so. Most progressive were the 0.11 percent of GDP spent on the guaranteed minimum income and the 0.07 percent of GDP spent on the support allowance for families with children, of which 99 and 97 percent benefited the bottom 40 percent of the distribution. The only exceptions are relatively small programs, including programs for persecuted persons for ethical or political reasons, and near-cash benefits for medicines and transportation.¹⁹ Overall, 60 percent of the 1.4 percent of GDP spent

¹⁸ For instance, the case of Chile. See Martinez-Aguilar et al (2017) and Lustig (2017).

¹⁹ This last result should be interpreted with caution given the relatively small sample size of beneficiaries to these smaller programs.

on non-contributory social benefits went to the bottom 40 percent of the distribution in 2016. Similarly, 52 percent of the 0.6 percent of GDP spent on contributory social benefits (excluding old-age pensions) went to the bottom 40.

Figure 10. Romania. Concentration of Social Protection Programs
(by market income plus pensions quintiles)

Source: World Bank estimates based on Romanian HBS 2016.

The distribution of these benefits between urban and rural areas shows that many of these programs have a higher impact in rural areas (Figure 11). For instance, 84 percent of the Guaranteed Minimum Income program is devoted to rural areas, where 81 percent of benefits are spent on the poorest 20 percent of the population. In contrast, most of the contributory programs benefit urban areas, as do near-cash benefits such as school supplies, medicines and transportation benefits.

As mentioned in the previous section, despite the progressivity of existing social transfer programs,

Figure 11. Romania. Concentration of Social Protection Programs
(by rural and urban areas)

Source: Own estimates based on the 2016 Romanian HBS.

the benefits received by the poor and vulnerable are not high enough to overcome the impact of direct and indirect taxes. The marginal contribution of the different transfer programs varies, depending on the size and progressivity of the programs. For instance, the state allowance for children has the biggest distributional impact, even though it is not the most progressive, simply because it is the largest program (Figure 12A). When it comes to the combined effect of taxes and social spending, we find that the marginal contribution of social transfers to poverty reduction is reversed by the combination of direct and indirect taxes and contributions (Figure 12B).

Figure 12. Romania. Poverty Headcount Rate, 2016

Source: World Bank estimates based on the Romanian 2016 HBS.

In terms of in-kind transfers for education and health, we must caution that our analysis does not address the quality of such spending. We use government expenditure data on the various forms of education and health services to estimate unit costs of these programs. The analysis thus assumes that the actual benefit received by individuals is equal to the amount spent per student or per patient. Although we differentiate between rural and urban areas for primary and secondary education, a finer disaggregation was not possible. Given that the quality of school infrastructure, teachers, and health clinics and hospitals varies across the country, this is a clear limitation of the analysis.

With these caveats in mind, the results show that education is progressive in relative terms, and given the amounts spent, it is also equalizing.²⁰ In other words, the amount of spending on education is relatively high as a share of the incomes of those at the bottom of the distribution, although there is variation across educational categories, with lower secondary education being the most redistributive (Table A2.1). On average, 49 percent of all spending on education is devoted to the poorest 40 percent, however while 61 percent of primary and 66 percent of lower secondary spending is devoted to the bottom 40 percent of the distribution, only 23 percent of tertiary spending does so (Figure 13). This is because students in poorer households never make it into tertiary education.

Figure 13. Romania. Concentration of Education and Health
(by market income plus pensions quintiles)

Source: World Bank estimates based on Romanian HBS (2016).

However, this does not mean that the resources devoted to education spending are adequate. Most striking is the fact that despite being progressive, the redistributive power of primary education is relatively low, not just in terms of other social spending in Romania, but also when compared to other countries (Figure 14). This is because the amount spent on education is relatively low compared to other countries (World Bank, 2018b). In Romania, only 1 percent of high-performing schools and about 83 percent of low-performing schools are in rural areas. In fact, the gap in the quality of education between rural and urban areas (using PISA 2015 scores) is as high as 1.8 years of schooling. This is in part due to density, and the fact that public resources are allocated on a per-student basis. High-performing schools tend to have more than double the number of students than low-performing schools. This is not unexpected as it is difficult to attract and retain high-quality teachers in rural schools (and those situated in the outskirts of cities), so that they often have a higher proportion of substitute teachers, with teachers that are generally not as experienced as in those in urban schools. These factors negatively impact the quality of education and contribute to low student performance. Local authorities from large cities or rich rural areas add to the envelope of basic

²⁰ We do not assess the poverty reducing impact of health and education spending as the recipients do not necessarily value these services at the cost of provision.

financing with funds from local revenues mainly for the top schools in their catchment areas. Consequently, such schools have strong reputations, and attract students and families from relatively well-off socioeconomic backgrounds (World Bank, 2018b).

Although health spending is progressive and equalizing in relative terms, in the sense that spending on health makes up a larger share of the incomes of the poor. However, it is not pro-poor in the sense that a larger share of spending accrues to the top of the distribution. The main reason for this is that households at the bottom of the distribution do not have access to basic health benefits (Figure 11). In fact, basic health benefits amount to 3 percent of GDP, with 33 percent of these benefits going to the bottom 40 percent. In contrast, minimum health benefits are progressive and pro-poor, with 87 percent of spending going to the bottom 40 percent of the distribution. However, these benefits are relatively small, making up only 0.1 percent of GDP.

Figure 14. Progressivity and Redistributive Effect of Primary School (from market to final income)

Source: Armenia: Younger & Khachatryan (2017); Chile: Martinez Aguilar et al (2017); Croatia: Inchauste and Rubil (2017); Ethiopia: Hill et al (2017); Indonesia: Jellema et al (2017); Jordan: Alam et al (2017); Poland: Goraus & Inchauste (2016); South Africa: Inchauste et al (2017); Romania: own estimates using 2016 HBS.

VI. What is the impact of recent changes in taxes and benefits?

Reforms introduced since 2016 were aimed at improving the social impacts of tax and benefit policies. The government cut the VAT tax standard rate from 20 to 19 percent in 2017. In addition, the PIT rate was cut from 16 to 10 percent beginning in 2018 and the tax-free allowance was raised. The government also substantially changed the structure of social contributions by shifting their burden almost entirely to the employees beginning in 2018.²¹ Here we focus on the impact of the changes in the VAT and the PIT.

The reduction in the VAT rate only slightly reduced the VAT paid by all households, while the reduction in PIT was more substantial (Figure 15). The combined fiscal effect of these changes is estimated to lead to a 5.4 percent reduction in total revenue and a substantial increase in the primary deficit, holding all other economic variables constant. In terms of distributional impacts, the reduction in the VAT has had virtually no effect on fiscal redistribution. Value added taxes become slightly more regressive as measured by the Kakwani index (from -0.0955 to -0.0966). In fact, since richer households consume more, 37 percent of the

²¹ Beginning in 2017, social security and health contributions apply to the entire income earned. Health contributions for pensioners have been eliminated, as well as personal income taxes for pensions below RON 2 000 (EUR 440) (EC, 2017). In November 2017 the government adopted Emergency Ordinance No 79/2017 which changed contributions from 22.75 % for employers and 16.5% for employees to 2.25% and 35%, respectively.

reduction in value added taxes was captured by the top of the two deciles of the distribution. However, since everyone is now paying less taxes, the marginal contribution to inequality is now smaller, but this change is only minor, a decline in the impact from 0.0051 to 0.0048 Gini points.

In contrast, the reduction in the tax rate for personal income taxes had a much larger impact on inequality. Since personal income taxes continue to have a flat tax, the level of progressivity in relative terms, as measured by the Kakwani index, has not changed. However, when considering the absolute amount of tax relief, since the top of the distribution have higher incomes, most of the gains of the changes in policy were concentrated at the top of the distribution. In fact, 55 percent of the PIT tax relief benefited the top two deciles. As a result, the redistributive impact of personal income taxes has been substantially reduced, as their marginal contribution to the redistributive effort fell from 0.012 to 0.007 Gini points.

Thus, the result of the decline in PIT and the VAT rates was an increase in inequality. The Gini coefficient for Disposable Income increased with a lower PIT flat rate, while there is nearly no impact from the change in VAT (Figure 16A).²² An increase in inequality is likely not what the authorities were hoping to achieve with these reforms.

However, when it comes to poverty, the impact of lower VAT and PIT rates is expected to be poverty reducing. Poverty after taxes and transfers, measured by consumable income and using the US\$5.50 PPP-a-day poverty line is expected to have declined from 15.4 to 15.0 percent due to the lower PIT rate (Figure 16B), which is still higher than the poverty rate prior to taxes and transfers. If the VAT rate were to decline to 18 percent, this would further reduce the poverty rate, but only to 14.8 percent, which would still be insufficient to mitigate the impact of the burden of taxes in the system.

²² Note that the reduction in the redistributive effort of the PIT might be even larger if the household survey were able to accurately account for top incomes, which are typically underreported in household surveys.

Figure 16. Impact of lower VAT and PIT rates on poverty and inequality

Source: World Bank estimates based on Romanian HBS (2016).

If the purpose of these reforms was to reduce poverty and inequality, a much more efficient way of achieving this objective would have been to keep the PIT rate constant and to increase targeted social transfers. Such an alternative would not only have been less costly, but also more redistributive. To illustrate this point we undertook a final simulation in which we assumed that the PIT was kept at 16 percent, and that half of the cost of the reduction to 10 percent was instead spent on higher social transfers (Figure 17). Such an alternative would not only have halved the impact on the fiscal deficit, it would have also reduced poverty by 1.4 percentage points (compared to only 0.6 percentage points with lower PIT and VAT rates) and reduced inequality by 0.006 Gini points, as opposed to an increase with a lower PIT.

Figure 17. Impact of increasing social transfers instead of reducing the PIT rate

VII. Conclusions

Romania has high levels of poverty and inequality relative to other EU countries. In this context, the combined effect of taxes and social spending in Romania helps to reduce inequality, although less so than other EU countries. Direct taxes and transfers are progressive and redistributive, more so than other developing countries, but less than other European countries such as Poland and Croatia. In contrast, indirect taxes are regressive and unequalizing. In-kind transfers are progressive and equalizing, particularly spending on primary and lower secondary education, and spending on the minimum health benefit. However, spending on primary education is much less equalizing than in other developing countries, while health spending is not necessarily pro-poor.

The impact of taxes and transfers on poverty is much worse. When we compare the poverty rate before and after taxes and transfers, we find that poverty is higher after all taxes and cash transfers. The main reason for this is that taxes are poverty increasing, so much so that the poverty-reducing power of direct transfers is completely wiped out once indirect taxes are included in the analysis. In fact, households beginning in the second decile were net payers to the treasury in 2016, as the share of taxes paid exceeded the cash benefits received for all but the poorest 10 percent of the population. The main problem is that direct cash transfers to poor households (in the form of social assistance and non-contributory benefits) are not large enough to compensate them for the burden of indirect taxes. This is especially important for rural households and for families with children.

However, things are looking up for Romania, as growth has been strong, and unemployment reached its lowest level in more than 20 years in 2017. In this context, fiscal policy has turned pro-cyclical, driven by significant tax cuts and wage and pension increases which has placed Romania on a trajectory towards re-

entering the EU Excessive Deficit Procedure. The adopted policies, estimated to have led to a 5.4 percent reduction in government revenue, were meant to foster private investment and improve the living standards of the population and redistributive and poverty-reducing impact of fiscal policies. So far it is unclear if the adopted policies led to higher investment. On the distributional side, these policies have not been effective in reaching their objective.

The results in this report show that the recent reduction in the PIT rate likely led to an *increase* in inequality, while the reduction in the VAT rate had no impact. This is because most of the tax relief accrued to the top of the income distribution. Moreover, the analysis shows that the adopted policies were a very expensive way to achieve what is actually a very small decline in poverty. A larger and more targeted social assistance system could have achieved better distributional results at a much lower fiscal cost. The results call for the use of simulation tools that could better inform the fiscal and redistributive impacts of proposed reforms.

References

- Alam, S., G. Inchauste, and U. Serajuddin. 2017. “The Distributional Impact of Fiscal Policy in Jordan”. In *The Distributional Impact of Taxes and Transfers: Evidence from Eight Low- and Middle-Income Countries*, edited by G. Inchauste and N. Lustig, 179–98. Washington, DC: World Bank.
- Ardanaz, M. And A. Izquierdo. 2018. “Current Expenditure Upswings in Good Time and Capital Expenditure Downswings in Bad Times? New Evidence from Developing Countries.” IDB Working Paper No. IDB-WP-838. Available at: <https://publications.iadb.org/handle/11319/8558>
- Arunatilake, N., G. Inchauste and N. Lustig. 2017. “The Incidence of Taxes and Spending in Sri Lanka.” In *The Distributional Impact of Taxes and Transfers: Evidence from Eight Low- and Middle-Income Countries*, edited by G. Inchauste and N. Lustig, 267–93. Washington, DC: World Bank.
- Beneke, Margarita, Nora Lustig, and José Andrés Oliva. 2017. “The Impact of Taxes and Social Spending on Inequality and Poverty in El Salvador.” In *Commitment to Equity Handbook: Estimating the Impact of Fiscal Policy on Inequality and Poverty*, edited by Nora Lustig. Washington, DC: Brookings Institution Press and CEQ Institute, Tulane University. Advance online version available at <http://www.commitmenttoequity.org/publications/handbook.php>.
- Bucheli, Marisa, Nora Lustig, Máximo Rossi, and Florencia Amábile. 2014. “Social Spending, Taxes and Income Redistribution in Uruguay.” *Public Finance Review* 42 (3): 413–33.
- Cabrera, Maynor, Nora Lustig, and Hilcías Morán. 2015. “Fiscal Policy, Inequality, and the Ethnic Divide in Guatemala.” *World Development* 76 (C): 263–79.
- Cancho, C., and E. Bondarenko. 2017. “The Distributional Impact of Fiscal Policy in Georgia.” In *The Distributional Impact of Taxes and Transfers: Evidence from Eight Low- and Middle-Income Countries*, edited by G. Inchauste and N. Lustig, 113–48. Washington, DC: World Bank.
- CEQ Data Center on Fiscal Redistribution. 2018. “CEQ Standard Indicators” Available at: <http://commitmenttoequity.org/datacenter>
- De Agostini, P., B. Capeau, A. Decoster, F. Figari, J. Kneeshaw, C. Leventi, K. Manios, A. Paulus, H. Sutherland and T. Vanheukelom. 2017. “EUROMOD Extension to Indirect Taxation: Final Report.” Available at: <https://www.iser.essex.ac.uk/research/projects/euromod-extension-to-indirect-taxation>
- Duclos, Jean-Yves and Abdelkrim Araar. 2006. *Poverty and Equity: Measurement, Policy, and Estimation with DAD*. New York: Springer and International Development Research Centre.
- _____, and Martin Tabi. 1996. The measurement of progressivity, with an application to Canada. *The Canadian Journal of Economics*. Volume 1, Special Issue (Part 1), April, pp. S165-S170.
- European Commission. 2018. “2018 European Semester: Country Report — Romania”. Commission Staff Working Document No 1176/2011. Brussels. SWD (2018) 221. Available at: https://ec.europa.eu/info/publications/2018-european-semester-country-reports_en
- EUROMOD Statistics on the Distribution and Decomposition of Disposable Income. Version H1.0+. Available at: <https://www.euromod.ac.uk/using-euromod/statistics>

- Foster, J., J. Greer, and E. Thorbecke. 1984. A class of decomposable poverty measures. *Econometrica* 52: 761-766.
- Goraus, K., and G. Inchauste. 2016. “The Distributional Impact of Taxes and Transfers in Poland.” Policy Research Working Paper 7787, World Bank, Washington, DC.
- Higgins, Sean and Claudiney Pereira. 2014. “The Effects of Brazil’s Taxation and Social Spending on the Distribution of Household Income.” In Lustig, Nora, Carola Pessino and John Scott. 2014. Editors. *The Redistributive Impact of Taxes and Social Spending in Latin America. Special Issue. Public Finance Review*, May, Volume 42, Issue 3.
- Higgins, Sean, and Nora Lustig. 2017. “Allocating Taxes and Transfers and Constructing Income Concepts.” In *Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty*, edited by Nora Lustig. Washington DC: Brookings Institution Press.
- Inchauste, G. et al. 2017. “The Distributional Impact of Fiscal Policy in South Africa.” In *The Distributional Impact of Taxes and Transfers: Evidence from Eight Low- and Middle-Income Countries*, edited by G. Inchauste and N. Lustig, 233–66. Washington, DC: World Bank.
- Inchauste, Gabriela; Rubil, Ivica. 2017. The Distributional Impact of Taxes and Social Spending in Croatia. Policy Research Working Paper; No. 8203. World Bank, Washington, DC. Available at: <https://openknowledge.worldbank.org/handle/10986/28448>
- International Monetary Fund. 2017. “Romania Staff Report for the 2017 Article IV Consultation.” IMF Country Report No. 17/133. Available at: <http://www.imf.org/en/Publications/CR/Issues/2017/05/25/Romania-2017-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-44944>
- Jaramillo, Miguel. 2014. “The Incidence of Social Spending and Taxes in Peru.” *Public Finance Review* 42 (3): 391–412.
- Jellema, J. M Wai-Poi and R. Afkar. 2017. “The Distributional Impact of Fiscal Policy in Indonesia”. In *The Distributional Impact of Taxes and Transfers: Evidence from Eight Low- and Middle-Income Countries*, edited by G. Inchauste and N. Lustig, 149–78. Washington, DC: World Bank
- Kakwani, N. 1993. Statistical inference in the measurement of poverty. *Review of Economics and Statistics* 75 (4): 632-639.
- Kaminsky, G., C. Reinhart and C. Végh. 2004. “When It Rains It Pours: Procyclical Capital Flows and Macroeconomic Policies.” In: M. Gertler and K. Rogoff, editors. *NBER Macroeconomics Annual 2004*. Cambridge, United States: MIT Press.
- Lambert, Peter. 2002. *The Distribution and Redistribution of Income*. Third Edition. Manchester United Kingdom: Manchester University Press.
- López-Calva, L., N. Lustig, M. Matytsin, and D. Popova. 2017. “Who Benefits from Fiscal Redistribution in the Russian Federation?” In *The Distributional Impact of Taxes and Transfers: Evidence from Eight Low- and Middle-Income Countries*, edited by G. Inchauste and N. Lustig, 201–34. Washington, DC: World Bank.

- Lustig, Nora, editor. 2018. *Commitment to Equity Handbook: Estimating the Impact of Fiscal Policy on Inequality and Poverty*. Washington, DC: Brookings Institution Press and CEQ Institute, Tulane University. Advance online version available at: <http://www.commitmentoequity.org/publications/handbook.php>.
- Martinez-Aguilar, Sandra; Fuchs, Alan; Ortiz-Juarez, Eduardo; Del Carmen, Giselle. 2017. The Impact of Fiscal Policy on Inequality and Poverty in Chile. Policy Research working paper, no. WPS 7939;; Policy Research Working Paper; No. 7939. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/25948>
- Melendez, Marcela and Valentina Martinez. 2015. “CEQ Master Workbook: Colombia. Version: December 17, 2015,” CEQ Data Center on Fiscal Redistribution (CEQ Institute, Tulane University and Inter-American Development Bank).
- Militaru, Eva and Miko Tammik. 2017. “Romania 2014-2017” Euromod Country Report. Available at: https://www.euromod.ac.uk/sites/default/files/country-reports/year8/Y8_CR_RO_Final.pdf
- Paz Arauco, Verónica, George Gray Molina, Wilson Jiménez Pozo, and Ernesto Yáñez Aguilar. 2014. “Explaining Low Redistributive Impact in Bolivia.” *Public Finance Review* 42 (3): 326–45.
- Rossignolo, Dario. 2017. “Taxes, Expenditures, Poverty, and Income Distribution in Argentina.” In *Commitment to Equity Handbook: Estimating the Impact of Fiscal Policy on Inequality and Poverty*, edited by Nora Lustig. Washington, DC: Brookings Institution Press and CEQ Institute, Tulane University. Advance online edition available at <http://www.commitmentoequity.org/publications/handbook.php>.
- Scott, John. 2014. “Redistributive Impact and Efficiency of Mexico’s Fiscal System.” *Public Finance Review* 42 (3): 368–90.
- Stroe, C., E. Militaru, and S. Avram. 2017. “Romania 2013-2016” Euromod Country Report.
- World Bank. 2018a (*forthcoming*). “Romania. Systematic Country Diagnostic. From Uneven Growth to Inclusive Development”.
- World Bank. 2018b (*forthcoming*). “Romania. Public Expenditure Review”. Education chapter.
- Younger, S. and A. Khachatryan. 2017. “Fiscal Incidence in Armenia.” In *The Distributional Impact of Taxes and Transfers: Evidence from Eight Low- and Middle-Income Countries*, edited by G. Inchauste and N. Lustig, 43–78. Washington, DC: World Bank.

Appendix 1. Taxes, Transfers and Methodological Assumptions

This appendix details the assumptions for the Commitment to Equity analysis for Romania based on the 2016 Household Budget Survey (HBS). The parameters and rules of the fiscal system are presented not only for 2016, but also for the following years, so that the analysis can later be easily updated.

Taxes

Direct taxes and social contributions

Employment and self-employment income are subject to the payment of social contributions and personal income tax. Also on other types of income, such as pensions or income from investments, direct taxes are paid under certain conditions.

We impute minimum contribution rates for personal income taxes and social security contributions for all employees who reported salaries during the previous month. According to the survey, 6.28 million persons declared themselves as employed. However, the number of formal employees according to the enterprise survey data from the National Institute of Statistics was only 5.22 million. The largest share of the employees working informally belong to the poorest quintiles. To the extent that the HBS survey overrepresents the number of formal employees, this would bias our assumptions about total social contributions and taxes paid. Similarly, for self-employed individuals, social contributions could be overestimated as the household survey data show that all workers pay the statutory contribution amounts, which was likely imputed by the National Statistics Office. Future versions of this work could aim to reduce this bias, but to the extent that the survey instrument does not allow for a direct question on whether individuals contributed to social security, this bias will be difficult to overcome.

1. Social contributions

Employment income

Social contributions are due on income earned from dependent employment. Social contributions paid by employers are calculated on the gross wage bill, while the contribution base for the calculation of employee social contributions is the gross wage. The following social contributions are levied on employment income (see Table A1.1 for contribution rates):

Social insurance contribution is mandatory and its total rate depends on the working conditions, which, according to the Romanian legal framework, can be normal, unusual (i.e. high exposure to occupational hazards affecting working capacity) or special (e.g. sectors such as mining, civil aviation, artistic activities, etc.). The employee contribution rate is the same irrespective of working conditions, while the employer covers the difference between the total rate and the employee rate. However, in 2015 and 2016 a contribution ceiling was applied, with the contribution base being limited to five national average gross wages (i.e. the provisional average wage for the following year). In 2017, the ceiling was eliminated, but a lower limit has been introduced – i.e. gross statutory minimum wage (also for part-time employment). The contribution rates have not changed since 2015.

Unemployment insurance contribution is also mandatory, paid by employers and employees with the same rate applying for both. The contribution base for the employer is the gross wage bill, while for employees is the gross wage. No caps are applied on the contribution bases.

Health insurance contribution is paid by employers and employees and different rates apply. The contribution base for employers is the gross wage bill, while for employees is the gross wage. There are no caps applied on contribution bases.

Only employers pay the following contributions: *sickness insurance contribution*, *work accidents and professional diseases insurance contribution* and *salary guarantee contribution*. They are all calculated on the gross wage bill and for some of them lower thresholds or upper ceilings apply.

Sickness insurance contribution is intended to cover the payment for medical leaves/ indemnities. The contribution is limited to 12 gross minimum statutory wages.

Work accidents and professional disease insurance contribution's rate is dependent on the economic activity of the employer.

Salary guarantee contribution is due only by private employers.

Table A1.1. Social contribution rates, 2015-2017, %

Social contributions	Employment income		Self-employment income	Investment income	Pensions
	Employee	Employer			
Social insurance	10.5%	15.8% (20.8%, 25.8%) ¹⁾	10.5%/ 26.3%	NA	NA
Unemployment insurance	0.5%	0.5%	optional	NA	NA
Health insurance	5.5%	5.2%	5.5%	5.5% ³⁾	5.5% ⁴⁾
Sickness insurance	NA	0.85%	optional	NA	NA
Work accidents and professional disease insurance	NA	0.15% ²⁾	optional	NA	NA
Salary guarantee	NA	0.25%	optional	NA	NA

Source: Romanian Fiscal Codes, 2015-2017. Notes: 1) The contribution rate has three levels according to working conditions: normal, unusual and special. 2) The contribution rate is differentiated by economic sector. This is the minimum contribution rate. 3) This is valid only for 2015 and 2016. From 2017, health insurance contribution is only due if this is the only income source. 4) This is valid only for 2015 and 2016. From 2017 pension income is exempted from the payment of health insurance contribution.

Self-employment income

Social insurance contribution is mandatory also for income from independent professional activities. The contribution base is the net self-employment income (gross income minus deductible expenses). Self-employed workers can choose between paying the employee contribution rate (10.5%) or the total contribution rate (employee plus employer - 26.3%), but only the latter is equivalent to full rights in the

public pension system. The contribution base has a lower threshold (i.e. 35% of the provisional gross average wage) and an upper ceiling (5 provisional gross average wages). Since 2016, self-employed workers who also earn income from dependent employment have the obligation of paying social insurance contribution (they were exempted before).

Health insurance contribution is also paid on self-employment income on mandatory basis. The contribution base is the net self-employment income (gross income minus deductible expenses). The contribution rate is 5.5% and has not changed between 2015 and 2017. As an exception, health insurance contribution is not due on intellectual property income unless it is the only source of income.

Unemployment insurance contribution is optional for self-employment income, as well as other contributions mandatory for employers (*sickness insurance contribution, work accidents and professional diseases insurance contribution and salary guarantee contribution*).

Other incomes on which *health insurance contribution* is due are the following:

Health insurance contribution was mandatory in 2015 and 2016 also for **pension income** above a threshold (740lei in 2015, 872lei in 2016). Since 2017 all income from pensions is exempted from health insurance contribution. The contribution is credited from the state budget.

Income from investments (interests, dividends, rents, etc.) was subject to health insurance contribution (rate of 5.5%) up to 2017, when it became exempted unless it is the only income source and it exceeds the national statutory gross minimum wage (the latter condition has been introduced since 2016).

Credited health insurance contribution

There are some income categories on which health insurance contribution is due, but it is not paid by the beneficiary. This is the case of the *unemployment benefit* – the contribution is paid from the Unemployment Budget; *child raising benefit, indemnity for temporary work incapacity, social assistance benefit* (minimum guaranteed income scheme) – contributions are paid from the State Budget. On the other hand, children up to the age of 18 years are insured without any contribution due. Also, the following categories benefit of health insurance without paying the contribution: persons aged between 18 and 26 years if enrolled in formal education and without income, spouse and parents with no income of a contributor to the system. Other persons, who are not insured, do not have access to public medical care (except for emergency situations) unless they pay health insurance contribution for six months on the national statutory gross minimum wage.

2. Personal income tax

The personal income tax has a flat rate of 16% and is paid on employment income, self-employment income and income from investments. Social benefits are exempt from personal income tax. For dependent employment, the tax base is the gross wage minus social contributions and tax allowances. For self-employment income, the tax base is gross income minus deductible expenses and social contributions, and income from investments minus social contributions (if the case).

There is a *tax allowance for employees* which is applied for a monthly gross wage up to 3000 lei. The amount of the tax allowance is differentiated by the number of dependent persons and is decreasing progressively with income. The maximum personal allowance was 250lei in 2015 and 300lei from 2016 onwards (if the employee has no dependents and earnings less than 1000 lei (2015)/ 1500 lei (2016+)). The *dependent person* can be the spouse, child or other family relatives up to the 2nd degree (children, parents, brothers and sisters, grandparents and grandchildren) of the taxpayer or his/her spouse's, with total income (taxable, non-taxable, irrespective of its source) not exceeding the amount of the tax allowance.

There is also a *deduction for voluntary private pension contributions* which is only applicable to employees and it is up to the equivalent of 400 euros in lei, per year. Other tax allowances include the *tax allowance for trade union fees* and the *tax allowance for savings in collective systems for dwelling expenses*. For employment income (dependent and independent) there is a *tax credit* consisting of an amount up to 2% of the personal income tax paid which can be donated to non-profit organizations or for private scholarships.

Indirect taxes

1. Value Added Tax

The standard VAT rate applied in Romania is 19% in 2017. It has been reduced twice since 2015 from 24% to 20% in 2016, and consequently to 19% in 2017. On a range of goods and services, reduced rates of 5% and 9% are applicable. The revenues from VAT collection account for more than 50% of annual governmental revenues. Reduced VAT rates apply to specific product categories, which are listed below together with the exempted product categories.

Table A1.2. List of goods and services taxed at reduced VAT and main exemptions

Reduced	9%: Hotels and other accommodation services; Therapeutic equipment; pharmaceuticals products; Books, newspapers, magazines, etc. Food and non-alcoholic beverages; Water supply; Restaurant and catering service (except for alcoholic beverages); 5%: Cultural services, except for those exempted (see below) (cinemas, theatres, concerts, etc.); Consignment of social houses.
Exempted	Medical services (Outpatient medical services, Dental services, Paramedical services, Hospital services, etc.); Education; Social protection; Recreational and sporting services; Postal (public) services; Public TV and radio taxes;

	Games of chances; Insurance (life, dwelling, health, transport, other); Financial services (Interests and other); Cultural services provided by public institutions or non-profit organizations; Consignment of building (not new); Rental of immovable.
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Source: Romanian Tax Code, 2015 – 2017.

2. Excise duties

Excises are levied on tobacco, alcoholic beverages and energy products. Only specific excises are imposed on alcoholic beverages and energetic products, while for tobacco products, the excises can be either specific or both specific and ad valorem, depending on the product category. The level of specific excises is expressed in Romanian currency.

Tobacco

Tobacco products subject of excise duties are the following: cigarettes, cigars and cigarillos, fine-cut smoking tobacco and other smoking tobacco products. Only for cigarettes, the total excises levied are the sum between ad valorem and specific excise; the ad valorem excise is calculated as a percentage of the retail price, while the specific excise is the annual modification on April 1st, taking into consideration the previous year's average weighted retail price and is expressed in lei per 1,000 units. For cigarettes, a minimum excise duty is imposed, which is equal to the value of the excise levied per 1,000 units. For all other categories, specific excises are applied either on 1,000 units (for cigars and cigarillos) or per kg (fine-cut smoking tobacco and other smoking tobacco products).

Table A1.3. Excises on tobacco products

	2015	2016	2017
<u>Specific excises</u> (lei per 1000 units, or per kg)			
<i>Cigarettes</i>	314.68	329.30	334.17
<i>Cigars and cigarillos</i>	303.23	303.23	303.23
<i>Fine-cut smoking tobacco</i>	383.78	383.78	383.78
<i>Other tobacco products</i>	383.78	383.78	383.78
<u>Ad valorem excises</u> (% of retail price)			
<i>Cigarettes</i>	14%	14%	14%
<i>Cigars and cigarillos</i>	0	0	0
<i>Fine-cut smoking tobacco</i>	0	0	0
<i>Other tobacco products</i>	0	0	0

Source: Romanian Tax Code, 2015 – 2017.

Alcoholic beverages

Excises on alcoholic beverages are levied on beers, wine, fermented beverages other than wine and beer, intermediaries and spirits. The level of the excise is differentiated for beers and spirits by the size of the production capacity (Table A1.4).

Table A1.4. Excises on alcoholic beverages (lei)

	2015	2016	2017	unit
<i>Beer</i>				
Beer >0.5% alc.	3.90	3.30	3.30	hl/degree Plato
Beer > 0.5% alc. in small breweries*	2.24	1.82	1.82	hl/degree Plato
Supplementary excise (<30% degree Plato from malt)	47.38	0	0	hl
<i>Wine</i>				
Sparkling wine	161.33	47.38	47.38	hl
<i>Fermented beverages other than wine and beer</i>				
Still (>1.2%alc. and <15% alc.)except for cider, mead and perry	47.38	47.38	47.38	hl
Sparkling (>1.2%alc. and <15% alc.)	213.21	396.84	396.84	hl
Intermediaries (>1.2%alc. and <22% alc.)	781.77	396.84	396.84	hl
<i>Spirits</i>				
Spirits	4738.01	3306.98	3306.98	hl of pa
Spirits in small distilleries*	2250.56	1653.49	1653.49	hl of pa

Notes: * small breweries=independent producers with a nominal production capacity < 200.000 hl/ year; small distilleries=distilleries with a production of less than 50 hl of pure alcohol/ year; pa=pure alcohol.

Source: Romanian Tax Code, 2015 – 2017.

Energy products

The following energy products are subject to excises: petrol, gas oil, natural gas, liquefied petroleum gas, coal and coke, heavy fuel oil, kerosene and electricity (Table A1.5). Other energy products can become excisable as well if used as fuel or for heating, in which case the level of the excises is that applied for the equivalent fuel or heating product.

Table A1.5. Excises on energy products (lei)

	2015	2016	2017	unit
<i>Petrol</i>				
Leaded petrol	2327.27	2327.27	1948.23	1000 litre
Unleaded petrol	2035.40	2035.40	1656.36	1000 litre
<i>Gas oil</i>				
Propellant	1897.08	1897.08	1518.04	1000 litre
Heating	1897.08	1897.08	1518.04	1000 litre

<i>Liquefied Petroleum Gas</i>				
Propellant	607.70	607.70	607.70	1000 kg
Heating (business use)	537.76	537.76	537.76	1000 kg
Heating (non-business use)	0	0	0	1000 kg
<i>Natural Gas</i>				
Propellant	12.32	12.32	12.32	Gigajoule
Heating (business use)	0.81	0.81	0.81	Gigajoule
Heating (non-business use)	1.52	1.52	1.52	Gigajoule
<i>Coal and Coke</i>				
Heating (business use)	0.71	0.71	0.71	Gigajoule
Heating (non-business use)	1.42	1.42	1.42	Gigajoule
<i>Electricity</i>				
Business use	2.37	2.37	2.37	MWh
Non-business use	4.74	4.74	4.74	MWh
Heavy fuel oil	71.07	71.07	71.07	1000 kg
<i>Kerosene</i>				
Propellant	2112.73	2112.73	2112.73	1000 litre
Heating	1781.07	1781.07	1781.07	1000 litre

Source: Romanian Tax Code, 2015 – 2017.

3. Other indirect taxes

Other indirect taxes than VAT and excise are local taxes on land, buildings and vehicles, as well as on services or activities related to: the issuing of certificates and permits, advertisements, cultural or recreational activities and tourism/accommodation.

Social Spending

In the description below, we shall mention the most important cash social benefits grouped into contributory and non-contributory benefits. The latter category has been divided as well into means-tested and non-means-tested benefits. The survey is stratified to be representative of the whole population, not any particular program, so it is not surprising that the total number of beneficiaries is different from the administrative numbers. As shown in Table 2 in the main text, we underestimate the number of beneficiaries and the total amount of benefits for some of the programs. Although this is an area that can be further improved for subsequent versions of this study and more importantly for simulations of alternative policy measures, the existing biases are in line with the literature.

Contributory benefits

Public pensions

The pension system in Romania is based on three pillars, with the first pillar being the most relevant. The 1st pillar is the public pay-as-you-go scheme and is sustained by the mandatory social insurance contributions. The 2nd pillar is a private contributions system, mandatory for people who were aged below 35 years in 2008 when it was introduced and on voluntarily basis for people aged between 36 and 45 years. It is sustained by a share carved down from the mandatory social insurance contribution (5.1p.p. in 2017). The 3rd pillar is entirely on voluntary basis, based on accumulation. The contribution rate for the latter should not exceed 15% of individual disposable income.

The amount of the public pension (1st pillar) is based on pension points, which are calculated on the entire contribution record as the ratio between the gross income (subject to contribution payment) and national average gross wage. The value of the pension point is 1000lei (2017). The types of pensions granted in the public system are the following:

- old-age pension (i.e. the retirement age is 65 years for men and 63 years for women)
- early retirement pension (i.e. at most five years until retirement age)
- survivors pension (for surviving children or spouse of a pensioner or a person who was entitled to a pension in the public pillar)
- invalidity pension (for at least 50% loss of working capacity).

Unemployment benefit

The benefit is granted to unemployed, i.e. persons with age above 16 years, not working or retired, available to start work, who have prior contribution to the unemployment insurance system (at least 12 months during the last 24 months). There is an exception from the condition to have contributed before in the case of newly graduates from high-school or university who are granted with unemployment benefit for a maximum period of 6 month after graduation (if the case).

The basic amount of the benefit is 75% of a social reference indicator (ISR) with the value of 500 lei monthly. The basic benefit is topped up with a variable amount - share of previous average wages (for the last year of employment). The share is dependent on the length of the contribution record (in a range between 3% to 10%). The unemployment benefit is granted for 6, 9 or 12 months, also based on length of prior contributory period.

Parental benefits

Child raising allowance

This is a contributory benefit granted to parents with children up to the age of 2 years (or 3 years for disabled children), who are in child care leave. The social insurance contribution record of the beneficiary should be of at least 12 months during the last 2 years prior to child birth. Both parents are eligible, but in separate periods of time. During the receipt of child care allowance, the parent is not allowed to earn employment income (dependent or independent).

The amount of the benefit is calculated as a share of 85% applied to previous employment and/ or self-employment income earned during the last 12 months before the child was born. The benefit has an upper ceiling (8,500 lei per month) and a minimum threshold (85% of national statutory gross average wage). This benefit underwent some major changes during recent years. In 2016 there was no upper limit to the benefit amount, while in 2015 there were two upper ceilings, depending on parents' option regarding the duration of receiving the benefit (up to the age of 1 year or 2 years). In the first case, the benefit amount was limited to 3,400 lei per month, while in the second situation it was capped at 1,200 lei per month.

Child raising incentive is also a contributory benefit which is linked to the child raising allowance. The benefit is provided as a work incentive targeted to parents who are benefiting of child raising allowance in order to return to work before the eligible period for the child raising allowance has expired. The child raising incentive is granted until the child reaches the age of 2 years (or 3 years for disabled). Its amount is 650 lei per month (in 2015 and 2016 it has been of 500 lei per month).

Health insurance benefits

There is a considerable range of health insurance benefits covered by the health insurance contribution scheme. As it follows, we shall mention only the most relevant.

- **Indemnity for temporary work incapacity** (caused by regular diseases or accidents not related to work) is granted for a maximum of 183 days in one calendar year (the period could increase up to 18 months in two years in case of very severe diseases). The amount is set at 75% (or 100% for severe illness) of the monthly average gross wage for 6 months out of the last 12 months prior to the occurrence of work incapacity.
- **Indemnity for work capacity recovery** (after work accidents or professional diseases) is granted to employees who reduce their working hours by a quarter of the normal working program. The benefit covers the wage loss due to reduced working hours and it is granted for a maximum of 90 days during one calendar year.
- **Maternity allowance** is a benefit granted to pregnant women or mothers for a total period of 126 days, split before and after giving birth to the child. The division is according to the choice of the mother, under the condition that at least one third of the period to be after child birth. The amount is 85% of the monthly average gross wage for 6 months out of the last 12 months prior to child birth.
- **Indemnity for maternal risk** is granted to pregnant women in employment whose medical condition prevents them from working. Its amount is equal to 75% of the monthly average wage of the beneficiary during the previous ten months.
- **Indemnity for ill child caring** is received by parents in the situation of caring for ill children up to the age of 7 (or up to the age of 18 for disabled children). The maximum duration for this indemnity is 45 days per year for one child. The period can be extended for severe diseases. The benefit amount is 85% of the monthly average gross wage for 6 months out of the last 12 months.

Non-contributory benefits

Means-tested benefits

Social assistance benefit (guaranteed minimum income) is the main means-tested benefit received by poor families. It implies both an income and asset test. The net monthly income of the family (all income sources, including other social benefits) is assessed and the thresholds are differentiated according to family size (Table A1.6). The thresholds are calculated by applying coefficients to the social reference indicator (ISR, 500 lei per month).

The monthly benefit amount is the difference between the threshold and tested income. There is also a 15 percent supplement for families with at least one person in employment. The asset test implies checking a list of basic necessity items and if the family owns only goods belonging to this category and in amounts below certain limits imposed, it is entitled to receive the benefit. Additionally, the receipt of the benefit is conditioned on requirements regarding registration at the unemployment office and community work at request in the case of not employed individuals, in working age and able bodied.

Table A1.6. Income thresholds for social assistance benefit (2017)

Family size	Threshold
1 person	0.283 ISR
2 persons	0.510 ISR
3 persons	0.714 ISR
4 persons	0.884 ISR
5 persons	1.054 ISR
for each additional person	0.073 ISR

Source: Ministry of Labour and Social Justice, Law no. 416/2001

Note: The same thresholds apply also for 2015-2016.

Support allowance for families with children is a benefit granted to poor families with children. The eligibility for entitlement is subject to both an income and an asset test. Per capita net monthly income is assessed and there are two thresholds, an upper threshold and a lower one. Benefit amount is differentiated according to the threshold applied, number of children and number of parents (i.e. higher benefits received by single parent families). The same asset test as in the case of social assistance benefit applies.

Table A1.7 Income thresholds and benefit amounts - support allowance for families with children (2017)

Benefit amount (monthly)	Two parent families	Single parent families
Lower threshold - per capita income	0.40 ISR	
1 child	0.164 ISR	0.214 ISR
2 children	0.320 ISR	0.428 ISR
3 children	0.492 ISR	0.642 ISR
4+ children	0.656 ISR	0.856 ISR
Upper threshold - per capita income	1.06 ISR	
1 child	0.15 ISR	0.204 ISR
2 children	0.30 ISR	0.408 ISR
3 children	0.45 ISR	0.612 ISR
4+ children	0.60 ISR	0.816 ISR

Source: Ministry of Labour and Social Justice, Law no. 277/2010

Note: The same thresholds and amounts apply also for 2015-2016.

Home heating aid is received by poor families as a cash support during the cold season (from November till March). The benefit entitlement is subject to income and asset testing. Per capita income is tested and the benefit amount is differentiated according to the type of heating – energy provided in the centralized system, natural gas or wood, coal and oil fuel. For the heating provided in the centralized system, the amount of the benefit is calculated as percentage of the heat energy bill. The percentages are decreasing with income brackets and are higher for single persons. For natural gas, wood, coal and oil fuel the benefit amount is a lump sum also decreasing with income (Table A1.8).

Guaranteed minimum social pension is received by public pension system retirees if their public pension due or in payment is less than a threshold (520 lei in 2017, 400 lei in 2015-2016). The benefit amount is the difference between the threshold and public pension.

Educational grants are given to children enrolled in education belonging to poor families. There are several types of grants, such as social grants (pre-university and university education), tuition grants (pre-university), scholarships for further learning (pre-university), educational allowance – “Money for high-school” (upper secondary) etc. and their entitlement involves an income test. The granting of these scholarships is conditioned on school attendance and academic results. Benefit amount in the case of social grants is established by the educational institutions where children are enrolled, while for other educational grants the amounts are set annually by the government.

Table A1.8. Income thresholds and benefit amounts – home heating aid (2017)

Per capita monthly net (lei)	Percentage compensation in centralized systems		Natural gas (lei)	Wood, coal and oil fuel (lei)
	Family	Single person		
Up to 155	90	100	262	54
155.1 - 210	80	90	190	48
210.1 - 260	70	80	150	44
260.1 - 310	60	70	120	39
310.1 - 355	50	60	90	34
355.1 - 425	40	50	70	30
425.1 - 480	30	40	45	26
480.1 - 540	20	30	35	20
540.1 - 615	10	20	20	16
615.1 - 786	5	15	-	-
786.1 - 1082	0	10	-	-

Source: Ministry of Labour and Social Justice, Law no. 92/2012

Note: The same thresholds and amounts apply also for 2015-2016.

Non-means-tested benefits

State allowance for children is a universal benefit granted to children (up to the age of 18 years or up to 26 years if enrolled in education). The monthly benefit amount is differentiated according to the child's age; thus it is equal to 0.4 ISR (200 lei) for children below 2 years and to 0.168 ISR (84 lei) for other children. If the child has a disability, the benefit amount is 0.4 ISR irrespective of age.

Disability benefits are granted to people with disabilities and their amounts are differentiated according to the severity of the disability. We mention three such benefits: monthly allowance for adults with disabilities, complementary personal budget and monthly allowance for covering attendant expenses. The amounts of each can be found in the table below.

Table A1.9. Disability benefits amounts (2017)

Disability status	Monthly benefit amount (lei)		
	Monthly allowance for adults with disabilities	Complementary personal budget	Monthly allowance for covering attendant expenses
Severe	234	106	1065 (925, 776)1)
Marked	193	79	-
Medium	-	39	-

Source: Ministry of Labour and Social Justice

Note: 1) Amounts between brackets apply for 2016 and 2015. For the other benefits the same amounts apply also for 2015-2016.

Education

The Romanian government provides free public education from pre-school and up to tertiary education. There are no direct user fees except for pre-school, though indirect fees in the form of school supplies and uniforms. Compulsory education starts with primary school (at the age of 6 years) and ends with the 10th grade (first level of upper secondary, at the age of 16-17 years). In contrast to household surveys in other parts of the world, enrollment and attendance in public schools is not clearly identified by level of education in the household survey. We impute the corresponding level based on the age of the individual attending school. For pre-school, if a child has less than primary completed and is aged between 4 and 7 years old, we assume the child is attending pre-school. This assumption is likely biased as some children who are that age do not attend preschool as attendance of kindergarten was optional in 2016, however a new regulation entering into force in 2018 will impose its compulsoriness for two years.

Health system

Public provision is funded either by the Ministry of Health, which oversees public health interventions, or by the National Health Insurance Fund. Expenditures can be divided between a minimum service package, provided to all citizens, and a basic service package, provided to insured individuals.

The minimal set of free medical services and products provided to all citizens include health care services, medicines and sanitary materials in case of:

- emergency or potential epidemic diseases
- pregnancy,
- family planning,
- prevention.

For citizens insured in the public health insurance system, the set of free medical services is extended to include preventive and curative medical services, health care services, medicines, sanitary materials, medical devices and others. The insured persons benefit of health care included in the basic set from the first day of illness or accident until complete cure.²³ Dependents who are otherwise not insured also benefit from free basic health care, including: children up to age 18; students up to age 26 without earnings; spouse or parents without insurance; persons with disabilities without earnings.

Health insurance is mandatory on:

- Employment and self-employment income,
- Income from investments (if the single source of income and if exceeds the national statutory gross minimum wage).

Before 2017, contributions were mandatory on pension income above a threshold, as well as on investment income irrespective of its amount and the presence of other sources of income (see the description of Direct taxes). Private spending is made by households in addition to or separately from public spending. Fees are charged for health care services, medicines and medical devices which are beyond the scope of basic assistance. The vast majority of copayments are related to medicines (some of which are only partially reimbursed by the NHIF).

²³ Law no.95/2006 on the reform in the health system, Framework Contract – National Health Insurance House

There are some conditions which are subject to national health programs - cancer, rare diseases, diabetes, transplant, cardiological and orthopaedical devices. In these cases, the uninsured, after being diagnosed, can get access to the necessary services and goods (medicines) which are otherwise part of the basic service package. However, in many instances uninsured persons do not have the necessary funds to pay for sophisticated diagnostic testing to begin with.

Table A1.10 Spending Structure of the National Health Insurance Fund

NHIF expenditure item	2016 (RON)
Inpatient	10.864.522.000
Medicines and medical goods	8.604.146.000
Outpatient	4.138.578.000
Family medicine	1.550.865.000
Dialysis program	913.262.000
Outpatient specialty services	779.630.000
Paraclinical services	655.105.000
Dental care	80.811.000
Home care	56.462.000
Outpatient recovery services	102.443.000
Allowances (medical leave)	1.631.861.000
Other	610.771.000
Administrative	242.178.000
Total NHIF spending (bn. RON)	26.090.389.000

Source: MoF, NHIF

The expenditure of the Ministry of Health which can be related directly or indirectly to health services & goods is made of three main items: wages for some staff categories (residents and emergency room staff), services (preventive and curative), medicines, community health. The target group of MoH expenditure includes the whole population, with some minor exceptions.

Table A1.11 Spending Structure of the Ministry of Health

MoH expenditure item	Associated with	2016 (RON)
Wage bill for some hospital staff	Inpatient services	1.510.454.639
Ambulance	Inpatient services	889.070.000
National health programs	Medicines (incl. vaccines)	500.000.000 (est.)
National health programs	Inpatient services (incl. transfusions)	181.000.000 (est.)
Priority actions	Inpatient services	254.848.000
Community medical services	Outpatient	259.622.994
Other spending	Other than medical services (incl. capital)	1.082.977.515

Source: MoF, MoH

Appendix 2. Table A2.1. Romania: Marginal Contributions to Reducing Inequality in 2016
Pensions as Deferred Income

	Size (wrt Market Income plus pensions)	Concentration Coefficient	Kakwani Coefficient	Marginal contributions	
				Redistributive Effect	Poverty Reduction Effect /5
				Marginal Contribution	Marginal Contribution
To Disposable Income	88.9%				
pensions - old age	15.0%	0.3182	0.0599	0.0557	0.1086
pensions - early retirement	0.8%	0.1907	0.1874	0.0032	0.0044
pensions - disability	1.2%	0.0394	0.3387	0.0063	0.0088
pensions - survivors	0.6%	-0.0413	0.4194	0.0040	0.0071
pensions - agriculture	1.3%	-0.3342	0.7123	0.0121	0.0208
All contributory pensions	19.0%	0.2371	0.1410	0.0837	0.1618
Unemployment benefit	0.1%	-0.3859	0.7640	0.0009	0.0017
Child-related benefits (raising + incentive)	0.6%	-0.1309	0.5090	0.0021	0.0030
Temporary work incapacity & maternity	0.0%	-0.0897	0.4678	0.0001	0.0002
State allowance for children	1.6%	-0.2633	0.6414	0.0113	0.0192
Other benefits for children	0.1%	-0.5569	0.9350	0.0006	0.0008
Allowance for families with children	0.1%	-0.8149	1.1930	0.0012	0.0017
Scholarships	0.0%	-0.3300	0.7081	0.0002	0.0004
Disability benefits	0.4%	-0.3291	0.7072	0.0019	0.0023
Guaranteed minimum income	0.3%	-0.8968	1.2749	0.0035	0.0032
Minimum pension	0.2%	-0.3560	0.7341	0.0012	0.0014
Heating aid	0.0%	-0.6128	0.9909	0.0002	0.0005
Other social benefits	0.1%	0.1659	0.2122	0.0000	0.0001
School related benefits - non-cash	0.2%	-0.2293	0.6074	0.0012	0.0026
Other social benefits - non-cash	0.4%	0.2157	0.1624	0.0000	0.0006
All direct transfers excl contributory pensions	4.1%	-0.2588	0.6369	0.0255	0.0380
All direct transfers incl contributory pensions	23.1%	0.1496	0.2285	0.1150	0.2102
Personal income tax	-7.3%	0.5230	0.1449	0.0117	-0.0088
Other direct taxes	-0.1%	0.4137	0.0356	0.0000	0.0000
Health insurance contribution	-3.4%	0.4904	0.1124	0.0042	-0.0052
Unemployment insurance contribution	-0.3%	0.4852	0.1072	0.0003	-0.0003
Health insurance contribution - employer	-3.0%	0.4865	0.1084	0.0035	-0.0050
Unemployment insurance contribution - employer	-0.3%	0.4865	0.1084	0.0003	-0.0003
Accident and diseases insurance contribution - employer	-0.5%	0.4865	0.1084	0.0005	-0.0011
Medical indemnities/ sickness insurance contribution - employer	-0.1%	0.4865	0.1084	0.0001	-0.0001
Salary guarantee insurance contribution - employer	-0.1%	0.4865	0.1084	0.0002	-0.0001
All direct taxes	-7.4%	0.5217	0.1436	0.0117	-0.0088
All contributions	-7.8%	0.4882	0.1101	0.0095	-0.0097
All direct taxes and contributions	-15.1%	0.5045	0.1264	0.0215	-0.0131

Source: own estimates based on Romanian HBS (2016).

Notes:

1. Original income is considered as Market Income in the Senitivity Analysis and as Market Income plus Pensions in the Benchmark Analysis
2. Redistributive effect equals the difference between market income Gini and the relevant ending income concept Gini. The shown change is measured in Gini points.
3. Size equals the ratio of the amount collected or spent divided by total market income.
4. Marginal contribution equals the difference between the Gini coefficient of the relevant ending income concept without the intervention in question and the Gini coefficient of the relevant ending income concept (which, of course, includes that intervention). By definition, the sum of the marginal contributions does not fulfill the adding-up principle so it will not be equal to the redistributive effect unless by coincidence. The marginal contribution shown above is measured in Gini points.
5. Poverty Reduction effect based on poverty headcount index using the poverty line of \$5.50 per day in 2011 PPP.

**Appendix 2. Table A2.1. Romania: Marginal Contributions to Reducing Inequality in 2016
Pensions as Deferred Income (continued)**

	Size (wrt Market Income plus pensions)	Concentration Coefficient	Kakwani Coefficient	Marginal contributions	
				Redistributive Effect	Poverty Reduction Effect /5
				Marginal Contribution	Marginal Contribution
To Consumable Income	80.8%				
Direct transfers excl contributory pensions	4.1%	-0.2588	0.6369	0.0286	0.0409
All direct transfers incl contributory pensions	23.1%	0.1496	0.2285	0.1362	0.2362
All direct taxes	-7.4%	0.5217	0.1436	0.0118	-0.0092
All contributions	-7.8%	0.4882	0.1101	0.0093	-0.0110
All direct taxes and contributions	-15.1%	0.5045	0.1264	0.0218	-0.0186
VAT	-6.9%	0.2826	-0.0955	-0.0051	-0.0224
Excises tobacco	-0.0194	0.3306	-0.0475	-0.0016	-0.0064
Excises alcohol	-0.1%	0.1567	-0.2214	-0.0002	-0.0007
Excises fuel	-0.9%	0.4357	0.0576	0.0006	-0.0022
Excises energy	-0.1%	0.4119	0.0338	0.0001	0.0000
All indirect taxes	-9.9%	0.3063	-0.0717	-0.0054	-0.0317
All taxes	-17.3%	0.3981	0.0200	0.0062	-0.0379
All taxes and contributions	-25.1%	0.4260	0.0479	0.0160	-0.0421
To Final Income	87%				
Direct taxes and contributions	-15.1%	0.5045	0.1264	0.0255	-0.0057
Direct transfers	4.1%	-0.2588	0.6369	0.0248	0.0424
Indirect taxes	-9.9%	0.3063	-0.0717	-0.0021	-0.0235
In-kind transfers	6.5%	-0.0493	0.4274	0.0289	
Preschool	0.2%	-0.1431	0.5212	0.0013	
Primary	0.4%	-0.3013	0.6793	0.0028	
Lower secondary	0.6%	-0.3502	0.7283	0.0045	
Upper secondary	0.7%	-0.1966	0.5747	0.0041	
Post-secondary	0.0%	-0.1875	0.5656	0.0000	
Tertiary	0.7%	0.1961	0.1820	0.0008	
Education in-kind benefits	2.6%	-0.1393	0.5174	0.0137	
Minimum health package	0.4%	-0.6074	0.9855	0.0045	
Basic health package	3.5%	0.0865	0.2916	0.0095	
Health in-kind benefits	3.9%	0.0093	0.3687	0.0141	

Source: own estimates based on Romanian HBS (2016).

Notes:

1. Original income is considered as Market Income in the Sensitivity Analysis and as Market Income plus Pensions in the Benchmark Analysis
2. Redistributive effect equals the difference between market income Gini and the relevant ending income concept Gini. The shown change is measured in Gini points.
3. Size equals the ratio of the amount collected or spent divided by total market income.
4. Marginal contribution equals the difference between the Gini coefficient of the relevant ending income concept without the intervention in question and the Gini coefficient of the relevant ending income concept (which, of course, includes that intervention). By definition, the sum of the marginal contributions does not fulfill the adding-up principle so it will not be equal to the redistributive effect unless by coincidence. The marginal contribution shown above is measured in Gini points.
5. Poverty Reduction effect based on poverty headcount index using the poverty line of \$5.50 per day in 2011 PPP.

Appendix 3. Table A3.1. Romania: Marginal Contributions to Reducing Inequality in 2016
Old-age contributory pensions treated as transfers

	Size (wrt Market Income plus pensions)	Concentration Coefficient	Kakwani Coefficient	Marginal contributions	
				Redistributive Effect	Poverty Reduction Effect ^s
				Marginal Contribution	Marginal Contribution
To Disposable Income	77.1%				
pensions - old age	13.0%	0.2237	0.1715	0.0557	0.1086
pensions - early retirement	0.7%	0.1198	0.2753	0.0032	0.0044
pensions - disability	1.1%	-0.0094	0.4045	0.0063	0.0088
pensions - survivors	0.6%	-0.1092	0.5043	0.0040	0.0071
pensions - agriculture	1.2%	-0.3884	0.7835	0.0121	0.0208
All contributory pensions	16.5%	0.1503	0.2449	0.0837	0.1618
Unemployment benefit	0.1%	-0.3843	0.7794	0.0009	0.0017
Child-related benefits (raising + incentive)	0.5%	-0.0902	0.4854	0.0021	0.0030
Temporary work incapacity and maternity benefits	0.0%	0.0035	0.3917	0.0001	0.0002
State allowance for children	1.4%	-0.2312	0.6264	0.0113	0.0192
Other benefits for children	0.1%	-0.5109	0.9061	0.0006	0.0008
Support allowance for families with children	0.1%	-0.8036	1.1987	0.0012	0.0017
Scholarships	0.0%	-0.3241	0.7192	0.0002	0.0004
Disability benefits	0.3%	-0.3463	0.7414	0.0019	0.0023
Social assistance - minimum guaranteed income	0.2%	-0.8991	1.2942	0.0035	0.0032
Social assistance - minimum pension	0.1%	-0.3851	0.7802	0.0012	0.0014
Heating aid	0.0%	-0.6291	1.0243	0.0002	0.0005
Other social benefits	0.0%	0.1062	0.2890	0.0000	0.0001
School related benefits - non-cash	0.2%	-0.1984	0.5936	0.0012	0.0026
Other social benefits - non-cash	0.4%	0.1611	0.2341	0.0000	0.0006
All direct transfers excl contributory pensions	3.5%	-0.2465	0.6417	0.0255	0.0380
All direct transfers incl contributory pensions	20.0%	0.0803	0.3149	0.1150	0.2102
personal income tax	-6.3%	0.5542	0.1590	0.0117	-0.0088
other direct taxes	-0.1%	0.4502	0.0550	0.0000	0.0000
social insurance contribution	-5.3%	0.5233	0.1282	0.0070	-0.0092
health insurance contribution	-3.0%	0.5215	0.1263	0.0042	-0.0052
unemployment insurance contribution	-0.3%	0.5238	0.1286	0.0003	-0.0003
social insurance contribution - employer	-8.0%	0.5252	0.1301	0.0112	-0.0115
health insurance contribution - employer	-2.6%	0.5252	0.1301	0.0035	-0.0050
unemployment insurance contribution - employer	-0.3%	0.5252	0.1301	0.0003	-0.0003
accidents & professional diseases contribution - employer	-0.4%	0.5252	0.1301	0.0005	-0.0011
medical indemnities/ sickness contribution - employer	-0.1%	0.5252	0.1301	0.0001	-0.0001
salary guarantee insurance contribution - employer	-0.1%	0.5252	0.1301	0.0002	-0.0001
All direct taxes	-6.4%	0.5529	0.1578	0.0117	-0.0088
All contributions	-20.0%	0.5241	0.1290	0.0296	-0.0178
All direct taxes and contributions	-26.4%	0.5311	0.1360	0.0410	-0.0190

Source: own estimates based on Romanian HBS (2016).

Notes:

1. Original income is considered as Market Income in the Sensitivity Analysis and as Market Income plus Pensions in the Benchmark Analysis
2. Redistributive effect equals the difference between market income Gini and the relevant ending income concept Gini. The shown change is measured in Gini points.
3. Size equals the ratio of the amount collected or spent divided by total market income.
4. Marginal contribution equals the difference between the Gini coefficient of the relevant ending income concept without the intervention in question and the Gini coefficient of the relevant ending income concept (which, of course, includes that intervention). By definition, the sum of the marginal contributions does not fulfill the adding-up principle so it will not be equal to the redistributive effect unless by coincidence. The marginal contribution shown above is measured in Gini points.
5. Poverty Reduction effect based on poverty headcount index using the poverty line of \$5.50 per day in 2011 PPP.

Appendix 3. Table A3.1. Romania: Marginal Contributions to Reducing Inequality in 2016
Old-age contributory pensions treated as transfers (continued)

	Size (wrt Market Income plus pensions)	Concentration Coefficient	Kakwani Coefficient	Marginal contributions	
				Redistributive Effect	Poverty Reduction Effect ⁵
				Marginal Contribution	Marginal Contribution
To Consumable Income	70.0%				
All contributory pensions	16.5%	0.1503	0.2449	0.0996	0.1841
All direct transfers excl contributory pensions	3.5%	-0.2465	0.6417	0.0286	0.0409
All direct transfers incl contributory pensions	20.0%	0.0803	0.3149	0.1362	0.2362
All direct taxes	-6.4%	0.5529	0.1578	0.0118	-0.0092
All contributions	-20.0%	0.5241	0.1290	0.0300	-0.0258
All direct taxes and contributions	-26.4%	0.5311	0.1360	0.0420	-0.0277
VAT	-6.0%	0.2789	-0.1162	-0.0051	-0.0224
excises tobacco	-1.7%	0.3393	-0.0558	-0.0016	-0.0064
excises alcohol	-0.1%	0.1475	-0.2477	-0.0002	-0.0007
excises fuel	-0.8%	0.4494	0.0543	0.0006	-0.0022
excises energy	-0.1%	0.3978	0.0027	0.0001	0.0000
All indirect taxes	-8.6%	0.3066	-0.0886	-0.0054	-0.0317
All taxes	-15.0%	0.4115	0.0164	0.0062	-0.0379
All taxes and contributions	-35.0%	0.4759	0.0808	0.0355	-0.0473
To Final Income	75.7%				
All direct taxes and contributions	-26.4%	0.5311	0.1360	0.0137	-0.0039
All direct transfers excl contributory pensions	3.5%	-0.2465	0.6417	0.0248	0.0424
All Indirect taxes	-8.6%	0.3066	-0.0886	-0.0021	-0.0235
All net in-kind transfers	5.7%	-0.0378	0.4329	0.0289	
Preschool	0.2%	-0.1098	0.5050	0.0013	
Primary	0.3%	-0.2693	0.6644	0.0028	
Lower secondary	1%	-0.3193	0.7145	0.0045	
Upper secondary	0.6%	-0.1638	0.5589	0.0041	
Post-secondary	0.0%	-0.1930	0.5881	0.0000	
Tertiary	0.6%	0.2139	0.1812	0.0008	
Net education transfers	2.2%	-0.1110	0.5061	0.0137	
Minimum health benefit	0.4%	-0.6428	1.0380	0.0045	
Basic health benefit	3.0%	0.0916	0.3035	0.0095	
Net health transfers	3.4%	0.0099	0.3852	0.0141	

Source: own estimates based on Romanian HBS (2016).

Notes:

1. Original income is considered as Market Income in the Sensitivity Analysis and as Market Income plus Pensions in the Benchmark Analysis
2. Redistributive effect equals the difference between market income Gini and the relevant ending income concept Gini. The shown change is measured in Gini points.
3. Size equals the ratio of the amount collected or spent divided by total market income.
4. Marginal contribution equals the difference between the Gini coefficient of the relevant ending income concept without the intervention in question and the Gini coefficient of the relevant ending income concept (which, of course, includes that intervention). By definition, the sum of the marginal contributions does not fulfill the adding-up principle so it will not be equal to the redistributive effect unless by coincidence. The marginal contribution shown above is measured in Gini points.
5. Poverty Reduction effect based on poverty headcount index using the poverty line of \$5.50 per day in 2011 PPP.