INCOME INEQUALITIES IN ROMANIA IN THE AFTERMATH OF THE 2008 ECONOMIC CRISIS

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Abstract

This paper documents a study examining the dynamics of income inequality in Romania, on a span time of ten years close to the 2008 crisis. Using the Gini index as an inequality measure, the study also aims to identify how different income sources contribute to the overall rate of inequality. Income inequality experienced a decreasing trend during the observed period. Wages and pensions, as pillars of the household budget, had the greatest impact on global inequality, but with rather opposite influences. Understanding the complex effects of changes in income policies serves to inform a better regulatory process. The paper consolidates the scarce Romanian research in this regard, with a more complete and updated approach.

Keywords: income inequality, inequality decomposition, budget structure, crisis

JEL Classification: D31, D33, B21, B22

1. Introduction

Inequality is a major issue on the social, political and economic agenda. It is studied often in relation to economic growth and poverty and, complementarily, with events or processes that have a significant impact on them, such as the recent economic and financial crises.

Various works have pointed out the negative relationship between income inequality and economic growth and poverty. Ravallion (2007) observed that high income inequality has a negative influence on the extent to which the poor benefit from economic growth. Also, an International Monetary Fund (IMF) paper (Berg and Ostry, 2011) found a reverse relationship between the level of inequality and the length of an economic growth period.

In the first several years following the recent crisis (2008–2010), countries in the European Union (EU) faced a strong economic downturn, severe drops in employment rates, shorter work weeks and increases in real earnings in the private sector (De Beer, 2012), while governments were announcing austerity measures. De Beer identified split patterns in the EU with respect to inequality dynamics, with some countries registering increases and some decreases in inequality. This indicates that short-term structural changes in the economic or social protection systems might have had their own impact on income distribution.

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Beyond its context and determinants, the measurement of income inequality has interested economists over the last 50 years. Most often, the determinants are socioeconomic characteristics, such as education level, employment status or area of residence, but scholars' attention has also been drawn to income sources as decomposing criteria. Decomposition helps to identify the role played by different determinants of income on aggregate inequality, offering valuable input for adjusting socioeconomic policies or the mechanisms driving inequality. Several studies discuss the inequality index and the decomposition method used to explain it (Fei, Ranis and Kuo, 1975; Pyatt, Chen and Fei, 1980; Shorrocks, 1982; Shorrocks, 1983; Fields, 2002).

This paper addresses the dynamics and causes of inequalities in household incomes over a decade, starting one year before the 2008 crisis and continuing thereafter (2007-2016), based on the Gini index. The study documented within this paper the crisis context, as well as the first signs of economic recovery from the perspective of income inequality. The analysis contained within identifies causes for the inequality by looking at income sources, using the methodology presented in the second section. Although this approach allows for a direct identification of the overall determinants of income inequality, it does not indicate the population most exposed. Optimal intervention strategies aimed at reducing inequality and poverty would benefit from supplementing this analysis with one that applies the decomposition of income inequality according to socioeconomic criteria.

Romania is the case study for this paper, as it underwent deep reform processes over the past three decades in pursuit of a market-based economy. The country's most recent economic crisis followed eight consecutive years of economic growth. In the aftermath of the crisis, Romania experienced a decrease in income inequality, among the highest in the EU. Nonetheless, Romania's rates of income inequality and population *at risk of poverty* are among the highest within the EU area, accompanied by a per capita GDP among the lowest in the European Union. Hence, this paper investigates the factors that determine income inequality to understand the dynamics at work.

Romania rarely receives the attention of national or comparative research that addresses the decomposition of the nation's income inequality rates. Research that does address income inequality in Romania usually refers to its size and dynamics, in studies regarding the standard of living (*e.g.* WB, MMFES and INS, 2007; Zaman and Stănculescu, 2007; Domnișoru, 2014) or various measurement aspects (Molnar, 2010). Only recently, some researchers have begun to decompose Romania's income inequality. For example, based on the Theil index for 2012, Militaru and Stănilă (2015) investigated determinants of income inequality among socioeconomic characteristics (*e.g.* education level, employment status). Stănculescu and Pop (2009) also decomposed income inequality in Romania according to income sources, based on data up to 2004, using the Gini index as a measure of inequality. Their analysis estimated the contribution of each income source to the overall inequality, but did not investigate the influence of each source on inequality variation over time. The present paper fills this gap in the research, bringing new insights into the dynamics and causes of income inequality in Romania.

This paper contains a brief description of the Romanian economic context during the period examined, household budget structures, income inequality dynamics and the findings of the decomposition of the latter. Concluding remarks as well as brief comparative perspectives are discussed in the closing section.

2. Data and Methodology

Data from the annual Household Budget Survey (HBS) are used in this study, complemented by official macro-economic statistics. The HBS is carried out by the National Institute of Statistics (NIS) through 12 monthly waves of around 3,000 households each; data gathered are based on the household diary. For the present study, datasets for each year from 2007 to 2016 were analysed. All computations were calculated by this paper's author and do not necessarily represent the point of view of the NIS.

Income in the context of this study is defined as gross income per capita, deflated by the rates for January of each year. Using coefficients provided by the NIS, the data is weighted for analysis in order to extend the results to a national level. In 2014, the NIS operated a change in its computation. The results must take this into account and be understood within the limits of any survey and of the challenge involved in extending the results.

This investigation uses the Gini index for the measurement of income inequality and seeks to identify how various income sources contribute to the total inequality. For decomposition, total household budgets were divided as follows:

- Income from wages as payments for work done, in the private or public sector, cash or in-kind, under contract or not, and other incomes related to this status,

- Income from self-employment (SEmpl) in agricultural activities (SEA) or not (SENA), as well as the payments for per diem work in agriculture,

- Pensions, as contributory state social transfer (PENS),

- Other state social transfers, which may be contributory or not, cash or in-kind, and refer to the pension of a surviving spouse or children, war veteran or widow's pension, unemployment benefits, disability and family allowance, child-related benefits, scholarships or means-tested benefits (non-PENS),

- Private transfers, which refer to non-state transfers from persons outside the household and from non-profit entities (PRIVtr),

- Amounts available to the household from currency exchange (CEX) - a first impulse was to associate CEX with PRIVtr, presuming that currency amounts result mainly from remittances, which essentially represent private transfers, but the decreasing trend over the past decade is reverse to the PRIVtr,

- A heterogenous category comprising incomes with a very low presence in household budgets: income from properties (rents, dividends and interests), from selling goods/assets of the household and other income. This category is referred to as PROP+, and

- Self-produced consumption, which represents the monetary estimate of the households' consumption (human and animals), considering the products consumed within the month of the survey but not purchased in the respective month. The monetary estimate was based on the price provided through the survey as the price of the household, if quantities of the same product were bought or sold by the household itself, or by considering the median value identified in the HBS, starting from the closest area to the national level. Its computation followed a commonly used procedure in Romania, which also covers resources dedicated to animal husbandry, in addition to the smaller scale production for human consumption. While ignored by the European statistics due to its low presence in

the European household budgets, self-produced consumption represents a considerable resource in Romanians' budgets (SCONS).

The decomposition follows the Fei, Ranis and Kuo (1975), Pyatt, Chen and Fei (1980), and Lerman and Yitzhaki (1994) approaches. In line with this decomposition approach, the Gini index for total income can be expressed as a weighted average of the concentration coefficients of the income sources **G = ∑ $S_i C_i$**,

- where *i* is an income source, S_i is the share of the source, *i* is the total income of the households (ti), and C_i is the relative concentration coefficient of the source *i* related to the total income.

By dividing the above equation to G, on the right side results the factors' weight on the inequality, meaning the contribution of each source to the overall inequality (Fields, 2002). Further, **S_i = $mean_i$ / $mean_{total}$** and **C_i = $G_i R_i$**, where:

- G_i is the inequality of the source, computed as **G_i = 2*cov (i, $rank_i$)/($mean_i$*n_i)**, with values between 0 and 1, and Ri is a correlation ratio of the ith source with the total income, computed as **R_i = cov (i, $rank_{total}$)/cov (i, $rank_i$)**, with values between -1 and +1. C_i takes values between -1 (the entire amount of the source available for the poorest) and +1 (the entire amount available for the richest), so that a negative value points out a pro-poor source. The C_i is known also as the pseudo-Gini of the ith source, as it measures the source's concentration by the total income ordered ascending, and not by itself ordered ascending.

The total inequality change is the result of the change in the source components, written as **∆G = ∑∆$S_i C_i$ + ∑S_i∆C_i + ∑∆S_i∆C_i**, where:
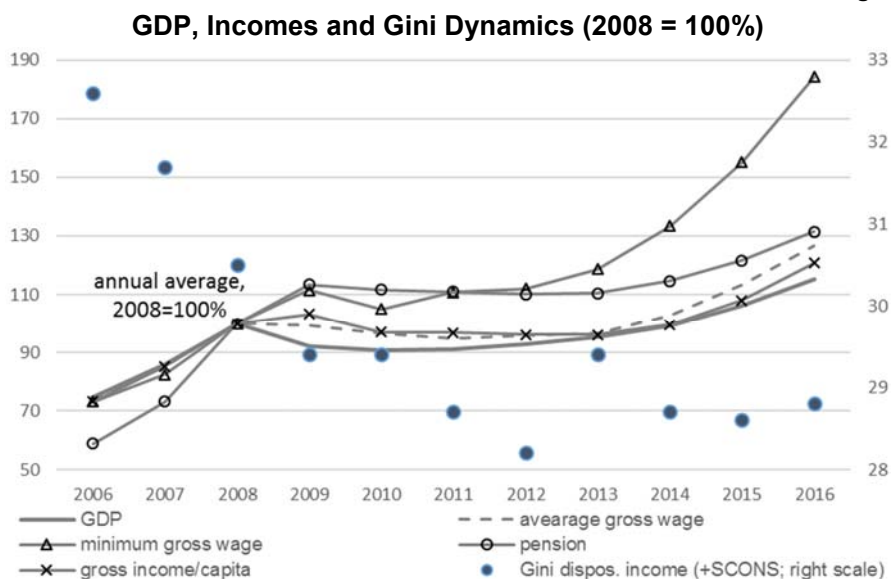
- ∆G is the change in total inequality between two moments; ∆S_i is the change in the total income/budget structure, the structural effect; ∆C_i is the change in the concentration coefficient of the *i* income, the real inequality effect (Wan, 2001) and ∆S_i∆C_i is an interaction term.

3. Context of Income Dynamics

In 2008, Romania concluded the eighth year of an increasing economic trend, recovering after the in-depth economic restructuring process that had been triggered by the transition to a market economy. It was a year of tranquillity: the minimum and the average gross wage kept pace with the GDP, while pensions increased more swiftly (Figure 1). A negative business cycle hit harshly in 2009, with a 9% decrease in GDP and 13% decrease in the number of wage earners leading up to 2010. In 2009 and 2010, the real estate and credit markets decreased after what had been a very fruitful period between 2006 and 2008. Both public and private sectors reacted with severe changes to the economic constraints.

The private sector restricted bonuses and fringe and overtime benefits for the staff they decided to retain. The slight wage growth that occurred during the first two years of the crisis may be largely due to the dismissal of employees with lower wages. Private locally owned companies continued layoffs in 2010, and private companies, both foreign and nationally owned, began hiring again in 2012. By 2016, the locally owned private sector had still not reached its 2008 employment level, but the foreign owned private sector was 50% larger than it had been in 2008. The locally owned private sector continued to have the lowest percentage of average gross wages, despite both noticeable increases in wages and being the largest employment sector (Table 1).

Figure 1

GDP, Incomes and Gini Dynamics (2008 = 100%)

Source: Author´s computations based on NIS data; GINI = INS, 2013; MMSJ, 2017.

Table 1

Wage Earners and Wage Dynamics in the Aftermath of the Crisis

		Wage earners (wg. earners)				Avg. gross wage			
		State owned firms	Private locally owned firms	Foreign owned firms	State owned ENLI*	State owned firms	Private locally owned firms	Foreign owned firms	State owned ENLI*
2006	2008 = 100%	108.7	91.1	70.8	93.8	73.1	73.5	74.1	74.2
2008		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2009		85.9	92.8	89.9	104.0	102.5	99.6	105.2	94.1
2010		79.8	83.0	87.9	100.0	101.5	99.3	113.0	78.6
2012		75.2	86.7	113.8	90.4	97.0	100.3	112.0	75.3
2016		66.5	94.6	150.3	90.5	110.5	130.7	143.5	110.7
*2016: % of total wage earners**; % of avg. gross wage*		*5.2*	*57.3*	*14.3*	*19.6*	*125.8*	*82.9*	*136.9*	*111.8*

Source: Author´s computations based on (Labour Cost Survey) NIS-Tempo data (- entities of national and local interest; ** - the difference up to 100% are in mixed or cooperation property).*

As of 2010, severe restrictions had been imposed on various monthly and annual bonus systems for wage earners in the public sector and in relation to employment in the public

sector, including additional extra-budgetary wage payments, second jobs, a cumulus of pension with part-time employment, the extension of employment past the retirement age, and the replacement of retiring employees. In public enterprises and institutions, employment level consistently decreased throughout 2016. The 25% wage cut in the public sector was gradually recovered over the two years that followed, but the wage level of 2008 was exceeded only around 2014, along with the GDP (Figure 1). In addition, the higher rate of increase in the minimum wage and the 2016 elections may have influenced the level of aggregate wages.

A noteworthy observation on the employment structure in Romania during the period under study is that out of total employment, 67% were employees, 1.3% were entrepreneurs, around 19% were self-employed, and 11.7% were unpaid family workers (NIS-Tempo, AMG110S). This illustrates that, as a professional independent, creative and niche-market responsive activity, self-employment is not commonplace in Romania. Unpaid family workers are those who receive no earnings working within their family's economic activity, primarily in agriculture or small services. About 94% of those who are self-employed have no employees (as opposed to 71% in the UE-28 area, for the age group 15–64 years old; Eurostat, lfsa_esgaed). Their share of the total workforce is 3 times higher for the 15–24 year old age group as compared to the EU, and increases the overall employment for the 65–74 year old age group to 16.5% (as compared to 9% in EU-28 area; 2015, Eurostat, lfsa_egan, lfsa_esgan, lfsa_eegan2). This type of self-employment generates mostly non-monetary income for households (resources to be consumed in-kind), which is the reason this type of income is usually monitored by national statistics. After 2014, the percentage of unpaid family workers and of those self-employed decreased by 3 and 2 percentage points, respectively, in favour of employees, who then comprised over 70% of total workers.

While the Romanian minimum wage is among the lowest in Europe, it increased abruptly between 2007 and 2009, and again from 2013 to 2016. In 2010 there was no increase in the minimum wage, but its 2009 leap was part of the protective income regulation package designed to create a buffer for those at the low end of the income distribution spectrum against the foreseeable austerity measures of the near future. The minimum guaranteed income (MGI) and child allowances increased also (almost by 10% and 7%, respectively) but remained low, while income from social pension was introduced for the first time. The reasoning behind the social pension was to ensure all pensioners received a certain level of income (at the time, 58% of the minimum wage); this measure rounded up the income for 8% of the pensioners at the bottom end of the income distribution to the social pension level. Moreover, pensions were increased two times in real terms in 2009. These favourable pension adjustments were in addition to the governmental generosity regarding pension rights experienced during the previous two to three years. These 2009 measures had as a combined outcome an opposite development in gross household income as compared to that of the GDP.

In 2010, the following restrictions were implemented: (1) delaying the adjustment to inflation, (2) increasing the limits for system-exits for illness reasons (including here reviews of files for individuals already retired for such reasons), (3) shortening medical leave absences and (4) reviews for MGI and for the pension system as a whole. Due to its computation in relation to the average wage, the referential for contributory pension computation did not change for a few years (decreasing in real value between 2011 and 2014), as opposed to its accelerated increase between 2007 and 2009. In 2011, a response was initiated regarding the high inequality in pension levels according to former occupation by recomputing all pension rights using a contributory scheme. However, the situation changed again after 2014, when more

favourable conditions were granted anew for several occupational categories, and compensation was given for previous cuts deemed unconstitutional. In the same year, the ban on cumulating pension with wages within the public sector was lifted.

The austerity measures implemented in 2010 and 2011 were designed to balance the state deficit, and on a secondary level, to reform the social protection system and to control inequality. In 2011, other social benefits (mainly means-tested based) came into focus. The *social reference indicator* was introduced as a reference according to which all subsequent non-insurance-based social transfers would be set. Indexed on a regular basis, and depending on the child's age and health status, the child allowance increased noticeably in 2008 and in 2015-2016. Subject to increased attention after 2004, other family-related benefits underwent considerable adjustments in 2011: the amounts were heightened, but the test income was lowered, *i.e.* they became more focused. These benefits were dependent on the child's school attendance and health status, the number of children and parents in the family and the properties/goods generating potential income (as in the case of the MGI). In the same year, maternity leave benefits for mothers were limited regarding former wages, with the minimum and maximum ceiling adjusted according to the length of the maternity leave selected (1 or 2 years, a novelty in the Romanian regulations in this respect) and conditioned by a minimum of 12 months of activity in the formal labour market prior to the date of the child's birth. The MGI played the role of subsistance income rather than promoting social inclusion. The eligibility criteria had been a consistent topic for debate (type and number of properties considered, core family definition, national unitary versus local referential levels), and they were revisited this time as well; after the crisis, the MGI level remained around 20% of the minimum wage. The rights of people with disabilities and of veterans were the least exposed to the austerity policies.
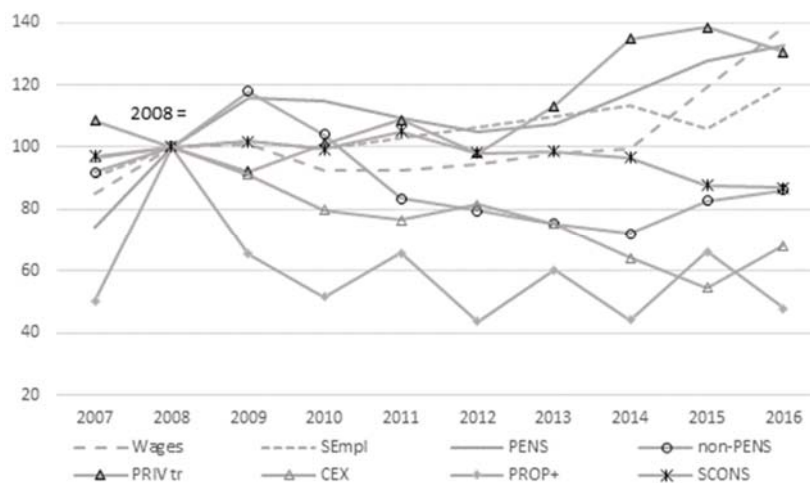
In 2012, the economy started to recover. The GDP began speeding up in 2013, reaching its 2008 level in 2015, and the overall income, in 2014. During the last three years of the observed decade, the inflation rate registered low and even negative values.

The HBS data on income, computed per capita, capture these changes (Figure 2). Before the crisis, all income categories increased, save for private transfers (PRIVtr); however, PRIVtr, CEX and income from property and asset sales (constituting the larger part of the category of PROP+) decreased in real terms in the first year of the crisis. Among them, only the private transfers recovered in the second half of the decade. The decreasing trend was marked by their dynamics at the top end of the distribution (the tenth decile). The saw teeth shape of the PROP+ category is imprinted by income from selling goods/assets, representing an irregular and random income in its nature.

Income from state-controlled sources increased in the first year of the crisis (pensions for the first two years). At the same time, wages (as a result of both market and state regulations) remained stagnant in the first year of the crisis and decreased in the second. Along with wages and pensions, but with a different start date, income from self-employment and from non-pension state transfers increased during the economic recovery.

Income Source Dynamics (Adjusted to Inflation, 2008 = 100%)

Source: Author´s computations based on HBS databases.

4. Income Inequality and Budget Components

The changes noted had as an outcome an overall decrease in the gross income inequality, in a rather reverse trend as compared to that of the GDP. The lowest level of inequality was reached in 2012 (Table 2). The overall decrease in the inequality rate was the outcome of diminishing the share of income available to wealthy households. The table shows for comparison the indicators used more frequently by international statistics with respect to income (without consideration of the estimated self-consumption, SCONS) and the official NIS calculations for the GINI coefficient as well.

Data on budget structure (Figure 3) draw attention to the gross income components by spatial and income size differences. At all household income levels, one might notice the dominance of wages and pensions. The wage share in the rural budgets registers a leap in 2016; this leap results either from more wage opportunities or from the minimum wage increase (as individuals with lower wages are prevalent in this area), so that less reasons to resort to SCONS.

Income from self-consumption decreased both in real terms and as a share of the budget of the overall population; until the end of the crisis, it had been compelled down by the sizable increase in the state transfers and by the increase in wages. The budgets of rural households and of the poor best reveal these movements.

Income from self-employment and other types of income are rather marginal in the overall population budgets (4–5%), but they double in the budget of rural households and triple in poor households. In the rural area, income from self-employment in agriculture expectedly

doubled as compared to income from non-agricultural activities, while in the budgets of the poor income is distributed relatively evenly between the two types of activities.
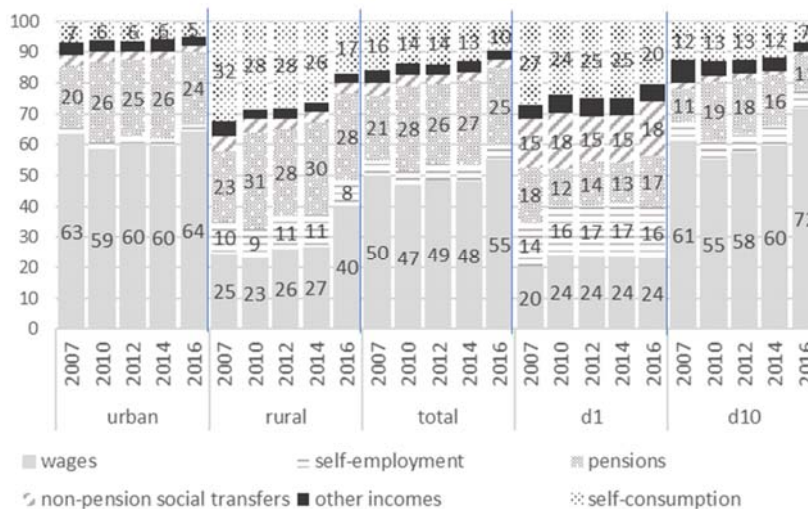
Table 2

Income Inequality Dynamics over the Last Decade

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
d1	3.0	3.0	3.0	3.0	3.0	3.1	3.0	3.0	3.1	3.1
d10	25.4	24.6	23.8	23.4	23.7	22.9	23.7	22.9	22.7	22.6
d10/d1	8.5	8.3	7.9	7.8	7.9	7.4	8.0	7.5	7.4	7.2
Gini Net* +SCONS	0.321	0.313	0.306	0.304	0.303	0.295	0.306	0.295	0.292	0.288
Gini Gross* +SCONS	0.347	0.337	0.329	0.326	0.326	0.319	0.330	0.321	0.322	0.323
Gini Net*	0.372	0.354	0.340	0.339	0.337	0.332	0.342	0.329	0.325	0.321
NIS - Gini disposable equivalised	0.363	0.343	0.331	0.332	0.327	0.320	0.335	0.325	0.318	0.319

Source: Author´s computations based on HBS databases; INS, 2013; MMJS, 2017 for NIS data (* - Gini Net, respectively; Gini Gross refers to the Net and Gross income Gini index).

Figure 3

Households Budget Structure (%)

Source: Author´s computation based on HBS databases.

Even with smaller contributions to the overall budgets (around 3%), the state social transfers were rather evenly split in budgets of the poor between the pension and non-pension types
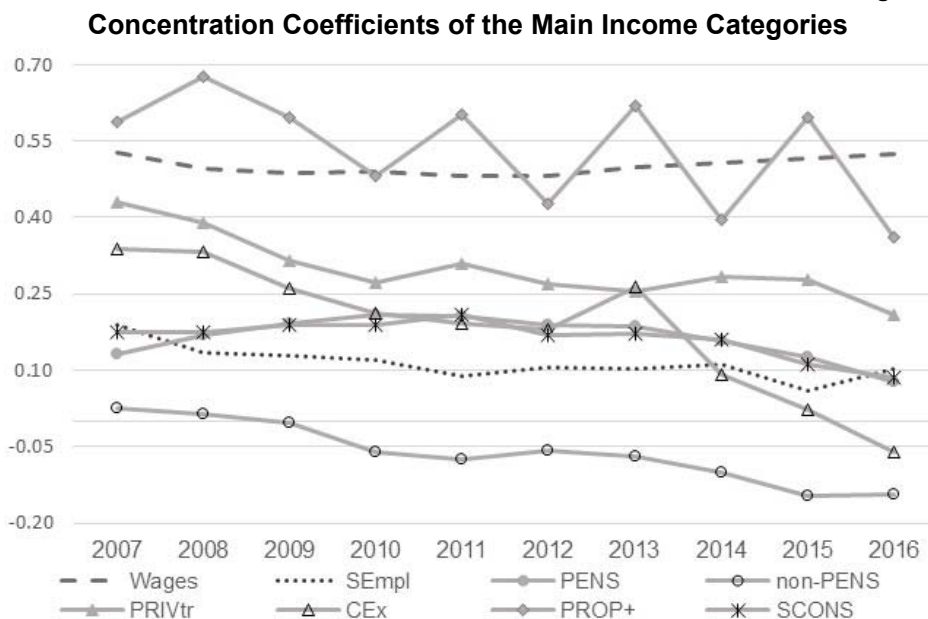
of social support. Family- and child-related benefits (including MGI) represented 80 to 90% of the non-pension social transfers of this income category for the decade.

Other incomes, cumulated, contributed by only 3-4.4% to the budgets. Income from properties and capital (like dividends, interest or rent) represented only 8.4% (in 2008) to 4.2% (in 2011) of the category, with a slight recovery after 2014. The category was heavily constituted by income from private transfers (41-62%), followed by income from currency exchanges (38-21%).

As Figure 4 shows, the categories of PROP+ and wages had the highest concentration coefficients, meaning they were factors that more strongly increased the rate of income inequality. This resulted both from the high Gini index of the sources (0.68 and 0.99 on average, respectively) and the high and positive correlation ratios to total income (Ri of around 0.74 and 0.54, respectively). With an inequality index also over 0.90 (highly unequally distributed), but with significantly lower correlation ratios (around 0.31, 0.18 and 0.12), the incomes from PRIVtr, CEX and SEmpl, respectively, had less influence on increasing inequality. Constantly negative over the decade, the non-pension state transfers gained a more pregnant pro-poor character, pushing down the overall inequality.
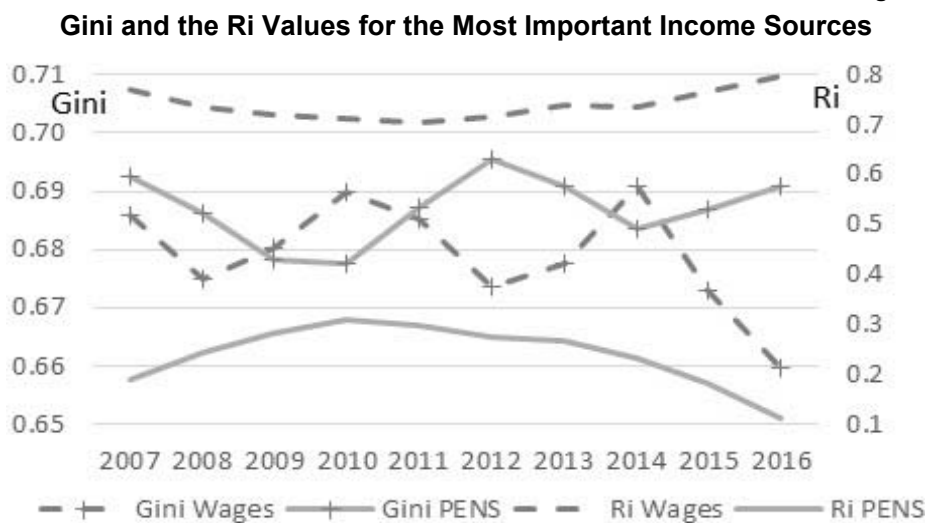
Except for wages, the concentration coefficients of all sources followed a decreasing trend, imprinting it on the overall inequality. Decreases in the Ri meant that ranking families by each income source, with the exception of wages, declined in importance as a determinant of ranking by total income. The Ri of wages decreased until the middle of the decade (from 0.77 to 0.71) and increased sharply thereafter (up to 0.80), meaning that in the later years of the period under study they gained importance in explaining the incomes at the upper end of the overall income distribution (Figure 5).

Figure 4

Concentration Coefficients of the Main Income Categories

Source: Author´s computations based on HBS databases.

Gini and the Ri Values for the Most Important Income Sources

Source: Author´s computations based on HBS databases.

5. Income Inequality Decomposition

In addition to a high concentration coefficient, wages accounted for the largest share of the budget; this assigns to them a dominant role in determining total inequality, as Table 3 reveals. Wages were responsible for over 70% of the overall inequality, with increase leaps for the last years of the study period. Second in importance proved to be pensions, followed by self-consumption. As opposed to wages, they had a convex trend of influence, having peaked when the influence of wages was at its minimum (2010–2011).

Table 3

Weights (%) of the Factors on Total Inequality

	Wages	SEmpl	PENS	non-PENS	PRIVtr	CEX	PROP+	SCONS
2007	75.75	2.80	7.95	0.28	2.71	1.64	0.95	7.92
2008	73.51	1.93	11.94	0.15	1.98	1.46	1.90	7.13
2009	71.51	1.83	15.47	-0.04	1.45	1.03	1.07	7.68
2010	70.25	1.75	17.78	-0.70	1.46	0.77	0.72	7.97
2011	69.45	1.35	16.79	-0.70	1.81	0.68	1.16	9.46
2012	73.28	1.74	15.40	-0.54	1.47	0.70	0.57	7.38
2013	74.00	1.63	14.44	-0.57	1.51	0.90	1.07	7.02
2014	76.33	1.83	13.45	-0.80	1.98	0.26	0.50	6.45
2015	83.43	0.84	10.37	-1.20	1.80	0.05	1.02	3.69
2016	89.69	1.45	6.05	-1.12	1.17	-0.15	0.40	2.51

Source: Author´s computation based on HBS databases.

The most sensitive variations of gross income inequality (GII) were noticeable around the outbreak of the crisis (2007–2009), and when, after all the types of income had been

exposed to less generous setting conditions and criteria, the economic growth was resumed (2012–2013); these disruptions in dynamics take opposite directions.

Table 4

Decomposition of the Change in GII by Components in the Last Decade

		2008 /2007	2009 /2008	2010 /2009	2011 /2010	2012 /2011	2013 /2012	2014 /2013	2015 /2014	2016 /2015
Overall Gini change		-1.05	-0.83	-0.24	-0.03	-0.68	1.13	-0.90	0.06	0.06
Change in structure		-0.15	-0.90	-0.39	0.32	0.34	0.23	-0.22	1.37	1.06
Change in source concentration	Overall	-1.10	-0.05	0.11	-0.42	-1.10	0.87	-0.73	-1.56	-1.20
	WAGE	-1.49	-0.40	0.14	-0.45	-0.02	0.85	0.43	0.34	0.50
	SEA	-0.16	0.04	-0.05	0.00	-0.02	-0.13	0.11	-0.16	-0.05
	SENA	-0.10	-0.07	-0.01	-0.18	0.10	0.11	-0.08	-0.09	0.23
	PENS	0.76	0.57	0.46	-0.12	-0.42	-0.12	-0.70	-0.92	-1.27
	non-PENS	-0.05	-0.06	-0.23	-0.05	0.05	-0.03	-0.09	-0.12	0.01
	PRIVtr	-0.09	-0.13	-0.07	0.07	-0.08	-0.02	0.05	-0.01	-0.14
	CEX	-0.01	-0.11	-0.06	-0.03	-0.01	0.11	-0.19	-0.06	-0.06
	PROP+	0.05	-0.08	-0.07	0.06	-0.11	0.08	-0.13	0.08	-0.13
	SCONS	-0.01	0.19	0.00	0.28	-0.60	0.02	-0.14	-0.62	-0.29
Interact. term		0.19	0.12	0.03	0.06	0.09	0.03	0.06	0.24	0.20

Source: Author´s computations based on HBS databases.

When decomposing the GII variation by sources, one may notice the stronger influence of the structural effect during the last years of the period under study, as well as its tendency to turn positive (favouring inequality) during that time. This means that budgets increasingly consisted of incomes that pushed inequality up. Except for the two years of crisis, the real inequality effect had a stronger influence on the overall dynamics, with various sources acting in opposition. The interaction between structure and source influences had the lowest impact, but nevertheless, the impact was in favour of inequality.

An examination of the influence of sources reveals that wages changed from an equalising factor into a factor that promoted inequality; as they accounted for about half of the household resources, this explains the dynamics of the structure influence on the dynamics of the GII. Pensions, the other dominant source, but with a share of around half that of wages, had a reverse influence on the overall inequality dynamics.

Self-produced consumption, the factor third in importance in determining the overall inequality, was a rather pro-equalitarian factor. It seems to support the increase in inequality in times of economic downturn or of stagnancy but with more severe eligibility criterion set for state transfers. Only at such times did SCONS prove sufficiently sensitive to market opportunities, which can stimulate its development, to constitute a factor for increasing inequality. Expectedly, the pro-poor source of non-pension state transfers, registering concentration coefficients of negative values during almost the entire decade under study, pressed down the overall inequality.

Obviously, each factor's influence depended not only on its own dynamic, but on that of the other sources too, as long as its influence is computed in relation to the total income. Hence, what could explain the differences behind the change in the influence of wages and pensions?

At both ends of the decade under study, minimum wage experienced a pronounced increase, but it was more focused after 2013 (>60% in 4 years in real terms). The number of employees increased overall, but mainly in the better paid sectors: in the foreign owned private companies and entities of local and national interest. Conversely, pensions increased more significantly in the 2 years before the crisis (almost 40% in real terms, and only 20% in the last 4 observed years). The switch in the influence of wages occurred in the first year of the positive economic dynamics (<3% increase in GDP), with state transfers still under severe eligibility, but with a minimum wage increase of over 6%, and a 4.5% increase in the number of employees in the foreign owned companies. This is also one of the two years when self-employment in non-agricultural activities registered one of its most powerful influences as a pro-inequality factor, and in agricultural activities as a pro-equalitarian factor. The most noticeable increase in GII (2013-2012) was sustained also by incomes irregular in their nature (from selling assets and currency exchange).

A major difference in the contexts of the two ends of the decade is the GDP growth rate (Figure 1). While prior to the crisis, only pensions had a more pronounced increasing trend than GDP, at the end of the observed decade, only pensions kept pace with its rate. At the end of the studied years the minimum wage increased, on average, 3.5 times more rapidly than the GDP. Due to its propagated effect on the wage scale, but also due to changes favourable to inequality in the employees structure, the average gross wage increased 1.5 times more that the GDP. Correspondingly, when the GDP decreased in real terms (10% in 2010), with no increase in the minimum wage or pensions, but with a significant increase in MGI (10%), a pro-poor source, the equalising effect of the non-state transfers and their contribution to the overall variation of inequality was most notable.

6. Concluding Remarks

The timeframe considered by this paper covers ten years beginning with the two years of economic increase before the economic crisis (2007–2008), followed by four years of decrease and relative stagnation, and four subsequent years of economic turnaround. The Gini index was applied to analyse the inequality dynamic over the period envisaged, based on HBS data. Using a decomposition procedure to assess the overall inequality by income sources, the study aimed to identify the most influential factors for the level and dynamics of the overall income inequality in Romania. This paper completes the literature concerning the Romanian context in looking for determinants of income inequality and is rather singular in extending the analyses to determinants of variation of inequality.

As in other European countries, the crisis in Romania was accompanied by severe drops in employment and by austerity measures, but without increases in earnings for some years after the crisis and with inequality on a downward trend. Income inequality reached its lowest level in 2012, registering also 3 years of relative stagnancy (2011, 2015 and 2016). This was the result of protective measures targeting people at the bottom of the income distribution applied in the first year of the crisis, of some restrictive measures of reforming income policies implemented subsequently, reduced opportunity for paid employment and lost opportunities for earnings highly dependent on economic context (properties, sales of assets, currency exchange or private transfers).

The Romanian budgets had three pillars over the entire decade, with wages, pensions and incomes from self-consumption representing 88–90% of household resources. With larger shares in the budget than the other two pillars cumulated, wages were the most powerful determinant of the overall inequality. In terms of variations in inequality, wages and pensions remained dominant, with rather opposite influences. Due mainly to their low share in the budget, other categories of income had marginal influences on the GII level and dynamics.

In the years of crisis and even in the years preceding the crisis, wage changes acted as an equalising factor. Once the economy resumed its growth, with increases in minimum wage receiving particular attention, with other state income remaining under severe monitoring and with changes in the employment structure by sectors favourable to inequality, wages turned into a pro-inequality factor. Because of very generous regulations impacting the entire scale of pension during the pre-crisis period, they proved to be a dis-equalising factor. Their impact on GII dynamics reversed once the generous regulations came to a halt and a regulation for a minimum pension level came into force. In fact, both incomes favoured the increase in inequality when their growth rates exceeded the growth rate of the GDP.

Patterns like these were observed by other authors, too. Wages are usually identified as the main driver of inequality. In the Romanian context, based on four years of the decade 1995-2004, Stănculescu and Pop (2009) identified wages as the largest contributor to overall inequality. Based on 2012 data, the study by Militaru and Stănilă (2015) identified the incomes of employees as having the most significant impact on total inequality (41.1%), while the income for households headed by those self-employed showed the highest inequality index (0.307 against 0.136 for employees): they contributed only by 18.6% to total inequality.

Wages tend to be a pro-inequality factor: Rani and Furrer (2016) examined the G20 countries after the mid-2000s, and García-Peñalosa and Orgiazzi (2013) evaluated several industrialised countries for the period between 1974–1975 and 2004, both identifying wages/earnings as the main driver of the overall inequality. The dis-equalising effect of pensions, alongside to that of wages, was mentioned by Milanović (1998) in some of the Eastern, formerly communist countries, during their radical transformations in the early '90s. The change towards the direction of a particular source influence on total income was highlighted by Quintano and Castellano (2008) for the long-time horizon (1991–2004).

With an average influence of 13%, the role of pensions on overall inequality was well below that played by the contributory state transfers in France or in Italy after mid-2000 (over 20%), but higher than in the other G20 countries (as observed by Rani and Furrer, 2016). A noticeable difference arises regarding the weight of incomes resulting from self-employment, too; almost negligible in Romania, with an influence level similar to that of incomes from non-state transfers, they contributed by over 16% to the total inequality in France, Italy, the UK and Spain, a level comparable to that of pensions in Romania. This is in contrast to the results observed in relation to the direction of their influence on the GII change for India, Italy, the UK and the United States, where a dis-equalising effect of incomes was also registered from self-employment between the mid-2000s and the time after 2010 (Rani and Furrer, 2016). The low level of Ri for self-employment in Romania (around 20% as opposed to those of wages, at over 70%) indicates it as a weak alternative to paid employment, in terms of living standard.

The protective and policy reform measures triggered by the crisis proved to be well focused from the perspective of income inequality. Although it has decreased, the inequality level in Romania is among the highest in the EU. In addition, the decrease occurred by 'pauperising'

those at the top end of the income distribution, with no gains for those at the bottom. Both aspects require further attention from policymakers.

Over the next two years (2017-2018) the minimum wage continued to grow rapidly, while the incomes from the state transfers have had growth rates below those of GDP or have decreased in real terms. It is of interest to monitor whether such a steady increase in the minimum wage "enriches" those at the bottom of the income distribution (as Table 2 suggests), even if there is a risk of increasing total inequality. It would be of help for poverty alleviation efforts to consider, as this paper reveals, that both contribution of wages and of pensions to the total income inequality increase can be tempered by keeping their increases in line with the aggregate economic one. Subordinate to the same objective, it would be of interest to complete the analysis with a decomposition of the income inequality by socioeconomic determinants, as well as to identify the impact of the fiscal policies on the overall inequality.

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