THE PERSPECTIVES OF SOCIAL ASSISTANCE EXPENDITURE IN ROMANIA FOR 2016-2025

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Abstract: The pressures and sanctions that could have been imposed following Romania's accession to the European Union after the year 2007 have led to a rapid reaction towards a coherent management of existing social challenges which took the form of a compelling social policy development and implementation, marking a transition from the quantitative approach, which was based on minimizing consequences, to a more qualitative viewpoint built on the idea of human investment. In this context, in terms of efficiency, measured as the result of the divergent dynamics of material deprivation rate compared to total social assistance expenditure, social assistance in Romania seems to attain its objectives, namely the gradual reduction of the number of persons at risk of poverty and social exclusion. However, given that from the European Commission's perspective, the efficiency of the social assistance system in our country is still lagging behind, the evaluation of the current conditions and long-term perspectives of social assistance practices in Romania calls for a more comprehensive assessment which could be attained using econometric and mathematical modeling.

JEL classification: I3,I30, I38

Key words: social policy, social assistance, social assistance expenditure, social assistance revenue, social assistance beneficiaries

1. INTRODUCTION

Given the complexity of its structure, and especially the nature of social interventions, the detailed assessment of the financial prospects of the social assistance system in Romania warrants an exhaustive methodology based on mathematical and econometric modeling and processing. From this perspective, starting off form the fact that the financial sustainability of a social assistance system is assessed through the ratio between the disposable income and the expenses incurred by social interventions, and taking into consideration that the total expenditure of a social assistance system is directly influenced by the growth of the total number of beneficiaries and the sum of total social assistance benefits, a sound efficiency measurement requires both the testing the of the correlation between the determinants of the social assistance system, and the identification of the elements that have led, over the past few years, to the growth of social assistance expenditure as these aspects can subsequently be used as a starting point for the estimation of the future dynamics of total social assistance expenditure.

The collection of the data required by the mathematical modeling was carried out by summarizing data provided by the National Institute for Statistics (TEMPO Database, www.insse.ro) and the Ministry of Labor, Family, and Social Protection for the Elderly (http: //www.mmuncii .com / J33 / index.php / en / transparency / statistics / data-statistical) and from the annual reports published by the Fiscal Council (http://www.consiliulfiscal.ro/) in the 2012, 2013, 2014 and 2015. The selected input parameters and their time series values needed by mathematical modeling are shown in Table. no. 1.

Table no.1 Input parameters for called for the econometric modelling

Year	Parameter			
	Revenue (Venituri)	Sum of social assistance benefits (SumeBen)	Number of beneficiaries (NrBenef)	Social assistance expenditure (Cheltuieli)
	million lei	*million lei*	*million persons*	*million lei*
2005	7473,20	2378,777	6,24	5477,52
2006	10050,30	4591,16	6,15	6244,20
2007	11932,20	6052,32	6,11	7956,12
2008	16085,10	6337,06	5,84	10415,54
2009	18082,60	6517,99	5,96	12154,95
2010	19283,70	7452,38	6,06	14599,20
2011	15007,70	6366,55	6,58	13953,41
2012	13645,00	5887,12	6,53	13784,26
2013	16830,65	5822,21	6,44	12826,50
2014	15719,54	5883,41	6,41	12810,60
2015	18347,44	8794,28	6,50	13306,60

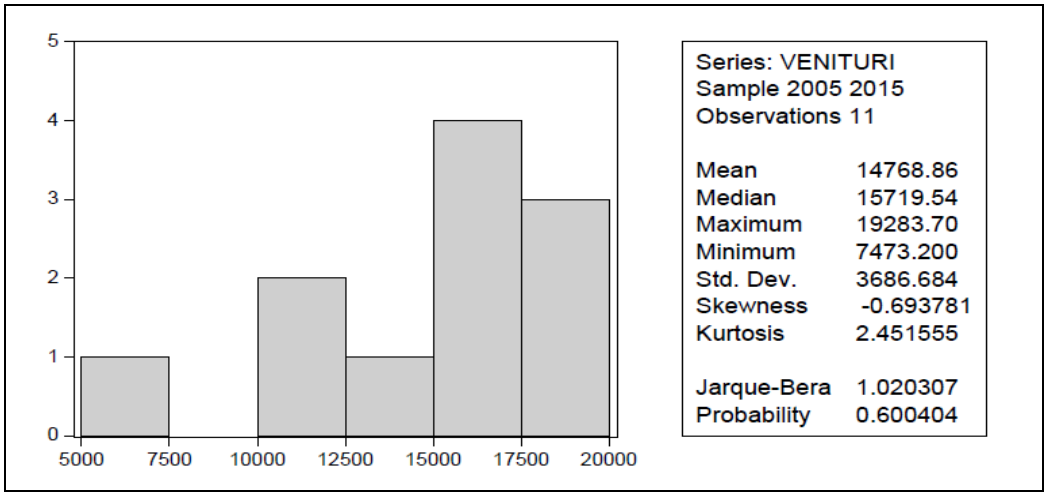
Source: working of the author based on data available form The National Institute for Statistics (TEMPO Database) – www.insse.ro and Ministry of Labor, Family, and Social Protection for the Elderly - http://www.mmuncii.ro/, accessed on 25.07.2016

Given that at the time of the data collection the values of total social assistance expenditure and revenue in Romania were not available for the year 2015, the sums, as presented in Table no. 1, have been calculated based on previous average annual growth rates applied to those of the year 2014, where values for 2005 were considered to be 100%. As far as the number of beneficiaries of the social assistance system in Romania is concerned, due to the unavailability of data for the years 2005 and 2006 both at the National Institute of Statistics and the Ministry of Labour, Family and Social Protection for the Elderly levels, for the values of the respective indicator have also been estimated based on previous dynamics via base chain calculation. In this regard, starting from a 0,84% average growth between 2007 and 2015, and given that the growth rate of the number of beneficiaries of the social assistance system was negative throughout 2007-2008, namely a decrease has been recorded form 6,24 million persons in 2007 to 6,15

million persons in 2008, the 2005 and 2006 numbers were obtained by inverse value weighting. For the purpose of the econometric modeling, the values obtained through the above assumptions were presumed to be correct.

2. CORRELATION ANALYSIS OF THE DETERMINANTS OF THE SOCIAL ASSISTANCE SYSTEM IN ROMANIA

Having noted the divergent dynamics of the input data, of major importance in the econometric modeling is the evaluation of the distribution frequency of the parameters, both form a statistical and graphical stand point (Figures no. 1 to no. 4).



Source: working of the author using EViews based on the data presented in Table no. 1

Figure no. 1 Frequency distribution and histogram of social assistance revenue (Venituri) in Romania

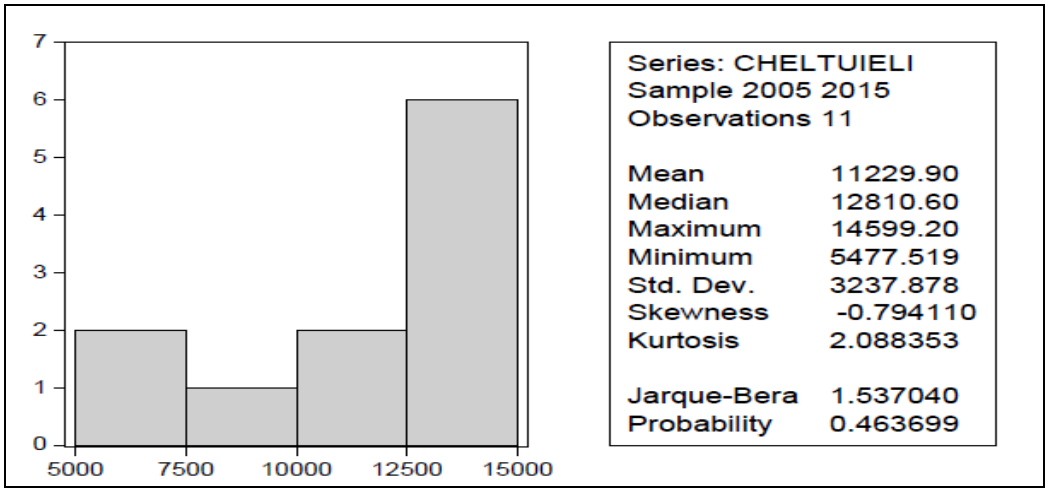


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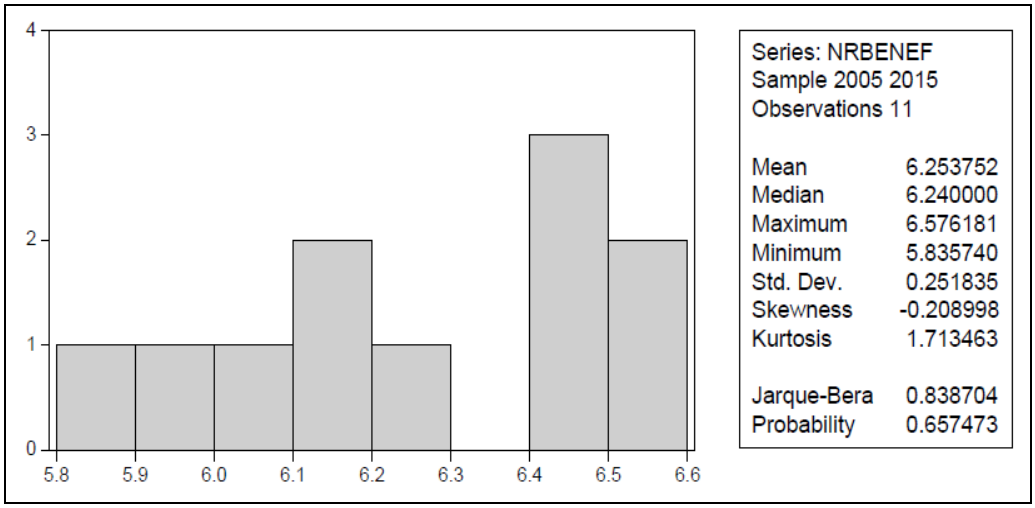
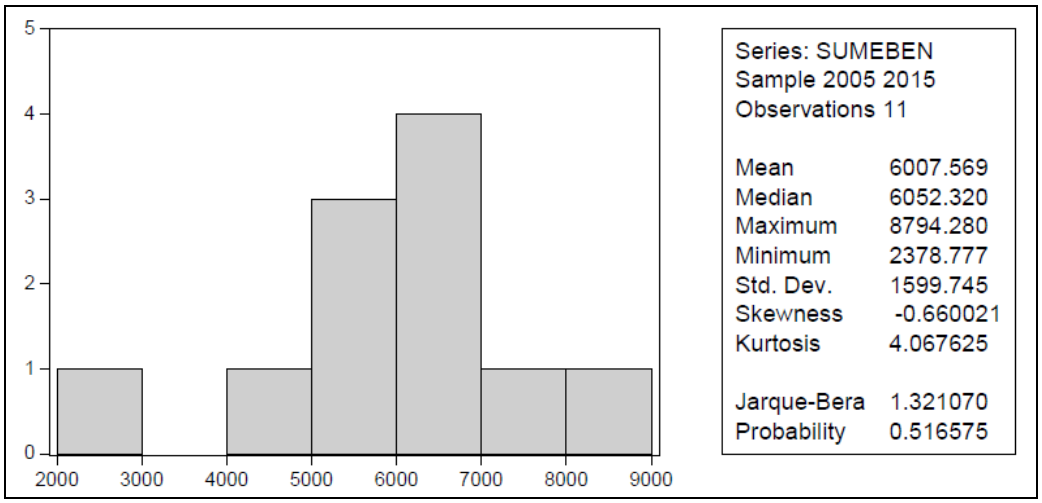
Figure no. 2 Frequency distribution and histogram of social assistance expenditure (Cheltuieli) in Romania



Source: working of the author using EViews based on the data presented in Table no. 1

Figure no. 3 Frequency distribution and histogram of the number of social assistance beneficiaries (NrBenef) in Romania



Source: working of the author using EViews based on the data presented in Table no. 1

Figure no. 4 Frequency distribution and histogram of the number of social assistance benefits (SumeBen) in Romania

As can be seen in Figures no. 1 to no. 4, in the case of revenue, expenditure and sum of social assistance benefits, the density of the distribution function (S, Skewness) shows a pronounced negative asymmetry, namely the mass of the distribution is concentrated on the right of the figure, while, in case of the number of beneficiaries there is a relatively normal distribution (close to 0). Under these circumstances, it becomes obvious that the primary source of social assistance expenditure growth stems from the increased revenues of the system and form the rise of benefit values, while the impact of the variation of the number of social assistance beneficiaries holds a secondary influence. In contrast, the amplitude of the density function, Kurtosis (K),

indicates both a high probability of recording more significant values in the future with regard to the total amounts of social assistance benefits and a low probability of a similar evolution in case of social assistance system revenue, total expenditure and number of social assistance beneficiaries. However, given that the Kurtosis index (K) has a relatively normal distribution (K=3) in case of total assistance expenditure and revenue, we believe that this could indicate a direct correlation between these two indicators and the total value of social assistance benefits, which has a dual impact: a future increase of the average social assistance benefit will, on one hand, trigger an immediate increase of total social assistance expenditure, and, on the other hand, a proportional growth of revenue, so that the average benefit levels be sustained.

To our opinion, these findings subsequently outline need for a correlation analysis with regard to total expenditure, total revenue and the global sum of social assistance benefits. The results of this correlation analysis is depicted in Figure no. 5.

Correlation

	CHELTUIELI	SUMEBEN	VENITURI
CHELTUIELI	1.000000	0.749575	0.854406
SUMEBEN	0.749575	1.000000	0.871051
VENITURI	0.854406	0.871051	1.000000

Source: working of the author using EViews based on the data presented in Table no. 1

Figure no. 5 Tridimensional correlation analysis of social assistance expenditure (Cheltuieli), social assistance benefits (SumeBen) and social assistance revenue (Venituri) in Romania

As shown in Figure no. 5, all three variables are positively correlated ($r \geq 0$), thus confirming the previous Skewness and Kurtosis findings. In other words, since the dynamic of one of the variable entails a corresponding and equal variance of the other two variables lead us to believe that the average level of social assistance benefits is the core element that determines the magnitude of the total social assistance expenditure in Romania.

3. THE ECONOMETRIC ESTIMATION OF SOCIAL ASSISTANCE EXPENDITURE IN ROMANIA FOR THE 2016-2025 TIMEFRAME

However, given that the influence of variation of the number of beneficiaries on total social assistance expenditure cannot be ignored, the forecasting of the evolution of total social assistance expenditure in Romania, for a reference period of ten years (2016-2025) calls for the following assumptions:

- CHELTUIELIF is set to be the relevant predictive variable for the 2016-2025 timeframe;
- CHELTUIELI has been defined as the dependent variable and its future dynamics is influenced by the variation of SUMEBEN, NRBENEF and the random variable C which are considered to be independent;

- the future dynamics of the independent parameters, namely SUMEBEN, NRBENEF and C was assumed as a based chain variation, where the values of the year 2005 represent the base period.
  Starting off form the generic multiple linear regression model:

$$\sum_{i=1}^{n} e_i^2 = \sum_{i=1}^{n} \left[y_i - \left(a_1 x_{i1} + a_2 x_{i2} + ... + a_p x_{ip} \right) \right]^2 \quad (1)$$

The equation has been adjusted in the context of the previously defined parameters and a 5% error (as seen in Table no. 1), thus becoming:

$$CHELTUIELI = C_{(1)} * SUMEBEN + C_{(2)} * VENITURI + C_{(3)} * NRBENEF + + C_{(4)}, \quad (2)$$

where:

- $C_{(1)}$, $C_{(2)}$, $C_{(3)}$ – predictive parameter coefficients;
- $C_{(4)}$ – constant coefficient vector.

Besides this, for the purpose of the simulation, our previous assumption regarding the impact of the number of beneficiaries on the future dynamics of total social assistance expenditure took the following mathematical form:

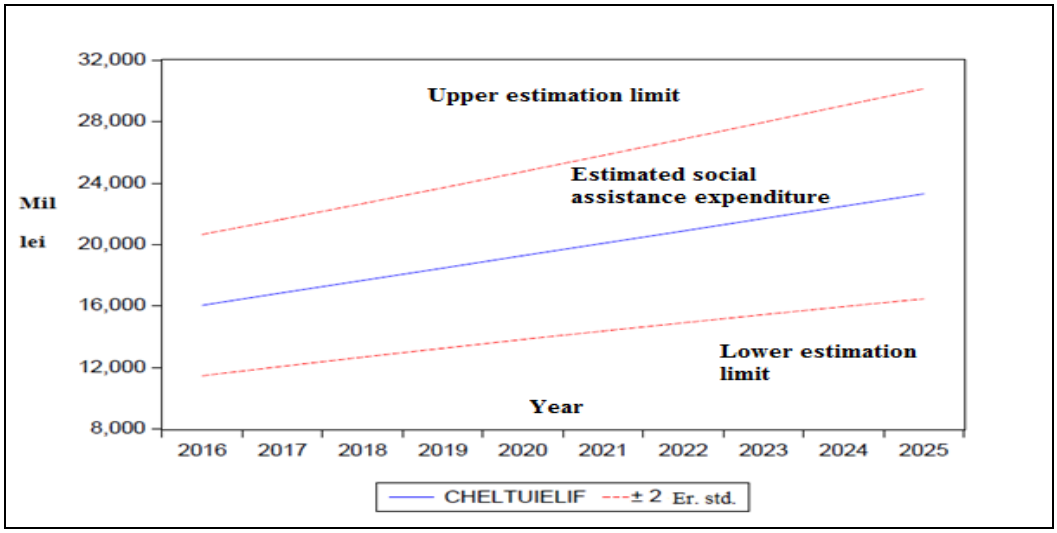
$$Log_{10}(CHELTUIELI) = C_{(1)} * SUMEBEN + C_{(2)} * NRBENEF + C_{(3)}, \quad (3)$$

where

- $C_{(1)}$, $C_{(2)}$= [0...1] and $C_{(1)} \neq C_{(2)} \neq 0$;
- Log_{10}(CHELTUIELI) – the standard growth rate of the dependent parameter.

Based on all these aspects, the predictive future values of total social assistance expenditure are shown in Graph no. 1.

As can be been in Graph no. 1, in the context of our mathematical model, and given the defined assumptions, the future dynamics of total social assistance expenditure for the 2016-2025 time reference is expected to show a positive and relatively constant variation. Although in graphic terms, the regression shows a clear growth linearity, it is possible that the values that could actually be recorded in practice be placed between the maximum and the minimum forecasted values, therefore allowing a divergent dynamic. Under these circumstances, we believe the total number of social assistance beneficiaries to be, at least in the current conditions, the primary determinant of total social assistance expenditure, since both the average amount of the social assistance benefit and the duration for such benefits are independent variables which can, however, be estimated over time.



Source: working of the author using EViews based on the data presented in Table no. 1

Graph no. 1 The estimated evolution of social assistance expenditure in Romania between 2016-2025

In the context of such a finding, we truly believe that Romania is currently facing a complex challenge: on the one hand, the European Commission's recommendations point out to the need of reducing *„the extensive social spending* [as social assistance expenditure calls for a] *conservative assessment* [of expenditure opportunity]*"* (European Comission, 2016, p. 3) while, on the other hand, it encourages additional initiatives in the field of social assistance in order to achieve the Europe 2020 targets, namely the reduction of the number of people living in poverty by 2020. In these circumstances, especially since, as we have previously shown, social assistance expenditure is directly influenced by the number of beneficiaries, our country's possibilities to tackle both requirements are minimal. The reduction of the poverty rate can only be achieved by facilitating more access to social assistance benefits, thus leading the way to an ongoing expenditure growth. In contrast, potential social assistance expenditure cuts may result in access barriers or may cause a reduction of social assistance benefits, either way with an immediate impact on living standards and social welfare.

4. CONCLUSIONS

Given the results of our estimates and taking into consideration the European Commission's recommendations, we believe that the only possible solution would be to correlate social assistance benefits with direct labor market interventions. In other words, should the conservation of the current level of total social assistance expenditure be intended, it becomes clear that the necessary step is the development and implementation of a comprehensive risk-assessment system through which various types of social risks be categorized depending on individual imminence and scale of consequences. Based on this classification, each type of risk could subsequently be assigned a specific type of measure, such as: for those facing low to moderate social risks the solution could take the form of facilitating access to employment, while for those facing high impact risks, the measures could focus on more rapid interventions

such as those of a social assistance nature. In our opinion, such an approach could lead to the achievement of economic and social stability in the context of fiscal sustainability and, moreover, could pose a positive impact on the average level of social welfare and subsequently, on future economic growth.

References

1. European Commission — Council recommendation on the 2016 National Reform Programme of Romania and delivering a Council opinion on the 2016 convergence programme of Romania, Bruxelles, 2016, available at http://ec.europa.eu/europe2020/pdf/csr2016/csr2016_romania_en.pdf accessed on 21.08.2016
2. Fiscal Council — http://www.consiliulfiscal.ro/
3. Ministry of Labor, Family, and Social Protection for the Elderly — http: //www.mmuncii .com / J33 / index.php / en / transparency / statistics / data-statistical
4. National Institute for Statistics, TEMPO Database — www.insse.ro