Labor market participation, social benefits and wages in Romania

E. Militaru, C. Stroe, S. Cojanu

Abstract—A large share of the Romanian population relies on social benefits and labor market participation is decreasing. The present paper aims, firstly, at investigating the determinants of labor market participation in Romania with a special emphasize on the relationship between social benefits and labor market participation. We find out that more dependent an individual is to social benefits, less likely is for him to participate on the labor market. Secondly, using the results of this estimation we shall construct a wage equation by controlling for selection bias in participation using the Heckman two-step procedure. The independent variables used in the wage equation account for human capital endowment (education, work experience), socio-demographic characteristics (gender, marital status) and geographical characteristics (region). The wage equation shall be further used in order to build a counterfactual for the wage of non-participants to the labor market if they had participated. We find out that observed characteristics such as socio-demographic and geographic characteristics as well as the endowment with human capital have statistically significant effects on wage levels, and unobserved characteristics which make labor market participation less likely tend to be associated with lower wages. We shall discuss whether the income gain measured as the difference between the simulated wage (in work income) and the unemployment benefit received (out of work income) could be an incentive for labor market participation and work does pay. We build our analysis on 2007 EU-SILC micro data for Romania.

***Keywords*—**in/out of work income, labor market participation, social benefits, wages, work disincentives.

I. INTRODUCTION

The level and structure of social benefits and their connection with the labor market has become a very important subject of debate for European scientific and economic communities during the recent decade, but increasingly since the world's latest economic and financial crisis. Even since the year 2000, the European Commission, based on the evidence of several researches carried out along the years, has promoted the idea that the social benefits systems together with fiscal policies are responsible for employment decrease and the slowing down of economic growth in EU countries [1]. This relationship of causality between employment and social protection has been first signaled by the European Commission in 1999, when employment was regarded as the main element to insure sustainability of social protection systems. The idea that came out was that a new and changing labor market needs a new social protection system based on the same principles of security and flexibility and which is able to ensure a balance between rights and responsibilities. Therefore, at that time, the Commission decided that together with the employment strategy, a new strategy which envisages the modernization of social protection should be developed. The Lisbon Strategy calls for the continuous revising of work incentive/ disincentive effects produced by the tax and benefit systems.

The rich literature on this issue has proven that social benefit systems have a diversity of adverse effects on labor market, affecting job search behavior and participation decision of individuals and households. Our paper is among the first studies in Romania which aims at establishing the existence of a relationship between labor market participation and the dependency to social benefits [2]. It follows the classical binary choice model approach in order to determine the predictors of labor market participation of individuals and uses 2007 EU SILC data for Romania. Among the covariates of the model, alongside individual and household characteristics, we include a variable which measures the dependency of an individual to the system of social benefits and is built on two components: the ratio of social transfers to the household income and the individual's wage share in total household income.

We find out that there is indeed causality between the dependency to social benefits and labor market participation in Romania, but there are also other variables that influence labor market participation, such as: educational level, gender, work experience, the previous labor market status (one year ago).

We go further with our analysis by using the labor market participation equation in constructing the wage equation for employees. As participants and non-participants on the labor market are not randomly selected from the whole population, the direct estimate of wages could be biased and corrections for selectivity bias are needed in order to get consistent estimates. To correct for selectivity bias we use a standard selection model and we do our estimations using a two-step Heckman procedure.

The covariates used in the wage equation account for human capital endowment (education, work experience), socio-demographic characteristics (gender, marital status) and geographical characteristics (region). We follow the approach of Roy (1951) in which wages are based on human capital or skills and any two employees with the same human capital level are paid the same wage. Our approach is also consistent with Heckman and Sedlacek (1990) which states that there are

no sectoral differences in wages for workers with the same human capital level. Thus, in the wage equation that we try to estimate, we do not take into account characteristics such as occupation and sector, as these not apply for non-participants on the labor market and our next step is the simulation of the latter's wages as if they had been employed. In our model, wage is the return to human capital; however, socio-demographic and geographic variables have a certain influence as well.

Finally, we shall argue on whether the income gain measured as the difference between the simulated wages (in work income) of unemployed and the unemployment benefit amount (out of work income) they receive is a sufficient incentive for labor market participation of unemployed.

The paper is organized as follows. In the first section we do a short literature overview of studies on the relationship between social benefit systems, labor market participation and wages. Then, we present key figures on labor market participation in Romania. In the third section we describe data and methodology of our study, while in the fourth one we present the main findings. The paper ends with a section which outlines the most important conclusions of our research and future research questions.

II. THE RELATIONSHIP BETWEEN LABOUR MARKET PARTICIPATION, SOCIAL BENEFITS AND WAGES – RESULTS OF EMPIRICAL RESEARCHES

Researches in this field have proven that policies in the area of social benefits, alongside with fiscal policies, produce diverse effects on welfare, income distribution and labor market participation.

We shall start our literature overview with the OECD *Benefits and Wages*, 1998-2004 [3], which shed a light on the social benefits system and on its interaction with tax and social contribution systems and studied the macroeconomic effects they have on certain income indicators which impact labor market participation and employment; and practically measure the work incentives/ disincentives (net replacement rate, gross replacement rate, average effective tax rate, marginal effective tax rate, etc.) induced by benefits and taxes. These indicators were calculated on the basis of *in work* and *out of work* income and basically tried to answer the question of whether *work does pay* and which are the dimensions of *unemployment trap*, *inactivity trap, low wage trap*, etc. in the OECD countries and the results were compared between countries. A great number of studies that followed were based on the work incentive indicators developed by OECD. Because the indicators are computed as aggregates for different types of households and different levels of income, they cannot capture the individual behavior which can be best done by micro models. In 2001, in 15 EU countries, a benefit and tax micro simulation model was designed (EUROMOD), but it has permitted so far the study of the effects that benefit and tax systems have on welfare and income distribution and not on labor market behavior yet [4]. The model is now functional in 24 EU countries and will be extended in all 27 EU countries during the next year.

Many authors support the idea that a major part of the differences in the patterns of unemployment and employment between countries can be explained by the labor market institutions in each country, including the tax and benefit systems (Daveri and Tabellini, 1997; Belot and Van Ours, 2004; Nickell, Nunziata and Ochel, 2005) [5].

The European Commission (2000), based on the evidence of several researches carried out along the years, has promoted the idea that the social benefits systems together with fiscal policies are responsible for employment decrease and the slowing down of economic growth in EU countries.

Carone and Salomaki (2001) [6] have proven that a high level of means tested social benefits lead to less job search effort, while high marginal wage taxation rates reduce the amount of work, as work does not pay. Holly Sutherland (2005) [7] analyzed the redistributive effects of benefits and taxes on household income and labor market participation and found out that in work benefits could have diverse effects on participation, from discouraging to encouraging participation.

Lenain and Rawdanowicz (2004) [8] have studied the determinants of unemployment rate in four Central European Countries (The Czech Republic, Slovakia, Poland and Hungary) and their results show that low unemployment rates are due to generous social benefits and high social contributions.

A wide range of studies were devoted to the relationship between the level of unemployment benefits and unemployment duration. Ham, Svejnar and Terrel (1998) [9] analyzed the effects of unemployment benefit's generosity on unemployment duration and prove that though positive, the relationship is weak in intensity. The studies of Wollf (1997) [10] for Hungary indicate that the reform in the social protection system led to an improved transition from unemployment to employment. Puhani (1999) [11] brings evidence from Poland in supporting the idea that the reduction in the level of social benefits for unemployed is not necessarily conducive to shorter unemployment duration. Hinnosar (2004) [12] with his analysis for Estonia demonstrated that social benefits alter the job search behavior and increase the duration of unemployment.

Many researches were directed to certain types of household or groups such as single parents, families with children, families with single earner or women. For example, Jaumotte (2003) [13] has proven that the inactivity trap (i.e. the disincentive to search a job because the out of work benefits are so generous that work does not pay) is higher in the case of women as compared to men and female participation rates are mainly influenced by the social security systems and child subsidies.

Fialova and Mysikova (2009) [14] studied the impact of benefit to wage ratio on labor market participation for several European countries and concluded that the results point a negative impact of social benefits on labor market participation. They adopted a micro approach and constructed a logit model on participation.

There is a rich relevant literature regarding the relationship between participation in employment, labor supply and wages. Most of the empirical evidence treats labor supply from a gender perspective and the findings show that women's labor supply, in term of hours allocated to work, is responsive to changes in wage rates, human capital characteristics, non-labor income, husband's wage, woman's marital status and to the presence of children, particularly of pre-school age (Killingsworth and Heckman, 1986) [15].

Daouli and Demoussis (2004) [16] studied the participation of Greek married women in full time paid employment using a Probit model for the estimation of the participation decision and an OLS regression corrected for selectivity bias for the estimation of the wage equation; and then used a Tobit procedure for the estimation of the labor supply function. They find out that the labor force participation decision is affected by the presence of children, human capital characteristics, region of residence, husbands' earnings and non-work income; human capital (education, age) explain the observed wage structure of Greek married women.

We have to mention that the sample selection bias-corrected techniques are very important in labor supply studies and were developed by Heckman (1974, 1979) [17].

Theoretical models of individual wage were developed by Roy (1951) who assumes that wages are based on human capital or skills and any two employees with the same human capital level are paid the same wage. Heckman and Sedlacek (1990) [18] complete Roy's model by assuming that there are no sectoral differences in wages for workers with the same human capital level.

In our paper we follow the approach of Daouli and Demoussis (2004) and Fialova and Mysikova (2009) for the estimation of participation decision of individuals through a binary choice logit model on labor market participation. For the independent variables we employ a social benefit dependency index designed on two elements: the ratio of social transfers to the household income and the individual's wage share in total household income. The assumption that comes out of the studied literature and that we are going to test is that stronger the dependency to social benefits, lower the odds of labor market participation.

Then, in line with Daouli and Demoussis (2004), Roy (1950), Heckman and Sedlacek (1990) and Heckman (1974, 1979) we construct the wage equation for employed individuals.

III. LABOUR MARKET PARTICIPATION IN ROMANIA

Before starting our econometric modeling exercise, we think it is useful to overview some key figures for the labor market participation in Romania during the last decade.

Labor market participation in Romania was downward sloping between 1998 and 2008 [19], with stronger decline for young people and elderly (over 55 years), therefore the most important share in the active population is held by the 35-54 age group. These evolutions were caused, besides massive migration for employment abroad after 2001, by the increase in the number of years in education, on one hand, and on early retirement, on the other hand. [20]

The activity rate for the working age population was 62% in 2008, the employment rate was 59% and the unemployment rate was equal to 5.8% (see Table I)

Table I: Dynamics of activity, employment and unemployment rates in Romania, 2003-2008

%	2003	2004	2005	2006	2007	2008
Activity rate	62,4	63,2	62,4	63,7	63,0	63,0
Employment rate	57,8	57,9	57,7	58,8	58,8	58,8
Unemployment rate	7,0	8,0	7,2	7,3	6,4	5,8

Source: National Institute of Statistics, Statistical Yearbook, 2004-2009

Differences exist in labor market participation by gender, residential area, educational attainment and age, in favor of men, rural areas, higher educational attainment and for the age group 35-44 years (see Table II and Table III).

Table II: Activity rate by gender, area and age, 2008

Age group	Total	Male	Female	Urban	Rural
15 – 64 years	62,9	70,6	55,2	61,7	64,5
15 – 24 years	30,4	35,9	24,7	24,9	37,5
25 – 34 years	77,6	83,3	71,5	81,3	72,1
35 – 44 years	82,9	90,4	75,3	84,9	80,1
45 – 54 years	74,1	83,8	64,8	73,0	75,9
55 – 64 years	44,2	56,1	34,7	33,0	58,4
65 years and over	15,2	17,9	13,4	1,8	25,7

Source: National Institute of Statistics, Statistical Yearbook, 2009

The highest activity rate on total and both for men and women is for the age group 35-44 years. We believe that what is concerning is the fact that the age group 55-64 years is poorly represented in activity rates, as in Romania the statutory retirement age is 60 years for women and 64 for men. We notice that young people are better represented on the labor market in rural areas, mainly as a consequence of lower educational involvement in their case.

In urban areas, people with lower education perform worse than those in rural areas in terms of labor market participation. A possible explanation for this is the more working opportunities for low-educated in rural areas.

Men with lower educational level are more likely to be active on the labor market than women; the labor demand for them is more generous, on one hand, and low educated women often choose to fulfill domestic task or have family caring responsibilities, on the other hand. The share of labor market female participants with tertiary educational level almost equals that of men. This finding stands for rural and urban as well.

Table III: Activity rate by educational level, gender and area

	Total	Educational level		
		Tertiary	Medium	Low
Total	62,9	88,1	67,5	44,8
By sex				
Male	70,6	89,1	74,3	54,3
Female	55,2	87,1	59,9	37,4
By area				
Urban	61,7	88,5	65,1	26,7
Rural	64,5	84,8	71,9	55,2

Source: National Institute of Statistics, Statistical Yearbook, 2009

The unavailability of comparable data for 2009 and 2010 impedes us to discuss labor market participation during the economic downturn, but data from other sources show a worsening of the situation in the case of Romania. That is why we believe it is important to study at micro economic level the determinants of labor market participation with a special emphasis on social benefits.

IV. DATA AND METHODOLOGY

A. Data

The econometric model that we develop is based on micro data from the EU SILC (European Union Survey on Income and Living Conditions) for Romania for the year 2007, the first year when Romania applied this harmonized EU survey, which is now compulsory in all Member States.

In Romania were investigated 17042 individuals aged over 16 years and belonging to 8031 households. For the purpose of our study we eliminate individuals who are in retirement, pupils, students and further training and also permanently disabled or/and unfit to work as their participation in employment is very unlikely. We also eliminated the self-employed with employees as their dependency to social transfers is not significant. Therefore, the data that we use is limited to 9872 individual cases.

The gender structure of the data is 49,2% men and 50,8% women. Their self-defined current activity status was 79,4% employed (full or part time); 5,7% were unemployed and 14,9% declared themselves inactive. The status in employment of the investigated individuals is as follows: 70% are employees; 20,5% are self-employed without employees and 9,5% are unpaid family workers. 70% of the individuals have a spouse.

The survey registers the income of the reference period, which is the previous year to the survey year.

The monthly employee income for the reference period for employees is distributed between 0 and 13728 lei, with a mean income equal to 760 lei and a median equal to 630 lei monthly.

72% of the individuals that we investigate come from households which received at least one type of social benefit (family allowances, social exclusion, unemployment benefit, old-age, sickness, disability benefits, housing allowances, and education related allowances) during the reference period. The main part of the social benefits, not including old-age, belongs to family allowances and social exclusion, mainly intended to cover the risk of poverty, which is extremely important in Romania. [21]

B. Methodology and models

We shall employ two econometric equations: one which models labor market participation decision, and the second which models wage level of employees.

As already mentioned, we use a binary choice logit equation in order to model the labor market participation of individuals. The variable *labor market participation* takes binary values: 0 if the person is unemployed or inactive and 1 if the person is employed. We use the logistic regression model which is a type of generalized linear model that extends the linear regression model by ranging the estimated dependent variable between 0 and 1. In the logistic regression model, the relationship between Z, an unobserved continuous variable which can be thought of as the "propensity towards" the event of interest, and the probability of the event of interest is described by the following function (1).

$$\Pi i = \frac{e^{z_i}}{1 + e^{z_i}} = \frac{1}{1 + e^{-z_i}}, \qquad (1)$$

and

$$Z_i = b_0 + b_1 X_{i1} + b_2 X_{i2} + \ldots + b_p X_{ip}, \quad (2)$$

where: X_{ij} is the j^{th} predictor for the i^{th} case,
b_j is the coefficient,
p is the number of predictors.

The regression coefficients are estimated through an iterative maximum likelihood method.

In our case, the event of interest is the labor market participation of individuals. The predictors that we take into account are: gender, age, educational level, labor market participation in survey reference year (one year ago), the activity status of the spouse, work experience, the ratio of income tax and social contributions to gross wages and the dependency to social transfers. The index which measures the individual dependency to social benefits is computed as shown in the next formula (3).

$$DEP = 0.5 * RSB\_HHI + 0.5 * (1 - RWI\_HHI) \quad (3)$$

where: *DEP* is the social benefit dependency index which takes values in the 0-100 range (0 meaning the lack of dependency to social benefits),

RSB_HHI is the ratio of social benefits received by the household to the total household gross income,

RWI_HHI is the share of individual employee income and profits/losses from self-employment in the household income.

The idea behind this index is that an individual who is not a wage earner and belongs to a family which relies on social benefits is more dependent to the social benefit system than his family as a whole. Practically, this index translates the household dependency to individual dependency of social benefits.

We should mention that the meaning of a logistic regression coefficient is not as straightforward as that of a linear regression coefficient. The coefficient b is convenient for testing the usefulness of predictors, but Exp(b) is easier to interpret, representing the ratio-change in the odds of the event of interest for a one-unit change in the predictor.

On the basis of the participation equation we compute the Inverse Mills Ratio (λ), which measures the expected value of the contribution of unobserved characteristics to the decision to participate in employment, conditional on the observed participation in employment:

$$\hat{\lambda}_i = E(\varepsilon_i / P_i) = \begin{Bmatrix} -\phi(\hat{bX}_i)/(1-\Phi(\hat{bX})_i, for P_i = 0 \\ \phi(\hat{bX}_i)/\Phi(\hat{bX}_i), for P = 1_i \end{Bmatrix} \quad (4)$$

where: ϕ is the density function for the standard normal distribution,

Φ is the standard normal cumulative density function,

$\hat{b}$ is the estimated value for *b* in equation (2).

Then, the computed λ for participant individuals (P_i=1) is used as a variable in the equation that models the individual wage of employees.

$$\log y_{0i} = \beta_0 X_i + \gamma_0 \hat{\lambda}_i + \mu_{0i}, for P_i = 1, \quad (5)$$

where: $E(\mu_{0i}/P_i)=0$, $VAR(\mu_{0i}/P_i)=\sigma_0^2$,

X_i the independent variables in the wage equation such as human capital, socio-demographic and geographic characteristics

Using the estimated parameters from equation (5) we can simulate the counterfactual wage of non-participant in employment, if they had been employed:

$$\log \hat{y}_{0i} = \hat{\beta}_0 X_i + \hat{\gamma}_0 \hat{\lambda}_i + \hat{\mu}_{0i}, for P_i = 0, \quad (6)$$

V. Main Findings

So, after regressing in a binary choice model the labor force participation to the variables already mentioned in the previous section we obtain a valid model.

The table below (Table IV) represents the estimation output and comprises the variables which proved to be significant at a 0.05 significance level, the estimated coefficients, the standard errors and the Z-statistic.

Table IV: Estimation output (dependent variable: labour force participation=1 if the individual is employed)

Variables	Coefficient	Std. error	Z-statistic
constant	-1.520001*	0.150368	-10.10851
participation in previous period (one year ago)	2.987*	0.110	26.930
dependency to social benefits	-0.009*	0.001	-10.770
work experience	0.016*	0.002	8.126
gender M	0.138*	0.048	2.873
education	0.058*	0.027	2.197
McFadden R-squared			0.368
S.E. of regression			0.224
Log likelihood			-1727.704
Prediction evaluation % correct			90.31
Dependent =0 (non-participants) % correct			45.62
Dependent=1 (participants) % correct			99.64

*variables are significant at a 0,05 significance level.

The results of the model prove the existence of a relationship between the dependency to social benefits and labor market participation. The negative sign of the relationship shows that higher the dependency to social benefits, lower the odds to be active on the labor market, which means that our initial assumptions were found to be true. Thus, as we expected, the generosity of the social benefit systems produces work disincentives.

Labor market participation is also influenced by other variables.

The most important influence is given by the participation in the previous period, meaning that an individual who was employed one year ago is more likely to be employed at the moment of the investigation, taken the non-participants as the reference category. It can be seen that gender also impacts the probability of a person to be active on the labor market. As our reference category is female, the results show that men are more likely to participate in employment.

If the person has a higher educational attainment, he is more likely to be active on the labor market. Work experience counts too in the participation equation.

We go on with our analysis with the calculation of the Inverse Mills Ratio and then estimate the wage equation for employees by using a simple OLS regression in which we take the Inverse Mills Ratio as an independent variable.

The results of our estimation are shown in the table below (Table V).

Table V: Estimation results (dependent variable: log monthly employee income, i.e. wage)

Variables	Coefficient	Std. error	Z-statistic
constant	5.1789*	0.1050	49.292
gender M	0.2031*	0.0118	17.101
education	0.2784*	0.0067	41.075
work experience	0.0181*	0.0022	8.1966
work experience squared	-0.0003*	5.85E-05	-4.9904
reg1	-0.2115*	0.0235	-8.9738
reg2	-0.2284*	0.0223	-10.236
reg4	-0.1846*	0.0272	-6.7738
reg5	-0.2135*	0.0234	-9.1264
reg6	-0.1869*	0.0214	-8.7153
reg3	-0.2405*	0.0223	-10.781
reg7	-0.1588*	0.0239	-6.6211
married	0.0437*	0.0143	3.0444
full-time	0.3558*	0.1203	2.9572
IMills	-0.1260**	0.0708	-1.7788
population density	-0.0449*	0.0063	-7.0632
R-squared			0.3621
S.E. of regression			0.422587
F-statistic			195.5244

*variables are significant at 0.05 significance level;
**variables are significant at 0.07 significance level.

The results show that the level of wages of employees is highly dependent on education, so education has an important return on wages. The relationship between work experience and wages is a quadratic one, meaning that to a certain point, work experience has a positive impact on wages, but as the individual is ageing and his work experience measured in years of work is increasing, its impact on his wage level could be adverse. This is why we have the negative sign in the coefficient of the *work experience squared.* The wages of men are higher than that of women and this is shown by the positive sign of the *gender M* variable, which is a dummy variable, women being the reference category.

The region where the employee has residence is influential on wages. We use dummies for 7 regions of Romania, having the reference category the region which includes Bucharest, the capital city of Romania. All the dummies for regions are significant and have negative signs, meaning that the highest wages are those in the reference category. This is a valid result, since we know that Bucharest has the most dynamic economic activity in the whole country and that indeed the highest wages on the average are also to be found in the capital.

We use an indicator for the degree of urbanization, measured as the population density in the area. The negative sign in the estimated coefficient in the wage equation indicates that higher the population density is in the area, higher is the wage level.

Married individuals have higher wages compared to those who are single. We use a dummy variable for working hours as *full-time,* a binary variable which takes the value 1 for full-time job and 0 for part-time job. The positive sign of the estimate indicates that full-time employment is associated with higher wages. It should have been useful to build the wage equation on hourly wage, not on monthly as we did, but we adopted this solution as we did not had information on the number of working hours.

The significance of the *IMills* estimate confirms the presence of a sample selection criterion which separates employed from inactive and unemployed individuals. The unobserved characteristics that make labor market participation less likely are associated with lower wages.

Characteristics that make labor market participation more likely are also those that influence the wage level the most.

As already mentioned in the introductory section, we do not take into account occupation and sector as we intend to use the wage equation for simulating the wage of non-participants as if they were participating, though we know that these variables affect wage levels in Romania [22] [23].

Further on we simulate the wage distribution for non-participants in employment on the basis of the wage equation we estimated earlier. The distribution that we shall refer as the simulated distribution comprises the real (existent) wage distribution for employees and the simulated wages for non-participants in employment. The two distributions: the real (existent) distribution and the simulated one can be seen in the figures below (Figure 1, Figure 2).

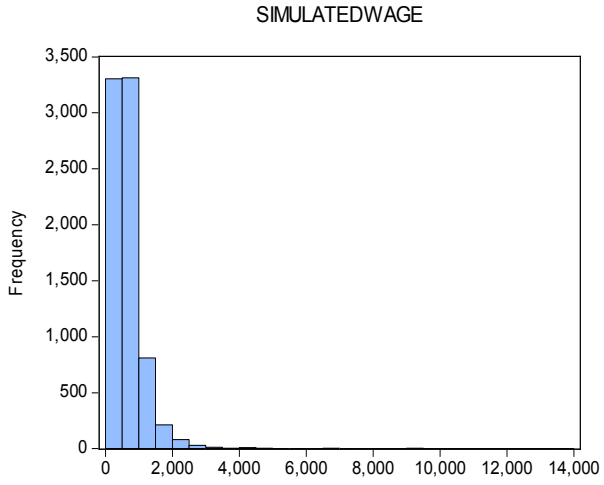


Figure 1

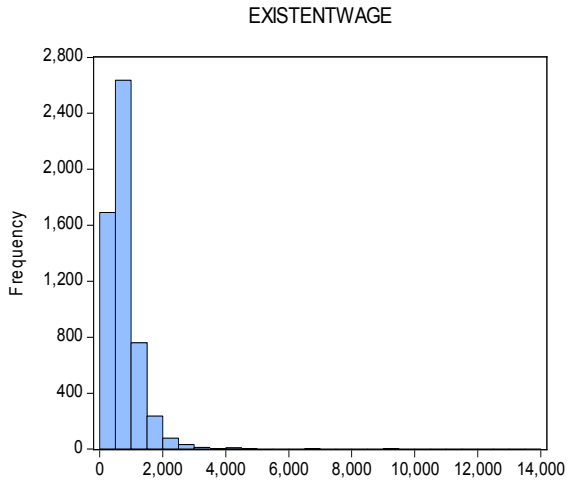


Figure 2

The main statistics for the two distributions, namely mean and median are presented in the table below and show small differences between them (Table VI).

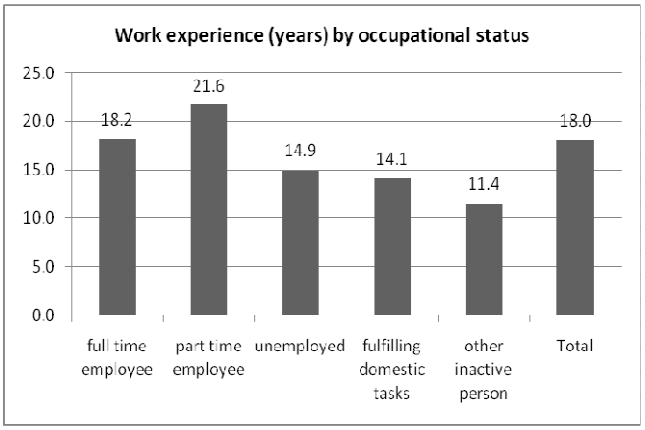
Table VI: Statistics for the wage distributions: existent and simulated

Statistic	Existent distribution	Simulated distribution
Mean (in Lei)	760.69	668.77
Median (in Lei)	630	551.07

The lower mean and median for simulated distribution shows that the simulated wages for non-participants in employment are lower on the average than that of employees. We believe that the explanation of these findings is related to the fact that non-employed perform worse than employed at all the observable characteristics which prove to be significant in the wage equation.

In support of this statement, in the following figures, we present the average values or distributions of some of the variables which influence the level of wages by occupational status.

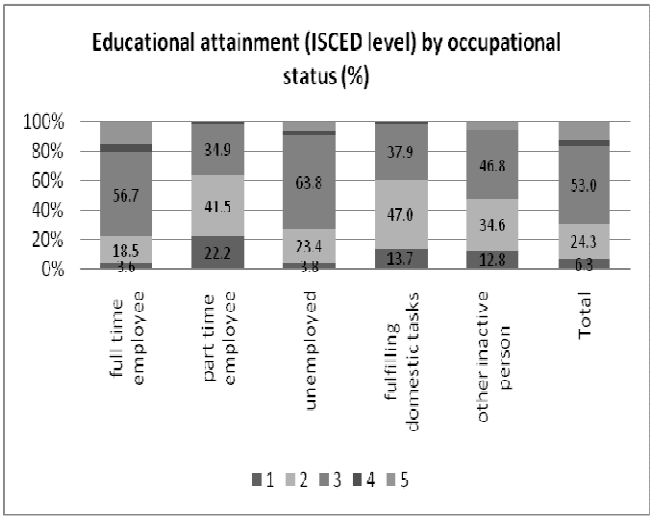
For instance, the figure below (Figure 3) shows the average work experience by occupational status. Unemployed individuals, those fulfilling domestic tasks and other inactive persons have less years of work experience than the employed persons.



Source: authors' calculations based on EU-SILC data, 2007

Figure 3

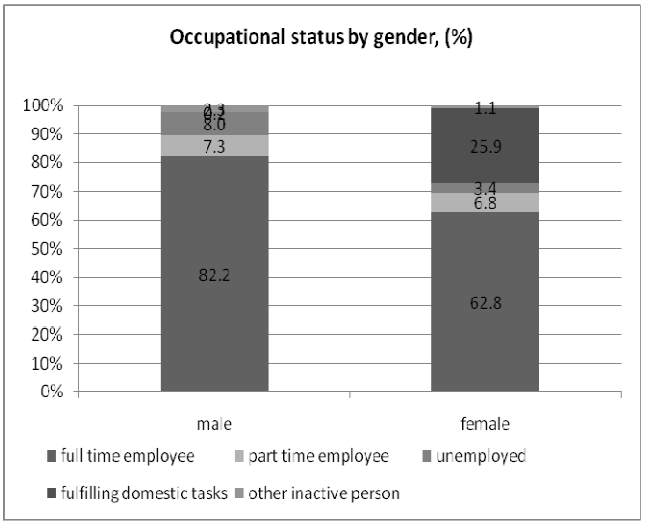
The distribution of individuals by occupational status and educational attainment shows that the share of economically inactive individuals, such as those fulfilling domestic tasks and other inactive persons, having the lowest levels of education (ISCED 1 and 2) is almost 50%, while for full time employees the same share barely exceeds 20%. The distribution by educational level of full time employees and unemployed is comparable, the greatest shares belonging to ISCED 3 for both.



Source: authors' calculations based on EU-SILC data, 2007

Figure 4

The occupational status is significantly differentiated by gender. If 82.2% of males are full time employees, in the case of women the share is equal to 62.8%. It is important to note that 27% of women are inactive, fulfilling domestic tasks or caring responsibilities.



Source: authors' calculations based on EU-SILC data, 2007

Figure 5

Now, we go back to the distribution of simulated wages for non-participants in employment and compare the levels of in work and out of work income for unemployed. The mean and median indicators for the unemployment benefit and the simulated wage, both net of taxes and social contributions, are shown in the table below (Table VII).

Table VII: Statistics for the in and out of work income

Statistic	In work income (simulated wage)	Out of work income (unemployment benefit)
Mean (in Lei)	504.83	296.53
Median (in Lei)	401	280

The difference between the two incomes is on the average in favor of in work income and we find that it is equal to 70% of the unemployment benefit. An income gain such as should produce work incentives and show that work does pay. But, things look different in the real Romanian world.

On one hand, an unemployed individual, if he belongs, which is most likely, to a poor household is also entitled to social assistance benefits, i.e. minimum guaranteed income. Or, he could be employed in undeclared work, as well. So, he could rely on other income sources than the unemployment benefit. Subsequently, if he would be employed in the registered economy, he would lose a certain amount of income. On the other hand, on the demand side, labor market opportunities have become scarce since the economy declined sharply during the economic downturn.

Concluding, both labor supply and demand side factors act as disincentives to work in the registered economy.

VI. Conclusions

Our paper investigates the relationship between labor market participation of individuals and the social benefits system in Romania, under the assumption that the dependency to social transfers creates work disincentives. Then, we build a wage equation in which we take into account the selectivity bias in employment. The estimated equation is further used to simulate the wages of non-participants in employment. Finally, we compare the in work and out of work income for unemployed. Our analysis comes in a framework characterized by labor market participation decline in Romania, especially for young people and elderly and recent debate in EU countries, including Romania, which led or could lead to changes in the level and structure of social benefits in order to improve employment and labor market participation.

After testing our assumptions with the help of econometric tools, the following conclusions have emerged.

1. There is a link between the dependency to social benefits and labor market participation in Romania. The negative sign of the relationship shows that higher the dependency, lower the odds to be active on the labor market, which means that our initial assumptions were found to be true.
2. Labor market participation is influenced by other variables, such as: gender, educational level, work experience and the labor market status in the previous period (one year ago).
3. Education has positive returns on wages.
4. The relationship between work experience and wages has a quadratic form, meaning that experience is beneficial to a certain extent; afterwards it has negative influence on wages as age increases.
5. Men are more likely to be employed and to have higher wages than women.
6. The region where the employee is residing influences wages.
7. Married individuals have higher wages compared to those who are single.
8. The unobserved characteristics that make labor market participation less likely are associated with lower wages.
9. Simulated wages for non-participants in employment are lower on the average than that of employees. We believe that the explanation of these findings is related to the fact that non-employed perform worse than employed at all the observable characteristics which prove to be significant in the wage equation.
10. The difference between in work income (simulated wage) and out of work income (unemployment benefit) is in favor of in work income and equals, on the average, 70% of the unemployment benefit.
11. An income gain such as should produce work incentives, but things look different in the real world because both labor supply and demand side factors act as disincentives to work in the registered economy in Romania.

We intend for our future researches to take into account for the out of work income also other social benefits which are related to the inactivity and unemployment status and to extend our analysis to inactive individuals, such as women fulfilling domestic tasks and care responsibilities. We believe that a gender perspective approach would be useful in identifying both labor market decisions and wages, as we found out through our present analysis that men and women act differently on the labor market.

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