The Relationship between Official Employment, Official Unemployment and Unofficial Employment in Romania

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Abstract. The aim of the paper is to investigate the relationship between official employment, official unemployment and unofficial employment in Romania for the period 2000-2014, using LFS survey data. This type of method quantifies the persons working in unofficial economy, but is not able to capture those who are employed in both sectors (formal and informal).The empirical results reveal the existence of a negative relationship between activity rates and the estimated value of unofficial employment. Correlation coefficients for the period 2000-2014 highlighted the presence of a negative relationship between official employment and unofficial employment, respectively official unemployment and unofficial employment. Using this method who has its limitations, the Romanian unofficial employment is most probably underestimated.

1 Introduction

In an extremely globalized world where migration represents a common activity (Grosu and Saseanu, 2014), issues related to unofficial employment need to be investigated. The paper aims to evaluate the size of the unofficial employment, using the labour approach for quarterly data covering the period 2000-2014 using LFS survey data and, also, to investigate the relationship between official employment, official unemployment and unofficial employment, for the case of Romania.

A previous estimation of the shadow economy in Romania, using this method, was made for both administrative and survey data for the period 2000-2009 and the empirical results indicate a substantial difference in the results obtained. While the figures from administrative data report only 800 000 persons unofficially employed, the survey results reveal around 1 900 000 persons that work in unofficial sector (Davidescu, 2014).This difference should be regarded as a consequence of the different methods of data collecting used for the official employment and unemployment.

The method relies in the difference of actual (real) and official (registered) use of labour. The empirical approach is based on Crnkovic-Pozaic (1999) and Svec (2009) for Croatia, Nastav and Bojnec (2007) for Slovenia.

2 The labour approach

The fundamental hypothesis of the labour approach is that the changes in official population activity rates are caused by factors related to the underground economy.

One can suppose that the decreasing of this rate could indicate the existence of a flow of population from official to unofficial economy.

The main disadvantages of the method are:

The initial value of unofficial employment is always zero; therefore the assumption is not realistic.

The assumption on the full-time participation of the unemployed in the shadow economy (and that no one with an official job participates (part-time) in the shadow economy) is not properly grounded, due to sampling errors, underreporting and the fact that not all of those registered as unemployed according to the LFS work full-time in the shadow economy.

The method doesn't include and measure second job owners.

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According to Crnković-Pozaić (1997), the activity rate can be defined as a ratio of persons who either are or wish to be economically active to all persons of working-age:

activity rate is computed as the total employed and unemployed) over working-age persons (1)

the employed + the unemployed = labour force (total labour supply, total working population, de facto economically active population) (2)

Alternative definition:

Activity rate = (the employed + the unemployed) / total population (3)

The main steps are:
- Data on the employed and unemployed should be obtained from the National Institute of Statistics and de facto active population calculated according to the formula (2).
- Activity rate is to be calculated using the formula (1) or (3).
- Zero activity rate is defined according to the formula (1) or (3), in the process of which, initial data of the given time series are used. Hypothetically active population for the time period t is equal to the product of multiplication of the zero activity rate and total population in year t.
- After the values from steps: 1), 2) and 3) have been calculated, it is possible to calculate the value of the employed in unofficial economy according to the formula (4). Nest, we will calculate the hypothetical activity rates and then we compare the values in each of the years to the official, de-facto activity rates. The latter would normally be (by assumption) lower and the difference between the hypothetical and de-facto active population is the measure of the number of people working in the shadow economy.

The share of employed in the unofficial economy is computed as:

Share of employed in the unofficial economy = (hypothetically active – de facto active) / de facto active.

A detailed presentation of the labour approach method is given in Svec(2009) and Crnković-Pozaić (1997).

3 Data

The size of unofficial employment is evaluated using the labour approach, using quarterly data for the period 2000Q1-2014Q2 from LFS survey. The main sources of data are Labour force survey (LFS), Tempo database and Labour force balance.

In order to estimate the share of unofficial employment it was used the alternative definition (activity rate is equal to ratio of de facto active population to total population 15 years and over) because data on economically active population are not available.

4 Empirical results

The labour force method, used in estimating the size of employment in the informal economy, assumes that the official rate of labour participation (activity rate) is constant, any change being considered to be due to activities (increasing or decreasing) from informal sector. Based on statistical data, it is determined the actual and hypothetical active population, comparing actual activity rates with hypothetical ones (expected). The hypothetical activity rates are based on hypothetical activity rate of the reference period (when it is assumed that there is not informal activity). As reference period has been considered the quarterly average of the first year (2000). The difference between actual and "hypothetical" activity rates is considered to be an indication for the size of the informal economy.
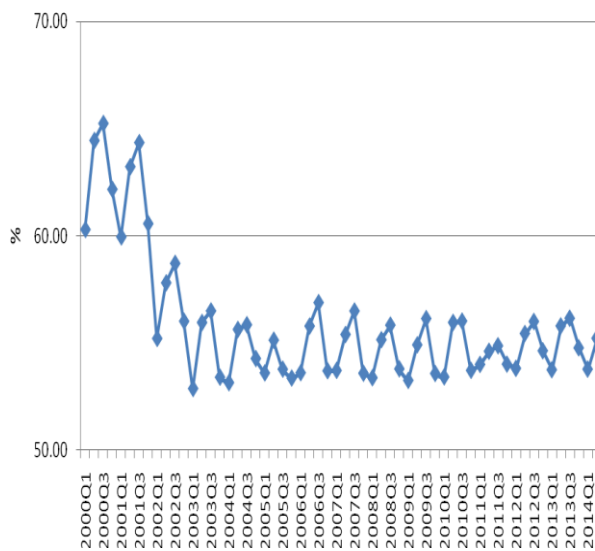
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Figure1. The evolution of activity rates for 2000-2014
Source: Labour force survey (LFS) database, Eurostat.

The activity rate decreases in the first two years of the analysed period from a value around 64.4% to 55.2% in the second quarter of 2002. Beginning with 2002, we can notice an oscillating evolution for the activity rate, the values of the rates varying around 55% (Moldovan, 2014).

The graphical representation revealed that when the activity rate decreases, the number of persons involved in unofficial economy increases, revealing that we have a flow from official to unofficial economy, in order to increase their earnings.

But we cannot suppose that everyone who leaves labour force goes to unofficial economy; part of these persons becomes inactive.

The empirical results are to be regarded as an approximation, taking into account the fact that using this method the size of unofficial economy is usually underestimated.
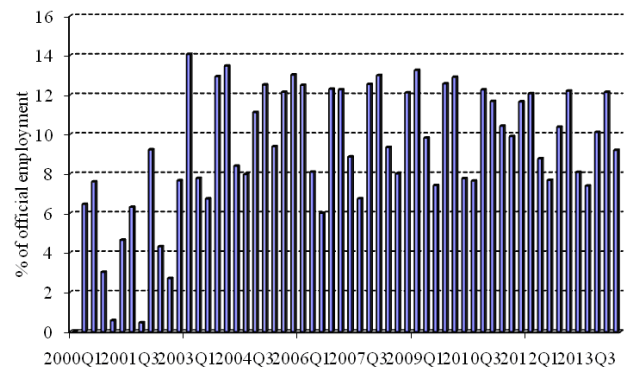

Figure 2. Estimate of employment in unofficial economy for 2000-2014

Because the quarterly series presents seasonality, the series has been seasonally adjusted using the tramo seats method.
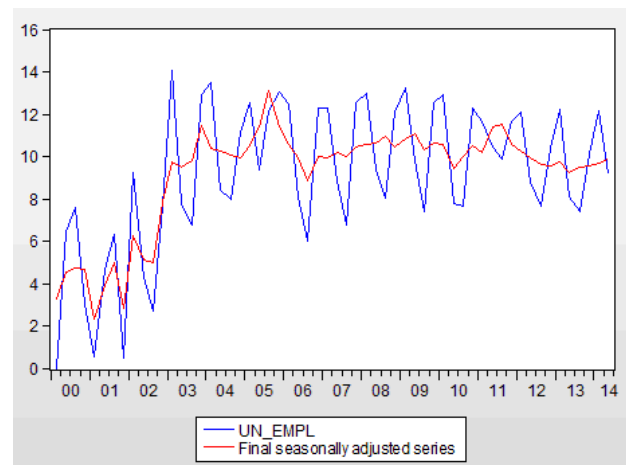

Figure 3. The share of unofficial employment in official employment
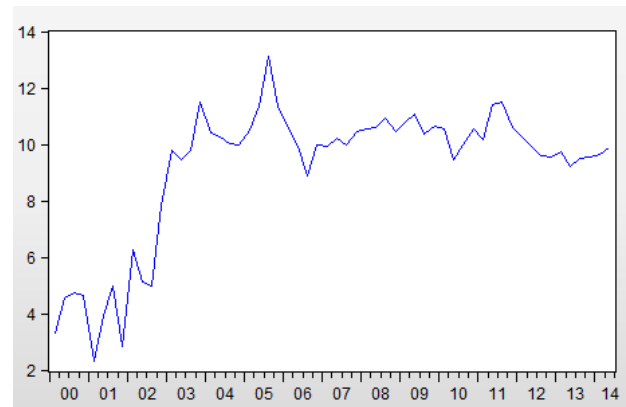

Figure 4. The share of unofficial employment in official employment (seasonally adjusted series)

The seasonally adjusted series presents along the analysed period a continuous upward trend. The series reaches its peak in the third quarter

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of 2005 (13.1%) and decreases to a minimum value of 8.9% in 2006Q3. Until 2011 it remains at a relatively constant value (10%-11%) and for the past few quarters it shows a downward trend that reaches 9.9% in 2014Q2.
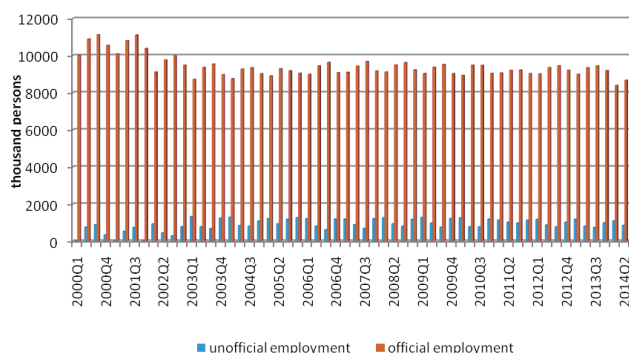

Figure 5. The evolution of unofficial and official employment (thousand persons)

The figures confirm the assumption that the limitations of the method rely on an undervaluation of the size of unofficial employment.

Analysing the values of Pearson's correlation coefficients (that must be treated with due reserve, having a relative number of observations) between official employment, official unemployment and unofficial employment, the positive correlation (0.15) between official employment and official unemployment is unusual.

The significant negative relationship (-0.68) between official employment and unofficial employment could be explained by the fact that an important part of the people who walk out from the employed category go to the unofficial sector.

The negative relationship between ILO unemployment and unofficial employment (-0.30) reveals that a part of unemployed persons works in unofficial sector, since a decreasing of unemployment would cause an increase in unofficial employment. This aspect is visible due to the fact that the official number of employees is decreasing during the period.

Table 1. Pearson's correlation coefficients for the period 2001-2014

Variable	Correlation coefficient
Official employment and official unemployment	0.15
Unofficial employment and official employment	-0.68
Unofficial employment and official unemployment	-0.30

5 Conclusions

The aim of the paper is to investigate the relationship between official employment, official unemployment and unofficial employment in Romania for the period 2000-2014 using LFS survey data.

Using the labour approach, the number of those employed who work in unofficial economy can be revealed, but the number of those employed in both unofficial and official economy remains unknown. Very important to mention is the fact that the findings of the paper need to regarded with caution due to the limitations of the method (those described in an earlier section of the present paper).

One important finding, revealed by the empirical results, is the existence of a negative relationship between activity rates and the estimated value of unofficial employment, as expected. As stated before, correlation coefficients for the period 2000-2014 reveal the presence of a negative relationship between official employment and unofficial employment, respectively official unemployment and unofficial employment. This finding needs to be regarded by the policymakers with the deserved attention, due to the fact that it suggests that the unofficial economy is the alternative to the official economy when the official environment becomes too *unfriendly*. Moreover it implies that inadequate economic policies will hide parts of the economy from the tax collection system. On the other hand, appropriate policies should be designed in order to bring the unofficial economy into the light and, therefore, to strengthen the official economy. In these

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circumstances we suggest that the policy makers should focus first of all in bringing the unofficial economy and the unofficial employment into the light (and into the tax collection system) and, afterwards, on the creation of new jobs.

We also state clear that the level of the Romanian unofficial employment is presumably underestimated due to the lack of statistical data and to the method limitations. As further research direction, we propose the usage of this method at sector level, in order to identify the main weak points of the Romanian economy.

Acknowledgment

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***Tempo database, National Institute of Statistics.

http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=ro&context=15

***Labour force balance, National Institute of Statistics.

http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=FOM103B

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