

### Are the self-employed at a higher poverty risk: Empirical evidence from Serbian SILC data

Ognjenović, Kosovka; Pavlović, Dejana; Bodroža, Duško

Veröffentlichungsversion / Published Version

Zeitschriftenartikel / journal article

#### Empfohlene Zitierung / Suggested Citation:

Ognjenović, K., Pavlović, D., & Bodroža, D. (2022). Are the self-employed at a higher poverty risk: Empirical evidence from Serbian SILC data. *Serbian Journal of Management*, 17(2), 389-401. <https://doi.org/10.5937/sjm17-40150>

#### Nutzungsbedingungen:

Dieser Text wird unter einer CC BY Lizenz (Namensnennung) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:

<https://creativecommons.org/licenses/by/4.0/deed.de>

#### Terms of use:

This document is made available under a CC BY Licence (Attribution). For more information see:

<https://creativecommons.org/licenses/by/4.0>



www.sjm06.com

Serbian Journal of Management 17 (2) (2022) 389 - 401

Serbian  
Journal  
of  
Management

## ARE THE SELF-EMPLOYED AT A HIGHER POVERTY RISK: EMPIRICAL EVIDENCE FROM SERBIAN SILC DATA

Kosovka Ognjenović\*, Dejana Pavlović and Duško Bodroža

*Institute of Economic Sciences, 12 Zmaj Jovina Str., 11000 Belgrade*

*(Received 14 September 2022; accepted 15 November 2022)*

---

### Abstract

Self-employment constitutes a significant share of the workforce in Serbia. Due to the equally high poverty as well as self-employment rates in Serbia, this paper aims to examine whether there is any prevalence between the two. Moreover, it also seeks to investigate what detriments exist within self-employment that keep or lead to poverty among self-employed people. The research is based on both longitudinal and cross-sectional SILC data. The main results indicated higher poverty exposure for solo entrepreneurs and those employed in family enterprises. Businesses run by men, low-skilled individuals, and young entrepreneurs are all at a much higher risk of poverty than other entrepreneurs or employees, especially those represented by women and highly educated individuals. The paper provides significant inputs for (1) managing differences within the active population at risk of income poverty and (2) monitoring outcomes of the self-employed, given that more than half of them are involved in the agricultural sector.

*Keywords:* economic activity, poverty, self-employment, Serbia, SILC

---

### 1. INTRODUCTION

Poverty has come to be viewed as a multidimensional concept that stems from a lack of access to the essential goods and services. Those in poverty suffer from a lower quality of life and poverty reduces their satisfaction with personal and social

development (Sánchez-Sellero & Garcia-Carro, 2020; McKnight, et al, 2016).

In avoiding the risk of poverty, employment and education are often cited as the most important elements (Branyiczki, 2015). Labor market trends are strongly influenced by overall economic development. In response to fiscal

---

\* Corresponding author: kosovka.ognjenovic@ien.bg.ac.rs

DOI: 10.5937/sjm17-40150

consolidation measures that began in 2014, there has been a moderate positive impact on GDP growth (Andrić & Minović, 2018). Serbia's economy has improved in recent years. Before the outbreak of the global COVID-19 pandemic, i.e. over the 2016-2019 period, the average real GDP growth rate was 3.6%. At the same time, the share of public debt decreased from 67.7% to 51.9%, the unemployment rate decreased by 5.2 percentage points, while consumer prices grew by an average rate of 2.1% per year (National Bank of the Republic of Serbia, 2021).

Despite the positive economic results, the poverty rate in Serbia remains one of the highest in the EU (SIPRU, 2020). According to the Statistical Office of the Republic of Serbia (SORS) data for 2020, the share of those whose consumption was below the threshold necessary to meet their basic life needs was 6.9%, while at risk of poverty rate was 21.7% (SORS, 2021).

Given the current development of the economic situation, the main objective of the paper is to analyze the income deprivation of the self-employed focusing on the risk of poverty that the self-employed face in the Republic of Serbia. Self-employed are here defined as those whose earnings are directly dependent upon the profit (or loss) derived from the goods or services produced and where their own consumption is considered to be part of the overall profits (Banerjee & Goswami, 2020). Self-employment constitutes 27.0% of the workforce in Serbia (SORS, 2020), but the poverty rate of the self-employed is worrying. While those who are employed by another person have a poverty rate substantially lower than other employed, the risk to be at the poverty is extremely pronounced among the self-employed (SORS, 2021).

Therefore, due to the apparently equally high poverty as well as self-employment rates in the Republic of Serbia, this paper aims to examine whether there is any prevalence between the two. It also seeks to investigate what detriments exist within self-employment that keep or lead to poverty among those who are self-employed. Taking into consideration the heterogeneity of this subpopulation, the drivers of poverty are here divided into three groups: (1) those who are self-employed, (2) those who are self-employed in their own companies that employ others and (3) those who are employed through family owned enterprises. In addition, they are compared with the population of wage earners.

For the purposes of this paper, the data come from the Survey on Income and Living Conditions (SILC) of the SORS. This sample period (SILC 2015-2017) is selected due to the stable sources of income from self-employment. The same survey questionnaires were applied as those for data collection. SILC for the first time in Serbia was implemented in 2013 and has become a crucial survey for analysing and monitoring of poverty indicators. A measure of poverty, for this paper, is defined as the percent of those whose earnings fall below a threshold defined as sixty percent of median income per equivalent adult in the Republic of Serbia. The dependent variable thereof is defined as an indicator variable identifying an individual at-risk of poverty among the self-employed of the three outlined groups. At-risk-of-poverty determinants are tested using a battery of limited dependent variable models.

In order to obtain more precise estimates of what determinants the self-employed face in regards to poverty, the research is based on longitudinal SILC data from 2015 to 2017, a

crucial dimension as evidence-based policies are tailored to target the self-employed who cannot escape poverty and whose entrepreneurial status relies more on an institutional context. Furthermore, two factors are important in their examination to determine as such: self-employment by necessity and entrepreneurial viability within the market.

This is the first paper providing an in-depth analysis of the monetary poverty of the self-employed using SILC data for Serbia. While other study results for other European countries show a similar pattern of poverty among the self-employed, the determinants of at-risk of poverty differ across countries.

## 2. LITERATURE REVIEW

No consensus exists on exactly what factors determine the success of one who is self-employed. However, recent articles about the subject more frequently utilize EU SILC microdata to analyze household income (Ponthieux, 2010; Halleröd et al., 2015; Angel et al., 2018). Most analyses show that the self-employed are at a higher risk of being poor than wage earners (Lohmann & Marx, 2008; Ponthieux, 2010; Caliendo & Kunn, 2011; Crettaz, 2011; Goerne, 2011). It should be borne in mind that income in the EU SILC is exclusively financial and does not include other items important for living standards such as free education and health care (Mijatović, 2017).

Halleröd et al. (2015) in their research, using longitudinal EU SILC data for 22 countries to derive a group of clusters of labor market trajectories, concluded that in-work poverty has a significant impact on the self-employed as well as that almost 30% of all working poor are self-employed. The self-

employed are more at risk of poverty than the employed, which is related to their income. Non-income measures of poverty show lower levels of material deprivation for the self-employed (Ray et al., 2014). The self-employed are distributed at both poles of the labor market, i.e., at the extreme end tail of high-paid jobs and low-paid jobs (Bradshaw et al., 2010). Moreover, the in-work poverty rate of the self-employed may not be a precise measure of their real living conditions as it is difficult to compute their exact income. This indicator should be used in conjunction with other indicators, such as material and social deprivation (Peña-Casas, 2019).

Using multinomial logit and linear regression models with covariates referring to the interview situation, employment status and socio-demographic characteristics of households in Austrian SILC 2008–2011, Angel et al. (2018) pointed out to the households which tend to under- or over-report their incomes. They identified an increase in cross-sectional poverty rates if register data are used rather than surveys. Under- and over-reporting slightly decreased as households stayed longer within the panel waves. At-risk-of-poverty rate data for the self-employed are considered as less reliable than for the employed, due to insufficient income reporting and income fluctuations over the years (Ray et al. 2014). Horemans & Marx (2017) shown that the self-employed are exposed to higher poverty, due to lower reported earnings. Mussida & Parisi (2020) investigated whether the risk of poverty had worsened with the 2008 Financial crisis in Italy, Greece, France, and Spain, for multi-categories of households, individual characteristics and policy instruments. They indicated that the effect of the Financial crises was heterogeneous, worsening the

status of temporary workers, the self-employed, as well as single and female households. Additionally, they also found that the risk of poverty for self-employed increases much more than an employee in times of crises. Sánchez-Sellero and García-Carro (2020) analyzed poverty as severe poverty, moderate poverty and risk-free of poverty for those older than 16 years of age. They applied an ordinal logistic regression model to data of the 2015 SILC. The results show that the unemployed are at the highest risk of poverty (43.1%) while the self-employed are second with a rate of 32.8% of risk of poverty.

Although Adamczyk et al. (2018) noted that differing tax-systems applied between the self-employed and wage-earners results in differences in rates of self-employment between national economies, the underscore that technological and demographic factors play a more important role. Gathering data by both the World Bank and EU SILC, these same authors also established that the relationship between the self-employed and the economy is changing. The dynamics of the rate of self-employment, thereby, indicate that the impact of legal regulations on the scale of self-employment is not primary.

It has been elsewhere concluded that institutional strength in terms of offering reliable legal means to establish entrepreneurs (sole proprietorships) is the most crucial factor for the self-employed (Fritsch et al. 2018). Self-employed are more insecure in the labor market because they have fewer employment rights than employees, as they are subject to civil or commercial rather than labor law and are excluded from some statutory social security schemes (Bradshaw et al., 2010). Moreover, due to the inability to access appropriate

pension rights, paid sick leave or paid leave and other forms of social protection, the self-employed are far less protected (Spasova et al., 2021; ILO, 2016).

Using the EU SILC database, the self-employed were found to enjoy higher levels of job and life satisfaction in only those countries where entrepreneurship was facilitated through the institutional environment. The self-employed in more developed countries are more satisfied in their jobs compared to the paid employees (Banerjee & Goswami, 2020; Blanchflower, 2000). In countries where entrepreneurship is not institutionally well-protected, wage earners reported higher levels of well-being on average. Fritsch et al. (2019) explored the relationship between well-being and occupational status across countries, finding that it concurs with institutional framework. Their results show that entrepreneurship-friendly institutions contribute highly to the well-being of the self-employed and as well as increase the same among wage earners, noting as well that this effect is more pronounced among the self-employed. Also, the digital transformation of business in the conditions of industry 4.0 development can bring many positive benefits to entrepreneurs (Piccarozzi et al., 2018; Vrchota & Rehor, 2021). Some previous research showed that the entrepreneurial activity hasn't a positive influence on the national innovative capacity (Albulescu & Drăghici, 2016).

However, when looking at four selected CEE countries, including Serbia, Rajh et al. (2016) concluded that risk-taking propensity and institutional support for entrepreneurship development are not significant determinants of entrepreneurial intentions.

### 3. METHODOLOGY

The main research question in this paper is to derive the key predictors of the risk of poverty for the three categories of the self-employed and employees and to determine whether there is any difference among them and over the years. For this purpose, the Serbian SILC data for 2015 to 2017 is used (Statistical Office of the Republic of Serbia, 2015-2017). This time period is selected because the definition of the income from self-employment, as a component of the overall household income, is narrower and more comparable over the years, in particular bearing in mind recent empirical evidences which pointed to the entrepreneurial earnings measurement problems related to missing data, underreporting and other mismeasurement issues (Astebro & Chen, 2014; Törmälehto, 2017).<sup>1</sup>

The random effects probit model for the panel dataset as the primary research approach and the binary probit model for single years as the mean of robustness check are employed in the data analysis. The binary dependent variable is coded as 1 if a self-employed or employed person is poor and 0 for non-poor, allowing for changes in the status across the years. "Poor" is defined here as earnings falling below a threshold of 60% of the median of the national equalized disposable income (Eurostat, 2017). The sample of individuals aged 18 years and more is broken down into four groups according to the self-reported employment status: (1) self-employed without employees (solo entrepreneurs), (2) self-employed with employees (private employers), (3) family workers (household helpers) and (4) employees (wage earners).

Some individual ( $x$ ) and job-related

characteristics ( $z$ ), as well as household composition characteristics ( $m$ ) are included in the empirical model:

$$y = \alpha + \beta'x + \gamma'z + \delta'm + \varepsilon \quad (1)$$

where  $y$  stands for the at-risk-of-poverty rate [ $arop \in (0,1)$ ] defined as a conditional binary response variable,  $\alpha$  is the intercept, and  $\beta$ ,  $\gamma$ , and  $\delta$  are the vectors of parameters to be estimated, while  $\varepsilon$  is the error term.

The parameters of interest are estimated under the maximum likelihood procedure. In the panel data framework, the four random effects probit models are estimated on the panel sample of individuals representing their current employment status ( $j=1, 2, 3, 4$ ), whereas in the cross-sectional dataset, the four probit regressions are estimated for each year.

### 4. RESULTS

#### 4.1. Descriptive statistics

Following Eurostat's methodological guidance, adopted by the SORS, for calculating the EU SILC poverty indicator, the at-risk-of-poverty rate, we restricted the sample to individuals 18 years and over (Eurofound, 2017). The sample includes 11551, 11336, and 10554 individuals for 2015, 2016, and 2017, respectively, who answered the survey questionnaire. These observations are used in the econometric analysis.

There are no significant differences in accompanying statistics noticed by years, indicating that the sample of individuals is relatively stable. The 2017 at-risk-of-poverty

<sup>1</sup>More about the methodological adjustments of the survey questionnaire used for data collection in Serbia and the definition of the main SILC variables included in the structure of households' income is provided by Ognjenović & Pavlović (2021).

rate is the largest among those who are employed through family-owned enterprises (45.8%), as well as among the self-employed without employees (39.2%) and the lowest among wage earners (17.1%). However, a mild decreasing trend of the at-risk-of-poverty rate is noticed for all the observed categories showing similarities with the total population in Serbia (Ognjenović & Pavlović, 2021). On average, employees are at their prime age; however, family workers are the oldest among the self-employed. A similar pattern is noticed when work experience is observed; namely, family workers (35 years) and solo entrepreneurs (26) have more work experience on average than self-employed with employees (23) or employees in the companies (21). The latter two categories are also better formally educated than others. The gender distribution for the 2017 SILC data shows that men are over-represented among the solo self-employed (65.7%) and those who are self-employed in their own companies (70.8%) that employ others, whereas women are over-represented among the family workers (80.7%).

Some household composition characteristics of the employed show that the self-employed with or without employees are more often married having one or two children. Living in households without children, including single-person households, is much more common for employees and family workers than for others. Family workers and self-employed without employees with a larger share participate in the labor market of the south of Serbia. In contrast, self-employed with employees and wage earners more often live in urban areas and almost equally in both intermediate and densely populated areas, where the companies usually have their

headquarters and where the markets are much more segmented.

Some job-related characteristics pointed to clear differentiations between the self-employed with and without employees. While the self-employed who employ others more often include occupations such as managers and professionals (37.5%), on the other hand, solo entrepreneurs often include skilled agricultural, forestry and fishery, craft and related trades workers, as well as plant and machine operators and assemblers (60.5%). In 2017, a similar occupational structure was the characteristic of family workers, while the occupational structure of employees as technicians and associate professionals and clerical support workers and similar occupations is more similar to those of the self-employed with employees. Family workers are engaged in the agricultural sector activities (91.5%), and more than two-fifths of solo entrepreneurs are, whereas self-employed with employees usually operate in the services sector (85.9%). The activities of the manufacturing and construction sectors are underrepresented in our sample. This composition of the entrepreneurial sector in Serbia is unfavorable in terms of the growing contribution of entrepreneurial companies to the development of 4.0 industries worldwide (Piccarozzi et al., 2018). In addition, Rajh et al. (2018) show that the idea of developing an entrepreneurial career after graduation is not close to young people in European post-transitional countries.

#### **4.2. Estimation results and discussion**

Getting a job or running your own business appears as the best way to avoid poverty. However, in real life, it doesn't work this way. Some people are working but still

are at risk of poverty. Ponthieux (2010) pointed to the potential problem that originates from the statistical approach of measuring in-work poverty which combines the data collected at the two levels. The current activity status is observed at the individual level, while the at-risk-of-poverty indicator is calculated at the household level. This may blur the understanding of the poverty status of those working. The aim of this paper is not to study in-work poverty in particular. Still, instead, we want to point to the determinants or predictors of the risk of poverty following the EU SILC approach and the standard definition based on a monetary measure of poverty. However, if one or two persons come from the same household and work, but all the members of this household are classified as at risk of poverty, then working poverty is the leading cause of their poverty status. For that reason, we cannot entirely ignore in-work poverty. To attenuate methodological problems, we adopted the standard definition of current employment status, separating the self-employed from employees and accepting the at-risk-of-poverty rate as a measure of poverty calculated at the household level.

Furthermore, Horemans and Marx (2017) found that monetary measures of poverty are important when studying the risk of poverty by activity status and that other complementary measures, such as material deprivation, matter. One explanation comes from the uncertainty of wages or other sources of income (Cappellari & Jenkins, 2004; Brandolini & Rosolia, 2017). Employees live less often than the self-employed, unemployed, or inactive in poor households. Using Serbian SILC data for 2013-2017, Ognjenović and Pavlović (2021) concluded that the unemployed are more often at risk of poverty than the self-

employed or inactive.

Estimates and marginal effects of the random effects binary probit models obtained on the panel sample of the self-employed and employees are presented in Table 1.

The age of the employed forms an inverse u-shaped relationship with the probability of being at risk of poverty, but for family workers, years matter less than for other categories of the employed. This finding may be explained by the fact that those employed through family-owned enterprises or those who participate in the agricultural sector activities are the oldest among the self-employed. As descriptive statistics show, those are primarily women, and their share has increased over the years. In general, the estimated model exhibits poor goodness-of-fit statistics implying that the unobserved effects have a significant role. Women as family workers are most likely secondary earners in such households lifting all the members above the risk of poverty, or otherwise, they are unpaid family workers. Similar conclusions are derived by Ponthieux (2010), Horemans and Marx (2017), and Halleröd et al. (2015) for European countries.

Education (especially higher) is a significant predictor which decreases the probability of being at risk of poverty for all the observed categories of the self-employed and employees. However, it matters more for the self-employed, even though young graduates are often unwilling to take the risk of an entrepreneurial career (Rajh et al., 2018). As marginal effects show, this relationship is somewhat more robust for the self-employed with employees showing that higher education reduces the probability of being at risk of poverty by almost 35%, while for those without employees the effect



is 33.8% compared to persons with lower levels of education.

The presence of children (more than two) in the household may be an important determinant of increasing the risk of poverty, especially for solo self-employed and wage earners. For those self-employed without employees having more than two children may increase the probability of being at risk of poverty by 13.5%.

Self-employed with employees, as well as employees in the companies have a substantially lower risk of being poor if they work in urban areas. Occupation matters more for those self-employed without employees, showing that solo self-employed in elementary occupations have a greater chance of being poor than solo entrepreneurs who choose some other profession.

For solo self-employed, education level matters more as a predictor of poverty and has a more substantial effect. This finding is likely associated with the changed occupational structure of the self-employed and leaves room for developing entrepreneurial companies in 4.0 industries. In addition, this is also important for managing poverty issues. Recent studies in European countries show that the self-employed face higher income poverty risk than employees; however, some nonmonetary measures of poverty provide inconclusive results pointing out that the way poverty is managed must be changed (Horemans & Marx, 2017).

### 4.3. Sensitivity analysis

The sensitivity analysis is conducted separately for each employment category and year employing the binary probit models. Work experience, marital status, and the degree of urbanization are included in

single probit models to confirm whether the primary research results reported in Table 1 are stable.

Work experience helps only those working as self-employed with employees to a certain extent and to employees to exit poverty. The number of children in the household is a better predictor of the risk of poverty than marital status, whereas the degree of urbanization is not a statistically significant predictor of the risk of poverty.

Even with the expanded set of control variables, this analysis confirms the previous findings about the associations between the main predictors and the at-risk-of-poverty rate for the self-employed and employees in Serbia.<sup>2</sup>

## 5. CONCLUSION

In this paper, we explore determinants of the probability of being at risk of poverty for the four employment groups in the labor market of Serbia. The longitudinal analysis on a panel sample reveals that our results are stable, in addition to those estimated on the cross-sectional samples for single years. Our findings show that being a man and low-skilled of a certain age significantly affects the probability of being at risk of poverty for the self-employed or employees. So, we can call them common determinants of (working) poverty in Serbia.

These results are similar to the findings provided, for example, by Ponthieux (2010) or Horemans and Marx (2017) for European countries. They may differ slightly depending on the determinants observed as the predictors of poverty, a time period under analysis, the data or specificities of a particular country in terms of historical background, economic conditions, the levels

<sup>2</sup>The results are available upon request.

Table 1. Random effects binary probit model estimates by employment status (dependent variable:  $arop=1$ )

Variable	Estimate (standard error)					Marginal effects					
	selfe. with employees	selfe. without employees	employees	family worker	selfe. with employees	selfe. without employees	employees	family worker	selfe. without employees	employees	family worker
Age	0.079** (0.038)	0.051** (0.024)	0.076*** (0.014)	-0.021 (0.037)	0.018**	0.017**	0.009***	-0.007			
Age^2	-0.001** (0.000)	-0.001** (0.000)	-0.001** (0.000)	0.0001 (0.000)	-0.0002**	-0.0002**	-0.0001***	0.0001			
Male	-0.033 (0.184)	0.325** (0.140)	0.166** (0.071)	-0.312 (0.290)	-0.008	0.108**	0.021**	-0.117			
Medium	-1.275*** (0.405)	-0.656*** (0.186)	-0.938*** (0.141)	-0.245 (0.260)	-0.299***	-0.219***	-0.118***	-0.091			
High	-1.483*** (0.469)	-1.016*** (0.326)	-1.728*** (0.186)	-1.807* (0.964)	-0.348***	-0.338***	-0.217***	-0.673*			
1 Child	-0.412* (0.213)	0.042 (0.151)	0.118 (0.077)	-0.387 (0.263)	-0.097**	0.014	0.015	-0.144			
2 Children	-0.266 (0.211)	0.163 (0.147)	0.157* (0.083)	-0.285 (0.272)	-0.062	0.054	0.020**	-0.106			
>2 Children	0.401 (0.258)	0.406* (0.237)	0.967*** (0.122)	-0.016 (0.467)	0.094	0.135*	0.121***	-0.006			
Serbia-North	0.128 (0.170)	-0.505*** (0.148)	-0.315*** (0.071)	0.701* (0.387)	0.030	-0.168***	-0.039***	0.261*			
Urban	-0.491** (0.184)	-0.213 (0.149)	-0.462*** (0.071)	-0.180 (0.440)	-0.115**	-0.071	-0.058***	-0.067			
ISCO 1-2	-1.025*** (0.444)	-0.811** (0.283)	-1.012*** (0.154)	0.000 (0.000)	-0.240**	-0.270**	-0.126***	0.000			
ISCO 3-5	-0.848* (0.437)	-0.799** (0.268)	-0.604*** (0.079)	-0.715 (0.734)	-0.198*	-0.266**	-0.075***	-0.266			
ISCO 6-8	-0.505 (0.426)	-0.541** (0.193)	-0.268*** (0.073)	-0.211 (0.339)	-0.118	-0.180**	-0.0336***	-0.079			
2016	-0.120 (0.178)	-0.088 (0.110)	0.002 (0.047)	0.075 (0.208)	-0.030	-0.029	0.0002	0.028			
2017	-0.356** (0.182)	-0.006 (0.112)	-0.102** (0.049)	0.094 (0.238)	-0.082**	-0.002	-0.013**	0.035			
No. of obs.	588	1483	12331	429	588	1483	12331	429			
McFadden's R <sup>2</sup>	0.098	0.041	0.060	0.023							

Source: SORS, SILC 2015-2017.

Notes: (\*\*\*) (\*\*) (\*) statistically significant at 1%, 5% and 10%, respectively. Robust standard errors are provided in parentheses (Wooldridge, 2006). ISCO stands for the 2008 International Standard Classification of Occupations (ISCO-08). Year dummies are included in probit models to control for year-specific effects. Excluded categories: female, low education, no children, Serbia-South region, type of settlement other, occupation codes ISCO 0&amp;9, year 2015.

of the private sector development or other factors (Halleröd et al., 2015; Crettaz, 2011; Mussida & Parisi, 2020; OECD & European Union, 2017).

Our findings may also be relevant for policy practitioners intending to equally support small businesses, which are the primary source of income for all the (dependent) household members, as well as stimulating the development of propulsive industries, which are the drivers of economic growth. Nowadays, governments are interested in monitoring the development of 4.0 sectors. The entrepreneurial companies of either solo self-employed or those who employ others are creators of such industries. Additional analyses are needed to determine further which industries are promising and who are the leading carriers of the development of these industries (Albulescu & Drăghici, 2016). Another critical question is how this may affect measuring the risk of poverty of the self-employed and wage earners because the recent studies for European countries show that the concept of income poverty may induce inconclusive results when the self-employed are compared with employees (Horemans & Marx, 2017).

Additional complementary analysis, which would consider the economic sector, is necessary to provide relevant information about poverty risks. Besides, the goodness-of-fit of probit models, estimated for single years, decreases pointing to the importance of other unobserved predictors of the probability of being at risk of poverty that are unintentionally excluded from our models.

### Acknowledgments

This research is supported by the Science

Fund of the Republic of Serbia, grant no. 7754305 (project SHINE), and by the Ministry of Education, Science and Technological Development of the Republic of Serbia. The authors thank to the referees and the editor of this journal for the useful suggestions which improved the previous version of this paper.

### References

- Adamczyk, A., Neneman, J., & Morawski, L. (2018). Why do We Need Self-Employed Persons? Some Economic Reflections, Mainly Tax Related Ones. Center for Social and Economic Research. CASE Research Paper No. 159.
- Albulescu, C. T., & Drăghici, A. (2016). Entrepreneurial activity and national innovative capacity in selected European countries. *The International Journal of Entrepreneurship and Innovation*, 17 (3), 155-172.
- Andrić, V., & Minović, J. (2018). Public debt growth, great recession and fiscal consolidation: The Serbian episode. *Serbian Journal of Management*, 13 (2), 251-262.
- Angel, S., Heuberger, R., & Lamei, N. (2018). Differences between household income from surveys and registers and how these affect the poverty headcount: evidence from the Austrian SILC. *Social Indicators Research*, 138, 575–603.
- Astebro, T., & Chen, J. (2014). The entrepreneurial earnings puzzle: mismeasurement or real? *Journal of Business Venturing*, 29 (1), 88-105.
- Banerjee, S., & Goswami, K. (2020). Self-employed or paid employed: Who can earn more among the slum dwellers and why? *Progress in Development Studies*, 20 (1), 7-25.

## ДА ЛИ СУ САМОЗАПОСЛЕНИ У ВЕЋЕМ РИЗИКУ ОД СИРОМАШТВА: ЕМПИРИЈСКИ ДОКАЗИ НА ОСНОВУ ПОДАТАКА *SILC* ИЗ СРБИЈЕ

Косовка Огњеновић, Дејана Павловић, Душко Бодрожа

### Извод

Самозапошљавање чини значајан удео радне снаге у Србији. Због подједнако високе стопе сиромаштва као и стопе samozапослености у Србији, овај рад има за циљ да испита да ли постоји преваленција између њих. Штавише, такође настоји да истражи које штете постоје у samozапошљавању које држе или доводе до сиромаштва међу samozапосленим људима. Истраживање се заснива и на лонгитудиналним и на попречним подацима *SILC* (Анкета о приходима и условима живота, енгл. *Survey On Income And Living Conditions*). Главни резултати су указали на већу изложеност сиромаштву самосталних предузетника и запослених у породичним предузећима. Предузећа којима управљају мушкарци, нискоквалификовани појединци и млади предузетници су у много већем ризику од сиромаштва него други предузетници или запослени, посебно они које представљају жене и високообразовани појединци. Рад даје значајне инпуте за (1) управљање разликама унутар активног становништва у ризику од сиромаштва и (2) праћење исхода samozапослених, с обзиром да је више од половине њих укључено у пољопривредни сектор.

*Кључне речи:* привредна активност, сиромаштво, samozапошљавање, Србија, *SILC*

Blanchflower, D. G. (2000). Self-employment in OECD countries. *Labour Economics*, 7, 471–505.

Bradshaw, J., Bennett, F., & Mayhew, E. (2010). *In-Work Poverty and Labour Market Segmentation: A Study of National Policies*, United Kingdom. European Commission, DG Employment, Social Affairs and Social Affairs and Inclusion.

Brandolini, A., & Rosolia, A. (2017). The Euro area wage distribution over the crisis. In Anthony, A. B., Guio, A.-C., & Marlier E. (Eds.), *Monitoring social inclusion in Europe*. Luxembourg: Publications Office of the European Union. 317-332.

Branyiczki, R. (2015). *Employment, Education and Other Means of Reducing Poverty*. European Commission. EC Research Note No. 4. Retrieved from

<https://ec.europa.eu/social/BlobServlet?docId=15126&langId=en>

Caliendo, M., & Kunn, S. (2011). Start-up subsidies for the unemployed: Long-term effectiveness and effect heterogeneity. *Journal of Public Economics*, 95 (3-4), 311-331.

Cappellari, L., & Jenkins, S. P. (2004). Modelling low income transitions. *Journal of Applied Econometrics*, 19 (5), 593–610.

Crettaz, E. (2011). *Fighting working poverty in post-industrial economies: Causes trade-offs and policy solutions*. Edward Elgar. Cheltenham.

Eurofound. (2017). *Exploring self-employment in the European Union*. Publications Office of the European Union, Luxembourg.

Eurostat. (2017). *Methodological*

- guidelines and description of EU SILC target variables: DocSILC065 (2017 operation). Available at [https://circabc.europa.eu/webdav/CircaBC/ESTAT/eusilc/Library/guidelines\\_questionnaire/2017%20Operation%20Guidelines/DOC\\_SILC065%20operation%202017-%202022-05-2017.pdf](https://circabc.europa.eu/webdav/CircaBC/ESTAT/eusilc/Library/guidelines_questionnaire/2017%20Operation%20Guidelines/DOC_SILC065%20operation%202017-%202022-05-2017.pdf)
- Fritsch, M., Sorgner, A., & Wyrwich, M. (2018). Self-Employment and Well-Being Across Institutional Contexts. *Jena Economic Research Papers*, 2018-005.
- Fritsch, M., Sorgner, A., & Wyrwich, M. (2019). Self-employment and well-being across institutional contexts. *Journal of Business Venturing*, 34 (6), 105946.
- Goerne, A. (2011). A Comparative analysis of in-work poverty in the European Union. Fraser, N., Gutiérrez, R., & Peña-Casaan, R. (Eds.), *Working poverty in Europe: A comparative approach*. Palgrave Macmillan. Basingstoke. 15–45.
- Halleröd, B., Ekbrand, H., & Bengtsson M. (2015). In-work poverty and labour market trajectories: Poverty risks among the working population in 22 European countries. *Journal of European Social Policy*, 25 (5), 473-488.
- Horemans, J., & Marx, I. (2017). Poverty and material deprivation among the self-employed in Europe: An exploration of a relatively uncharted landscape. *Institute of Labor Economics. IZA Discussion Paper No. 11007*.
- ILO. (2016). *Non-standard employment around the world: understanding challenges, shaping prospects*. International Labor Organization. Geneva.
- Lohmann, H., & Marx, I. (2008). The different faces of in-work poverty across welfare state regimes. Andreß, H.-J., & Lohmann H. (Eds.), *The working poor in Europe: Employment, poverty and globalisation*. Edward Elgar, Cheltenham. 17–46.
- McKnight, A., Stewart, K., Himmelweit, S.M., & Palillo, M. (2016). *Low pay and in-work poverty: preventative measures and preventative approaches*. Publications Office of the European Union, Luxembourg.
- Mijatović, B. (2017). *Monitoring of social inclusion in the Republic of Serbia - Indicators of financial poverty and inequality*. Team for social inclusion and poverty reduction of the Government of the Republic of Serbia. Belgrade. (in Serbian).
- Mussida, C., & Parisi, M. L. (2020). Risk of poverty in Southern Europe. *Metroeconomica*, 71, 294–315.
- National Bank of the Republic of Serbia. (2021). Available at [https://nbs.rs/sr\\_RS/drugi-nivo-navigacije/statistika/](https://nbs.rs/sr_RS/drugi-nivo-navigacije/statistika/)
- OECD & European Union. (2017). *The missing entrepreneurs 2017: Policies for inclusive entrepreneurs*. OECD Publishing, Paris.
- Ognjenović, K., & Pavlović, D. (2021). *SILC in the Republic of Serbia: methodological framework and analysis of selected indicators of poverty and inequality* (in Serbian). Institute of Economic Sciences & Team for Social Inclusion and Poverty Reduction of the Government of the Republic of Serbia. Belgrade.
- Peña-Casas, R., Ghailani, D., Spasova, S., & Vanhercke, B. (2019). *In-work poverty in Europe A study of national policies*. European Commission. European Social Policy Network (ESPN). Available at <https://ec.europa.eu/social/BlobServlet?docId=21240&langId=en>
- Piccarozzi, M., Aquilani, B., & Gatti, C. (2018). Industry 4.0 in management studies: A systematic literature review. *Sustainability*, 10 (10), 3821.

- Ponthieux, S. (2010). Assessing and analysing in-work poverty risk. Pp. 307-328 in A.B. Anthony & E. Marlier (Eds.), *Income and living conditions in Europe*. Publications Office of the European Union, Luxembourg.
- Rajh, E., Budak, J., Ateljević, J., Davčev, L., Jovanov, T., & Ognjenović, K. (2016). *Entrepreneurial intentions in selected Southeast European countries*. The Institute of Economics. EIZ Working Paper No. 1609.
- Rajh, E., Jovanov Apasieva, T., Budak, J., Ateljević, J., Davčev, Lj., & Ognjenović, K. (2018). Youth and entrepreneurial intentions in four South-East European countries. *International Review of Entrepreneurship*, 16 (3), 355-382.
- Ray, K., Sissons, P., Jones, K., & Vegeris, S. (2014). *Employment, pay and poverty: Evidence and policy review*. Joseph Rowntree Foundation. York.
- Sánchez-Sellero, M. C., & Garcia-Carro, B. (2020). Which Groups have a greater risk of poverty in Spain? *Revija za socijalnu politiku*, 27 (1), 19-36.
- SIPRU. (2020). *Absolute poverty*. Available at <http://socijalnoukljucivanje.gov.rs/rs/socijalno-ukljucivanje-u-rs/statistika-siromastva/apsolutno-siromastvo/>
- Spasova, S., Ghailani, D., Sabato, S., Coster, S., Fronteddu, S., & Vanhercke, B. (2021). *Non-standard workers and the self-employed in the EU: social protection during the Covid-19 pandemic*. Mimeo, European Union Trade Institute (ETUI). Available at <https://etui.org/publications/non-standard-workers-and-self-employed-eu>
- Statistical Office of the Republic of Serbia (2020). *Database: Labor Force Survey*. Available at <https://data.stat.gov.rs/?caller=SDDDB>
- Statistical Office of the Republic of Serbia (2021). *Database: SILC*. Available at <https://data.stat.gov.rs/?caller=SDDDB>
- Statistical Office of the Republic of Serbia. (2015-2017). *Database: Survey on Income and Living Conditions-SILC*. Available at <https://data.stat.gov.rs/?languageCode=en-US>
- Törmälehto, V. M. (2017). *High income and affluence: evidence from the European Union statistics on income and living conditions (EU-SILC)*. Publications Office of the European Union., Luxembourg.
- Vrchota, J., & Rehor, P. (2021). Project management in manufacturing enterprises. *Serbian Journal of Management*, 16 (2), 341-353.
- Wooldridge, J. (2006). *Econometric analysis of cross section and panel data*. MIT Press. Cambridge, MA, USA.