



CAUSES OF DEPRIVATION IN REGIONS WITH DIFFERENT URBANISATION LEVEL

Emese Bruder¹, Hakan Unal²

¹ Faculty of Economics and Social Sciences, Szent Istvan University, Hungary

² Doctoral School of Management and Business Administration, Szent Istvan University, Hungary

Annotation

Poverty is becoming a major issue in the modern world; recent economic crisis clearly had an unfavourable effect on Europe's poor population. The economic situation of a country - through wages - has a clear impact on the level of poverty. This study focuses on a special group of socially excluded people - the deprived - and tries to investigate the symptom of being poor in Europe by using an absolute poverty measure. The so-called deprivation index is made up of different factors of the household related to living conditions and livelihoods.

Previous research showed, that urban and rural household have to face different conditions in terms of the causes of becoming poor. Urban poverty is a multidimensional phenomenon. However, households living in urban areas have more possibilities on the labour market, still large share of the urban households are at high risk of being poor. The urban poor live with many deprivations. Their challenges include limited access to employment opportunities and income, inadequate and insecure housing, violent and unhealthy environments, little or no social protection mechanisms, and limited access to adequate health and education opportunities. Central European countries have different path of European integration and economic development. Nevertheless, the determinants of being poor are various within regions of different urbanisation level. The goal of this paper is to explore these dissimilar causes across Europe and to determine factors that affect household level deprivation. In our analysis, we use binary logistic regression model to investigate the main drivers of being poor in different European countries with special focus on the differences of urban and rural areas. The analysis bases on the 2013 wave of EU-SILC cross-sectional micro data provided by Eurostat. In our research, we put the emphasis on identifying the most important attributes that characterise the group of the deprived population. We declare, that without a throughout analysis within this social group and without a deeper understanding and mapping of the problem, finding a solution is impossible.

KEY WORDS: deprivation; poverty; income; Europe.

Introduction

Nowadays, many theoretical and empirical studies have had challenging times to measure poverty. Poverty analyses have been based on a single indicator, generally income or expenses, used as a tool to measure deprivation. Although monetary measures have their value in terms of easiness of computation and comparability across countries, they have been considered as partial and indirect indicators of poverty.

During the transition process took place in former Soviet Union's old centralized economies, when economy collapsed, privatization and transformation processes in industry and services have been taken place. Later the effects of EU membership came out; this all received considerable attention by economists (Svejnar 2002, Roland 2000, Blanchard 1997).

Interestingly, however, in small rural areas, changes in welfare state processed more significantly. While development, scientists and policy makers have had a strong interest in the poverty differences between the rural and urban areas, but the information in European countries are often limited, and often restricted to a few country-specific analyses (Seeth, 1998, Cord et al. 2003). There is no comparative analysis of information – extending the understanding of the effects of the transition on rural poverty. The negative impacts on some variables such as health and social indicators are known

little. However, differences between rural and urban areas have been compared based on their income poverty. (Jensen–Richter 2004, Brainerd–Cutler 2005). What we are focusing is on to compare rural and urban areas selecting most significant variables which have shown being the determinants of becoming poor.

The first objective of this article is to address this gap by exploiting a new set of data that compares urban and rural poverty in European countries (Austria, Hungary, Lithuania Poland, Czech Republic and Slovakia) and compare how rural-urban poverty differ in 2013 based on EU-SILC database.

In many countries, poverty has been found to be a predominantly rural phenomenon, although urban poverty remains a reality even in high-income level countries. Although individuals with a profound and stable job market opportunity for a relatively wide range of urban populations, relative density and urban economies make it possible to provide many services at lower costs and with greater quality in the rural areas. Poverty in cities can be a consequence of in-migration of the poor from somewhere else; but it can also be caused by periodic or structural mismatching of workers with available jobs.

Research in poverty recently has experienced a significant shift towards more complexity conceptualization. Unlike, the concept of economic poverty, which is embedded in traditional income-based approaches, poverty is considered more related to bad financial conditions and social and environmental

conditions. The need to complement the direct and indirect indicators of poverty to achieve a full picture of living standard has been emphasized by providing in many empirical studies (Ravallion 1995, Deininger–Squire 1996, Schults 1998).

Traditional poverty analysis uses a single indicator for poverty as a proxy. Although there are monetary measures based on simplicity and comparability in terms of calculation, they are partial and indirect demonstration of poverty among the nations. In the last decades, traditional one-dimensional approaches have been questioned and alternative approaches have been put forward. According to recent literature (Duclos–Tiberti 2016), poverty is multifaceted and pervasive. Poor individuals are often faced with various deprivations, both economically and socially. As a result, poverty should be addressed as a multidimensional phenomenon and non-monetary indicators should be studied to provide a better understanding (Townsend 1979, Ringen 1988, Nolan–Whelan 1996, Perry 2002, Whelan et al. 2006).

One of the main findings is that the outcomes of the analysis can be very different if it is based on indicators of income or other living standards. In other words, while some people with low living standards earn income above the poverty line, some people under poverty may experience satisfying living conditions. Deprivation is the most obvious candidate for an extreme poverty measure. The EU indicator of lacking 3 or more listed items is not perhaps extreme, but it is an EU wide threshold. The EU deprivation index was based on work by Guio (2009) using 2006 SILC data. In this work, he suggested a nine-indicator scale to measure deprivation. The nine items are the followings: capacity to face unexpected expenses, cannot afford one-week annual holiday away from home, arrears on mortgage or rent, cannot afford meal with meat, chicken or vegetarian equivalent, cannot afford to keep home adequately warm, having a washing machine, a colour TV, a telephone, or car. However, this deprivation index has been criticized by Bruder (2014) amending this deprivation index by adding additional items and deleting those items which are not a real deprivation indicator anymore in the EU such as; cannot afford owning a phone. The selected items should be aggregated into multidimensional indices by adopting adequate weighting. Different weights have been proposed, but no theoretical justification for the privilege of any of them has been provided. Some studies apply equal weights while avoiding assigning different importance to each item (Hallerod 1995).

Multidimensional approaches to poverty and deprivation have a long and distinguished history in conceptual and philosophical work (Sen, 1992). In more recent studies, significant attention has been paid to the relationship between deprivations, ways of communicating with them, and methodologies for the validity of indicators used in composite or multidimensional indices (Alkire et al. 2015). Showing on 2013 EU-SILC data, Guio and Maquet (2006) suggested a multi-dimensional indicator of material deprivation such as poor housing, lack of durable assets, and the inability to reach basic needs. The indicator provided significant unfavourable trends across the EU and in most of the Member States, showing increasing

material deprivation over time. Whelan (2007) used the 2004 EU-SILC data set for the development of a consistent poverty index with 11 items, however, Whelan and Maitre (2008) used several statistical methods such as correlation and factor analysis, as well as reliability tests of material deprivation to describe three dimensions of material deprivation (consumption, household facilities, and neighbourhood environment) and studied their relationships with income poverty. Inherently, this deep analysis of the structure of deprivation resulted in a set of empirical and policy studies on the relationship between income and other deprivations and gave rise to applied multidimensional measures.

This paper contributes to this already significant recent literature by comparing the rural and urban regions in EU using 2013 EU-SILC data and one particular methodology to analyse urban and rural poverty.

Data and methods

As mentioned earlier, deprivation can be measured in many ways. In our article, we use the method introduced by (Bruder, 2014), which is a modification of the official methodology applied by Eurostat (Eurostat, 2012). We define a household being deprived if three or more conditions apply to it among the listed ones in Table 1.

Table 1. Deprivation items

Deprivation (deprived if 3 or more items apply)	
1	Arrears on mortgage, rent payments, utility bills, hire purchase instalments or other loan payments
2	Cannot afford washing machine, TV, telephone or computer
3	Cannot afford car
4	Cannot afford one-week holiday or unexpected expenses
5	Cannot afford to eat meat, chicken, fish (or vegetarian equivalent) every second day
6	Inability to keep home adequately warm
7	No bath, shower or indoor flushing toilet in dwelling
8	Leaking roof, damp walls/floors/foundation, or rot in window frame or floor
9	Inability to make ends meet

Source: own construction based on (Bruder 2014)

EU-SILC database contains all necessary variables for identifying deprived households. Further analysing the deprived and finding main causes of urban and rural deprivation in selected countries of Central Europe, we also used an individual level definition of deprivation. For individual level analysis, we characterised a person to be deprived, if he/she is living in a household affected with deprivation.

Urbanisation level of households (urban/rural) is defined based on the general definition used by Eurostat (2011). Based on the share of local population living in urban clusters and in urban centres, Eurostat classifies local administrative units level 2 (LAU2) into three types of area. Densely populated (urban) areas are those, in which the population density is at least 1500 inhabitants per km² and the minimum population is 50000. A thinly-populated (rural) area is characterised by population density lower than 300 inhabitants per km² and the population is under 5000.

The territorial coverage of this research is Europe, but due to data limitation, data of Switzerland and Slovenia is not being analysed. The selected European countries are: Austria, Czech Republic, Germany, Hungary, Lithuania, Poland and Slovak Republic. For the logistic regression analysis, we had to apply further limitations, due to space limitations. The chosen countries for comparison are three neighbouring countries in the heart of Central Europe: Austria, Hungary and Slovak Republic plus one Baltic state country Lithuania.

We are investigating the chances of being deprived in terms of few selected key variables. The independent variables of the logistic regression model are chosen based on two main criteria. First, data availability in the EU-SILC database was a key issue. Secondly, investigating the literature, and based on our own experience, we wanted to build a simple, but meaningful model. During the model specification process, we faced many pitfalls, like missing data, low goodness-of-fit in sub-groups and low explained variance. The final model, what we presented in this paper is meets all the requirements and assumptions of logistic regression.

The logistic regression analysis is conducted on the individual level dataset. The dependent variable of the model is deprivation, i.e. whether the individual is a member of a deprived household. The factors included to analyse the individual effect of each are mainly household and individual characteristics connected to general demographic indicators. Literature suggested that gender is not a significant determinant of being poor, but we decided to include sex of the individual to the analysis, to be able to control for the gender differences of employment and educational level. Work intensity of the individual is defined as people living in households with very low work intensity i.e. people of all ages (0–59) living in households where the members of working age worked less than 20 % of their total potential during 12 months prior to the survey. All analysis presented in this paper is based on the 2013 wave of EU-SILC database provided by Eurostat. The analysis is made applying the household and individual cross-sectional weights.

Results

In figure 1, we demonstrate the deprivation rates of all households in each country as well as the mean equivalized disposable income per year. It can be seen on the graph that mean equivalised disposable income is a good predictor of deprivation rate in the selected countries.

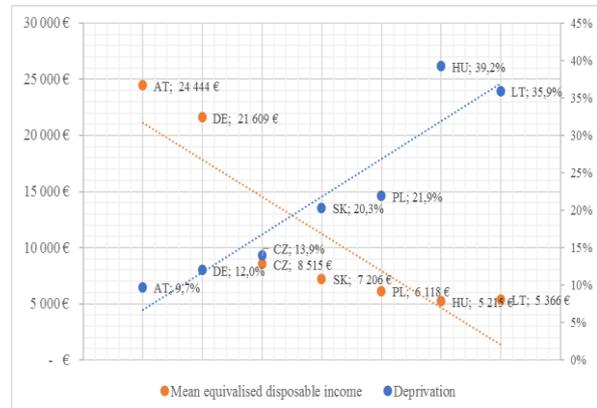


Fig. 1. Percentages of deprived households and the mean equivalised disposable income/year by county, 2013
Source: Own calculations

Based on this demonstration, for instance; mean equivalised disposable income of Austria is at 24,444 € and deprivation is at 9.7%. On the other hand, mean equivalised disposable of Lithuania is at 5,366 € and deprivation rate is at 35.9%. Table 1. shows percentages of deprived households and the mean equivalised disposable income/year by county, 2013.

Looking at the urbanisation level of deprived households across Central Europe, there are major differences across countries. Table 3 demonstrates the urbanisation level of the deprived households, where the significant cells are highlighted. Czech Republic and Hungary, urban and rural areas share close to equal number of deprived households. In more developed countries, like Germany and Austria, urban areas gather most of the deprived households; while rural areas face less than 20% of the deprived households. However, households living in urban areas have more possibilities on the labour market, still large share of the urban households are at considerable risk of being poor. Rural areas of Slovak Republic, Hungary, Poland are similar in a sense, that over 35% of the deprived households are living in these areas. From the results above it can also be seen, that rurality is a key issue in material deprivation. It seems that higher economic development may result in high rates of poverty in urban areas, as well as high living standards in thinly populated, rural areas. Although, in less developed countries, the deprived are mostly gathered in the unfrequented, sometimes emptied rural areas. As a matter of fact, in rural areas of less developed countries, the real estate prices are much affordable for the poor, and they are pushed to choose living in these areas even if the employment opportunities are less diverse compared to cities.

Table 2. Urbanisation level of the deprived households in selected countries, 2013

	Urban	Inter-mediate	Rural	Total
AT	53.1%*	28.3%	18.6%*	100.0%
CZ	31.7%	33.4%*	34.9%	100.0%
DE	47.4%*	33.3%*	19.3%*	100.0%
HU	31.9%*	31.8%*	36.3%*	100.0%
PL	34.6%*	22.9%*	42.5%*	100.0%
SK	23.4%*	27.4%	49.2%*	100.0%
LT	38,1%*	8,5%*	53,4%*	100.0%
Total	40.0%	29.7%	30.3%	100.0%

Note: $p < 0.05$; $\chi^2 = 767.5$; *st. residual > 2

Source: Own calculations

As mentioned earlier, the causes of deprivation are multidimensional, and rurality of the settlement can be a

key issue when we want to determine the chances of becoming poor. We also saw, that different economic development can result quite different understanding of living in a rural area in terms of becoming poor.

Investigating some of the drivers of becoming materially deprived in urban and rural areas in Central European countries is of deficiency. However, our analysis show, that there are major differences between urban and rural areas in terms of the causes of deprivation. To have deeper understanding of these causes, and since we believe individual characteristics are major origins of deprivation, we turned our analysis to individual level data. In Table 3 we summarise the log odds of becoming deprived in urban and rural areas. Due to space limitations, we show the results for three selected countries, Austria, Hungary, Lithuania and Slovak Republic. The election of the countries is subjective and based on the researcher's interest.

Table 3. Odds ratio of deprivation for individuals aged 16-59 years living in urban and rural areas in selected countries, 2013

	Austria		Hungary		Slovak Republic		Lithuania	
	urban	rural	urban	rural	urban	rural	urban	rural
Gender (Female)								
Male	0.98	0.80	n.s.	1.06	0.97	1.08	0.93	0.96
Work intensity (Not low)								
Low	6.98	5.51	2.89	3.35	6.97	7.72	5.41	3.46
Age (50-59 years)								
16-29 years	2.01	1.42	0.87	1.43	1.34	1.08	0.67	1.00
30-49 years	1.93	2.06	1.07	1.50	1.44	1.18	0.86	1.28
Education (ISCED 5)								
ISCED 0-1	8.06	5.39	10.20	20.83	14.53	13.54	3.66	4.60
ISCED 2	3.23	2.95	8.37	8.66	5.10	8.97	5.16	6.54
ISCED 3	2.17	1.99	3.44	3.61	2.69	4.04	4.25	3.64
ISCED 4	1.09	0.92	2.57	2.01	0.77	2.92	2.41	2.43
Household type (2 or more adults, no dependent children)								
One-person household	1.21	2.15	1.54	2.16	1.26	1.76	1.22	1.28
Single parent household, one or more dependent children	1.74	3.11	2.39	2.64	2.69	4.25	2.03	1.58
2 adults, one dependent child	0.58	0.47	1.02	0.98	0.76	0.93	0.50	0.67
2 adults, two dependent children	0.48	0.56	1.03	0.74	0.25	0.45	0.48	0.67
2 adults, three or more dependent children	0.79	0.67	0.88	1.72	0.90	1.47	2.76	1.18
Other households with dependent children	1.42	0.52	1.08	1.14	1.31	1.27	1.08	0.90
Country of birth (Same country as place of interview)								
Other country	3.32	1.27	1.26	1.68	2.93	1.49	1.48	1.60
Constant	0.02	0.02	0.11	0.08	0.04	0.04	0.15	0.13

Notes: Austria R²=0.261 N=2811 densely populated area (urban) R²=0.151 N=3977 Hungary R²=0.170 N=3045 Slovakia Republic R²=0.253 N=4502 Lithuania R²=0.224 N=3419 R²=0.147 N=3260 thinly populated area (rural) R²=0.208 N=7673 R²=0.183 N=4299

Source: Own calculations

Our results show that at a micro level, being in a low work-intense household has a substantial impact on the likelihood of being in deprivation, but the scale of these impacts is shown to be very much greater in some countries than in others. Nevertheless, living in an urban or rural area is effecting deprivation in diverse ways. In Slovak Republic, Hungary and Lithuania, living in a low work-intense household in a rural area yields higher chance to be deprived, although low work-intensity have less importance for the Hungarian citizens, compared to the Slovaks in general. In fact, more investigation should be done to find the potential causes of this phenomena. In Austria, the economically most developed country among the studied ones, citizens living in rural areas show less probability to be deprived, which again certifies, that living in a rural area – even with low-work intensity – not necessarily result in dispossession. Low work-intensity afflicts more the individuals who are living in urban areas.

Concerning the relationship between age and the likelihood of deprivation, it is clear, that age has a unique effect on being materially poor. The general statement is that older people are less likely to be in necessity, however, we found that in Hungarian cities, the 16-29 years generation is less likely to be deprived compared to the older (50-59 years) generation. Austrian young generations living in cities are more disadvantaged, they have double chance ($e=2.01$) to be deprived compared to the old. Also in Lithuania, the 16-29 years generation is less likely to be deprived compared to the older (50-59 years) generation.

Our results also show, that educational level has indeed a significant effect on deprivation. Those, who have no education should face multiple odds of being deprived in each selected country. The worse condition is in rural parts of Hungary, where uneducated have twenty times more chance ($e=20.83$) to face financial difficulties compared to the higher educated. Low educational level, in general, have less significance in Lithuania, which means that uneducated people here have a better chance to reach higher living standard compared to in Hungary and Slovak Republic or Austria. In Slovak Republic and Lithuania, it seems that rurality does not make huge difference for uneducated people in the chances of having to face deprivation.

Household type – being a unique determinant of deprivation – shows, that if a person is living in a one-person household, he/she has higher chance to be in deprivation in rural areas compared to urban areas. Single-parent households with dependent children are classified as being the most severely materially-deprived, the chances for deprivation is even higher, if the person is living in a rural surrounding.

Our last examined variable is the country of birth, focusing on differences between urban and rural areas. We believe country of birth will tell weather first generation migration would affect living standards while controlling for other factors in the model. We found, that migrants have higher chances of being deprived in urban areas in Austria and Slovak Republic, however, migrants in Hungary are more at-risk in rural areas.

Conclusions

Based on empirical evidences, our analysis showed, that there are major differences in the likelihoods of being deprived in rural and urban areas within the selected European countries. We believe rural to urban migration is partly generated by material deprivation. Although deeper understanding of rural poverty is desirable to make suitable policy responses. As we expected, deprivation rates are in relation with the mean equivalised income of the country. This suggest, that deprivation is a meaningful indicator not only about possession of goods and household equipment, but about income-level and poverty too. In less economically developed countries, the deprived are mostly congregated in the remote, rural areas, however, most of the deprived households of the developed Austria are living in cities. This suggest, that labour migration to cities might not result in higher living standards in Austria.

The main advantage of applying a multivariate regression analysis in poverty studies, is that, we can control for indirect effects of the factors being studied. For instance, gender was indeed, used as a control variable for detecting the odds ratio of work intensity and educational level. The limitation of this analysis is that it might neglect factors that are also important in producing poverty. However, the focus has been put to the differences between rural and urban deprivation, not a fully comprehensive likelihood analysis.

The possible application of this study is of a deeper understanding about rural and urban deprivation in Central Europe. Further studies should be conducted in Central European countries, and other countries of the European Union. Understanding rural deprivation is a key issue in finding solutions for rural to urban migration in the European Union and beyond.

References

- Alkire, S., James, F., Seth, S., Santos, M. E., Roche, J. M., Ballon, P. 2015. *Multidimensional Poverty: Measurement and Analysis*. Oxford University Press. Vol. 87, pp. 289–314.
- Blanchard, O. 1997. *The Economics of Post-Communist Transition*. Oxford University Press. pp. 25-56.
- Brainerd, E., Cutler, D. 2005. Autopsy on an Empire: Understanding Mortality in Russia and the Former Soviet Union, *Journal of Economic Perspectives*, Vol. 19, No. 740, pp. 107-30.
- Bruder E. 2014. Kik a szegények Európában? A szegénység mérésének alternatívája. *Területi Statisztika*. Vol. 54 No. 2, pp. 152 – 171.
- Cord, L., Lopez, R., Huppi, M., Melo, O. 2003. *Growth and Rural Poverty in the CIS7: Case studies of Georgia, the Kyrgyz Republic, and Moldova*, World Bank, pp. 46
- Deininger, K., Squire, L. 1996. Measuring Income inequality: A new data base. *World Bank Economic Review*, Vol. 10 No. 3, pp. 565-591.
- Duclos, J.-Y., Tiberti L. 2016. *Multidimensional poverty indices: A critical assessment*. *Cirpée*, Working Paper 16-01. pp. 48.
- Eurostat 2011. *Eurostat regional yearbook 2011*. Luxembourg: Publications Office of the European Union, pp. 240

- Eurostat 2012. Measuring material deprivation in the EU – Indicators for the whole population and child-specific indicators. *Methodologies and Working papers*. pp. 178.
- Guio, A-C. 2009. “What can be learned from deprivation indicators in Europe? Paper presented at the Indicators Sub-Group of the Social Protection Committee”, *Eurostat Methodological Working Papers*. European Commission, pp. 2-8.
- Guio, A-C., Maquet, I. E. 2007. “Material deprivation and poor housing” What can be learned from the EU-SILC 2004 data? How can EU-SILC be improved in this matter? In: Comparative EU statistics on Income and Living Conditions: Issues and Challenges Proceedings of the EU-SILC conference, (Helsinki, 6-8 November 2006), *Eurostat Methodologies*, Working Papers, European Commission, pp. 28.
- Hallerod, B. 1995. The truly poor: Direct and indirect consensual measurement of poverty in Sweden. *European Journal of Social Policy*. Vol. 5, No. 2, pp. 111–129.
- Jensen, R., Richter, K. 2004. The Health Implications of Social Security Failure: Evidence from the Russian Pension Crisis. *Journal of Public Economics*. Vol. 88 No. 1-2., pp 209-36.
- Nolan, B., Whelan, C. T. 1996. *Resources, deprivation and poverty*. Clarendon Press Oxford. pp. 261.
- Perry, B. 2002. The mismatch between income measures and direct outcome measures of poverty. *Social Policy Journal of New Zealand*. Vol. 19., pp 101–127.
- Ravallion, M. 1995. Growth and poverty: Evidence for Developing Countries in the 1980s. *Economic Letters*, Vol. 48, No. 3/4, pp. 411-417.
- Ringen, S. 1988. Direct and indirect measures of poverty. *Journal of Social Policy*. Vol. 17, pp 351–365.
- Roland, G. 2000. *Transition and Economics: Politics, Markets and Firms*, Boston MIT press. pp. 400.
- Schults, T. 1998. Inequality in the income distribution of personal income in the world: How it is changing and why? *Journal of Population Economics*, Vol. 11, No. 3, pp. 307-344.
- Seeth, H. T., Chachnov, S., Surinov, A., Von Braun, J. 1998. Russian Poverty: Muddling Through Economic Transition with Garden Plots. *World Development*. Vol. 26 No. 9, pp. 1611-1623.
- Sen, A. 1992. *Inequality re-examined*. Clarendon Press Oxford. pp. 2017.
- Svejnár, J. 2002. Transition Economies: Performance and Challenges. *Journal of Economic Perspectives*. Vol. 16, No. 1, pp. 3-28.
- Townsend, P. 1979. *Poverty in the United Kingdom*. Penguin: Harmondsworth, pp. 1216
- Whelan, C. T. 2007. Understanding the Implications of Choice of Deprivation Index for Measuring Consistent Poverty in Ireland, *The Economic and Social Review*. Vol. 38. Issue 2. pp. 211- 234.
- Whelan, C. T., Nolan, B. Maître, B. 2006. Measuring consistent poverty in Ireland, with EU-SILC data. Economic and Social Research Institute, *ESRI Working Paper*. No. 165, pp. 28.
- Whelan, C. T., Nolan, B., Maître, B. 2008. Measuring Material Deprivation in the Enlarged European Union. Economic and Social Research Institute, *ESRI Working Paper*, No. 249, pp. 29.

RECEIVED: 20 June 2017

ACCEPTED: 17 October 2017

Emese BRUDER, doctor of management and business administration (2014), assistant professor at the Faculty of Economics and Social Sciences, Institute of Economics Law and Methodology at Szent Istvan University, Gödöllő, Hungary. Teaching theoretical and practical courses in MSc level in English and in Hungarian language. Is a young researcher with more than 40 scientific publications and research papers. E-mail: bruder.emese@gtk.szie.hu *Spheres of interest*: measuring poverty, well-being, quantitative methods.

Hakan UNAL, Phd candidate of Management and Business Administration PhD School, Szent István University Gödöllő, Hungary. Working closely with colleagues of the Institute of Economics Law and Methodology, Faculty of Economics and Social Sciences, Szent István University, Gödöllő, Hungary. E-mail: unal.hakan@phd.uni-szie.hu *Spheres of interest*: macroeconomics, poverty, rural development.