YOUNG GENERATION IN EU COUNTRIES

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Abstract

As a consequence of global economic crisis the social status of the groups threatened by poverty worsened in last few years. And these are mostly the young people trying to start their working life and the people in pre-retirement period, i.e., at the zenith of their working life. The main cause of this problem is a reduction of vacant positions accompanied by the growing unemployment. This Europe-wide phenomenon reflects in particular countries more or less also in the properties of income distributions (level, differentiation, skewness and kurtosis) and in threat of monetary poverty, particularly in young generation.

The presented paper focusses on the analysis of income distribution and monetary poverty indicators in young generation (till 30 years) in EU countries. The properties of income distribution are presented in the form of basic sample characteristics, for quantitative depiction of monetary poverty the basic poverty measures from the Foster-Greer-Thorbecke class are used (at-risk-of-poverty, poverty gap and severity of poverty). The poverty line is taken according to the European Commission definition as 60 present of national equalized incomes of households. The results of analysis are presented using tables and maps which provide a possibility of simple and fast comparison across the European Union.

Key words: young generation, monetary poverty, unemployment, sample characteristics of income distribution

JEL Code: D31, E24, I32

Introduction

Worldwide economic crisis accompanied by high rate of unemployment and entrepreneur uncertainty creates together with growing indebtedness of public and private sectors demanding climate for the management and cooperation of EU countries. Prosperity of inhabitants in European countries is threatened by unemployment and associated monetary poverty and creation of debt traps. This problematic situation is further escalated by the threat of population aging and growth of unemployment in young generation. Adverse demographic

development becomes a serious issue in many European countries; particularly in connection with the growing dependence on the expected working activity of young generation which nowadays deal with serious shortage of vacant positions on the labor market.

Contemporary crisis increases the need of sustainability of young human capital. Therefore young people and their situation comprise a priority of EU social vision. The 9th Council of Europe Conference of Ministers responsible for Youth accepted in November 2009 strategy for years 2010-2018 with two main goals:

- provide more equal opportunities for young people in the fields of education and on the labor market,
- support social inclusion of all young people.

Practicing of the new strategy is supported by open method of coordination. In particular member states convenient conditions should be established in order to allow young people to develop their skills, fulfil their working potential and actively engage in the society.

The focus on young people was confirmed by acceptation of documents of European Commission within the framework of Europe 2020: European strategy for smart, sustainable and inclusive growth. This document contains many specific initiatives pointed at the support of obtaining work positions and dealing with the problems connected with contemporary crisis. High quality education and professional training, successful integration of labor market and higher mobility of young people is the key for the development and use of potential of young generation and comprise a way to achieve the goals of Europe 2020 strategy. Initiative Youth on the Move constitute a frame of the political priorities for actions on both member state and EU level leading to the decrease the unemployment rate of young people by facilitating the transition from school to employment and decrease the segmentation of labor market. The focus is particularly on the role of public services of employment which could provide work positions for young people, create all-European database for search of vacant positions and support young entrepreneurs.

All EU member states specified in each of the spheres their own goals considering different conditions and circumstances in the country. An overview of the success or failure of fulfilment of defined goals can be acquired from the official statistic published on pages of statistical offices of EU member states and on EUROSTAT webpage. Monitoring and comparison of socioeconomic situation of inhabitants on different age, educational, regional and other levels is elaborated in many specialized analyses published in journals and conference proceedings. The issue is intensively studied also by Czech and Slovak

statisticians and economists. Many of their papers are devoted to the analysis of income distribution (Pacáková & all., 2012, Řezanková & Löster, 2013), inequality (Sipková & Sipko, 2014), risk of monetary poverty and material deprivation (Řezanková & Želinský, 2014, Stankovičová & all., 2014, Želinský, 2013), unemployment and labor market (Löster & Langhamrová, 2012) and adverse demographic development (Fiala & Langhamrová, 2014, Šimpach, 2013). Other publications are devoted to the modeling of income and expenditure distribution (Bílková, 2013, Malá, 2013, Marek & Vrabec, 2013), their temporal development and prediction (Marek, 2014, Šimpach & Pechrová, 2013), etc.

1   Quantification of income distribution properties and risk of poverty

The paper deals with the characterization of income distribution and risk of monetary poverty in young generation in comparison with the whole population of particular European countries. Characteristics of income distributions are expressed using several basic summary statistics of location (mean, median), variability (coefficient of variation) and shape (skewness and kurtosis).

Relative indicators are used for evaluation and comparison of poverty in EU. These indicators are based on additive Foster-Greer-Thorbecke poverty measures (Foster & all., 1984) generally defined by

$$P_\alpha(\mathbf{x}, z) = \frac{1}{n} \sum_{i=1}^{q} \left(\frac{z - x_i}{z} \right)^\alpha \tag{1}$$

where z is in advance given poverty line ($z > 0$), $\mathbf{x} = (x_1, x_2, ..., x_n)$ is a vector of household incomes sorted in ascending order according to their value, q stands for the number of households under poverty line, n is the total number of households and α is a parameter conditioning the sensitivity of indicator on the depth of deprivation under the poverty line.

This paper employs only the simplest and most commonly used indicator – risk of monetary poverty (P_0). It can be obtained from (1) choosing $\alpha = 0$. It is the ration of population with equalized income not exceeding the predefined threshold. The poverty line is (according to the definition of European Commission) defined in each country as 60% of national median of equalized incomes in purchasing power parity.

1.1 Data base

The source of information lying beneath these quantitative analyses is the large sample survey EU-SILC (European Union Statistics on Income and Living Conditions) which is obligatory for all EU member states. Its purpose is to provide representative figures concerning household incomes, about type, quality and financial demands of their dwelling, about the equipment by items long-term usage and also about labor, financial and health conditions of adult members of the household. EU-SILC data files are the main source of information concerning living conditions and poverty in EU member states and several other EU countries (Iceland, Norway and Switzerland).

Mutual comparability of financial situation of individuals living in households with different number of members and different age structure is provided by conversion of total disposable income to the so called consuming unit. Definition of consuming unit stems from the assumption that social situation depends not only on the total annual income of households but also on the savings from the common financing of household run (housing expenditures, water and energies, household equipment, etc.).

1.2 Results

Estimates of chosen characteristics of income distribution and risk of monetary poverty according to the age category of respondents ("until 30" and "all") are sorted into the Tables 1 – 5. The division of states into the tables approximately corresponds to their geographical location in Europe. Extreme values are highlighted in each group – relatively positive differences are blue, negative are red.

Tab. 1: Risk of monetary poverty and chosen characteristics of income distribution for young generation in comparison to the whole population (Eastern Europe).

State[1]	Age category	Mean (EUR)	Median (EUR)	Coef. of var. (%)	Skewness	Kurtosis	P_0 (%)
BG	**until 30**	3331,15	3006,44	68,39	2,09	13,35	23,58
	all	3271,16	2855,98	74,40	4,57	50,33	21,28
EE	**until 30**	**7722,28**	**6991,54**	**57,00**	**1,36**	7,61	**14,82**
	all	7118,61	5987,21	64,74	2,41	17,24	17,52
LT	**until 30**	5288,47	4837,83	59,93	2,22	16,60	17,17
	all	5123,73	4337,06	63,35	2,20	13,76	18,60

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[1] State codes:: BG – Bulgaria, EE – Estonia, LT – Lithuania, LV – Latvia, RO – Romania

LV	**until 30**	5761,43	4951,66	63,75	1,55	**6,50**	16,87
	all	5435,82	4428,41	78,75	4,38	47,02	19,21
RO	**until 30**	**2381,17**	**2062,07**	**70,40**	**2,43**	**28,94**	**28,05**
	all	2394,46	2101,07	63,83	2,00	17,45	22,74

Source: own computation based on EU-SILC 2012 data

Tab. 2: Risk of monetary poverty and chosen characteristics of income distribution for young generation in comparison to the whole population (Northern Europe)

State[2]	Age category	Mean (EUR)	Median (EUR)	Coef. of var. (%)	Skewness	Kurtosis	P_0 (%)
FI	**until 30**	23714,26	22436,00	**58,22**	**21,87**	**872,31**	12,68
	all	25139,68	22699,00	67,61	28,29	2465,74	13,24
IS	**until 30**	**19994,28**	**18365,18**	45,26	1,34	7,13	**10,54**
	all	21493,48	19360,99	53,48	5,32	72,99	7,92
NO	**until 30**	**37560,52**	**36675,64**	46,28	0,97	6,75	**21,00**
	all	42469,79	40038,84	46,64	2,51	38,08	10,17
PL	**until 30**	5999,10	5082,27	**63,44**	2,02	9,29	16,96
	all	5902,21	5059,60	67,09	4,96	79,25	17,10
SE	**until 30**	24024,07	23807,50	**42,15**	**0,65**	**5,64**	15,87
	all	26259,19	24636,11	51,82	4,82	122,08	14,21

Source: own computation based on EU-SILC 2012 data

Tab. 3: Risk of monetary poverty and chosen characteristics of income distribution for young generation in comparison to the whole population (Southern Europe)

State[3]	Age category	Mean (EUR)	Median (EUR)	Coef. of var. (%)	Skewness	Kurtosis	P_0 (%)
CY	**until 30**	**18959,94**	**16592,40**	58,88	3,08	22,14	13,81
	all	20217,71	16927,14	81,55	9,33	173,26	14,70
EL	**until 30**	9331,61	8228,00	68,17	2,99	27,72	**28,97**
	all	10277,90	9186,48	72,49	3,81	33,66	22,93
ES	**until 30**	13187,33	11655,00	69,11	1,85	11,48	25,48
	all	13885,16	11970,20	67,98	1,86	11,25	22,17
HR	**until 30**	**5998,36**	**5504,50**	55,79	**1,42**	**8,39**	19,88
	all	6005,03	5404,39	58,36	1,67	9,30	20,53
IT	**until 30**	17084,03	15375,00	**71,44**	**6,15**	**95,04**	23,77

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[2] State codes:: FI – Finland, IS – Iceland, NO – Norway, SE – Sweden
[3] State codes:: CY – Cyprus, EL – Greece, HR – Croatia, IT – Italy, MT – Malta, PT – Portugal, ES – Spain

	all	18204,22	16028,89	72,67	10,59	498,90	19,43
MT	until 30	14044,45	13105,89	54,36	5,42	82,29	10,50
	all	12687,99	11436,76	59,72	5,42	74,96	14,97
PT	until 30	9397,82	8413,81	64,81	3,75	36,75	17,29
	all	10073,98	8236,71	78,27	5,11	68,02	17,87

Source: own computation based on EU-SILC 2012 data

Tab. 4: Risk of monetary poverty and chosen characteristics of income distribution for young generation in comparison to the whole population (Central Europe)

State[4]	Age category	Mean (EUR)	Median (EUR)	Coef. of var. (%)	Skewness	Kurtosis	P_0 (%)
AT	until 30	22414,40	21091,62	49,26	1,41	9,78	17,15
	all	24422,85	21807,14	60,02	7,28	204,36	14,40
CZ	until 30	9246,15	8583,49	46,64	2,17	16,49	9,67
	all	8765,32	7791,31	54,17	4,01	42,76	9,62
DE	until 30	21544,54	20138,00	59,01	5,91	87,26	16,62
	all	21886,74	19449,05	63,67	6,40	117,30	16,33
HU	until 30	4997,71	4613,20	54,23	2,11	14,82	20,49
	all	5310,81	4753,46	58,41	4,14	42,94	14,02
PL	until 30	5999,10	5082,27	63,44	2,02	9,29	16,96
	all	5902,21	5059,60	67,09	4,96	79,25	17,10
SI	until 30	12506,11	11971,19	41,55	1,21	7,41	14,82
	all	12962,96	12106,16	46,27	2,06	14,51	13,59
SK	until 30	8518,26	8220,88	47,02	1,06	6,63	11,75
	all	7555,55	6927,02	48,28	1,60	9,44	13,24

Source: own computation based on EU-SILC 2012 data

Tab. 5: Risk of monetary poverty and chosen characteristics of income distribution for young generation in comparison to the whole population (Western Europe)

State[5]	Age category	Mean (EUR)	Median (EUR)	Coef. of var. (%)	Skewness	Kurtosis	P_0 (%)
DK	until 30	26602,66	24948,65	50,26	1,93	13,02	17,18
	all	28864,07	26579,94	71,44	4,65	93,38	13,13
FR	until 30	21788,53	19871,79	81,37	22,74	873,52	15,37
	all	24499,24	20600,00	97,13	32,89	2402,25	14,11

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[4] State codes: AT – Austria, DE – Germany, CZ – Czech Republic, HU – Hungary, PL – Poland, SI – Slovenia, SK – Slovakia

[5] State codes: DK – Denmark, CH – Switzerland, FR – France, LU – Luxembourg, NL – Netherlands, UK – Great Britain

CH	**until 30**	**42470,56**	**40568,59**	**44,38**	**1,65**	**9,35**	13,06
	all	44496,91	39441,74	61,85	3,73	33,53	15,87
LU	**until 30**	35006,66	31518,00	55,09	3,20	36,90	**17,29**
	all	36924,79	32779,20	60,80	4,21	54,44	15,15
NL	**until 30**	22545,96	21029,33	44,98	2,36	21,72	**9,19**
	all	22951,43	20562,00	56,38	6,00	136,04	10,08
UK	**until 30**	22904,10	**19638,89**	71,04	4,11	33,08	15,80
	all	22692,16	19000,00	81,67	6,63	106,66	16,13

Source: own computation based on EU-SILC 2012 data

For the sake of clarity are chosen results presented also in the form of maps providing a possibility of fast and simple comparison of situation in particular European countries. Figure 1 shows the differences in the risk of monetary poverty in generation of young people (until 30) and in the whole population in considered country. Light colors) means negative values, i.e., lower threat for young people. Red tones depict higher threat for young generation in comparison to the population. Both values are printed in the shape of considered country.

Fig. 1: Map of differences in risk of monetary poverty in young generation and whole population (values Y: risk of poverty in young, A: risk of poverty in population)
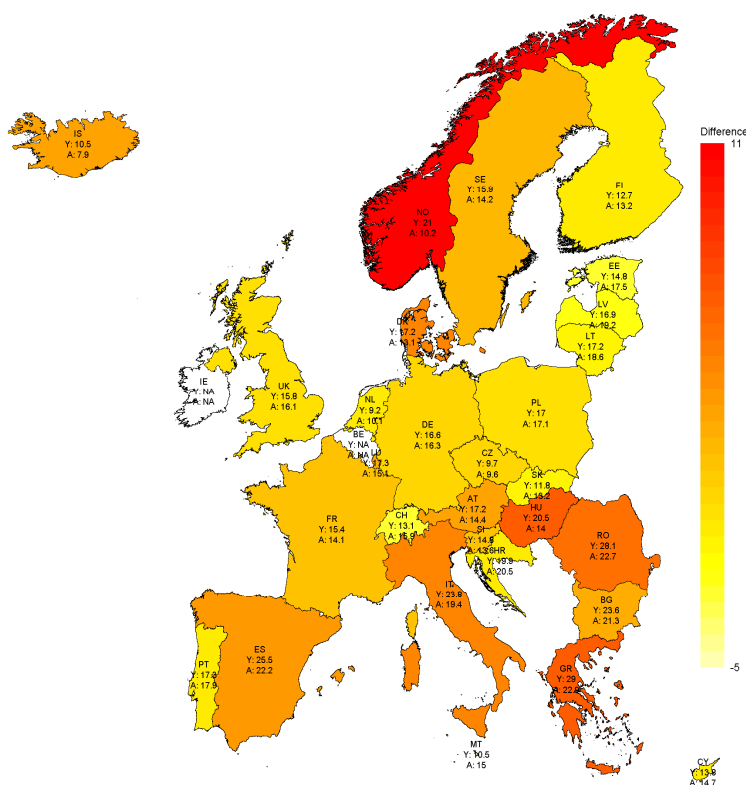
Source: own depiction based on EU-SILC 2012 data

124

Conclusion

From the performed analyses it follows that among the countries from "Eastern Europe" block the extremal positions are occupied exclusively by two countries – Estonia and Romania. In Estonia had the income distribution of young people (until 30) highest mean and median values, lowest variability and skewness. Only kurtosis was slightly lower than the Latvian one. In Estonia the young generation was in the lowest threat of monetary poverty. On the contrary, in Romania the numbers indicate adverse situation. In other presented groups the situation was not so clear. Only Switzerland in the block of "Western Europe" shows relatively positive characteristics of income distribution of young generation.

In general we can observe that the lowest risk of monetary poverty in young generation appears in Netherlands (9,19%) and then Czech Republic (9,67%), Malta (10,50%), Iceland (10,54%) a Slovakia (11,75%). On the contrary, among the most threatened rang the young generation in Greece (28,97%), Romania (28,05%), Spain (25,48%), Italy (23,77%) and Bulgaria (23,58%). The highest mean and median incomes appear among young people in Switzerland, Norway, Luxembourg, Danmark and Sweden. Lowest values were observed in group of post-communist countries – Romania, Bulgaria, Hungary, Lithuania and Latvia. Czech Republic stands on the twentieth place just before Slovenia. Relative variability of incomes in young generation was lowest in Slovenia, Sweden, Switzerland, Netherlands and Iceland. Highest one was observed in France, Italy, Great Britain, Romania and Spain. Czech Republic and Slovakia were seventh and eighth. Three countries (Sweden, Norway and Slovakia) show distribution of incomes of young generation even skewed to the left. On the contrary, the strongest positive skew was observed in case of Iceland, Italy, and Great Britain. The smallest values of kurtosis were observed in Estonia, Lithuania and Romania, highest values appear in Croatia, Portugal and Czech Republic.

Interesting results were achieved by the analysis of differences in values of risk of monetary poverty of young generation and whole population of considered state. These results were depicted on the map. We can see that not in all European countries was the young generation threatened more than the whole population. The difference varied from -4,47% on Malta, -2,81% in Switzerland, -2,70% in Estonia, -2,33% in Latvia and -1,49% in Slovakia to 4,34% in Italy, 5,31% in Romania, 6,04% in Greece, 6,46% in Hungary and 10,83% in Norway.

Acknowledgment

References

Bílková, D. (2013). Modelování mzdových rozdělení posledních let v České republice s využitím l-momentů a predikce mzdových rozdělení podle odvětví. *E+M. Ekonomie a Management*, *16*(4), 42–54.

Fiala, T., & Langhamrová, J. (2014). Modelling of the Future Development of the Total Amount of Premium Paid and Total Amount of Old-Age Pensions in the Czech Republic *Politická ekonomie*, *62*(2), 338–355.

Foster, J., Greer, J., & Thorbecke, E. (1984). A Class of Decomposable Poverty Measures. *Econometrica*, *52*(3), 761–766.

Löster, T., & Langhamrová, J. (2012). Disparities between Regions of the Czech Republic for Non-Business Aspects of Labour Market. In: *6ᵗʰ International Days of Statistics and Economics*, (pp. 689-702). Slaný: Melandrium.

Malá, I. (2013). Použití konečných směsí logaritmicko-normálních rozdělení pro modelování příjmů českých domácností. *Politická ekonomie*, *61*(3), 356–372.

Marek, L. (2013) Some Aspects of Average Wage Evolution in the Czech Republic. In: *International Days of Statistics and Economics.* [online] (pp. 947–958).Slaný: Melandrium.

Marek, L., & Vrabec, M. (2014). Mixture of Johnson Distribution. In: *Quantitative Methods in Economics (multiple Criteria Decision Making XVII)*, (pp. 162–170). Bratislava: Ekonóm.

Pacáková, V., Linda, B., & Sipková, L'. (2012). Distribution and Factors of the Highest Wages in the Slovak Republic. *Ekonomický časopis, 60*(9), 918–934.

Řezanková, H., & Želinský, T. (2014). Factors of Material Deprivation Rate in the Czech Republic by Household Type. *Ekonomický časopis*, *62*(4), 394-410.

Řezanková, H., & Löster, T. (2013). Shluková analýza domácností charakterizovaných kategoriálními ukazateli. *E+M. Ekonomie a Management*, *16*(3), 139–147.

Sipková, Ľ., & Sipko, J. (2014). Measurement of Inequality in Slovakia. In: The *8ᵗʰ International Days of Statistics and Economics*, (pp. 1355 – 1365). Slaný: Melandrium.

Stankovičová, I., Vlačuha, R., & Ivančíková, Ľ. (2014). Revision of the Concept of Measuring Material Deprivation in the EU. In: *The 8th International Days of Statistics and Economics* (pp. 1441–1449). Slaný: Melandrium.

Šimpach, O. (2013). Application of Cluster Analysis on the Demographic Development of Municipalities in the Districts of Liberecky Region. In: *7th International Days of Statistics and Economics*, (pp. 1390-1399). Slaný: Melandrium.

Šimpach, O., & Pechrová, M. (2013). Assessing the impact of standard of living on the life expectancy at birth using Vector Autoregressive Model. In: *Mathematical Methods in Economics 2013*, (pp. 921–926). Jihlava: College of Polytechnics Jihlava.

Želinský, T. (2013). Estimation of Subjective (Income) Poverty Lines: Sensitivity-Specificity Curves Approach. In: *Social Sciences and Society. Book Ceries:Advances in Educytion Research*, 6. 42–47.

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