

DEVELOPMENT OF WAGE DISTRIBUTION OF THE CZECH REPUBLIC IN RECENT YEARS BY HIGHEST EDUCATION ATTAINMENT AND FORECASTS FOR 2011 AND 2012

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Abstract

This paper deals with the development of sample characteristics of wage distribution in recent years in the Czech Republic by the highest educational attainment. Gross monthly wage is the variable investigated. We distinguish the following scale of the highest educational attainment: primary and incomplete education, secondary education without GCSE, secondary education with GCSE, higher vocational and bachelor education and tertiary education. Forecasts of wage distribution have been developed for the next two years for all of these categories. Three-parametric lognormal curve formed the basis of the theoretical probability distribution. Parameter values of relevant three-parametric lognormal curves were then estimated using the method of L-moments of parameter estimation. Forecasts of sample values of L-moments were calculated using trend analysis of their past development and the parameters of three-parametric lognormal curves for forecasts of wage distribution were calculated using the predicted values of the first three sample L-moments. We have obtained the forecasts of wage distribution by the highest educational attainment on the basis of these probability density functions.

Key words: Wage distribution, highest level of education, characteristics of location and differentiation, method of L-moment of parameter estimation, three-parametric lognormal distribution

JEL Code: C13, C16

Introduction

Major changes occurred in the Czech Republic during the period since the transition of the Czech economy from a centrally planned economy to a market economy. These changes related not only to the economy, but also to the areas, which are connected with economy. Wages and incomes of population increase and their differentiation increases markedly, too.

The group of people with very high wages and incomes was created and it grows stronger gradually. The financial situation of Czech households changes, see for example Bartošová (2009), the purchasing power of Czech households changes, see Bartošová & Forbelská (2010). Unemployment appeared and it develops gradually, see Miskolczi, Langhamrová & Langhamrová (2011) or Löster & Langhamrová (2011). Demographic structure of the population changes, see for example Fiala & Langhamrová (2011), Fiala & Langhamrová (2010) or Malá (2011).

We can use various methods for processing data on wages and incomes, see for example Bartošová & Bína, (2007) or Řezanková, Löster & Hušek (2011). L-moments and L-moment method of parameter estimation are described in numerous professional publications and articles, for example Guttman (1993), Hosking (1990), Hosking & Wales (1997) or Kyselý & Pícek (2007).

The studied variable for this research was a gross monthly wage (in CZK) and we came out of a set of employees classified by educational attainment in the categories: primary and incomplete education, secondary education without GCSE, secondary education with GCSE, higher vocational and bachelor education and tertiary education. The data come from the official website of the Czech Statistical Office. Table 1 provides information about the sample sizes of the individual sets used. The data were processed using the statistical programs SAS and Statgraphics and using the spreadsheet Microsoft Excel.

Tab. 1: Sample sizes of the wage distribution broken down by educational attainment

The highest level of education	Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Primary and incomplete	95,112	119,480	125,972	129,027	135,399	137,190	120,254	116,383
Secondary without GCSE	377,347	470,688	523,744	553,522	587,081	591,669	557,780	555,266
Secondary with GCSE	408,562	560,237	575,668	621,306	629,447	644,576	625,631	627,073
Higher vocational and bachelor	15,749	29,144	40,055	42,856	47,967	54,439	57,747	64,684
Tertiary	122,164	224,947	250,088	267,661	273,604	283,937	290,094	299,423

Source: www.czso.cz

1 Wage Distribution in the Czech Republic in 2003-2010

Tab. 2: Sample characteristics of location, variability and of the shape of the wage distribution broken down by educational attainment – Primary and incomplete education

Characteristic	Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Arithmetic mean (in CZK)	12,504.190	12,620.511	13,286.119	14,434.339	14,863.200	16,000.565	15,663.997	16,094.348
Median (in CZK)	11,806.941	12,538.417	12,948.386	13,598.293	14,644.534	15,682.416	15,398.930	15,753.463
Medial (in CZK)	13,693.502	14,819.126	15,330.578	16,124.914	17,518.896	18,537.361	18,055.888	18,490.163
Standard deviation (in CZK)	5,233.745	6,422.459	6,658.778	7,215.889	7,550.601	7,899.442	7,530.222	7,580.522
Coefficient of variation (in %)	41.86	50.89	50.12	49.99	50.80	49.37	48.07	47.10
Skewness	0.800529	1.100331	1.139141	1.410259	0.952889	0.914085	0.824256	0.777434
Kurtosis	1.552571	3.295742	3.395737	4.254976	2.026614	1.926393	1.725168	1.574092

Source: Own computations

Tab. 3: Sample L-moments, parameter estimations of three-parametric lognormal curves obtained using the L-moment method, values of Gini's coefficient (past years and predictions for 2011 and 2012) and sum all absolute deviations of the observed and theoretical frequencies of all intervals broken down by educational attainment – Primary and incomplete education

Year	Sample L-moments			Parameter estimations			Gini's coefficient	Criterion <i>S</i>
	l_1	l_2	l_3	μ	σ^2	θ		
2003	12,504.190	2,811.582	154.419	9.559814	0.112406	-2,498.99	0.224851	15,719.98
2004	12,620.511	3,369.199	76.541	10.209928	0.046468	-15,189.78	0.266962	24,066.43
2005	13,286.119	3,485.083	19.043	10.970985	0.011175	-45,201.64	0.262310	58,062.62
2006	14,434.339	3,694.085	146.826	10.007644	0.081318	-8,682.19	0.255923	31,022.25
2007	14,863.200	4,030.671	99.702	10.344902	0.050596	-17,031.66	0.271185	29,510.78
2008	16,000.565	4,227.564	29.479	11.040909	0.014261	-46,820.10	0.264213	28,911.51

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2009	15,663.997	4,047.552	79.654	10.467757	0.040252	-20,214.13	0.258398	25,587.20
2010	16,094.348	4,086.836	57.724	10.648015	0.028888	-26,627.20	0.253930	419,677.41
2011	16,529.700	3,975.600	54.100	10.639483	0.027832	-25,806.55	0.240513	–
2012	16,762.500	3,792.300	53.500	10.573827	0.028854	-22,903.67	0.226237	–

Source: Own computations

Tab. 4: Sample characteristics of location, variability and of the shape of the wage distribution broken down by educational attainment – Secondary education without GCSE

Characteristic	Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Arithmetic mean (in CZK)	15,140.236	15,809.510	16,565.195	17,585.703	18,772.966	20,095.488	19,530.785	19,922.694
Median (in CZK)	14,501.952	15,432.768	16,074.423	16,847.303	18,190.981	19,394.852	18,912.333	19,289.294
Medial (in CZK)	16,378.697	17,632.424	18,337.833	19,284.310	20,970.860	22,290.889	21,642.011	22,136.965
Standard deviation (in CZK)	5,677.100	6,625.825	6,880.465	7,185.551	8,064.500	8,450.937	8,160.661	8,397.448
Coefficient of variation (in %)	37.50	41.91	41.54	40.86	42.96	42.05	41.78	42.15
Skewness	0.669926	0.720702	0.781426	0.889565	0.698529	0.660371	0.65 293	0.619120
Kurtosis	1.114192	2.087550	2.167180	2.246373	1.441347	1.170579	1.263066	1.071873

Source: Own computations

Tab. 5: Sample L-moments, parameter estimations of three-parametric lognormal curves obtained using the L-moment method, values of Gini's coefficient (past years and predictions for 2011 and 2012) and sum all absolute deviations of the observed and theoretical frequencies of all intervals broken down by educational attainment – Secondary education without GCSE

Year	Sample L-moments			Parameter estimations			Gini's coefficient	Criterion <i>S</i>
	l_1	l_2	l_3	μ	σ^2	θ		
2003	15,140.236	3,085.584	270.618	9.390138	0.179698	2,045.23	0.203800	38,481.27
2004	15,809.510	3,558.515	27.806	10.810980	0.015981	-34,150.10	0.225087	75,170.08
2005	16,565.195	3,688.098	103.890	10.188145	0.057621	-10,798.03	0.222641	219,404.84
2006	17,585.703	3,837.157	229.187	9.824680	0.122258	-2,063.83	0.218198	56,376.06
2007	18,772.966	4,355.660	119.102	10.370078	0.055933	-14,022.48	0.232018	94,623.90
2008	20,095.488	4,582.992	226.999	10.104760	0.101358	-5,635.19	0.228061	75,971.66
2009	19,530.785	4,420.274	168.982	10.207885	0.078212	-8,666.77	0.226323	73,619.35

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2010	19,922.694	4,566.315	192.249	10.188798	0.086141	-7,851.67	0.229202	68,358.56
2011	20,367.300	4,591.400	220.400	10.123584	0.098228	-5,811.31	0.225430	–
2012	20,473.100	4,552.100	243.300	10.056544	0.109384	-4,144.96	0.222345	–

Source: Own computations

Tab. 6: Sample characteristics of location, variability and of the shape of the wage distribution broken down by educational attainment – Secondary education with GCSE

Characteristic	Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Arithmetic mean (in CZK)	19,180.093	20,752.937	21,689.240	22,806.853	24,173.876	25,641.295	25,686.897	25,846.068
Median (in CZK)	17,881.643	19,212.329	20,009.005	21,058.124	22,392.406	23,680.970	23,797.152	24,027.505
Medial (in CZK)	20,118.182	22,021.612	22,993.469	24,025.138	25,853.715	27,343.865	27,369.635	27,639.066
Standard deviation (in CZK)	6,961.509	8,696.317	8,923.621	9,351.419	9,869.296	10,106.053	10,090.622	10,178.031
Coefficient of variation (in %)	36.30	41.90	41.14	41.00	40.83	39.41	39.28	39.38
Skewness	0.722822	1.193881	1.069475	1.008185	0.793520	0.684125	0.668208	0.616414
Kurtosis	0.204638	2.045810	1.532053	1.066599	0.538724	0.162828	0.165829	0.117399

Source: Own computations

Tab. 7: Sample L-moments, parameter estimations of three-parametric lognormal curves obtained using the L-moment method, values of Gini's coefficient (past years and predictions for 2011 and 2012) and sum all absolute deviations of the observed and theoretical frequencies of all intervals broken down by educational attainment – Secondary education with GCSE

Year	Sample L-moments			Parameter estimations			Gini's coefficient	Criterion <i>S</i>
	l_1	l_2	l_3	μ	σ^2	θ		
2003	19,180.093	3,798.195	614.977	9.224972	0.333221	7,193.04	0.198028	53,028.37
2004	20,752.937	4,546.402	724.770	9.414827	0.328019	6,297.35	0.219073	87,974.32
2005	21,689.240	4,719.647	754.682	9.450260	0.329031	6,704.68	0.217603	205,065.51

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2006	22,806.853	4,980.515	852.397	9.459815	0.352485	7,499.98	0.218378	83,978.83
2007	24,173.876	5,334.162	825.794	9.593459	0.318435	6,973.67	0.220658	84,596.17
2008	25,641.295	5,515.480	895.508	9.596208	0.334158	8,257.61	0.215101	81,751.93
2009	25,686.897	5,509.906	875.497	9.609149	0.326934	8,140.29	0.214503	84,955.38
2010	25,846.068	5,570.312	844.566	9.650096	0.311793	7,703.92	0.215519	89,232.71
2011	26,388.300	5,473.200	810.100	9.647814	0.304296	8,355.24	0.207410	–
2012	26,485.800	5,315.400	752.200	9.646879	0.290804	8,590.72	0.200689	–

Source: Own computations

Tab. 8: Sample characteristics of location, variability and of the shape of the wage distribution broken down by educational attainment – Higher vocational and bachelor education

Characteristic	Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Arithmetic mean (in CZK)	20,398.622	22,871.093	24,253.633	25,337.526	26,810.390	28,533.110	29,033.179	29,220.425
Median (in CZK)	18,955.765	20,750.186	22,164.165	22,874.456	24,647.127	26,281.795	26,802.167	26,984.813
Medial (in CZK)	21,348.335	24,267.180	25,899.683	26,571.459	28,699.964	30,592.367	31,096.222	31,289.758
Standard deviation (in CZK)	7,143.562	9,723.674	9,944.143	10,123.983	10,368.726	10,675.919	10,639.565	10,607.755
Coefficient of variation (in %)	35.02	42.52	41.00	39.96	38.67	37.42	36.65	36.30
Skewness	0.648034	1.046529	0.898087	0.910353	0.667752	0.527284	0.481307	0.472111
Kurtosis	-0.123202	0.923240	0.418578	0.218218	-0.207604	-0.545582	-0.594228	-0.616237

Source: Own computations

Tab. 9: Sample L-moments, parameter estimations of three-parametric lognormal curves obtained using the L-moment method, values of Gini's coefficient (past years and predictions for 2011 and 2012) and sum all absolute deviations of the observed and theoretical frequencies of all intervals broken down by educational attainment – Higher vocational and bachelor education

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Year	Sample L-moments			Parameter estimations			Gini's coefficient	Criterion <i>S</i>
	l_1	l_2	l_3	μ	σ^2	θ		
2003	20,398.622	3,913.242	666.593	9.221736	0.350807	8,344.77	0.191839	2,593.48
2004	22,871.093	5,173.634	982.521	9.428570	0.391772	7,740.76	0.226208	3,480.52
2005	24,253.633	5,371.772	985.065	9.489684	0.378075	8,279.57	0.221483	11,053.98
2006	25,337.526	5,452.000	1,113.388	9.431366	0.421868	9,934.81	0.215175	4,624.00
2007	26,810.390	5,705.028	1,032.978	9.558354	0.373228	9,742.26	0.212792	5,293.34
2008	28,533.110	5,920.966	1,084.820	9.587615	0.377737	10,918.52	0.207512	7,118.89
2009	29,033.179	5,912.212	1,059.253	9.601053	0.369249	11,255.89	0.203636	8,271.16
2010	29,220.425	5,898.289	1,057.590	9.598172	0.369544	11,491.66	0.201855	9,347.06
2011	29,759.200	5,979.400	1,115.200	9.585500	0.384634	12,121.10	0.200926	–
2012	29,849.300	6,010.400	1,121.800	9.590180	0.384919	12,125.92	0.201358	–

Source: Own computations

Tab. 10: Sample characteristics of location, variability and of the shape of the wage distribution broken down by educational attainment – Tertiary education

Characteristic	Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Arithmetic mean (in CZK)	26,337.703	30,083.859	31,363.739	32,684.234	34,293.881	35,589.324	36,013.778	35,917.961
Median (in CZK)	25,306.136	27,003.114	28,487.170	30,136.182	32,320.569	34,643.011	35,219.512	35,169.460
Medial (in CZK)	29,822.866	33,081.061	34,696.188	36,398.605	38,584.976	40,372.060	40,624.095	40,784.054
Standard deviation (in CZK)	7,558.736	11,385.261	11,283.875	11,174.903	11,077.456	10,982.113	10,822.634	10,953.276
Coefficient of variation (in %)	28.70	37.85	35.98	34.19	32.30	30.86	30.05	30.50
Skewness	0.126549	0.432745	0.315120	0.203251	0.000530	0.174288	0.213793	0.205906
Kurtosis	-1.291005	-1.014736	-1.129783	-1.244954	-1.248594	-1.197059	-1.173132	-1.217769

Source: Own computations

Tab. 11: Sample L-moments, parameter estimations of three-parametric lognormal curves obtained using the L-moment method, values of Gini's coefficient (past years and predictions for 2011 and 2012) and sum all absolute deviations of the observed and theoretical frequencies of all intervals broken down by educational attainment – Tertiary education

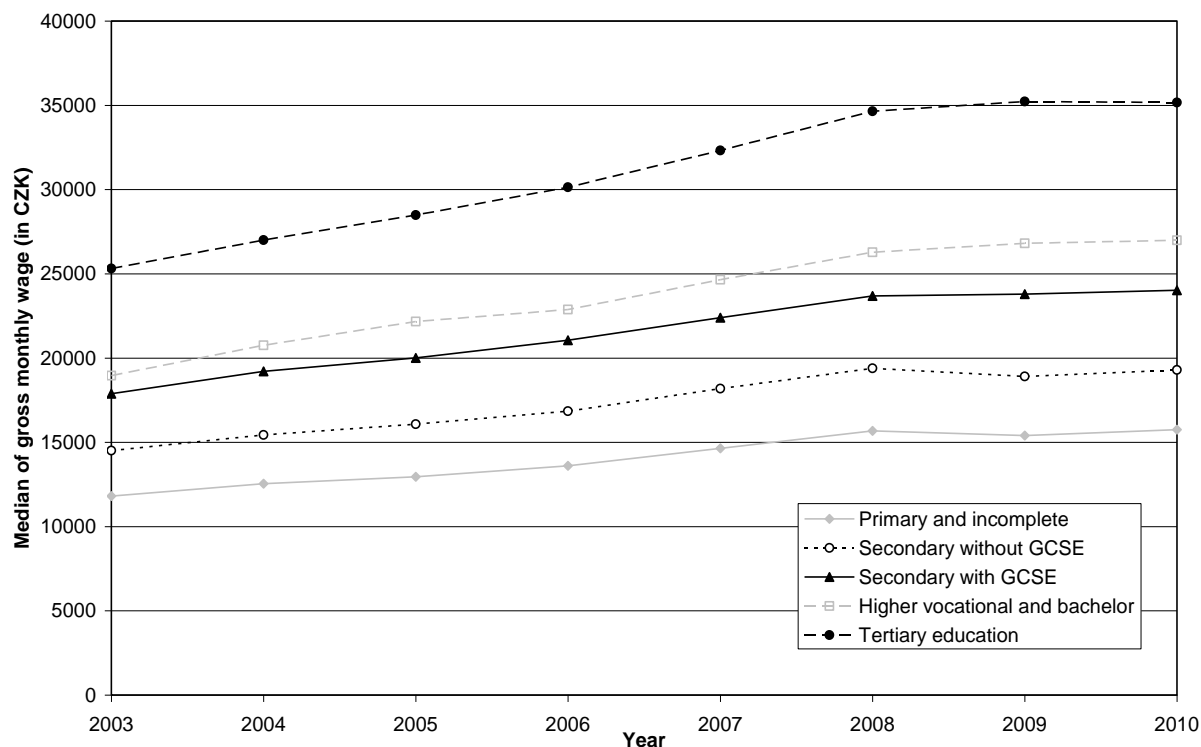
Year	Sample L-moments			Parameter estimations			Gini's coefficient	Criterion <i>S</i>
	l_1	l_2	l_3	μ	σ^2	θ		
2003	26,337.703	4,196.665	548.566	9.459961	0.268424	11,658.70	0.159341	46,971.92
2004	30,083.859	6,330.912	1,215.556	9.623017	0.396169	11,665.52	0.210442	45,273.10
2005	31,363.739	6,301.118	1,115.360	9.672787	0.364742	12,307.35	0.200905	92,541.14
2006	32,684.234	6,248.776	1,057.879	9.693804	0.348617	13,379.37	0.191186	69,656.17
2007	34,293.881	6,187.184	1,011.116	9.706916	0.336364	14,853.68	0.180417	88,553.90
2008	35,589.324	6,091.293	882.144	9.768596	0.297668	15,308.53	0.171155	104,677.64
2009	36,013.778	5,987.473	829.063	9.779570	0.284484	15,643.92	0.166255	107,226.99

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2010	35,917.961	6,061.156	869.237	9.769798	0.294742	15,642.44	0.168750	117,058.58
2011	35,708.400	6,440.300	527.800	10.164938	0.167875	7,457.65	0.180358	–
2012	35,014.200	6,468.800	262.700	10.556402	0.083088	-5,038.27	0.184748	–

Source: Own computations

Fig. 1: Development of median of gross monthly wage (in CZK) in the years 2003-2010 by the highest educational attainment

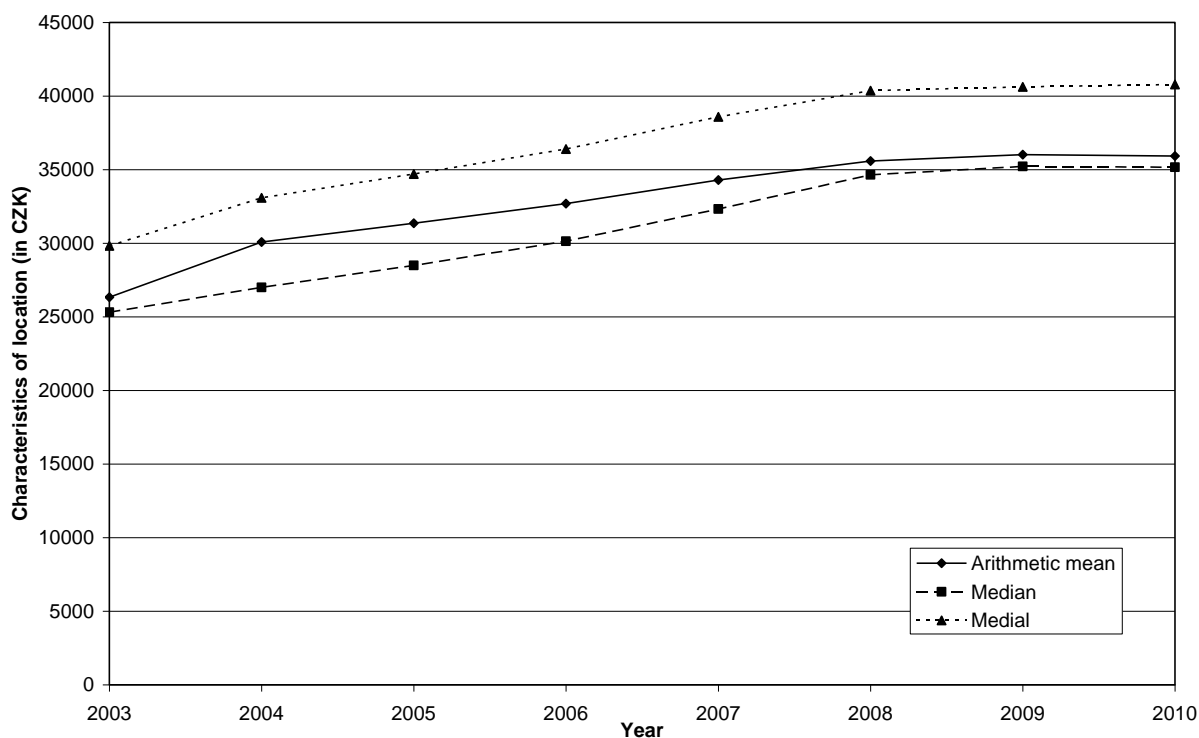


Source: Own computations

Tables 2, 4, 6, 8 and 10 provide an overview of the development of sample characteristics of wage distribution in the Czech Republic in 2003-2010 by educational attainment. They are the characteristics of the location, such as arithmetic mean, median (middle value) and medial (half the sum); the characteristics of variability, such as standard deviation (characteristic of absolute variability) and coefficient of variation (characteristic of relative variability) and the characteristic of shape, such as moment measure of skewness and moment measure of kurtosis. We can see from these tables that the characteristics of the location increase in time, while the relation between the mentioned characteristics of the location is valid $\text{median} < \text{arithmetic mean} < \text{medial}$ (see Figure 2 for the tertiary education), which is typical for the distribution with positively skewness. The development of the mentioned characteristics of location in 2003-2010 according to the highest educational attainment is also captured by Figure 1. We can see from Tables 2, 4, 6, 8 and 10 and from Figures 1 and 2 that wage growth has virtually stopped from 2008 onwards, therefore, apparently in connection with the onset of the global economic recession. We can also note from these

tables that the characteristic of absolute variability increases until 2008, with the exception of tertiary education. We can also see that all the researched wage distribution are characterized by positive skewness, which is typical for the wage and income distribution.

Fig. 2: Development of characteristics of location of gross monthly wage (in CZK) in the years 2003-2010 for tertiary education

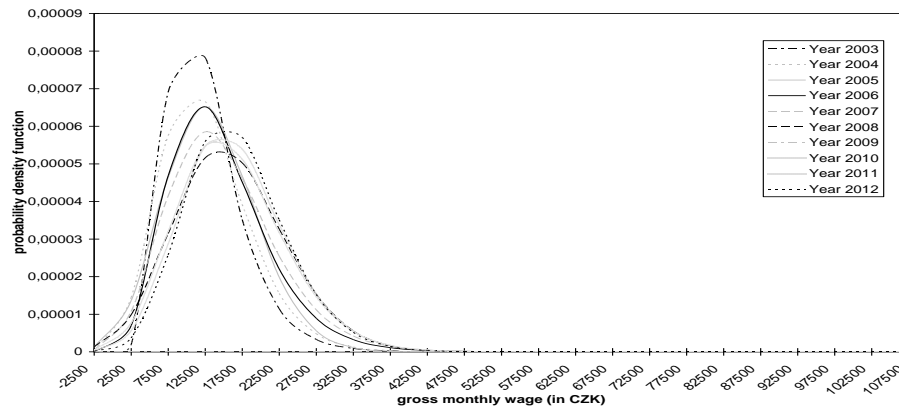


Source: Own computations

Tables 3, 5, 7, 9 and 11 present the first three sample L-moments for individual wage distribution, the parameter estimations calculated using the L-moment method of parameter estimation, the values of Gini's coefficient, and the sum S of all absolute deviations between empirical and theoretical frequencies for all intervals, all for the years 2003-2010 according to the highest level of education. The trend functions for the period of 2003-2010 were constructed for the first three sample L-moments of the wage distribution. The values of the first three sample L-moments were predicted based on the development of their trend functions. Parameter values for three-parametric lognormal curves for the years 2011 and 2012 were calculated using the predicted values of the first three sample L-moments. Figures 3 – 7 show the development of probability density functions of three-parametric lognormal curves of wage distributions in the years 2003-2010 by the highest educational

attainment, including their forecasts for 2011 and 2012. Figures 8 – 10 show a different shape of the probability density function by the highest educational attainment, both in the first year of the followed period and, in the last year of the followed period and for the second year of the forecasts.

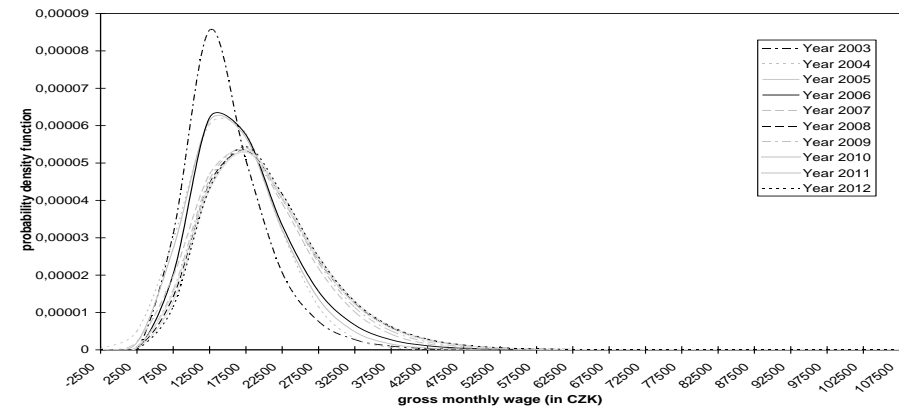
Fig. 3: Probability density function including the predictions by the highest educational attainment – Primary and incomplete education



Source: Own computations

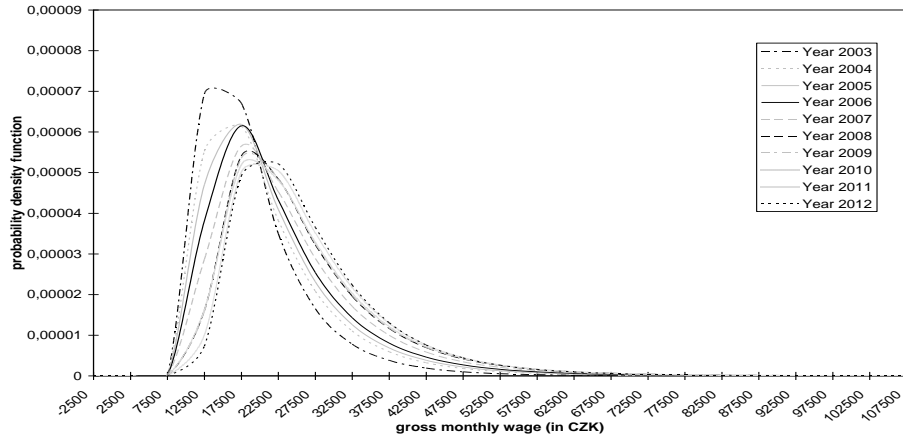
Fig. 5: Probability density function including the predictions by the highest educational attainment – Secondary education with GCSE

Fig. 4: Probability density function including the predictions by the highest educational attainment – Secondary education without GCSE



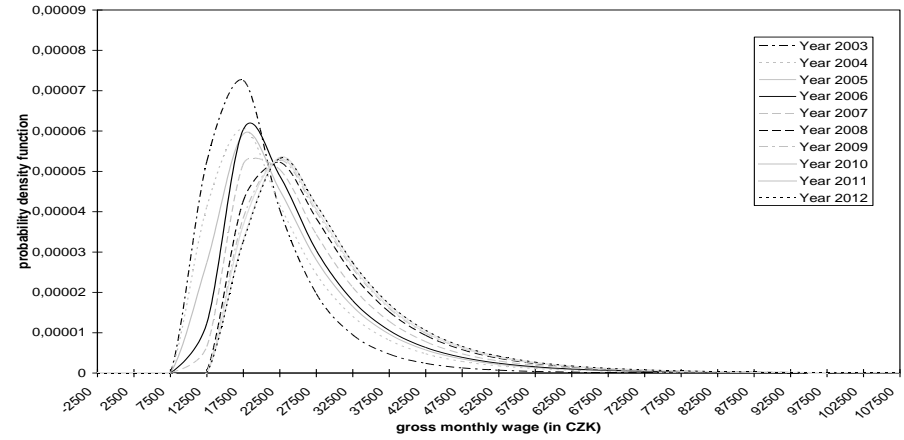
Source: Own computations

Fig. 6: Probability density function including the predictions by the highest educational attainment – Higher vocational and bachelor education



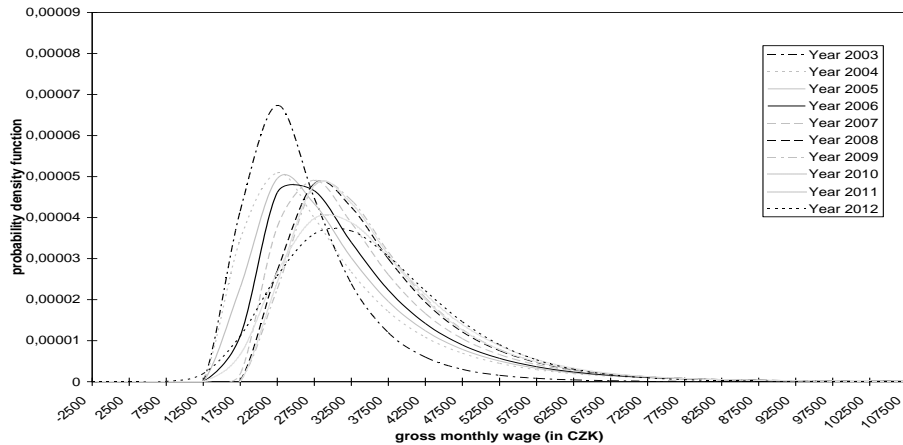
Source: Own computations

Fig. 7: Probability density function including the predictions by the highest educational attainment – Tertiary education

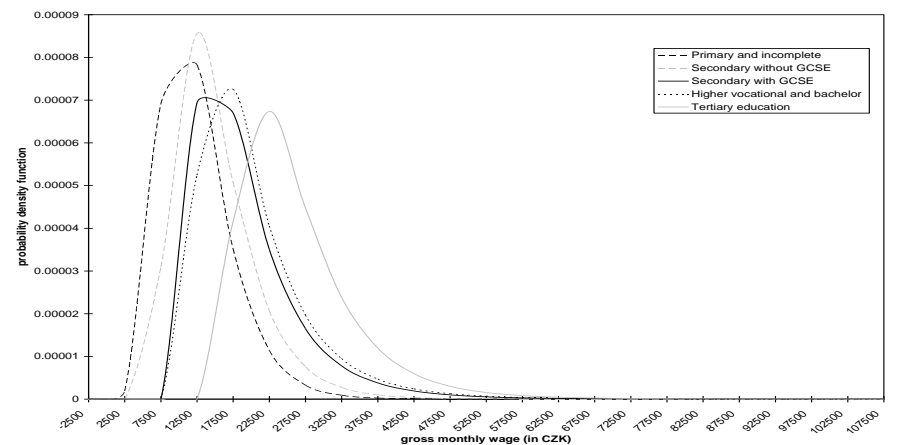


Source: Own computations

Fig. 8: Probability density function by the highest educational attainment in 2003

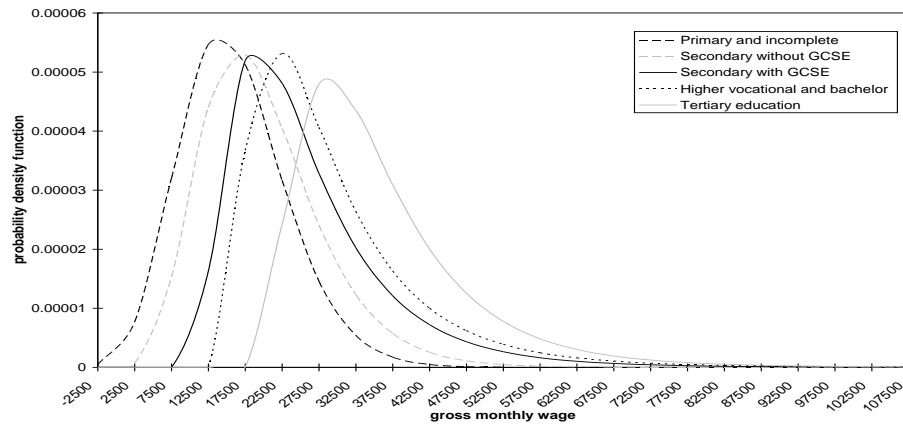


Source: Own computations



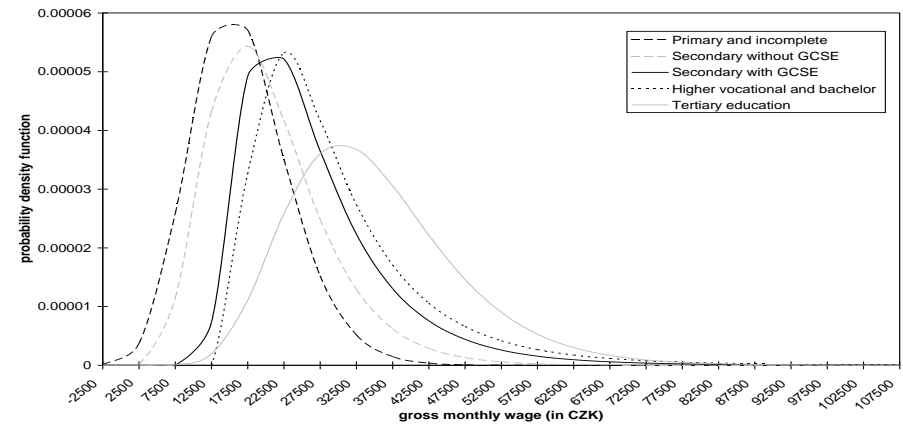
Source: Own computations

Fig. 9: Probability density function by the highest educational attainment in 2010



Source: Own computations

Fig. 10: Probability density function by the highest educational attainment – predictions for 2012



Source: Own computations

Tab. 12: Predictions of wage distributions for 2011 and 2012 according to highest level of education

		Highest level of education									
		Primary and incomplete education		Secondary education without GCSE		Secondary education with GCSE		Higher vocational and bachelor education		Tertiary education	
Interval	Year	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
0 –	5,000	3.42	2.35	0.38	0.23	0.00	0.00	0.00	0.00	0.00	0.00
5,001 –	10,000	14.44	13.14	6.94	6.32	0.00	0.00	0.00	0.00	0.00	0.06
10,001 –	15,000	26.68	27.26	20.93	21.04	6.25	5.11	0.45	0.44	0.13	1.14
15,001 –	20,000	26.53	28.02	26.19	26.65	24.01	23.49	15.68	15.49	3.65	5.67
20,001 –	25,000	16.96	17.64	20.62	20.79	24.93	25.73	26.07	25.95	13.12	12.79
25,001 –	30,000	7.87	7.84	12.56	1.54	17.60	18.31	20.81	20.82	19.56	17.80
30,001 –	35,000	2.89	2.71	6.59	6.57	10.93	11.28	13.71	13.77	19.22	18.23
35,001 –	40,000	0.89	0.78	3.18	3.17	6.51	6.61	8.56	8.62	15.20	15.24
40,001 –	45,000	0.24	0.20	1.45	1.47	3.84	3.83	5.29	5.34	10.68	11.10
45,001 –	50,000	0.06	0.05	0.65	0.66	2.28	2.23	3.29	3.33	7.01	7.35
50,001 –	55,000	0.02	0.01	0.28	0.30	1.37	1.31	2.08	2.10	4.42	4.55
55,001 –	60,000	0.00	0.00	0.12	0.13	0.83	0.78	1.33	1.35	2.73	2.68
60,001 –	65,000	0.00	0.00	0.05	0.06	0.51	0.48	0.87	0.88	1.67	1.53
65,001 –	70,000	0.00	0.00	0.04	0.04	0.32	0.29	0.57	0.58	1.01	0.85
70,001 –	75,000	0.00	0.00	0.02	0.02	0.21	0.18	0.39	0.39	0.62	0.47
75,001 –	80,000	0.00	0.00	0.00	0.01	0.13	0.12	0.26	0.27	0.37	0.25
80,001 –	85,000	0.00	0.00	0.00	0.00	0.09	0.08	0.18	0.19	0.23	0.14
85,001 –	90,000	0.00	0.00	0.00	0.00	0.06	0.05	0.13	0.13	0.14	0.07
90,001 –	95,000	0.00	0.00	0.00	0.00	0.04	0.04	0.09	0.09	0.09	0.04
95,001 –	100,000	0.00	0.00	0.00	0.00	0.03	0.03	0.06	0.07	0.05	0.02
100,001 –	105,000	0.00	0.00	0.00	0.00	0.02	0.02	0.05	0.05	0.04	0.01
105,001 –	110,000	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.04	0.03	0.01
110,001 –	115,000	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.03	0.01	0.00
115,001 –	120,000	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.01	0.00
120,001 –	125,000	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.00
125,001 –	130,000	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00
130,001 –	135,000	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
135,001 –	∞	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (in %)		100	100	100	100	100	100	100	100	100	100

Source: Own computations

Conclusion

Forecasts of the wage distribution by the highest educational attainment were calculated based on the model three-parametric lognormal curves for the years 2011 and 2012, see Table 12.

A strong difference in the level of gross monthly wage is evident by the highest educational attainment. The level of wage increases markedly with the highest level of education. As expected, the graduates achieve the highest level of wage. For example, in the year 2003 the middle gross monthly wage of the university graduates was 1.42 times higher than for graduates of secondary vocational schools and 2.14 times higher than for workers with primary education. In the year 2010 the median of gross monthly wage of the university graduates was 1.46 times higher than for graduates of secondary vocational schools and 2.23 higher than for workers with primary education.

Acknowledgment

This paper was supported by the means of institutional support of a long-term conceptual advancement of science and research number IP400040 at the Faculty of Informatics and Statistics, University of Economics, Prague, Czech Republic.

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