THE IMPACT OF THE MINIMUM WAGE ON UNEMPLOYMENT IN THE CZECH REPUBLIC

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Abstract

Minimum wage remained unchanged for many years. Politicians and even a large part of the business sector could not agree with previously spoken rule that raising the minimum wage has a negative impact on the overall unemployment rate of the country. The article therefore initially concentrated on the development of the minimum wage in the Czech Republic and tries to find the answer by empirical methods whether the raising of the minimum wage in the Czech Republic has a real economic impact on the unemployment in this country.

The basic neoclassical model, which leads to the theoretical conclusion that the introduction of a minimum wage causes negative consequences on unemployment, has not been proven to be applicable to the Czech Republic.

Key words: labor, average wage, minimum wage, wage unemployment
JEL Code: J31, J38, J64

Introduction

The minimum wage is a branch of economic policy, introduced to prevent society's lowest earners from falling into poverty. The minimum wage aims to provide a working person with the economic means to cover life's basic necessities without depending on social benefits. As well as the humanitarian motive of assuring the basic needs for human existence, there is also a pragmatic factor to this economic practice: poverty often leads to negative societal phenomena (loss of social cohesiveness, debt, criminality etc.). These issues are potentially more problematic to society than possible financial expenses needed for the maintenance and progressive increase of the minimum wage. In addition to this social protection function, the minimum wage also fulfils the economic-criterial function: With regards to employers, the minimum wage ensures they receive fair conditions of wage competition (to prevent domestic and foreign labor from wage underbidding), while motivating citizens to search for and accept jobs instead of relying on social benefits (it is, however, necessary to maintain a sufficient difference between fixed subsistence income and the minimum wage).

Nevertheless, like every regulatory measure in the socio-economic field, the minimum wage is the subject of a fundamental political dispute. The political right emphasizes the possible negative effects the minimum wage might have on the employment rate. On the basis of this type of critique, the labor market is deformed both on the supply side and on the demand side. If the minimum wage is set too high, the demand for work on the side of the employers decreases, while the job offers on the applicants' side increases. Therefore, while providing higher wages, the minimum wage would simultaneously result in fewer employees and allegedly generate involuntary unemployment. Conversely, the political left emphasizes the aforementioned socio-protective and economic-criterial function of the minimum wage and considers the connection between raising the minimum wage and unemployment to be insignificant. The long-term predominance of right-wing, neo-liberal discourse in the public sphere, however, has made the right-wing skepticism of the minimum wage much higher than the left-wing belief in the positive impact of the minimum wage Additionally, the actual policies of our governments (after November 1989) clearly show the depth of the ideological dispute between the political left and right with regard to this issue. The minimum wage was introduced in 1991, and under the rule of right-wing governments in the previous and current century it has increased not at all or only incrementally with longer delays. Under left-wing governments, on the other hand, the minimum wage has risen regularly and notably.

The aim of my study, therefore, will be to describe the concept of the minimum wage development in the Czech Republic and to verify or refute the hypothesis that raising the minimum wage affects the rise of unemployment in the Czech Republic.

1   Definition and Function of the Minimum Wage

The minimum wage can be defined as the lowest allowable amount of labor remuneration in the labor contract. It is regulated by the Labor Code (Act No. 262/2006 Coll., As amended). The individual rates and conditions of provision are subsequently regulated by Government Regulation No. 567/2006 Coll., On Minimum Wage, on the Low Levels of Guaranteed Wages, on the Determination of the Difficult Working Environment and on the Level of the Wage Survey for Work in a Difficult Working Environment, as amended.

Considering the employees and the employers, the minimum wage has two basic functions. Their essence is to assure balanced amount of the minimum wage, both from the perspective of the employees and their employers.

- The social protection function of the minimum wage should protect employees from poverty and allow them to live at the level of modest consumption and social contacts. Considering the employers, the minimum wage should ensure them fair conditions of the wage competition (to prevent domestic and foreign labor from wage underbidding); MPSV (2010)

- The economically-criterial function of the minimum wage creates prerequisites for the income motivation of citizens to seek, receive and carry out work activities, i.e. to favor employees through income from the ones dependent on social income. For employers, the minimum wage represents the lowest level of wage costs; MPSV (2010)

Pavelka (2014) adds that it should be noted that wage labor costs for some companies form the dominant part of total production costs. Existence of a minimum wage might in this context prevent "honest" companies from wage dumping by other companies that would intentionally pay their employees lower wages. The issue of wage dumping is also crucial considering free movement of labor within the EU.

2   Minimum Wage Development

In the Czech Republic, the minimum wage was introduced for the first time in 1991. When the minimum wage level was newly amended on 1 January 2018 it turned to be the twentieth change since its introduction.

The Czechoslovak Republic (1918–1938) belonged to the first countries where a minimum wage was set for some professional groups. This applies for example to Decree No. 232/1919 Coll. of April 16, 1919, on wages for the sewing of textile goods ordered by the military administration.

"The Commission for Tailoring, which was established based on the Ministerial Order of 16 November 1917, No. 448, with regards to the Ministerial Order of 9 March 1918, No. 91, determined the smallest wage for sewing, in the assembly of the below mentioned parts of uniforms and linen delivered for direct or indirect order of the military administration ... "(Decree No. 232/1919 Coll.)

Minimum wages were afterwards negotiated predominantly in the tariff contracts and, as Barošová (2005) adds to this topic, Czechoslovakia belonged to states that used by the state set minimum wages as the ultimate social measure to protect the workers' standard of living. This applied to a narrow group of professions or industries in the period before World War II.

In post-war Czechoslovakia, the minimum wage was not set by law or by any other legal norm for several years and it was linked only to the first tariff scale of salary scales. Only in 1950 Czechoslovakia ratified the International Labor Organization Convention No. 26/1928 on the Introduction of Minimum Wage Setting Methods. In 1964, Convention No. 99/1951 on Methods of Determining Minimum Agricultural Payments was ratified. These two conventions were also ratified by the Czech Republic after the separation of Czechoslovakia in 1991.

Tab. 1: Minimum wage development in 1991–2018

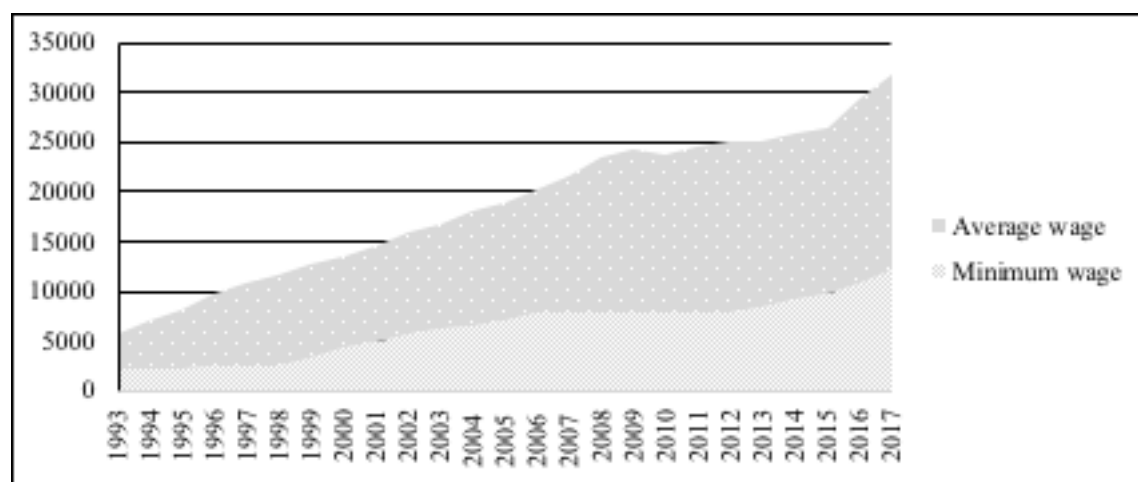| Period	The minimum wage level	
	CZK per month	CZK per hour
1991 February	2 000	10,80
1992 January	2 200	12,00
1996 January	2 500	13,60
1998 January	2 650	14,80
1999 January	3 250	18,00
1999 July	3 600	20,00
2000 January	4 000	22,30
2000 July	4 500	25,00
2001 January	5 000	30,00
2002 January	5 700	33,90
2003 January	6 200	36,90
2004 January	6 700	39,60
2005 January	7 185	42,50
2006 January	7 570	44,70
2006 July	7 955	48,10
2007 January	8 000	48,10
2013 August	8 500	50,60
2015 January	9 200	55,00
2016 January	9 900	58,70
2017 January	11 000	66,00
2018 January	12 200	73,20

Source: MPSV (2018)

The current minimum wage, in a way as it is known today, was set by the government on February 1, 1991 in Government Order No. 99/1991 Coll. on the Determination of the Minimum Wage, § 1: "...the regulation provides for the provision of a minimum wage to the workers in the employment contract, or to the members in the member state to the cooperative, where the membership is also a working relationship (hereinafter "worker ")..."

The minimum wage level has not changed for intervals of several years. The first interval took place in 1992–1996. The second, being alongside the longest, took place in 2007–2013, when the minimum wage was not amended at all. Apart from these exceptions, the amount of the minimum wage was adjusted annually in 1999 and 2000. In 2006, the minimum wage was adjusted twice. The evolution of the minimum wage since 1991 is to be seen in Table No. 1.

Chart No. 1 provides evidence of the fact that the so-called "minimum wage freeze" that took place in the last few years caused that the gap between both the monthly and average wage was expanding. Significant social division followed afterwards.

Fig. 1: Minimum wage development and average gross wage in the Czech Republic

Source: Adapted from MPSV (2013)

3   Empirical Analysis

In the period of right-wing governments, there has been no increase in the level of minimum wages, notably with reference to neoclassical theory and hence to the negative economic impact on employment. Politicians and a large part of the economic sphere (Card 1992, Neumark and Washer 2000, Card and Krueger 1994, Stewart 2004, Campolieti, Fang and Gunderson 2005, Aaronson 2007, Jia and Zhang 2011) have so far failed to agree with the

stated rule that raising the minimum wage has a negative impact on total unemployment. In this research paper I would like to subject this hypothesis to econometric investigation.

On the basis of the facts ascertained, the hypothesis was defined as following: whether there is a dependency of all the explaining variables listed below on total unemployment in the Czech Republic as an explanatory variable. The analysis will be based on the data of the Czech Statistical Office, the Research Institute of Labor and Social Affairs and the Ministry of Labor and Social Affairs, and will occupy with the period 1994–2017.

The unemployment rate (U_TOT) will be selected as an explanatory variable [y1] in the model. Data on the unemployment rate will be obtained from the database of the Czech Statistical Office.

The yearly difference between the minimum wage ratio and the average wage will be employed as an explaining variable [x1] that will serve to verify the hypothesis, and will be expressed as MW/AW. This indicator explains the motivation of people to work even for just a minimum wage. The higher the ratio, the closer gets the minimum wage to the average wage, which means that people are more motivated to work. Unemployment is therefore declining and, as described above, the notional social disparity in the society is narrowing.

The explaining variable [x2] will be represented by the growth rate of GDP - expressed as GDP in the model. Since there is a predominance of the assumption that consumption and investment are rising in times of economic growth, job demand is on the rise and unemployment is hence declining.

Another explaining variable that will be present in the model is the ratio between the minimum and the subsistence wage. Within the model, the year-to-year difference in the ratio between these two values will be used. Generally speaking, the closer the minimum wage is set to the subsistence level, it pays off to stay on social benefits than to work. On the other hand, the more distant these values are, the more people will be motivated to find a job. Depending on this fact, unemployment should be reduced. The ratio between these indicators will therefore be chosen as another explanatory variable [x3] and will be expressed as MW/SM.

The model also includes a variable that captures progressive income tax on natural persons [x4]. This information will be obtained from the website of the Research Institute of Labor and Social Affairs. It will be expressed as PT in the model.

Firstly, the impact of the minimum wage on unemployment will be examined using a regression analysis. Afterwards, the econometric model will be subjected to the measurement using the smallest squares method.

3.1 Regression

Correlations

		U_TOT	MW_AW	GDP	MW_SM
Pearson Correlation	U_TOT	1,000	0,189	-0,088	0,239
	MW_AW	0,189	1,000	0,387	0,749
	GDP	-0,088	0,387	1,000	0,294
	MW_SM	0,239	0,749	0,294	1,000
Sig. (1-tailed)	U_TOT		0,182	0,337	0,125
	MW_AW	0,182		0,028	0,000
	GDP	0,337	0,028		0,077
	MW_SM	0,125	0,000	0,077	
N	U_TOT	25	25	25	25
	MW_AW	25	25	25	25
	GDP	25	25	25	25
	MW_SM	25	25	25	25

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,297[a]	0,088	-0,042	1,76114	0,088	0,679	3	21	0,575

a. Predictors: (Constant), MW_SM, GDP, MW_AW
b. Dependent Variable: U_TOT

ANOVA[a]

| Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,316	3	2,105	0,679	,575[b]
	Residual	65,134	21	3,102		
	Total	71,450	24			

a. Dependent Variable: U_TOT

b. Predictors: (Constant), MW_SM, GDP, MW_AW

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	4,9797	7,2695	6,1720	0,51301	25
Residual	-3,60523	2,92792	0,00000	1,64740	25
Std. Predicted Value	-2,324	2,139	0,000	1,000	25
Std. Residual	-2,047	1,663	0,000	0,935	25

a. Dependent Variable: U_TOT

Scatterplot
Dependent Variable: U_TOT
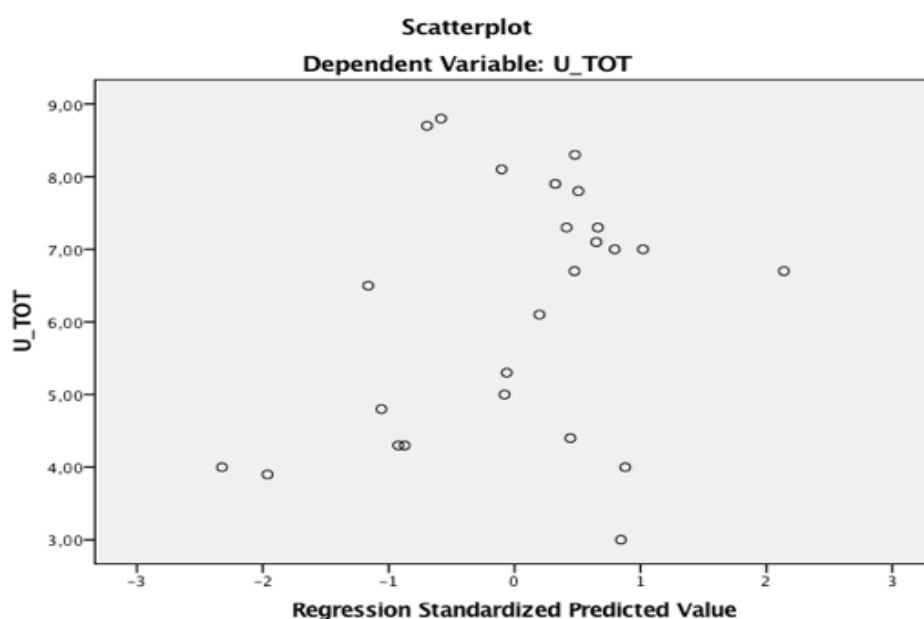
Std. Residual	-2,047	1,663	0,000	0,935	25

a. Dependent Variable:

The impact of the minimum wage on unemployment was analyzed using standard statistical methods. The statistical significance test and the appropriate correlation coefficient for a given type of variables, in this case Pearson, were used to determine the relation of selected variables and thus to measure the possible statistical dependence, their relationship and the power between the variables. Significance tests excluded the relationship between the variables, i.e. that the selected variables do not coincide in any way. The non-existence of the relationship between the variables (linear or other) can also be graphically displayed using the so-called scatterplot (two-dimensional dot diagram).

Formulation of the model

$$y1 = (x1_t, x2_t, x3_t, x4_t)$$

Formulation of the econometric model

$$U\_TOT_t = \beta_0 + \beta_1\ MW/AW_t + \beta_2\ GDP_t + \beta_3\ MW/SMt + \beta_4 PTt + u_t \beta 1$$

Formulation of the econometrical model

Abbreviation	Variable	Kind of variable
MW/AW	Minimum wage/average wage	quantitative
GDP	Gross domestic product	quantitative
MW/SM	Minimum wage/subsistence wage	quantitative
PT	Progressive taxation	dummy

Source: own source

Model 1: OLS, using observation of period 1994–2017 (T = 24)

Dependent variable: U_TOT

	coefficient	determined error	t-podíl	p-value	
const	1,67922	2,75564	0,6094	0,5495	
MW/AW	−0,0146118	18,4964	−0,0007900	0,9994	
GDP	−0,344107	0,0878048	−3,919	0,0009	***
MW/SM	1,74092	1,60212	1,087	0,2908	
PT	2,51512	0,661290	3,803	0,0012	***

Test of the presence of heteroscedasticity

The model was examined using a statistical test to determine whether Gauss-Markov's assumptions were compromised, which would result in multi-collinearity, autocorrelation, or heteroscedasticity. The presence of heteroscedasticity was tested using White's test in the model. This test did not prove the occurrence of heteroscedasticity, since the resulting p-value was higher than the critical threshold of 0.05. Therefore, the model proved to be conclusive.

Conclusion

The aim of this study was the concept of the minimum wage development in the Czech Republic and its influence on the growth of unemployment. According to the neoclassical labor market, the introduction of the minimum wage has a negative impact on the labor market. Therefore, this theory has been subjected to an empirical analysis to verify its applicability to

the Czech Republic. Based on ascertained facts, the hypothesis was defined as follows: whether the increase of the minimum wage affected the overall unemployment in the Czech Republic. The hypothesis served as a basis for subsequent compilation of the examined model to which some other variables that affect unemployment were added.

Firstly, the hypothesis was investigated using standard statistical methods that did not demonstrate any significant relationships between the variables. Subsequently, the influence was measured using an econometric model by means of the smallest squares method. On the grounds of the executed analysis of the model, it became evident that the minimum wage does not have a statistically significant impact on the unemployment rate in the Czech Republic. The GDP parameter proved to be statistically significant, which might mean that the parameter has a real impact on the growth/decrease of unemployment. The function in a linear form thus describes the dependence of the endogenous variable on the changes of this exogenous variable. The results show that if GDP rises by 1 %, unemployment will fall by 0,344 %.

The model has demonstrated another significant variable which has an impact on the unemployment rate. This variable represents progressive income tax on natural persons. The model, however, only considered its existence, not the amount of individual tax levies.

The basic neoclassical model, which leads to the theoretical conclusion that the introduction of a minimum wage causes negative consequences on unemployment, has not therefore been proven to be applicable to the Czech Republic.

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