

THE EFFECT OF A RAPID INCREASE IN THE MINIMUM WAGE IN THE CZECH REPUBLIC

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Abstract

The impact of the minimum wage on the labour market has received considerable attention in the world literature. The article builds on the original study by Pavelka (2014), which examined the impact of raising the minimum wage in the Czech Republic on the overall unemployment rate, youth unemployment rate and unemployment rate of people with the lowest level of education using data from 1998 to 2011. The results showed a statistically insignificant impact of minimum wage changes on the overall unemployment rate and the unemployment rate of those with the lowest level of education. For young people, the impact of minimum wage changes could not be demonstrated.

Since 2011, there have been significant changes in the minimum wage in the Czech Republic, especially in the last 5 years. The results of the analysis carried out in this article, using the original study model and including the latest data for 2012-2019, show that the original conclusions are still valid. The changes in the minimum wage in the Czech Republic have no significant impact on the overall unemployment rate, youth unemployment rate and unemployment rate of those with the lowest level of education. These unemployment rates are influenced by other factors, with the economic cycle as the key factor.

Key words: minimum wage, unemployment rate,

JEL Code: J31,J38

Introduction

In 2014 study Pavelka (2014) analysed the impact of minimum wage on total unemployment, youth unemployment (aged 15-24) and unemployment of people with the lowest level of education (ISECD97 - level 0-2). The study used quarterly data on unemployment rates for the period 1998 - 2011. The author concluded “Some positive dependence was shown between the changes in the minimum wage and the changes in the overall unemployment rate. Increasing the minimum wage leads to a slight increase in the overall unemployment rate.

However, this dependence is relatively weak, the chosen model explains only a low percentage of variability. The positive correlation between the changes in the minimum wage and the changes in the unemployment rate of those with the lowest level of education is not entirely conclusive. For young people, the relationship between the changes in the minimum wage and the changes in the unemployment rate for this group of people cannot be demonstrated on the basis of the chosen model” (Pavelka, 2014, p. 77).

The minimum wage has increased significantly in recent years, and we therefore consider that it is appropriate to verify whether this development of the minimum wage has led to a change in the conclusions of the original study, i.e. the impact of minimum wage changes on the unemployment rate of the above groups is inconclusive.

1 A literature review and the development of minimum wage

Pavelka (2014) used data on the total unemployment rate (persons aged 15 - 64 years), on the unemployment rate of young people (aged 15 - 24 years) and persons with the lowest level of education (according to ISCED-97; ISCED 0 - Pre-primary education, ISCED 1 - Primary education and ISCED 2 - Lower secondary education) in his study. To analyse the relationship between the changes in the minimum wage and given unemployment rates, the author used an autoregressive model (AR1) with growth differences. In his study, Pavelka (2014) also conducted a detailed literary research focusing on the impact of the minimum wage on unemployment in the Czech Republic.

The impact of the minimum wage on the unemployment of young people and those with low education levels is often discussed in the literature (see Neumark, D., & Wascher, W. (2004), Neumark, D., & Wascher, W. (2015) or Christl, M., Köppl Turyna, M., & Kucsera, D. (2015).

Pavelka, Skála and Čadil (2014) extended the original model from study by the impact of the economic cycle. The economic cycle was identified in the article as the main cause of changes in the unemployment rates. Pícl and Richter (2014) also found a statistically insignificant effect of the minimum wage on the unemployment rate.

More recent studies on the impact of the minimum wage on the labour market in the Czech Republic include a study by Grossmann, Jurajda, Smolka (2019). The authors concluded that increases in the minimum wage in 2013, 2016 and 2017 had no significant negative impact on employment.

The nominal minimum wage has changed significantly since the original study by Pavelka (2014). From January 2007 to August 2013, the minimum wage remained unchanged at CZK 8,000 per month. The former right-wing government justified not increasing the minimum wage just by its negative effects on the labour market. However, in the following years the minimum wage grew rapidly. From 2013 to early 2019, the minimum wage increased by 4850 CZK, which represented an increase of 57%. Table 1 shows the changes in the minimum wage in the Czech Republic since 1991.

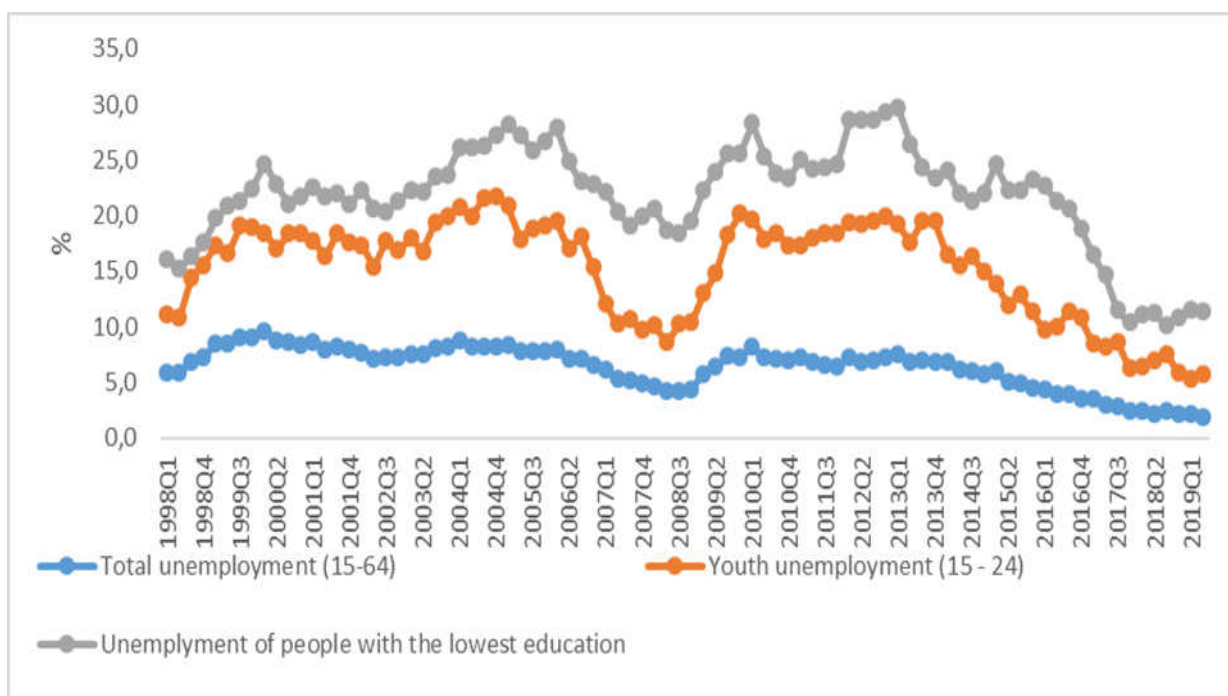
Tab. 1: Development of the minimum wage in the Czech Republic

Change from	CZK/month	Change from	CZK/month
1991 February	2 000	2004 January	6 700
1992 January	2 200	2005 January	7 185
1996 January	2 500	2006 January	7 570
1998 January	2 650	2006 January	7 955
1999 January	3 250	2007 January	8 000
1999 July	3 600	2013 August	8 500
2000 January	4 000	2015 January	9 200
2000 July	4 500	2016 January	9 900
2001 January	5 000	2017 January	11 000
2002 January	5 700	2018 January	12 200
2003 January	6 200	2019 January	13 350

Source: Ministry of Labour and Social Affairs of the Czech Republic

It was precisely the rapid rise in the minimum wage, that raised concerns about its negative impact on the unemployment rate. The development of the overall unemployment rate, the youth unemployment rate and the unemployment rate of those with the lowest unemployment rate is shown in Chart 1.

Fig. 2: Unemployment rate in the Czech Republic (1998 – 2019)



Source: Eurostat

2 Model and results

To estimate the impact of the minimum wage on unemployment, we choose a simple autoregressive model (the same one as in the original study), expressed by the equation:

$$d \log(u_t) = c + d \log(mw_t) + d \log(u_{t-1}) \quad (1)$$

Where:

u_t – the unemployment rate in a given quarter

u_{t-1} – the unemployment rate in the previous quarter

m_{wt} – the nominal minimum wage in a given quarter

c – a level constant

The estimation is performed by a standard OLS with robust standard errors.

In this analysis, quarterly unemployment rate data - total, young people and people with the lowest level of education - from the first quarter of 1998 to the second quarter of 2019 are used.

The minimum wage and total unemployment

The results are shown in Table 2. It is clear that the minimum wage have an impact on the overall unemployment rate, a 1% increase in the minimum wage leads to a 0.57% increase in unemployment. However, the model explains a relatively small part of variability ($R_2 = 0.098$) and therefore cannot be perceived as predictably strong (thus it cannot be argued that increasing the minimum wage will lead to higher total unemployment).

Tab. 2: Estimation of equation no. 1 for the relation between the minimum wage and the total unemployment rate

gutotal	Coef.	St.Err.	t-value	p-value	Sig.
L.gutotal	0.144	0.095	1,51	0.135	
gmw	0.569	0.135	4.21	0.000	***
Constant	-0.023	0.010	-2.29	0.025	**
Mean dependent var	-0.013	SD dependent var		0.077	
R-squared	0.098	Number of obs		84.000	
F-test	9.581	Prob > F		0.000	
Akaike crit. (AIC)	-195.066	Bayesian crit. (BIC)		-187.774	
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$					

Source: own calculation

The minimum wage and unemployment of young people

The results are shown in Table 3. Obviously, based on the model under consideration, it is not possible to establish a correlation between changes in the minimum wage and changes in the youth unemployment rate.

Tab. 3: Estimation of equation no. 1 for the relation between the minimum wage and the unemployment rate of young people

guyouth	Coef.	St.Err.	t-value	p-value	Sig.
L.guyouth	0.052	0.101	0.51	0.610	
gmw	0.137	0.276	0.50	0.621	
Constant	-0.010	0.014	-0.71	0.481	
Mean dependent var	-0.008	SD dependent var		0.111	
R-squared	0.004	Number of obs		84.000	
F-test	0.203	Prob > F		0.817	
Akaike crit. (AIC)	-126.059	Bayesian crit. (BIC)		-118.767	
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$					

Source: own calculation

The minimum wage and unemployment of people with the low levels of education

The results are shown in Table 4. The estimate shows that there is again a positive relationship between the minimum wage and the unemployment rate of those with the lowest level of education. An increase the minimum wage by 1% will lead to an increase in the unemployment rate of people with the lowest level of education by 0.38. However, this dependence is again relatively weak, explains only 13% of variability, and it is therefore questionable whether this estimate suggests that this group's unemployment rate will increase with a high degree of certainty as the minimum wage increases.

Tab. 4: Estimation of equation no. 1 for the relation between the minimum wage and the unemployment rate of persons with low levels of education

guedu	Coef.	St.Err.	t-value	p-value	Sig.
L.guedu	0.279	0.107	2.60	0.011	**
gmw	0.384	0.162	2.37	0.020	**
Constant	-0.010	0.008	-1.20	0.235	
Mean dependent var	-0.004	SD dependent var		0.071	
R-squared	0.132	Number of obs		84.000	
F-test	8.944	Prob > F		0.000	
Akaike crit. (AIC)	-212.684	Bayesian crit. (BIC)		-205.392	
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$					

Source: own calculation

Conclusion

From the above models, it is clear, that the results do not differ from the conclusions of the original article Pavelka (2014), so we can use the same text of the conclusion. The relationship between a change of the minimum wage and the unemployment rate is not clear. Some positive dependence was shown between the changes in the minimum wage and the changes in the overall unemployment rate. Increasing the minimum wage leads to a slight increase in the overall unemployment rate. However, this dependence is relatively weak; the chosen model explains the low percentage of variability. The positive correlation between the changes in the minimum wage and the changes in the unemployment rate of those with the lowest level of education is not entirely conclusive. For young people, the dependence between the change in the minimum wage and the change in the unemployment rate cannot be demonstrated based on the chosen model – also the same conclusion with the original study.

Other factors also seem to have had a dominant influence on the unemployment rate of all three groups of persons in the period under review. It is therefore clear that a longer time series compared to that used in the original article did not bring any significant changes in the results, even in a situation where the minimum wage in the Czech Republic has increased significantly in the last few years.

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