THE IMPACT OF MINIMUM WAGE ON THE LABOUR MARKET OF LITHUANIA

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Abstract. *Recently, Lithuanian trade unions have announced the requirement for the government to raise the minimum wage by more than 10 percent, e.g. from 800 to 900 Lt. The aim of the study was to investigate the possible consequences of the implementation of such a requirement. Minimum wage (MW) macroeconomics in theoretical aspects and the practical evidence of it consequences in the EU countries are analyzed in the first part of the article. The second part provides an assessment of the impact of the 100 Lt raise in MW on the Lithuanian labor market. This assessment is carried out using econometric techniques.*

Key words*: regression analysis methods, polynomial regression function, positive, negative and optimal minimum wage level*

Introduction

The minimum wage is an amount of salary set by a government, below which employers are not allowed to pay their workers. For the first time, minimum wage was introduced in Australia and New Zeeland in 1824 as a four-year experiment. Later, in 1900, the Wage Board and Minimum Wage law was renewed. In 1907, the British secretary of State investigated the results of the minimum wage laws in Australia and New Zealand. As an outcome of this investigation, the minimum wage was set in Great Britain in 1910. In the USA, statutory minimum wages were first introduced nationally in 1938 (Waltman, 2000).

Although the goals of the minimum wage are widely accepted as proper, there is a great disagreement whether the raise of MW is effective in attaining the poverty-reducing goals. From the beginning, the minimum wage has been highly controversial politically and has received much less support from economists than from the general public.

Twenty countries out of 27 members of the EU had national legislation setting statutory minimum wages in 2010. These counties are: Belgium, Bulgaria, Czech Republic,

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Estonia, Ireland, Greece, France, Lithuania, Latvia, Luxemburg, Hungary, Malta, the Netherlands, Poland, Portugal, Slovenia, Slovakia, Spain and the UK. Seven countries (Austria, Finland, Denmark, Germany, Italia, Sweden and Cyprus) have no statutory minimum wage. The 20 countries, according to the level of MW, can be split into three groups (Fig.1). Nine post-communist countries – Bulgaria, Romania, Lithuania, Latvia, Hungary, Estonia, Poland, Slovakia, and Czech Republic – constituted the low MW group of countries. MW in these countries is less than 306 EUR. Six countries – the UK, France, The Netherlands, Belgium, Ireland and Luxemburg – set the MW higher than 1000 EUR and constitute the group of countries with a high MW. In the southern countries (Portugal, Malta, Greece, Slovenia and Spain) the medium size of MW varies from 525 to 728 EUR.

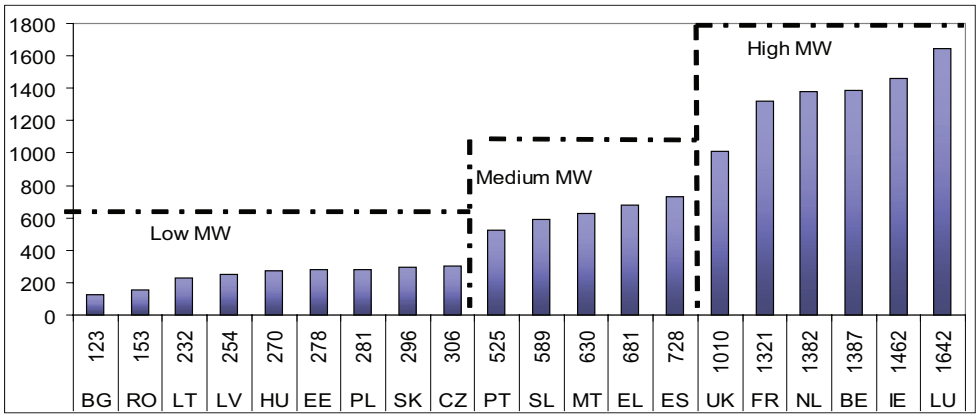


FIG. 1. **Minimum wages in 2009 (EUR)**

Source: Eurostat data in Focus 29/2009.

The absolute amount of the gross MW varies in a rather wide interval from 123 in Bulgaria to 1642 EUR in Luxemburg. The wide variation of MW decreases from 13 times to only 6 if the purchasing power standards are taken into account.

To assess the MW, it is important to compare it with the national average wage. The variation of the MW as a percentage of the average monthly earnings is not very wide. It varies from 30 percent in Romania to 50 percent in Luxemburg. Post-communist countries set the MW less than 40 percent and the old EU members round 43 percent of the average monthly earnings. The MW in Lithuania is 33.5 percent of the average monthly earnings.

The 2009–2010 economic crisis caused additional challenges for the governments. The response to the crises of the EU states was not uniform. Figure 2 illustrates the governments' behaviour related to the MW in two periods: economic growth (2007) and crisis (2009). Two countries – Slovakia and the UK – reduced MW in 2008. A moderate but

constant growth of less than 13 percent during three years was observed in twelve countries: Belgium, Czech Republic, Greece, Spain, France, Hungary, Luxemburg, Ireland, Malta, Poland, Romania, Slovakia and the UK. A very rapid increase of MW, exceeding 15 recent per year, was observed in Latvia and Portugal. As the real life shows, in periods of crisis it makes sense not only to stabilize, but even to reduce MW in the complex economic situation.

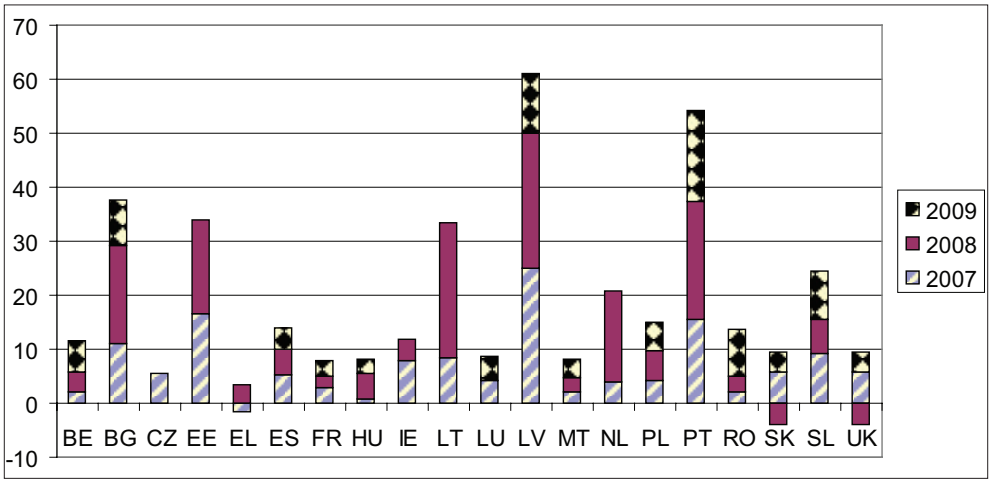


FIG. 2. **Annual growth rates of MW in 2007–2009 (percent)**

Source: Eurostat data in Focus 29/2009.

Controversial opinions about minimum wage

Arguments in favour of minimum wage

1. The raise of MW increases the standard of living for the poorest and most vulnerable people in society (Kai Filion, 2009). According to the statistical data, more than 80 percent of poor people are out of the labour market. They are unemployed or inactive. This fact leads to the conclusion that MW increases the standard of living only for a small number of poor people.
2. A higher MW motivates previous recipients of the welfare programs to join the labour market because of the greater reward for their efforts and as a result decreases the costs of government's social welfare programs (Kai Filion, 2009). Moreover, a higher MW stimulates people to join the legal labour market rather than getting money through illegal activities. The arguments that increase in the minimum wage motivates poor people to leave social assistance programs as well as illegal works and join the official labour market is the truth for the employed in Lithuania. On the other hand, the increased MW pushes private employer to the shadow economy since

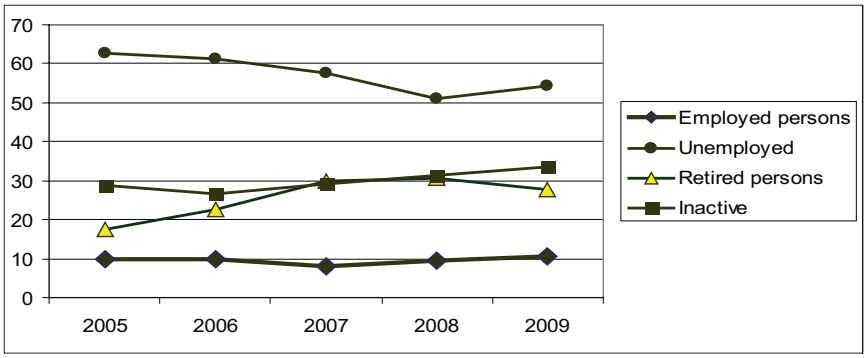


FIG. 3. **The rate of persons aged 18 and older by activity status**

Source: Statistical Department Data Basis of Indicators.

the labour costs increase significantly, since the employer has to pay not only higher wages for the same job, but also to contribute additional 31 percents of the increased amount to the Social Security funds. Consequently, the employer is motivated to pay an official salary for the part-time job while keeping a full-time employee and remunerating the remaining part illegally.

3. A higher MW stimulates consumption by giving more money to the low-income population who spend all their incomes. This argument is valid for Lithuania. About 70 percent of consumption expenditures of the poor people (the first and the second deciles) contributes to spending on food, cloths and housing. Therefore, the increased MW will benefit the employed poor families and the producers and sellers of these commodities.
4. The raise in MW promotes the automation of the industry and services The trend to replace low-skilled jobs with machines or computers is evident in Lithuania. An example is establishing automatic car wash rather than the washing by hand, self-scan lines at the supermarkets, the internet banking, etc. The automation process saves labour costs for the employer, but it leads to a decrease of the demand of low-skilled workers in the labour market.
5. The MW increases the state budget revenue from the income tax. This argument for Lithuania is right, because 31 percent of the pre-taxed MW contribute to the transfer to the state social insurance fund.

Arguments against minimum wage

Opponents of the minimum wage indicate the following negative effects:

1. The increase of MW reduces labour demand through the reduction of the number of jobs or working hours. This is a statement of an introductory microeconomics theory,

which states that the shift upwards in the product price diminishes the demand of the product and increases its supply. MW is the price of the low-skilled or young workers without working experience. The political decision to increase the MW force the raise of the low-skilled workers' salary (price) which leads to a decrease of demand and, consequently, raises unemployment among this category of jobs. This effect is not valid if the new MW is smaller or equal to the equilibrium labour market salary for this category of jobs. This is the reason why the statutory MW is rather low and rarely exceeds 40 percent in many countries.

2. Changes in MW affect the small business much more than the large business. This situation is typical of Lithuania: here, small private businesses are rather weakly developed, and the additional labour costs are too hard a burden for them. Small businesses may respond to the risen MW in three different ways. The first one is increasing the price of its products or services. This solution is appropriate and reasonable for periods of economic growth, but it is inadequate in crises or recessions. The second way is to cut the MW jobs and to add the additional responsibilities together with the extra money for the workers whose salary is higher than MW. The third way is partly to go to the shadow e.g., officially contract the same worker part-time and to pay the rest in black.
3. MW may cause inflation in the economic growth periods. As mentioned above, this happens in the situation when the employer increases prices after the raise of MW.

Assessment of the impact of increased minimum wage on the Lithuanian labour market

Currently, Lithuanian trade unions express a strong demand to increase the minimum wage from 800 to 900 Lt, motivating by the willingness to help the low-income population. The underlying idea is that employers in Lithuania have a monopolistic power to lower the salaries of the low-paid workers. The statutory setting of a higher minimum wage is seen as a good way to reduce the poverty in the country.

In this paragraph, the possible effects of this measure on two essential elements of the labour market – employment and wages – will be analyzed using the econometric methods.

It is assumed that MW increase has a different impact on the public and the private sectors; therefore, the econometric models were made for both sectors separately.

A. Econometric model of the increased MW effects on the employment and average wage

The assessment of the impact was carried out using the regression model. The underlying idea of the model is as follows: the level of the statutory minimum wage makes an

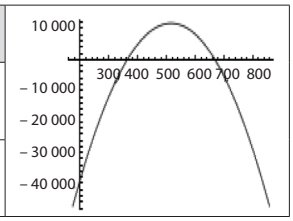
impact on changes in the private sector employment level. The pattern of MW impact is not homogeneous and depends on the MW level. If the increased level of MW is in line with the low-skilled labour costs, it has a positive impact on the employment, motivating people to enter the labour market. The optimal MW is equal to the market average cost of this category of jobs. If the increase in MW is higher than the labour costs of low-skilled jobs, then it diminishes the demand of this kind of jobs. In this case, MW has a negative impact on the employment. The increased MW may impact the employment with a delay, i.e. not necessarily in the same period.

The empirical evaluation of the models (1–4) was based on the 2000–2008 quarterly data provided in the Data Basis of Indicators of the Statistical Department (Lietuvos...). The average number of employees in private and public sectors are dependent variables in the (1) and (2) models, while the average net earnings in the private and public sectors are dependent variables in models (3) and (4). To ensure the stationarity of the data, the employment and the average net wage data were seasonally adjusted and differentiated; e.g., they were included in the model as a difference of the t and t-1 period values. The absolute value of the minimum monthly wage is presented in each of the four models as an independent variable of the quadratic function form. The absolute value of MW in the period 2000–2008 has risen from 430 to 800 LTL. The data of 2009 and 2010 were not presented in the analysis, since MW did not change in that period and the economic crisis started, what may influence and complicate the MW impact assessment.

The impact of MW on the employment

As the calculations show, approximately 51 percent of the variation in the quarterly change of the private sector employment depends on changes in MW (see R^2 in Table 1). The remaining 49 percent can be explained by the other factors. The impact of MW on the employment in the private sector is expressed by a second-degree polynomial function which allows to simulate the different impact patterns of interaction depending on the MW level.

TABLE 1. **Estimation of MW impact on employment in private sector**

A model of MW impact on employment in private sector	**R^2**	**DW**	
$d(EMPRIVSA_t) = -1224996 + 519.84MW_{t-3} - 0.503W^2_{t-3} + \varepsilon$	**0.512**	**2.16**	
t-stat -3.165 3.7 -4.107			

Source: calculations of the author with EViews.

As shown in the diagram Table 1, the MW has a positive effect on employment changes when its level varies within 370–670 LTL. The optimal level of MW, which maximizes the employment growth in the private sector, is about 516 LTL (the derivative of the equation). The rise of MW from 516 to 670 LTL has a dropping (diminishing) positive impact on the employment. The level of MW higher than 670 LTL affects the employment negatively. The suggested increase of statutory MW from 800 to 900 LTL will cause a decrease of employment in the private sector presumably by 5 percent.

The calculations of the private sector employment model (1) with different lags of MW variable (1, 2, 3 and 4 quarters delay) have proven that the complete impact of the increased MW has manifested itself after three quarters. The R^2 and the significance of the t-stat of the coefficients were applied as a criterion for the proper lag verification.

TABLE 2. **The MW impact on the public sector employment**

A model of MW impact on the employment in public sector	**R^2**	**DW**	
$d(EMPUBSA_t) = -42791.6 + 137.80MW_{t-3} - 0.111W^2_{t-3} + \varepsilon_t$	**0.06**	**1.44**	
t-stat -1.303 1.159 -1.071			

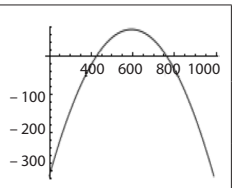
Source: calculations of the author with EViews.

The estimation of the model (2) revealed the absence of any MW impact on the employment in the public sector (Table 2). None of the estimated models with a different lag of MW was statistically significant (R^2 close to 0; t-stat less than 2). Therefore, the conclusion is that the increase in MW does not have any significant impact on the public sector employment level.

The impact of MW on the change of average salary

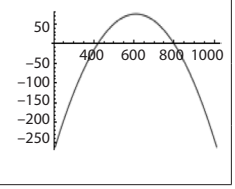
The estimation of the model (3) has confirmed that MW has an impact on the average private sector salaries. The determination coefficient (R^2) is 0.57. The diagram in Table 3 shows that the raise of MW up to the level of 765 LTL increases the average salary of the private sector. The optimal level of MW, which maximizes the growth of the salary in the private sector, is 600 LTL (the derivative of the equation). The raise of MW from 600 to 765 LTL has the diminishing positive impact on the average salary. When MW exceeds the level of 765 LTL, it causes a decrease of the average salary in the sector. As mentioned before, when the labour cost for small business is too high, employers turn to pay for the work in black. Similarly as in the employment model, the complete effect of the increased MW manifests itself completely after three quarters (Table 4). The estimation result of the MW impact on the public sector average salary changes.

TABLE 3. **Estimation of MW impact on the average wage level in private sector**

A model of MW impact on the average wage in private sector				**R^2**	**DW**	
$d(AWPRIVSA_t) = -800.0705 + 2.93414MW_{t-3} - 0.002468W^2_{t-3} + \varepsilon$				**0,574**	**2,156**	
t-stat	-3.165	3.710	-4.107			

Source: calculations of the author with EViews software.

TABLE 4. **Estimation of MW impact on the public sector average salary changes**

A model of MW impact on the average wage in private sector				**R^2**	**DW**	
$d(AWPUBSA_t) = -697.516 + 2.53018MW_{t-3} - 0.00207W^2_{t-3} + \varepsilon$				**0.374**	**2.29**	
t-stat	-3.165	3.710	-4.107			

Source: calculations of the author with EViews software.

The impact of MW is less significant for the public than for the private sector ($R^2 = 0.37$). However, the t-stat confirms the statistical significance of the relationship between the MW level and the increase of the average salary in the public sector. According to the estimated polynomial function (see diagram in Table 4), the optimal level of MW in the public sector is 800 LT. The further MW increase up to 900 LTL will not cause any significant change of the average wage in the public sector.

The conclusion of this analysis is that currently it is not the right time to increase the MW from 800 to 900 LTL, because it may cause opposite consequences, e.g. decrease the employment of low-skilled jobs and raise the share of the salary paid in black in small business. In the economic downturn period, it is advisable to keep the MW stable or even lower, aiming to help small and medium business to employ more workers.

Conclusions

From the very beginning, the minimum wage has been highly controversial politically and has received much less support from the economists than from the general public.

In 2010, twenty countries out of 27 EU Members had national legislation setting statutory minimum wages. These counties are: Belgium, Bulgaria, Czech Republic, Estonia, Ireland, Greece, France, Lithuania, Latvia, Luxemburg, Hungary, Malta, the Netherlands, Poland, Portugal, Slovenia, Slovakia, Spain and the UK. Seven countries

(Austria, Finland, Denmark, Germany, Italia, Sweden and Cyprus) have no statutory minimum wage so far.

Currently, Lithuanian trade unions express a strong demand to increase the minimum wage from 800 to 900 LTL, motivated by the willingness to diminish poverty and to help low-income population. The assessment of the impact of increasing MW by 100 LTL on the employment and the average salary size in private and public sectors separately was carried out applying the regression model based on 2000–2008 employment, average salary and minimum wage quarterly data

The investigation revealed that the MW has a positive effect on employment changes, when its level is in the interval from 370 to 670 LTL. The optimal level of MW is 516 LTL. The raise of MW from 516 to 670 LTL has a diminishing but positive impact on the employment. The MW higher than 670 LTL affects the employment negatively. The raise of statutory MW from 800 to 900 LTL would cause a decrease of employment in the private sector presumably by 5 percent.

The estimation revealed the absence of any impact of MW on employment changes in the public sector. The increase in MW does not have any significant impact on the public sector employment level.

The study has confirmed the impact of MW on the average salary in the private sector. The raise of MW up to the level of 765 LTL increases the average salary of the private sector. The optimal level of MW is about 600 LTL. The MW higher than 765 LTL causes a decrease of the average salary in the private sector. This reason can be that the level of MW increases the labour cost too much for small businesses. Therefore, employers tend to pay low-skill workers in black. The full impact of the increased MW manifests itself after three quarters.

In summary, it can be stated that currently it is not the right time to increase the MW from 800 to 900 LTL, since it may cause the opposite consequences, e.g., decrease the employment of low-skilled jobs and raise the frequency of salary paid in black and small businesses.

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