

# Evaluation of the Relationship between Labour Taxation and Unemployment: Case Study of Lithuania in the EU Context

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This paper analyses the impact of labour taxation on the labour market (its indicators), measures the relationship between labour taxes and the rate of unemployment in Lithuania, and seeks to establish whether the tax wedge has an impact on employment. The obtained results suggest that the unemployment rate in Lithuania tends to vary mainly due to cyclical economic fluctuations. However, to some extent, the level of unemployment, especially of unskilled labour, depends on its taxation. In Lithuania, the tax wedge on low-wage earners, i.e. those paid a little more than the minimum wage, is relatively high in the context of other EU countries. However, the overall labour taxation (describing all labour force) is low because of a relatively low taxation of high-income individuals. The article examined the scientific literature which confirms the existence of a link between the taxation of low-skilled and low-paid workers and the unemployment rate for this group. In addition, labour taxation and benefit levels can influence people's motivation to take up a job. The conducted estimates support a direct link between the economically inactive population (aged 20–64) and the unemployment trap indicator. A greater unemployment trap leads to a bigger percentage of the economically inactive population in the country.

**Keywords:** labour taxation, tax wedge, tax burden, unemployment trap, economic cycles

**JEL Classification:** O15; D63; E24; E32; H29; J31

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## INTRODUCTION

In the recent decades, there has been much discussion among economists about the impact of labour taxation on the labour market. Analysis of the literature shows that labour taxation negatively affects the labour market, but the extent of the negative impact is determined by the institutional characteristics of individual labour markets, such as employment protection,

unemployment benefits, minimum wages, employees' skill level, the number of collective agreements, and the like (Nickell 1999; Hurt et al. 2006; Santos, Sequeira 2013; Lesnik et al. 2014; Arbex, O'Deamaill 2014; Cristescu et al. 2014; Bartels, Pestel 2016).

Therefore, the main objective of the study is to measure the impact of labour taxation on labour market indicators and to determine whether the tax wedge has an impact on employment growth. Due to limited data, it is not possible to analyse this relationship for the specific case of Lithuania. Therefore, data of EU countries will be used in the analysis. Based on the results of the above analysis, conclusions will be drawn about the situation in Lithuania by means of deduction.

## **THEORETICAL ASPECTS OF THE RELATIONSHIP BETWEEN LABOUR TAXATION AND EMPLOYMENT**

Based on the empirical research, evaluating the effect of taxes on labour, two approaches are usually applied. In one group of studies indicators for the tax wedge are used, while in another group of studies tax ratios (sometimes also called effective or implicit tax rates) are used as proxies for the tax burden on labour.

Over the past few decades, the world has undergone a number of studies concerning the impact of labour taxation on the labour market. There are many scientific literature resources indicating that high labour taxation has a negative impact on the labour market. Perhaps one of the most frequently cited studies was carried out by Nickell & Layard in 1999; these scientists studied the data of 20 OECD countries in the period from 1983 to 1994 and found out that if the average tax wedge decreases by 5 percentage points, the unemployment rate drops by 13 percentage points (Nickell, Layard 1999).

Similar conclusions have been drawn by scientists Bassanini and Duval (2006) who performed a panel analysis for 21 OECD countries in 1983 and in 2003. They argue that the high tax wedge and generous unemployment benefits increase overall unemployment and reduce employment prospects. Their empirical results show that a 10 percentage points reduction in the tax wedge in an average OECD country would reduce equilibrium unemployment by 2.8 percentage points and increase the employment rate by 3.7 percentage points. Another study conducted in OECD countries also underlined the negative impact of labour taxation on employment (Belot, Van Ours 2004). Researchers analysed data for 18 OECD countries covering the period from 1960 to 1994 and found out that if the tax rate increases by 10 percentage points, the unemployment rate increases by 1.2 percentage points. Kosi and Bojnec (2006) examined the impact of the tax wedge on employment growth in the EU-25 in 1997–2004. The researchers found out that the impact of labour taxation on employment growth was considerably greater in eight EU countries with economies in transition than in the old EU Member States. Vörk et al. (2007) studied data from 1996–2004 and conducted a regression analysis for the eight new Member States. They established that greater tax wedge has a significant negative impact on labour activity and employment rate. The results showed that a one percentage point reduction in labour taxes increases the employment rate from 0.2 to 0.7 percentage points.

Research studies often emphasize that labour cost reduction has a different impact on employment of different groups of the population. Empirical evidence suggests that low-income workers, single parents, second earners and older workers are relatively responsive to changes in labour income taxation, particularly at the participation margin. In addition, taxable income elasticities suggest that higher-income individuals are more responsive to taxes than middle- and lower-income workers (Espinoza, Ruiz 2014). Góra et al. (2006) confirmed the adverse effects of

the tax wedge on employment growth in the eight new EU Member States and provided evidence that the tax wedge has a more negative employment effect among low-skilled workers. Lehmann et al. (2016) found out that a one percentage point decrease in the labour tax wedge has a favourable impact on the unemployment rate, for the average OECD country and year, of about 0.11%.

Although most studies confirm the negative impact of high labour taxation on employment, it is often emphasized that the strength of this effect is mainly determined by the institutional characteristics of individual labour markets: the minimum wage level, social and unemployment benefit payment policies, the tax incidence between employers and employees, the average skill level of labour force, the prevailing structure of wage bargaining, and others (Góra et al. 2006; Palan et al. 2013; Espinoza, Ruiz 2014; Dobele et al. 2014; Iosifidi, Mylonidis, 2017). For example, Elmeskov et al. (1998) argue that different collective bargaining arrangements influence the way in which the tax wedge affects unemployment. According to the authors, the effect of the tax wedge on unemployment is absent in countries with a highly centralised/coordinated wage bargaining system, and only marginally significant in countries with a decentralised system, while it is highly significant in countries with intermediate levels of centralisation/coordination at the labour market. Likewise, other research studies evidence that employment rates are also considerably influenced by unemployment traps which are closely related to employees' motivation to work (Merkl, Snower 2007; Galuščák, Pavel 2007). An unemployment trap arises when the opportunity cost of going to work is higher than the income received, discouraging people from returning to work and being productive. The unemployment trap indicator will be also analysed in this article below in order to identify its effects on motivation to work and labour market indicators in Lithuania.

## RESEARCH METHODOLOGY AND METHODS

Eurostat's indicators related to labour taxation are used in the article; these indicators are *the tax wedge, the implicit tax rate, and the unemployment trap*.

The interaction between the unemployment rate and economic cycles is reflected using time series with real wage growth and unemployment rates for 2000–2013. The time series with real GDP growth rate data corresponds to the period from 2006 to 2013. The correlation between the unemployment rate and economic growth was measured using the regression method. Economic growth was assessed using the real wage growth rate because of longer time series.

The linear time series regression model was used to estimate the relationship between the unemployment rate and labour taxation. Direct estimates of the relationship between unemployment and labour taxation encounter problems. The unemployment rate is particularly responsive to economic cycles. The demand for labour increases when there is an economic expansion and decreases during economic downturns. In turn, labour taxation is relevant only to a small category of low-wage earners which may face difficulties in finding a job due to the low added value and high taxation. Also, low wages and high taxes make it more financially worthwhile for the category of low-wage earners to obtain social benefits rather than take up a job. The direct evaluation of motivation to work, expressed as unemployment traps, shows that the unemployment trap is greater during periods of economic expansion due to increased social benefits, but the rate of unemployment is also lower. During economic downturns, on the contrary, the unemployment trap is falling due to cuts in social benefits, and the unemployment rate rises. Likewise, the tax wedge analysis does not directly reveal the relationship between labour taxation and unemployment rates. The tax wedge itself varied slightly in the country, mainly due to the introduced tax-exempt amount of income (TEAI), whereas the unemployment rate fluctuated significantly due

to economic cycles. Therefore, the effect of labour taxation on unemployment was estimated indirectly – through the number of economically inactive people as a percentage in the total population. The overall taxation of labour, measured according to the implicit tax method, and the estimates of unemployment links show a correlation determined by the fact that decreasing unemployment after the 2000–2001 economic crisis coincided with the declining tax wedge.

## EMPIRICAL ASSESSMENT OF LABOUR TAXATION AND INDIVIDUALS' MOTIVATION TO WORK

### Labour taxation and motivation to work in Lithuania in the context of EU countries

Taxes relating to the labour force should be assessed ambiguously (Fig. 1) and vary depending on the respective group of personal income. In the context of the assessment, two levels can be identified by the existing indicators: taxation of low-wage earners and taxation of total labour force. The taxation of low-wage earners is measured by the tax wedge method. The assessment of the Lithuanian tax wedge in the context of EU countries<sup>1</sup> demonstrates that the Lithuanian indicator stands at 38.9% and is higher than the EU average (34.9%). Meanwhile, the implicit tax rate (calculated for total labour force) shows that the tax rate in Lithuania is 31.9%, being lower than the EU average (36.1%). These differences in relation to the EU average suggest that persons earning slightly more than the minimum wage are relatively heavily taxed in Lithuania, while

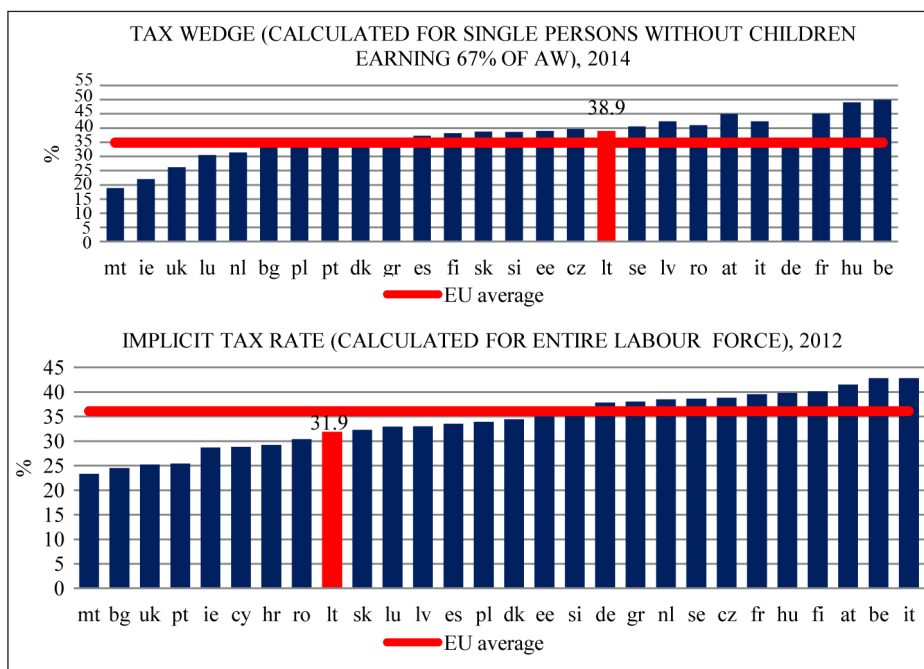


Fig. 1. Tax burden on the labour force in Lithuania and the EU, 2012

Source: Eurostat.

<sup>1</sup> Calculated for single persons without children earning 67% of the average wage.

*those with the highest earnings are low taxed.* It is related to low progressivity of the tax system in Lithuania. Therefore, from the business point of view, taxes account for a relatively large share of the cost of unskilled and low-paid labour in Lithuania.

People's willingness to take up low-paid jobs is measured by the unemployment trap indicator. Looking at the value of the unemployment trap indicator in Lithuania in the context of EU countries, it can be said that, despite the relatively high taxation of low income in the country, the unemployment trap rate was low enough in Lithuania in 2014 (Fig. 2). Such a situation can be explained by extremely strict conditions of the payment of unemployment insurance benefit in Lithuania, as compared with the other EU countries (low benefit amounts, short period of payment, etc.). However, it should be emphasized that the unemployment trap indicator dramatically fell down in 2010 along with a crisis-related reduction in the unemployment benefit. In addition, child benefits were paid only after the verification of income. The assessment of the situation in 2014 leads to the conclusion that workers in Lithuania are not motivated, in economic terms, to get unemployment and other benefits instead of income from employment.

However, it should be borne in mind that the unemployment trap phenomenon is usually associated with low-skilled people's motivation to work, i.e. persons who can only claim low paying jobs. Thus, the latter indicator refers to the motivation of only a small share of labour force.

However, regardless of the level of taxes, labour costs in Lithuania are very low in the context of the EU. According to Eurostat's data, this indicator is several times lower than in countries with the highest labour costs, such as the Netherlands, Belgium, etc. Although social security taxes and other labour-related expenses account for a large share of labour costs in comparison with other countries, low wages significantly reduce the overall costs in the context of EU countries. For this reason, the relatively high taxation of low-wage earners does not mean expensive labour in comparison with other EU countries. On the other hand, even if it is worth for a person to shift from benefits to work in a formal mathematical sense, the actual amount of wage is not motivating. Persons claiming low-paying jobs often choose to work "in the shadow".

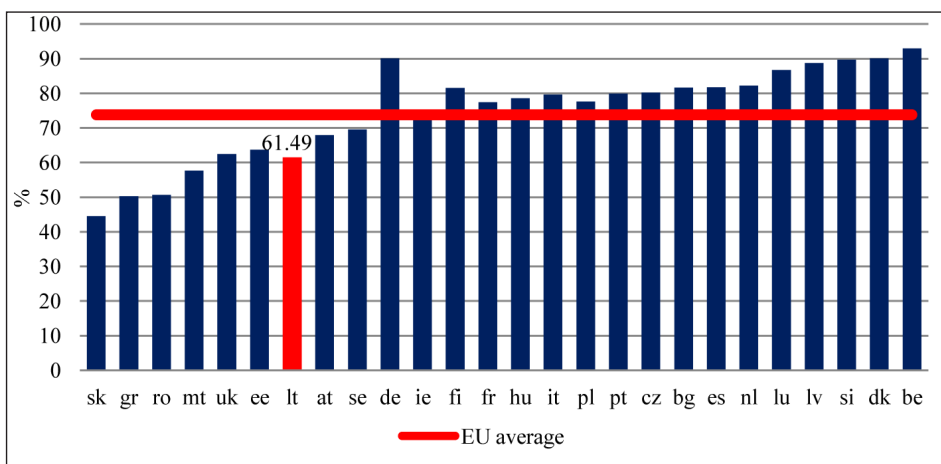


Fig. 2. Unemployment trap in Lithuania and the EU, 2014

Source: Eurostat.

### The interrelationship between labour taxation, motivation to work and the unemployment rate in Lithuania

This part will analyse the relationship between labour taxation and the unemployment rate. Labour taxation is analysed using the above-described unemployment trap, tax wedge and implicit tax level categories. As mentioned above, the unemployment trap refers to the perspective of employees to take up a job, whereas the tax wedge and implicit tax rate are indicative of the perspective of employers to employ people.

The interrelationship between long-term unemployment and unemployment trap in a period from 2001 to 2012 is reflected in two clusters – the lower and the upper one (Fig. 3). The cluster formation is determined by economic cycles. The lower cluster mainly describes the period of economic growth from 2005 to 2009. The greater unemployment trap and lower unemployment rate are indicative of the economic growth period. The higher unemployment trap indicator should be related to greater social benefits paid during that period. The upper cluster refers to periods from 2010 to 2012 and from 2001 to 2004. These periods can be described as an economic downturn or incomplete recovery from the economic recession and characterized by higher unemployment and lesser unemployment trap.

The lower unemployment trap indicator should be related to a temporary reduction in unemployment and parental benefits during the economic crisis. To sum up these calculations, it can be concluded that the interrelationship (as determined using this method) between the unemployment rate, labour taxation and the level of benefits highlights the impact of economic cycles on these indicators.

Although the interaction between the unemployment rate and the unemployment trap looks from outside like an inverse relationship due to the impact of economic cycles, analysis of this interaction through the prism of economically inactive population in the age group from 20 to 64 shows that the higher the unemployment trap rate is, the bigger the percentage

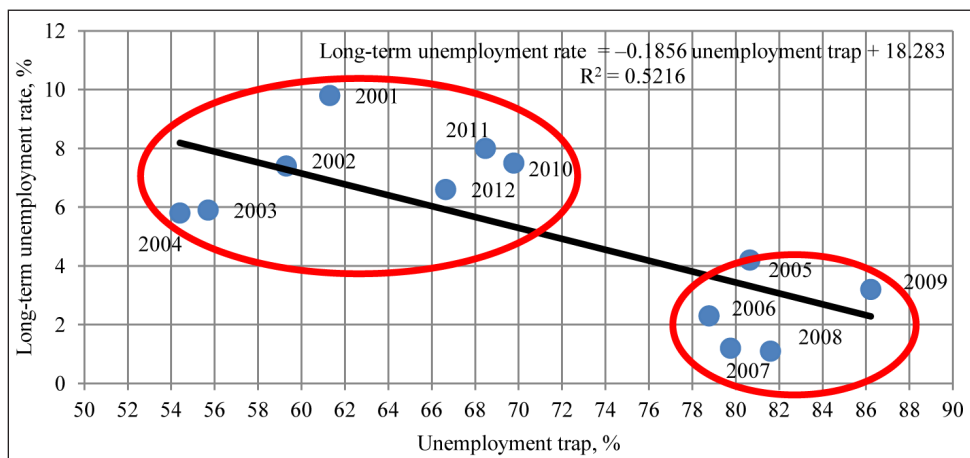


Fig. 3. Interrelationship between the unemployment trap and long-term unemployment rate in Lithuania between 2001 and 2012

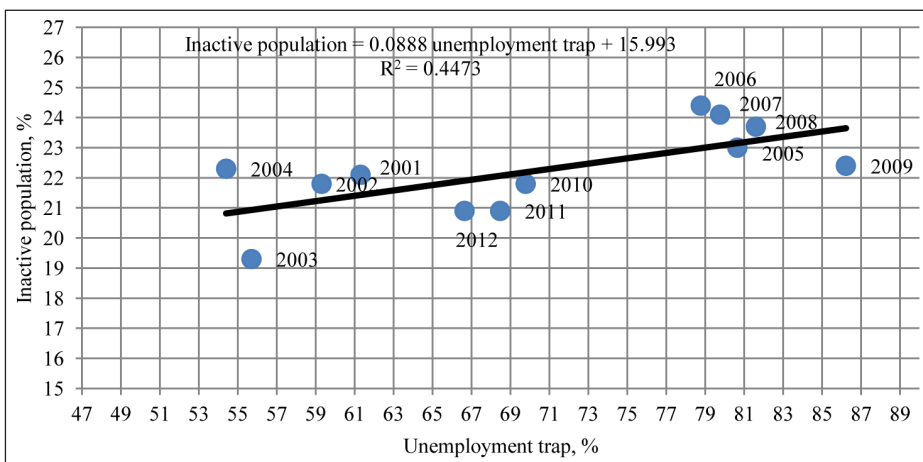
Source: authors' calculations based on Eurostat data.

of economically inactive population is (Fig. 4). The correlation coefficient is 0.67. Therefore, relatively high social benefits and taxes against the expected earnings determine the decision of a larger part of the population not to work. These results support the findings of the sociological survey of unemployed people in Lithuania that was carried out in 2015. The survey results showed that most of the respondents strongly agreed with the statement that “I register with the labour exchange office (LEO), because I would not have health insurance/social benefit otherwise”. It means that a relatively big share of the respondents register with LEO for other reasons rather than in order to find a job.

In assessing labour taxation by the tax wedge method, it should be emphasized that this rate varied insignificantly over the period at issue and its dynamics did not have a significant impact on the dynamics of the overall unemployment rate. However, a closer look at this interaction reveals two clusters – low tax wedge and high tax wedge (Fig. 5).

The low tax wedge covers the tax period of 2009–2013, when LTL 470 TEAI was introduced. This was a sharp rise in the TEAI in comparison with LTL 320 TEAI in 2008. The period until 2009, in turn, corresponds to the higher tax wedge. During this period the TEAI varied insignificantly, from LTL 214 in 2001 to LTL 320 in 2008. The minor impact of the tax wedge on the overall unemployment rate does not mean that it has no effects for certain categories of persons. As the studies presented in this article show, the tax wedge affects mostly low-wage earners (Espinoza, Ruiz 2014; Góra et al. 2006). Considering the context of empirical and theoretical analysis in this article, the tax wedge in Lithuania, although likely to have had a certain impact on the unemployment rate of low-wage earners, does not have such a significant impact on the overall unemployment rate as it was determined by Nickell and Layard (1999) for OECD countries.

The analysis of the relationship between overall labour taxation (measured using the implicit tax level indicator) and the unemployment rate also points to two periods or two clusters (Fig. 6): a period until the TEAI increase (2001–2008) and a period after the TEAI increase up to LTL 470 (2009–2012).



**Fig. 4.** Interrelationship between the unemployment trap and percentage of inactive population in Lithuania between 2001 and 2012

Source: authors' calculations based on Eurostat data.

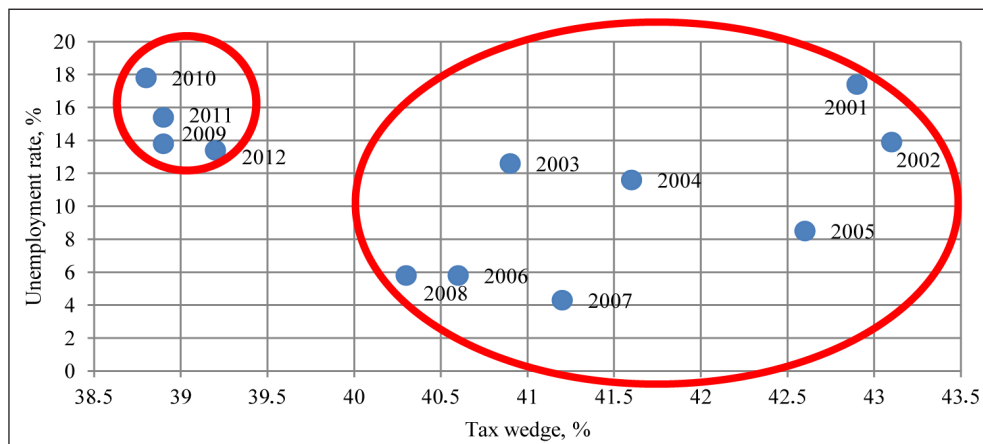


Fig. 5. The tax wedge and unemployment rate in Lithuania for time periods in 2001–2012

Source: authors' calculations based on Eurostat data.

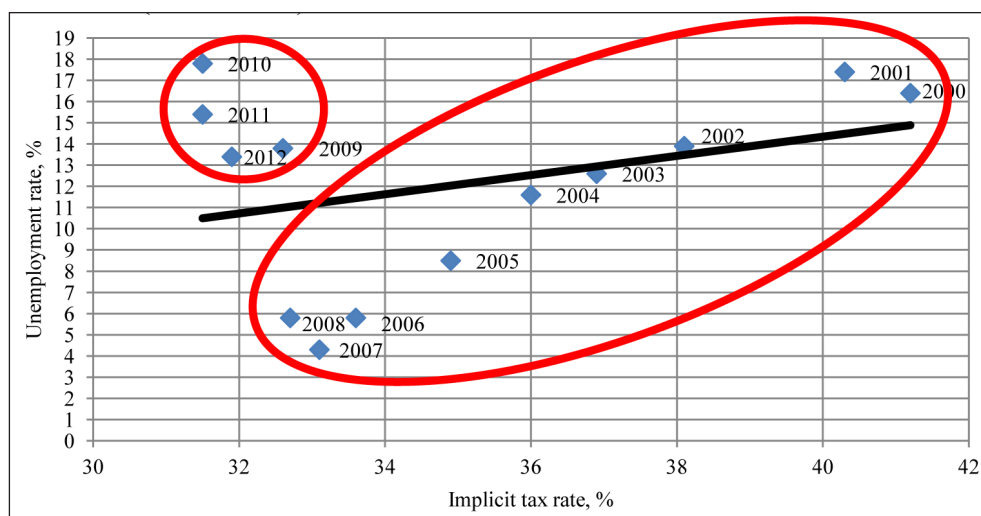


Fig. 6. The implicit tax rate and unemployment rate in Lithuania for time periods in 2001–2012

Source: authors' calculations based on Eurostat data.

High unemployment caused by the global financial crisis has also contributed to this cluster formation. During the period from 2001 to 2008, a gradual increase in income tax allowances (incentives) was consistent with a gradual reduction in unemployment (correlation coefficient – 0.97). In part, this coincided with the economic recovery after the 2000–2001 economic crisis, demonstrating a decline in unemployment caused by economic growth. However, the declining implicit tax rate also contributed to the unemployment rate decrease.



In summary, it should be emphasized that though the taxation of labour has an impact on the unemployment rate, especially in describing unemployment of low-skilled and low-wage earners, the overall unemployment rate is highly dependent on economic cycles. As shown in Fig. 7, the unemployment rate rose sharply during the global financial crisis in 2009–2010 and declined gradually from 2011 onwards. Therefore the impact of taxation on unemployment is not straightforward and obvious for the total percentage of unemployed.

The development of growth rates for real wages and GDP per capita confirms the interrelationship between the unemployment rate and economic growth. The unemployment rate inversely correlates with the real wage growth rate with an almost 0.9 correlation coefficient. One percent growth in the unemployment rate reduces the real wage growth rate almost by 1.5%: the years of higher unemployment are also the years of lower real wage growth.

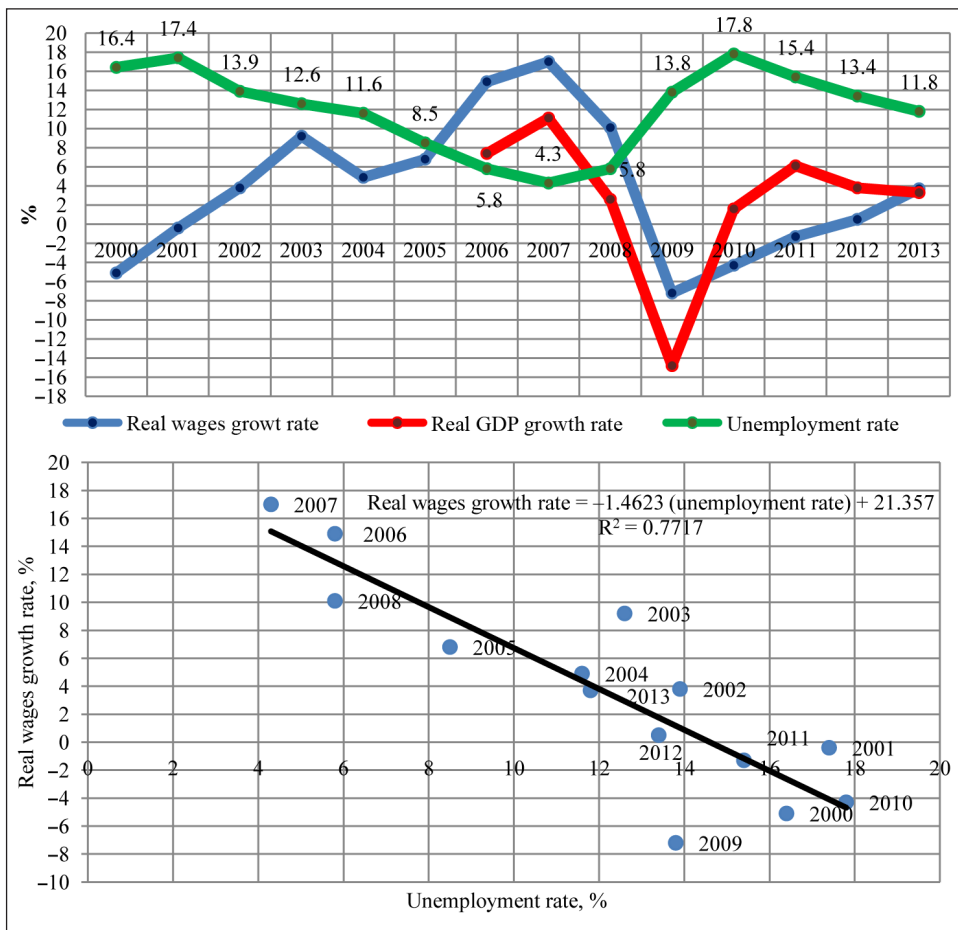


Fig. 7. Interrelationship between the economic growth, real wages growth and unemployment in Lithuania for time periods in 2000–2013

Source: authors' calculations based on Eurostat data.

## CONCLUSIONS

The unemployment rate in Lithuania has tended to fluctuate mainly due to cyclical economic fluctuations. Unemployment was decreasing with the growth in real GDP and real wages. However, to some extent, the unemployment rate (especially for unskilled labour) might depend on labour taxation. High labour cost and relatively low value-added production may become uneconomical for business to employ unskilled workers. A reduction in taxes on unskilled labour is emphasized as an important unemployment reduction measure in the EU. In Lithuania, the tax wedge on low-wage earners, i.e. those paid a little more than the minimum wage, is relatively high in the context of other EU countries. However, the overall labour taxation is low because of a relatively low taxation of high-income individuals. The taxation of low-wage earners, estimated using the tax wedge indicator, varied insignificantly in Lithuania in the period from 2001 to 2012 and did not match unemployment rate fluctuations. The tax wedge on low-wage earners insignificantly decreased after the introduction of a new TEAI in 2009. However, the mismatch between the tax wedge dynamics and the unemployment rate does not mean that the tax wedge has no impact at all on the unemployment of the low-skilled and low-wage earners. The scientific literature analysed in the article confirms the existence of a link between low-skilled and low-paid workers. The interrelationships between the implicit tax rate and the unemployment rate, as estimated for the purpose of overall labour taxation, have been partly determined by economic recovery and decreasing unemployment following the 2000–2001 crisis, which were also accompanied by a reduction in the implicit tax rate.

In addition, labour taxation and benefit levels can influence people's motivation to take up a job. High unemployment and other benefits, as well as high taxation of low-wage earners can lead to the unemployment trap phenomenon when people would choose to receive social benefits rather than take up low paying jobs, because the difference between the low wage and benefits would be perceived as very small. The conducted estimates support a direct interaction between the economically inactive population (aged 20–64) and the unemployment trap indicator. A greater unemployment trap leads to a bigger percentage of the economically inactive population in the country.

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## Darbo apmokestinimo ir nedarbo sąryšio vertinimas: Lietuvos atvejo analizė ES kontekste

### Santrauka

Straipsnyje analizuojamas darbo apmokestinimo poveikis darbo rinkai (jos rodikliams), vertinamas darbo jėgos apmokestinimo ir nedarbo lygio ryšys Lietuvoje, siekiama nustatyti, ar mokesčių pleištas turi įtakos užimtumui.

Tyrimo rezultatai parodė, kad nors darbo apmokestinimas turi įtakos nedarbo lygiui, ypač apibūdinant žemos kvalifikacijos ir mažas pajamas gaunančių asmenų nedarbą, bendras nedarbo lygis labai priklauso nuo ekonomikos ciklų. 2009–2010 m. pasaulinės finansų krizės metu nedarbo lygis smarkiai išaugo, o nuo 2011 m. palaipsniui mažėjo. Todėl darbo apmokestinimo poveikis bendram nedarbo lygiui nėra akivaizdus. Rezultatai patvirtino prielaidą, kad darbo jėgos apmokestinimas bei išmokų lygis gali lemti asmenų motyvaciją imtis darbinės veiklos. Skaičiavimai patvirtino tiesioginę sąveiką tarp ekonomiškai neaktyvių gyventojų dalies (20–64 metų amžiaus grupės) ir nedarbo spąstų rodiklio. Didesni nedarbo spąstai lemia didesnę ekonomiškai neaktyvių gyventojų dalį šalyje.

**Raktažodžiai:** darbo apmokestinimas, mokesčių pleištas, nedarbo spąstai, ekonomikos ciklai