LABOUR TAX WEDGE IN THE REPUBLIC OF MACEDONIA - TRENDS AND INTERNATIONAL COMPARISON

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ABSTRACT: The tax wedge is a significant part of total labour costs, which creates a difference between the gross wage and the net take-home pay. The tax wedge receives much attention in research, since it is perceived that high labour tax wedge has detrimental effects on labour market outcomes and causes higher levels of unemployment. The paper addresses the following issues: the effects of an increase or decrease of tax wedge on the labour market; the tax burden on labour in the Republic of Macedonia and the reductions of personal income tax and social contributions rates; an international comparison of the tax wedge and the position of Macedonia. A hierarchical cluster analysis was performed on 43 countries (OECD and EU members and EU candidate countries), resulting in three groups of countries classified according to their tax wedge, employment rate and unemployment rate. We found that OECD and EU countries can be classified into two groups, one with high tax wedge, high unemployment rate and low employment rate, and the other one with opposite characteristics. Macedonia belongs to the third group of countries with poorest labour market outcomes, while the average tax wedge is somewhere between those of the other two clusters. The results can serve the professional and scientific public in analyzing the labour market flexibility; as well as the relevant state institutions and policy makers, in conceptualization of appropriate policies aimed at changing taxes that burden wages.
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Key words: tax wedge, labour costs, hierarchical cluster analysis, unemployment.

JEL Codes: H24, J32, J38

Introduction

In the past 30 years, total tax revenues including social security contributions have risen to historically high levels. The rise in the tax ratio of personal income tax (PIT) plus social security contributions to total tax revenues indicates the significance of PIT and social security contributions (around one half of total tax revenues, on average, in OECD countries – see OECD 2011, p.1). Since both of them affect employers as well as employees, EU and OECD member states use the tax wedge as a measure of the labour tax burden.

High labour costs are often blamed for high levels of unemployment. The recent financial and economics crisis enhanced the importance of this issue. Facing a worsening unemployment problem in recent years, many governments consider and undertake tax reforms to reduce labour costs, aimed at reducing long-term unemployment and the strong work disincentives that tax systems can often create. (OECD 2011, p.1-2; OECD 2012, pp.31-32) But the large fiscal deficits surging in many countries complicate the resolution of this problem.

The *tax wedge on labour* is the difference between what employers pay out in wages and social security contributions and what employees take home after tax, taken into account also social security deductions and cash benefits. Hence, the OECD's *Taxing wages* (OECD 2007, p.433) publication defines the *tax wedge* as *the sum of personal income tax plus employers social security*

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contributions together with any payroll tax less cash transfers, expressed as a percentage of labour costs. The sstandard OECD measure of the tax wedge is based upon a single worker earning an average gross wage[3].

The tax wedge can simply be calculated as the difference between gross labour costs and net take-home pay in relation to the gross labour costs:

$$TW = \frac{GRLC - NTP}{GRLC} \tag{1}$$

where TW is the tax wedge, GRLC is the gross labour costs and NTP is net take-home pay.

An alternative macroeconomic backward-looking indicator of the labour tax burden is the implicit effective tax wedge (ITR, also known as implicit tax rate on labour), derived from aggregate data in national accounts. It measures the ratio between total collected taxes on labour and total labour costs in a given jurisdiction. (Betcherman and Arandarenko, 2008, pp.53-54)

At a certain level of wage, higher tax wedge on labour increases unemployment and decreases employment, ceteris paribus. In countries with progressive tax systems, the tax wedge increases as employee income increases. This reduces the marginal benefit of work, therefore employees often work less hours than they would if no tax was imposed. Taxes also reduce incentives for the unemployed to look for a job. The tax wedge represents the deviation from the equilibrium employment level on the labour market. It appears due to charges and leads to employers paying more and workers receiving less. If taxes are transferred to employers, then employment costs rise and labour demand falls. If a share of the charges is transferred to employees, than supply falls. In both cases, there is a reduction in the amount of labour traded on the market. Under this explanation one must have in mind the assumptions of a competitive labour market, absence of minimal wages and strong syndicates with a strong power of negotiation, or protected sectors. The introduction of charges would not cause permanent distortions on a perfectly flexible market, since wages are flexible both upward and downward and the equilibrium is reached promptly. The overall effect depends on (i) the incidence of the tax i.e. who actually pays the taxes and thus, its effect on total labour costs and net wages; and (ii) the elasticity of labour demand and labour supply. (Betcherman and Arandarenko, 2008, p.55; World Bank 2008, p.22; Dolenc and Vodopivec, 2005, p.230) A more elastic labour supply curve (and/or demand curve) implies a higher negative effect of tax wedge on employment. In reality labour markets are not perfectly flexible (especially downward) because of labour unions, mandatory minimum wage, perfectly elastic supply of work curve under a certain level of wage, etc. Therefore by creating a wedge between labour costs and real net wage, labour taxes reduce the demand for labour and (if demand for labour is not perfectly inelastic) employment, increasing unemployment. (Dolenc and Vodopivec 2005, p.230).

While both demand and supply effects do matter, in labour markets with high unemployment and large labour surpluses, such as the Macedonian labour market, the labour demand effects matter more. (Betcherman and Arandarenko, 2008, p.55) A large tax wedge induces both employers and employees to move into the informal sector. This undermines the sustainability of pension and health finance systems. It also has a negative effect on competitiveness and growth as it pushes up labour cost. (Dolenc and Laporšek 2010, p.346; Ederveen and Thissen, 2004, p.11).

The Republic of Macedonia has traditionally faced high unemployment, with rates above 30% since 1994, reaching a peak of 37, 3% in 2004. The Government has undertaken reforms in the tax-benefit system in recent years aimed at reducing the work disincentives and the total labour

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[3] Other measures are also possible at different levels of average gross wage as well as measures for different taxpayers (families etc.)

costs, trying to positively influence the labour demand. Thus, personal income tax and social security contribution rates have been reduced, aiming at a lower tax wedge on labour.

The rest of the paper is structured as follows. The first section refers to the methodology and data sources used in the paper. The second section discusses the results from numerous researches on the effect of high tax wedges on labour market outcomes. The third and fourth section focus on the labour market in the Republic of Macedonia, covering the labour taxation system and the labour tax wedge. The fifth and sixth section include an international comparison of the tax wedge in the Republic of Macedonia and of the relation of the tax wedge with employment and unemployment. The last section gives concluding remarks and proposes several measures for improving the functioning of the labour market.

Methodology and data

The main focus in this paper is on tax wedge i.e. the difference between labour costs and net take-home pay as a share in the total labour costs.

The tax wedge and its relations with the unemployment and the employment rate are analyzed using descriptive and cluster analysis. First, the paper provides a simple descriptive analysis of the size of the tax wedge and its components (personal income tax and social insurance contributions) in the Republic of Macedonia and their dynamics due to the changes in legislation since 2006. Next, an international comparison of the tax wedge in 2006, 2010 and 2011 is provided using basic descriptive statistics. In order to identify groups of OECD, EU and EU candidate countries which are similar to each other with respect to tax wedge, unemployment and employment rates, a hierarchical cluster analysis is further applied. This analysis complements previous cluster analyses studies the region (Dolenc and Vodopivec 2005; Dolenc and Laporsek 2010; Separovic 2009; Grdovic-Gnip and Tomic, 2010), with the difference that it includes the EU candidate countries from the Western Balkan, in addition to OECD or EU countries. The variables used for the cluster analysis are tax wedge at 100% average wage level, employment and unemployment rates in 2010. [4] The purpose is to see whether higher countries with higher tax wedge levels face higher unemployment and lower employment, as the theory assumes.

Based on time series, a thorough analysis of the impact of labour taxation on employment and unemployment rates in Macedonia can be made. However, because the tax system has not changed much before 2006 and because there are only short time series available (which cannot provide an efficient econometric estimation), our analysis could be based only on cross section data.

The analysis in this study uses the following data sources: (a) for calculation of the tax wedge in the Republic of Macedonia, and for the employment and unemployment rates, official data were obtained from the database of the Macedonian State Statistical Office; (b) for the legislation changes in Macedonia, Laws on personal income taxation and compulsory social security contributions were used, published in the Official Gazette of the Republic of Macedonia; (c) for the tax wedges, unemployment rates and employment rates in other countries data were obtained from the OECD and Eurostat databases and official reports of the European Commission (2008; 2012) and the OECD (2011; 2012); (d) For the tax wedges, unemployment rates and employment rates in Serbia, Montenegro and Croatia, data were collected from the database and official reports of their State Statistical Offices (MONSTAT 2012; Croatian Bureau of Statistics 2012).

Related literature

Many studies have analysed the impact of labour market institutions on labour market outcomes. The literature suggests that higher tax wedges cause higher rates of unemployment and lower levels of employment and labour force participation. The empirical evidence is not unambiguous, but in general recognizes high taxes and improperly designed unemployment benefits

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[4] Data on tax wedge for 2011 was not available for several countries, therefore the calculations are made for 2010..

systems as lead suspects for detrimental effects on labour market outcomes. There is also evidence that the negative effect of labour taxation on employment and growth is more pronounced in Europe (except Scandinavian countries) than in other OECD countries. (for an extended literature review see Behar, 2009; Dolenc and Laporšek, 2010)

Most commonly, the tax wedge's impact on employment or unemployment is calculated with regression models or for a group of countries with panel regression techniques. It can also be tested by calculating the coefficient of correlation between the tax wedge and the unemployment rate. Separovic calculated a statistically significant correlation coefficient for OECD countries of +0.568. (Separovic 2009, p.455) Tvrdon found a negative correlation between tax wedge and employment rate in OECD countries. (Tvrdon, 2011, p.279) Another approach in analysing a group of countries is by cluster analysis, often combined with discriminant analysis (see for example Dolenc and Vodopivec, 2005; Separovic, 2009). Most studies find a negative relationship between marginal effective tax indicators and activity and employment rates, particularly for the youth – where separately explored. (Behar, 2009, pp.85-86, Dolenc and Laporšek, 2010)

After their accession, the European Commission has advised the new member states (previously planned economies) to reform their labour market institutions: to lower their tax wedge, remove disincentives in the benefit system and increase spending on active labour market policies (Ederveen and Thissen, 2004, p.1) In their study, Vork et al. find that the tax wedge negatively influences activity rates, employment rates, work-hour, unemployment rates and the share of parttime workers. (Vork et al. 2006, p.24) Dolenc and Laporsek find almost no relationship within the EU-15, but they find a negative correlation within NMS. (Dolenc and Laporšek, 2010, p.353) Ederveen and Thissen also confirm that the tax wedge has a major effect on unemployment in the new EU member states. (Ederveen and Thissen, 2004, p.26) The detrimental effect of high tax wedges and/or inappropriate benefits systems on labour market outcomes on the sample of 10 Central and Eastern EU Member States was also shown in the study of Behar (2009).

Labour taxation, tax wedge and reforms in the Republic of Macedonia have been subject of several previous analyses. For example, the World Bank, in the South East Europe Regular Economic Report from November 2011 provides information on the social contribution rates in the South-East European countries and conclude that where the tax wedge is large it induces both employers and employees to move into the informal sector. (World Bank, 2011, p. 30). Lopez-Murphy (2008) analyzes the introduction of the flat personal income tax rate in Macedonia. Kreso and Lazovic-Pita (2011) study the labour tax burden in the Balkan countries with flat tax rates: Macedonia, Montenegro and Bosnia and Herzegovina. Betcherman and Arandarenko estimated the likely impact of labour taxes on employment in the Western Balkans for the period 2000-2006, with their cross-country regressions yielding a short-run labour demand elasticity of -0.21. However, the employment effects of the tax wedge were not robust, due to data limitations and significant transitory factors. (Betcherman and Arandarenko, 2008, p.55-56) Several researchers prepared a study for the European Commission on the labour market in the Republic of Macedonia, including the labour taxes and social security contributions and the tax reforms undertaken in recent years in order to lower the tax burden. (Mojsoska-Blazevski et al. 2009) A World Bank study analyzed in details the role of labour taxation in Macedonia, the calculation of the personal income tax and social insurance charges and their effects, and provided some recommendations for further reforms. (see World Bank, 2008). Most of their proposals have indeed been implemented thus far.

According to Dolenc and Laporšek, although most of the studies confirm the negative effect of tax wedge on employment, the exact magnitude of this relationship depends mainly on institutional features of the individual labour markets, such as: (Dolenc and Laporšek, 2010, p.347)

    – regulations concerning minimum wages and unemployment benefits;
    – tax incidence share between employer and employee;
    – skill level of the labour force;
    – real wage rigidity and prevailing structure of wage bargaining.

Basic characteristics of labour taxation in the Republic of Macedonia

After gaining independence at the beginning of the 1990s, the Republic of Macedonia, along with the new economic system, introduced a new fiscal system, based on market principles, private property, competitiveness, modernization of the system and orientated toward convergence to the European Union. The new tax system from 1993/94 introduced the following types of taxes, typical to modern tax systems: income taxes (corporate income tax and personal income tax), consumption taxes (VAT, excises, custom duties etc.) and property taxes (property tax, tax on inheritance and gift, tax on real estate turnover). The overall tax level in the country is not particularly high in international comparison, although if one considers the relatively low living standard, as measured by per capita GDP, it is not particularly low either.

Labour income is taxed by personal income tax (PIT) and social security contributions which are both paid by the employer in the name of the employee. Until 2006, labour was much higher taxed than profits, creating an incentive for under-declaring wages and for tax arbitrage. (World Bank 2008, p.9) In 2007, the personal income taxation has been transformed from a system with progressive marginal tax rates (15%, 18% and 24%) to a proportional (flat) tax with a rate of 12%, further reduced to 10% in 2008.[5] Each individual is entitled to a personal income tax release. The basic personal exemption preserves some progressivity in the PIT system as it leads to an increase of the average income tax rate with rising income, despite the constant marginal tax rate. Social security contributions are fully deductible from the personal income tax base. However, despite the lower PIT rate, the overall tax burden remained relatively high, in particular for low skilled labour, caused by the minimum base for payment of social insurance contributions, which was prescribed at 65% of the national average wage rather than on the individual wage[6] and at around 50% for health insurance on average (differentiated by branches, with higher relative burden on branches with lower average wages) (World Bank, 2008, p.11, Betcherman and Arandarenko 2008, Lopez-Murphy, 2008, Mojsoska-Blazevski et al., 2009, p.101). Hence, taxes discouraged formalization of jobs for low-wage labour.

The issue of labour taxes presenting a significant cost for employers has been widely discussed in the last decade. In 2009, the Macedonian payroll system was reformed, with a view of reducing the tax wedge, the administrative burden on firms and reducing informal employment and evasion. (Mojsoska-Blazevski et al., 2009, p.101) One of the main goals was to find a way to decrease the labour tax wedge, thus lowering the total labour costs, as a way to put incentives on companies to higher more workers or to use the difference for increasing net-wages, in that way motivating the employees and lowering the demotivation for job search for the unemployed.

Therefore, according to the IMF recommendations, the government introduced:

- the concept of gross wage system, proposed also by the World Bank (2008);
- payment of health insurance contributions per hour for part-time employees;
- harmonization of the minimum base for calculation of social insurance contributions to 50% of the average gross wage according to the State Statistical Office (SSO) data. This means that all contributions from the mandatory social security are calculated and paid on the same minimum base, which was previously not the case. (Official Gazzette of RM no. 142/08);
- a maximum base for payment of social contributions of four average salaries, and the amount of the salary above that amount is free of social contributions.
- harmonization of the wage base for payment of social contributions – it is now the actual employee's wage. Before that, different types of charges were calculated and paid on different bases, changing each month. The adjustment and integration of the bases, and the decrease in the

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[5] PIT rates have been generally lowered in the Western Balkan states in recent years with the result that the region has the lowest rates in Europe.

[6] The system was regressive: the tax wedge on an average wage (with tax free fringe benefits) was around 33%, while a on a 50% of the average wage (including tax free fringe benefits) - around 39%;. The fringe benefits were irrespective of the worker's wage and reduced somewhat the regressivity of the system caused by the minimum social contributions.

lowest base, facilitated the administrative burden on companies (for an initial assessment of the reform see Mojsoska-Blazevski et al., 2009, pp.103-104).

With the amendments to the Law on contributions for compulsory social insurance, a decrease in the contributions rates was predicted from 32% in 2008 to 22% in 2011 (27,9% for 2009 and 26,5% for 2010), additional to the previous cut in the personal income tax rate to 12% in 2007 and to 10% in 2008 (Official Gazzette of RM no. 142/08, бр. 64/09 и бр. 156/09). We can say that by 2010, with the change of the concept of bargaining, calculation and payment of employee's salary, all IMF recommendations have been completely fulfilled and contributed to a lower labour tax wedge. Mojsoska-Blazevski in her analysis of the labour market reforms in Macedonia, conludes that the reforms which reduced labour costs most probably helped employers during the crisis, had an effect on employment, resulted in an increase in net wage, may have diminished the extent of informal economy, and improved tax compliance: the number of individuals insured in the pension system increased, as the payment evasion to the integrated collection system is more difficult. (Mojsoska-Blazevski, 2011, p.44) The unemployment rate actually decreased in Macedonia from 34.9% in 2007 to 31,6% in 2011. After the tax reforms, Macedonia belonged to the countries with the lowest corporate and personal income tax rates (both of 10%) in the world. (World Bank 2008, p.5) However, in December 2010 the Government adopted a Law on amandments and additions to the Law on contributions for compulsory social insurance, where the social insurance contribution rates fell to 26,5%, instead of the previously planned 22% for 2011.

Tax wedge on labour in the Republic of Macedonia
The amount of charges that impose a burden on labour influence the labour costs ultimately paid by employers. The complete picture of the tax wedge on labour in the Republic of Macedonia is shown in the tables below.

Table no. 1.
Personal income tax and social insurance contribution rates in the Republic of Macedonia (%)

	2006	2007	2008	2009	2010	2011	2012	2013*	2014*
Pension and disability insurance	21,2	21,2	21,2	19	18	18	18	18	17,6
Health insurance	9,2	9,2	9,2	7,5	7,3	7,3	7,3	7,3	7,3
Unemployment insurance	1,6	1,6	1,6	1,4	1,2	1,2	1,2	1,2	1,2
Total social contributions	**32**	**32**	**32**	**27,9**	**26,5**	**26,5**	**26,5**	**26,5**	**26,1**
Personal income tax	15, 18 and 24	12	10	10	10	10	10	10	10
Total burden/wedge	**47, 50 and 56**	**44**	**42**	**37,9**	**36,5**	**36,5**	**36,5**	**36,5**	**36,1**

Source: Law on personal income tax, Official Gazette of the Republic of Macedonia no. 74/2006, Law on amendments and additions to the Law on personal income tax, Official Gazette of the Republic of Macedonia no. 139/2006, Law on contributions for compulsory social insurance, Official Gazette of the Republic of Macedonia no. 142/2008, Decision of the Constitutional Court No. 233/2008 and Law on amendments and additions to the Law on compulsory social insurance, Official Gazettes of the Republic of Macedonia no. 62/2009, 64/2009, 156/2009, 166/2010 and 185/2011.
* According the Law on amendments and additions to the Law on compulsory social insurance, Official Gazette of the Republic of Macedonia No. 185/2011.

Table no. 1 presents the legal PIT and contribution rates imposed on labour in the period 2006-2014. It shows that most of the tax burden is due to social security contributions, i.e. more than half (almost 2/3) of the tax wedge is accounted by the pension and disability contribution. The labour tax wedge is high because of high social insurance contribution rates. They are also not progressive, with relatively heavy burdens on low-wage workers and workers with dependents. (Betcherman and Arandarenko, 2008, p.2) The second largest charge is the health insurance contribution, followed by the personal income tax and the unemployment insurance contribution.

The tables provide an insight to the differences in the tax wedge due to changes in personal income tax and social insurance contribution rates. Until 2006 a progressive marginal tax rate existed for the personal income tax (table no. 1). Between 2004 and 2006 the personal income tax had three tax brackets with marginal rates of 15%, 18% and 24%, and between 2001 and 2002, two tax brackets with marginal rates of 15% and 18%. In 2007 the Government adopted the concept of flat tax rate of 12%, and from 2008 the unique tax rate is 10%.[7] The objective was to simplify the tax system and to encourage beneficial supply-side effects and better compliance. According to Lopez-Murphy (2008), despite the lower PIT rate, the labour tax wedge in 2008 was still high and very likely contributed to the high unemployment rate and large informal sector. The decrease in social insurance contributions was initialized in 2009.

Table no. 2.

Tax wedge on labour in the Republic of Macedonia (%)

	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Net wage	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Personal income tax	13,7	10,8	8,9	5,5	4,4	4,2	4,1
Wage before taxes	**113,7**	**110,8**	**108,9**	**105,5**	**104,4**	**104,2**	**104,1**
Pension and disability insurance	35,5	34,5	34,0	27,9	25,6	25,5	25,5
Health insurance	15,4	15	14,7	11,1	10,4	10,4	10,3
Unemployment insurance	2,7	2,6	2,6	2,2	1,7	1,7	1,7
Gross wage	**167,2**	**162,9**	**160,1**	**146,7**	**142,0**	**141,8**	**141,7**
Tax wedge on wage:							
- % of net wage	67,2	62,9	60,1	46,7	42,0	41,8	41,7
- % of labour costs	40,2	38,6	37,5	31,8	29,6	29,5	29,4

Source: Authors' calculations

The reduction of personal income tax and social insurance contributions in several consecutive years had undoubtedly a large influence on the reduction of labour costs. Namely, in 2006 the tax wedge, as a percent of net wage, accounted for 67,2%, but permanently decreased in the following years, reaching 41,7% in 2012 (table no. 2). The decreases in 2007 and 2008 were due to the introduction of the flat tax rate of 12% and its subsequent decrease to 10%, while the large decrease in 2009 resulted from the reduction in the social insurance contribution rate from 32% to 27,9%, which was further reduced and is now 26,5%. The introduction of the gross wage concept, accompanied by a cut in labour tax wedge, was used by some companies, primarily the public enterprises and large corporations, for an increase in net wages, maintaining the gross wage on the same level. On the other hand, some companies reduced the labour costs as a result of the cut in the personal income tax and contributions, by lowering gross wages. In the period 2006-2011, the average gross-wage increased by around 33%, while the net wage increased by 54%. (SSO database) The possibility for a further reduction of labour costs sends a good signal for investors and can increase the labour demand in the Republic of Macedonia.

Considering this, we can conclude that the tax wedge in the Republic of Macedonia, whehter calculated as a percentage of net wage or as a percentage of labour costs, has a permanent decreasing trend up to 2009 and remains almost constant afterward. (fig. no. 1)

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[7] However, according to Lopez-Murphy, given that 98% of taxpayers were paying the lowest PIT rate of 15% Macedonia already had, in substance, a flat tax before this reform and its rate was already quite low compared to other countries in the region. (Lopez-Murphy, 2008)
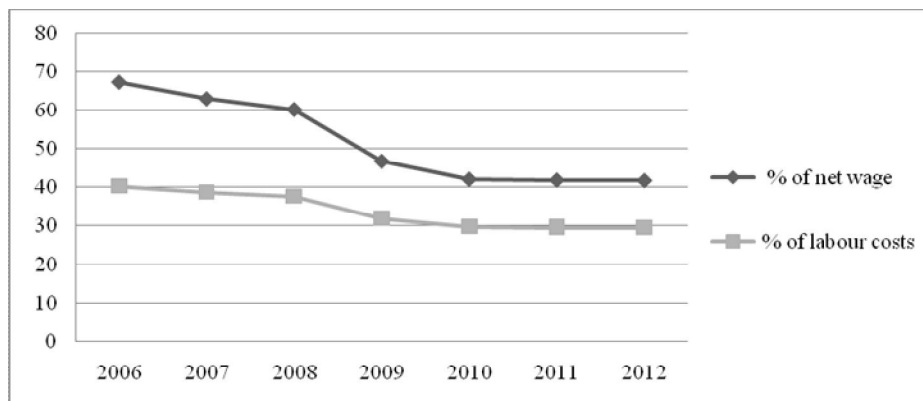
Figure no. 1. - Tax wedge on labour in the Republic of Macedonia 2006-2012
Source: table no. 2.

Within the structure of the tax wedge, in the period 2006-2012, the unemployment contribution kept its share of 4%, while the health insurance contribution slightly increased from 23% in 2006 to 25% of total labour costs in 2010. Large changes appear in the highest charge for social insurance, the pension and disability insurance contribution, and in the personal income tax. The share of the pension and disability insurance contribution in total labour costs increased from 53% in 2006 to 61% in 2010, while the share of the latter decreased from 20% in 2006 to 10% in 2010. This is understandable. The drastic decrease in the personal income tax rate results in its lower proportions, along with a higher proportion of the pension and disability insurance, since it was also reduced, but to a smaller degree. It must be remarked that the share of the different elements within the tax wedge were constant in the last three years. (fig. no. 2)
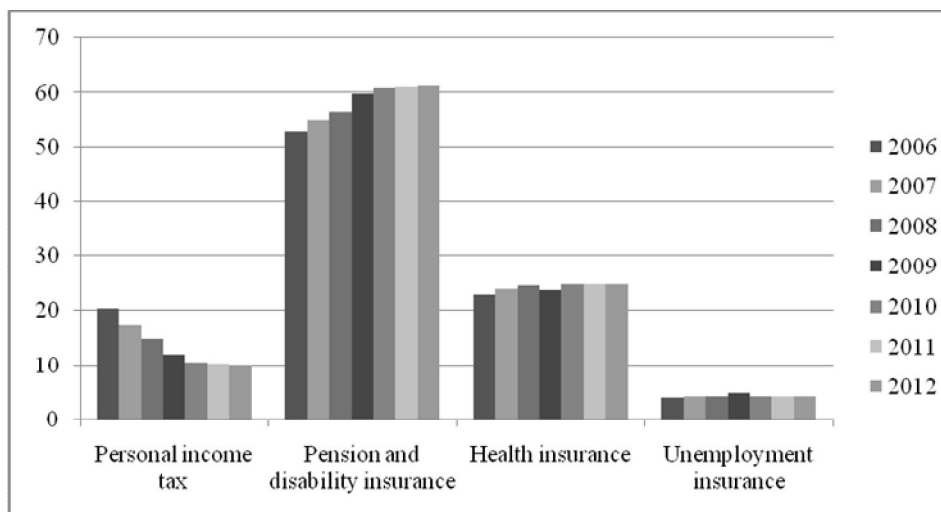

Figure no. 2. - Structure of the tax wedge on labour in the Republic of Macedonia
Source: authors' calculations

An important aspect that needs to be taken into account is that the reduction of social contributions creates problems for the financial sustainability of the pension and health care system. Both funds (for pension and disability insurance and health insurance) register deficits throughout the years, financed by the Republic's Budget. The cut in contributions expands the gap between the revenues and expenditures of the funds. There are some views that the reform may have negative long-term consequences on workers' social benefit entitlements, including pensions, and a short-lived positive effect on employment and tax compliance. (Mojsoska-Blazevski, 2009, p.45) In this light, the intended reform of the Government was not effectuated entirely. The budget of RM could

not resist the pressure of the deficits in the funds. Therefore the Government, along with the Proposal for the Budget of RM for 2011 in December 2010, delivered a Proposal for amendments and additions to the Law on compulsory social insurance contributions to the Parliament, where the previously established rates for 2011 were increased from 15% for pension and disability insurance and 6% for health insurance, to 17% and 7%, respectively. (Official Gazzette of RM no.166/2010) Thus, the initial projections for the decrease in gross wage for 2011 did not effectuate.

Nevertheless, these reforms send a positive signal to investors regarding the labour costs and have a positive impact on labour market outcomes. Although many other factors affect labour market outcomes, according to a World Bank study, in Macedonia the effect of labour taxation appears to be significant, since labour taxes tend to impact labour costs more than net wages. (World Bank 2008, p.21) The data from the SSO show that the increase in gross-wage since 2006 was smaller than the increase in net-wage by 21.1 p.p., implying a larger impact of the tax legislation changes on total labour costs. The unemployment rate in the country has had a decreasing trend in recent years, falling from 36.3% in 2006 to 31.6% in 2011. (SSO database) It is difficult, however, to believe that the investment volume will substantially rise only as a result of the changes in personal income tax and social contributions. Namely, the creation of a favorable investment climate is also influenced by many other factors, besides the fiscal policy, such as: stability, property rights protection, regulation, level of corruption, infrastructure etc. A partial improvement of a single factor can not give the expected results, without other factors being made more favorable as well, thus contributing to a better overall investment climate.

International comparison of labour tax wedge

The total tax wedge on labour in the Republic of Macedonia in 2006 and 2007 was 40, 2% and 38, 6%, respectively and was above the average of OECD countries, which was 37, 5% in 2006. The average tax wedge in the OECD countries spaned from 15% of labour costs in Mexico, to 55,3% of labour costs in Belgium (table no.3). It should be noted that the tax wedge in EU countries is higher than the OECD average (40,9% in 2006), and also the unemployment rates are higher (8,3% vs 5,3% in non-OECD countries in 2006). It is worthwhile to stress also that the average unemployment rate is quite high in the Central European Countries, even though not entirely caused by high tax burden, but also (or mostly) by other factors that "squeeze" all transition economies.

In the period 2006-2011, the tax wedge in the Republic of Macedonia decreased by almost 10p.p, from 40, 2% to 29,4%, reaching a level below the EU average. In recent years most OECD countries made labour taxation reforms to reduce the tax wedge in order to alleviate the unemployment problems. Table No. 3 shows the tax wedge, unemployment rates and employment rates in OECD, EU and EU candidate countries in 2006, 2010 and in 2011, after the undertaken reforms. Overall, the tax wedge and unemployment rates decreased, but are still significantly higher in most of the EU Member States compared to non-EU OECD countries, as a result of labour market protection mechanisms in some European countries, like: generous unemployment benefits, powerful labour unions, employment protection legislation. (Dolenc and Laporšek 2010, p.356)

Some of the reforms listed in OECD's *Going for growth*, undertaken in countries where this was perceived as *Going for Growth* priority, are: reduced income tax rates, increased tax relief, reduced financial disincentives to work at older ages, reduced labur tax wedge for young people and women etc. (OECD 2012, pp.31-32) Due to long-term pension system sustainability problems, many pension reforms have also been implemented. Although the average total tax wedge fell (in OECD countries from 37,5% in 2006 to 35,2% in 2011, where the average social security contribution rate fell by 1,13%, while the PIT rate grew by 0,05%)[8], the table shows that in some

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[8] Note that the difference in the sum of percentage changes is due to the larger number of countries included in the 2011 sample.

countries, it is slightly higher in 2011, mainly due to fiscal austerity during the ciris. EU candidate countries from the Balkans, except for Croatia, have the highest unemployment rates (Macedonia has the highest unemployment rate of all countries – 36,3 % in 2006 and 31,6% in 2011), along with some EU countries, primarily those which were most severely hit by the "Great Recession" and the European debt crisis (Greece, Spain, Ireland and Portugal). The recent crisis had a negative impact on the labour market outcomes. The overall unemployment rate in the analyzed countries increased by 1,7 p.p. in the last 5 years.

Table no. 3.

Total tax wedge on labour in OECD countries, EU countries and EU candidate countries

(% of total labour costs)

Country	Employment rate			Unemployment rate			Tax wedge		
	2006	2010	2011	2006	2010	2011	2006	2010	2011
Australia	72,2	72,4	72,7	4,9	5,3	5,2	28,3	26,8	26,7
Austria	70,2	71,7	72,1	4,8	4,5	4,2	48,5	48,2	48,4
Belgium	61,0	62,0	61,9	8,3	8,4	7,2	55,5	55,4	55,5
Canada	72,8	71,5	72,0	6,4	8,1	7,5	31,9	30,5	30,8
Chile	55,5	59,3	61,3	7,9	8,4	7,4	7,0	7,0	7,0
Czech Republic	65,3	65,0	65,7	7,2	7,4	6,8	42,5	42,1	42,5
Denmark	77,4	73,3	73,1	4,0	7,6	7,7	41,0	38,3	38,4
Estonia	67,9	61,0	65,2	6,0	17,2	12,7	39,0	40,1	40,1
Finland	69,6	68,3	69,2	7,7	8,5	7,9	44,0	42,5	42,7
France	63,6	63,8	63,8	8,9	9,4	9,3	50,2	49,3	49,4
Germany	67,2	71,2	72,6	10,4	7,2	6,0	52,3	49,2	49,8
Greece	61,0	59,6	55,6	9,0	12,7	17,9	35,8	38,2	..
Hungary	57,3	55,4	55,8	7,5	11,2	11,0	52,0	46,6	49,4
Iceland	85,3	78,9	79,0	3,0	7,7	7,2	31,8	33,4	34,0
Ireland	68,5	60,4	59,6	4,7	13,9	14,6	23,0	25,8	26,8
Israel	57,6	60,2	60,9	8,5	6,8	5,7	23,5	19,4	19,8
Italy	58,4	56,9	56,9	6,9	8,5	8,5	46,1	47,2	47,6
Japan	70,0	70,1	70,3	4,3	5,3	4,8	28,8	30,2	30,8
Korea	63,8	63,3	63,9	3,6	3,8	3,5	18,1	20,1	20,3
Luxembourg	63,6	65,2	64,6	4,7	4,4	4,9	35,3	34,3	36,0
Mexico	61,0	60,3	59,8	3,3	5,4	5,4	15,0	15,5	16,2
Netherlands	72,5	74,7	74,9	4,3	4,5	4,4	38,4	38,1	37,8
New Zealand	74,9	72,3	72,6	3,9	6,7	6,7	20,4	17,0	15,9
Norway	75,5	75,4	75,3	3,5	3,7	3,3	37,4	37,2	37,5
Poland	54,5	59,3	59,7	14,0	9,7	9,8	39,0	34,2	34,3
Portugal	67,9	65,6	64,2	8,1	11,4	13,4	37,1	37,6	39,0
Slovak Republic	59,4	58,8	59,5	13,3	14,4	13,6	38,3	37,9	38,9
Slovenia	66,6	66,2	64,4	6,1	7,4	8,3	45,3	42,5	42,6
Spain	65,7	59,4	58,5	8,6	20,2	21,8	39,1	39,7	39,9
Sweden	74,6	72,7	74,1	7,1	8,5	7,6	47,8	42,8	42,8
Switzerland	77,9	78,6	79,3	4,1	4,6	4,2	20,9	20,7	21,0
Turkey	44,6	46,3	48,4	10,5	12,1	10,0	42,7	37,9	37,7
United Kingdom	72,6	70,3	70,4	5,5	7,9	8,0	34,0	32,6	32,5
United States	72,0	66,7	66,6	4,7	9,8	9,1	29,9	30,4	29,5
Bulgaria	58,7	59,7	58,5	9,0	10,3	11,3	35,4	32,5	..
Cyprus	69,6	69,7	68,1	4,7	6,4	7,9	14,1	..	..
Latvia	66,3	59,3	61,8	7,0	19,0	15,6	42,9	44,2	..
Lithuania	63,6	57,8	60,7	5,7	18,0	15,6	46,3	40,7	..
Malta	53,6	56,1	57,5	6,9	7,0	6,5	43,7	22,4	..
Romania	58,8	58,8	58,5	7,6	7,6	7,7		44,3	..

Croatia	55,7	54,0	52,4	11,5	12,1	13,9	30,6	30,4	30,2
Macedonia	39,6	43,5	43,9	36,3	32,2	31,6	40,2	29,6	29,4
Serbia	49.9	47,2	45,4	20,9	21.6	23,6	31,6	28,0	..
Montenegro	41,0	47,6	45,9	30,6	19,7	19,9	34,8	33,0	..

Source: OECD.Stat database; Eurostat database; database of Statistical Office of the Republic of Serbia; Croatian Bureau of Statistics; Statistical Office of Montenegro; State Statistical Office of the Republic of Macedonia; European Commission, 2012, p.61; 2008, p.94; OECD 2012, p.61; Croatian Bureau of Statistics, 2012, p.10; MONSTAT, 2012, p.6.

In terms of labour taxation, the countries in the Western Balkans, as well as Macedonia, rely much more heavily on social security contributions than PIT. They implemented reforms, reducing labour tax wedges, with the result that the region has the lowest PIT rates in Europe. For a single worker who earns an average income, the labour tax wedge in Macedonia in 2006 was 40,2%, in Serbia 31,6% and in Montenegro 34,8%. In Macedonia the tax wedge in 2008 was reduced at around 32% (including fringe benefits), which was similar as in Bosnia-Herzegovina (Republic of Srpska) and lower than in Serbia, Montenegro and Croatia but somewhat higher than in Albania. (World Bank 2008, p.17; Separovic 2009, p.462) The fiscal policy change in the region was towards indirect taxes as a more significant revenue source (and successful introduction of VAT tax in the region), and reliance on relatively high rates of social security contributions as the predominant form of wage taxation, thus creating space for low PIT rates. The World Bank found that high labour tax wedge contributes to informality and undercuts competitiveness and growth in several SEE countries. (World Bank 2011, p.29) Despite the high contribution rates, many pension and health care plans in the region are running deficits, in part because of the narrow tax base.

Empirical analysis of the relations between tax wedge and labour market outcomes

Table no. 3 shows that countries differ by the tax wedge, but also by the employment and unemployment rates. Because of the heterogeneity of the data, we employed a hierarchical cluster analysis to see if there are more homogeneous groups in the OECD, EU and EU candidate countries, with respect to their unemployment rate, employment rate and tax wedge. Hierarchical clustering identifies relatively homogenous groups of cases based on selected characteristics taking the similarity measures into account, without making a distinction between dependent and independent variables. Taking all variables into consideration the (statistical) distance between countries shows which countries are near or apart i.e. are similar or dissimilar to each other.

The cluster analysis was run on a sample of 43 countries. The analyzed variables are tax wedge at 100% average wage level, employment and unemployment rates in 2010. In order to calculate the distance of the data the squared Euclid distance measure was used, and to calculate the similarity of the data, Ward's method was used, which assesses cluster membership by calculating the total sum of squared deviations from the mean of a cluster. The variables were standardizes using Z scores, in order to equalize the contributions of the relative importance of all variables.

The analysis produced three clusters, presented graphically by a dendogram (fig. no. 3), between which the variables were significantly different. The Mann-Whitney U non-parametric test was performed and it confirmed statistically significant differences between each two clusters in unemployment rate, employment rate and tax wedge at significance level of 5%.

The characteristics and basic descriptive statistics of the three clusters are presented in table no. 4. The second cluster shows best labour market performance i.e. lowest unemployment and highest employment rates. The average unemployment rate is 6,4% and the average employment rate – 69%. It consists of 18 countries. All non-EU OECD countries are included in this group and only 5 EU member countries - the Nordic countries and Malta. Norway has a remarkably low unemployment rate of only 3,7%. At the same time, this group has a lowest average tax wedge (27,6% of total labour costs). Chile has the lowest tax wedge off all analyzes countries (7% of labour costs). The first cluster includes 11 countries with lower rates of employment, higher rates of

unemployment and higher tax wedge compared to the second cluster and is consisted exclusively of European Union member countries. The highest unemployment rate in this group is registered in Portugal – 11,4%. Austria stands out as one of the countries with lowest unemployment rates, 4,5%, but due to the high tax wedge (48,2% of labour costs), it belongs to the first cluster. Belgium has the highest tax wedge in the whole sample. The difference in the average tax wedge between the two clusters is rather high (18,3 p.p.).
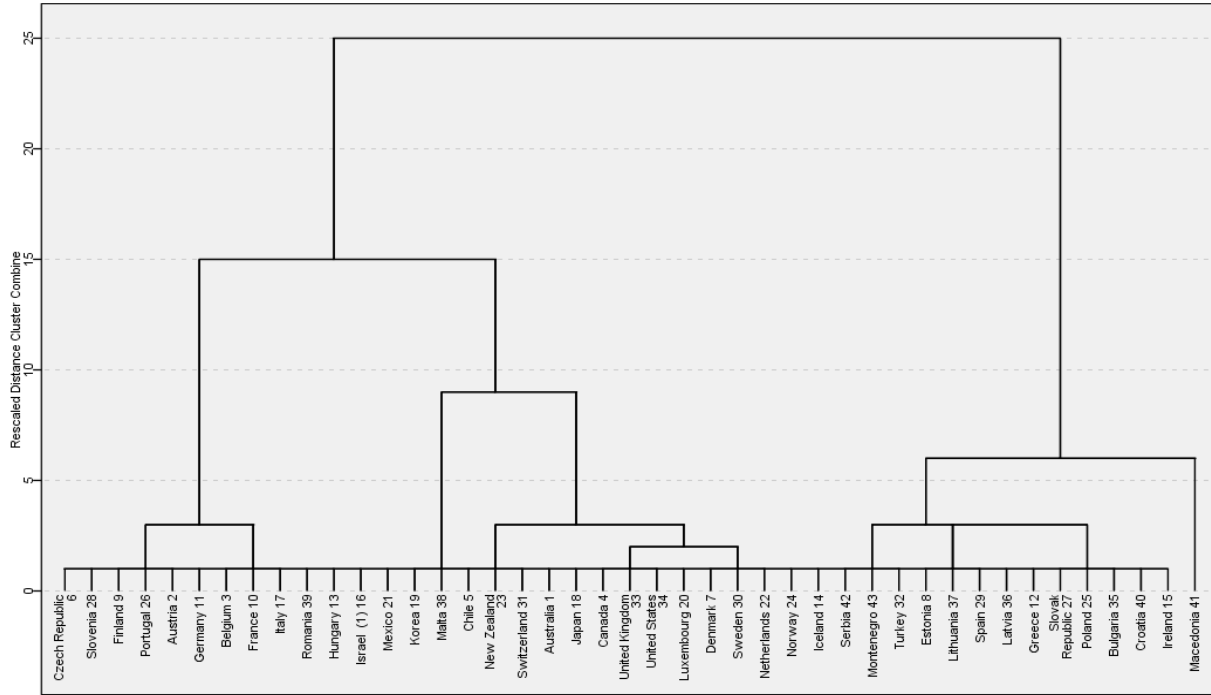

Figure no. 3. - Dendogram using hierarchical clustering, with Ward's method and squared Euclidean distance

Source: table no. 3, author's calculations

Table no. 4

Characteristics of the three groups of countries obtained by hierarchical clustering using Ward's method and squared Euclidean distance

Group		Employment rate	Unemployment rate	Tax wedge	Countries
Cluster 1 (n=11)	Mean	64,1	8,3	45,9	CZ, SLO, FIN, POR, AUT, GER, BEL, FRA, ITA, ROM, HUN
	Min	55,4	4,5	37,6	
	Max	71,7	11,4	55,4	
	St.dev.	5,4	1,9	4,8	
Cluster 2 (n=18)	Mean	69	6,4	27,6	ISR, MEX, KOR, MAL, CHI, NZ, SUI, AUS, JAP, CAN, UK, USA, LUX, DEN, SWE, NTL, NOR, ICE
	Min	56,1	3,7	7	
	Max	78,9	9,8	42,8	
	St.dev.	6,8	1,8	9,6	
Cluster 3 (n=14)	Mean	55,3	16,6	35,2	SER, MNT, TUR, EST, LIT, ESP, LAT, GREE, SLK, POL, BUL, CRO, IRE, MAC
	Min	43,5	9,7	25,8	
	Max	61	32,2	44,2	
	St.dev.	6,3	5,8	5,4	

Note: AUT - Austria, AUS - Australia, BEL - Belgium, BUL - Bulgaria, CAN - Canada, CRO - Croatia, SUI - Switzerland, CZ - Czech Republic, GER - Germany, DEN - Denmark, EST - Estonia, ESP - Spain, GRE - Greece, FIN

- Finland, FRA - France, HUN - Hungary, IRE - Ireland, ICE - Iceland, ITA - Italy, JP - Japan, KO - Korea, LT - Lithuania, LU - Luxemburg, LV - Latvia, MAC –Macedonia, ME - Mexico, MAL - Malta, MNT – Montenegro, NL - Netherlands, NOR - Norway, NZ - New Zealand, POL - Poland, POR - Portugal, ROM - Romania, SER – Serbia, SWE - Sweden, SIO - Slovenia, SLK - Slovak Republic, TUR- Turkey, UK - United Kingdom, USA - United States of America.
Source: table no.3; authors' calculations

These results confirm that on average, for OECD and EU countries, a lower tax wedge corresponds to better labour market outcomes and are comparable to other previous studies that use cluster analysis (Dolenc and Vodopivec 2005; Dolenc, Laporsek and Separovic 2011; Grdovic-Gnip and Tomic, 2010).

All EU candidate countries and most of the EU new member states are included in the third cluster, which consists of 14 countries with weakest labour market performances. Poland is the only country in this group with an unemployment rate below 10%. The Republic of Macedonia stands out as the country with the highest unemployment rate (32,2%), despite having one of the lowest tax wedge levels in Europe. The high standard deviation in the cluster is to a great extend due to the extremely high unemployment rate in Macedonia. If it is excluded, the cluster would have a standard deviation of the unemployment rate of 3,8. The situation is similar in the other Balkan countries that are subject of our analysis, with the exception of Croatia, which although located in the same cluster, has a slightly higher employment rate (54%) and lower unemployment rate (12,1%). Serbia and Montenegro, similar to Macedonia, despite being among the countries with lowest tax wedges, face high unemployment and low employment. We can conclude that although the Balkan countries make efforts through reducing labor costs (tax wedges) to alleviate the problem of unemployment and employment, there are many other factors that contribute to the weak performances of the labour market, such as specific political and institutional factors, the degree of flexibility of labour markets, diversion to informal economy, demographic pressures from the potential labour market entrants, international developments etc. (Mojsoska-Blazevski et al. 2009, p.54, Betcherman and Arandarenko 2008, p.7-11)

Conclusion

The Republic of Macedonia has one of the lowest tax wedges in Europe. This results from the introduction of a lower, flat rate of personal income tax in 2007 and 2008 and a consecutive decrease in social contributions (pension and disability, health and unemployment insurance contributions) beginning from 2009. The total tax burden on wages decreased from over 49% in 2006 to 36,5% in 2011. This led to a permanent decrease in labour costs. The largest decrease was registered in 2009, as a result of the reduction of social insurance contribution rates. The tax wedge on labour, calculated either as a percentage of net wage or as a percentage of labour costs, had a constant decreasing trend until 2010. In 2011 the decrease was slightly narrower than planned, as a precautionary measure for the decreasing revenues that resulted from the economic crisis.

But, the decrease in social insurance contributions, primarily pension and disability insurance, questions the financial sustainability of the pension and health care system. Both Funds have registered deficits through the years, financed by the Republic's budget. These deficits tend to grow as a result of lower contributions, which can question the functioning of both systems. This in turn requires larger direct grants from the Budget to the Funds. Additionally, the low investment level proves that the fiscal policy changes aimed at a lower fiscal burden on wages and lower labour costs, do not provide enough incentives to entrepreneurs. Fiscal system reforms are only one segment of the investment climate and on their own do not necessarily imply higher volume of investments. In order to encourage entrepreneurs to invest, all segments of the investment climate need to be improved: stability, protection of property rights, regulation, corruption level, infrastructure etc. A partial improvement of one single segment cannot give the expected results. Hence, the decrease in social security contributions in the Republic of Macedonia is not completely

justified, because on one hand, the initial goal was to improve the investment climate and it did not realize, and on the other hand, the deficits of the Funds widened. This necessarilly opens the question of redefining the future directions of the policy of social security contributions decrease.

The theory argues that high tax wedge has detrimental effects on labour market outcomes. Hence, a decrease in labour taxation should provide an improvement in the unemployment and employment. The reduction in PIT and social contribution rates in Macedonia corresponds to a decreased unemployment rate. However, as Behar (2009) argues, there are many other factors that influence labour market outcomes, especially in the former socialist countries. The lack of long time series and the fact that the taxation system had not changed much prior to 2006, prevent drawing a robust conclusion based on econometric analysis. Thus, our analysis is based on cross section data. A cluster analysis performed on 43 countries (members of OECD, EU and EU candidates) give us an insight on the relations between the tax wedge and labour market outcomes. The results are in line with previous empirical studies, which studies have shown that higher tax wedge usually corresponds to higher levels of unemployment and lower levels of employment, especially in the cases of advanced economies (Behar 2009; Dolenc and Vodopivec 2005; Tvrdon 2011; Betcherman and Arandarenko; World Bank 2005; OECD; Separovic 2009). This is confirmed in the case of EU and OECD countries. The Republic of Macedonia, along with the other Balkan EU candidate countries were clustered in a group of countries with weakest labour market outcomes, despite having one of the lowest tax wedges in Europe. This implies that although the Balkan countries make efforts through reducing labor costs (tax wedges) to alleviate the problem of unemployment and employment, many other factors contribute to the weak performances of the labour market, such as specific political and institutional factors, the degree of flexibility of labour markets, diversion to informal economy, demographic pressures from the potential labour market entrants, international developments etc.

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