# Labor income taxation in open economies: current trends and options for reforms

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March 2018

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Abstract

We analyze both the theoretical framework of labor taxation in the open economy and important current reforms of labor taxation in countries worldwide including the introduction of “social VAT”. The current tax theory considers the reforms of labor income taxation related to the shifting of taxation from more mobile tax bases to the less mobile ones, taking into consideration the reduction of tax rates with simultaneous broadening of the tax base. Such a reform is intended to reduce the distortion effects of taxation, and, as a consequence, to reduce the tax burden on labor. The empirical section includes analysis of indicators of labor income taxation in OECD countries. We calculated the progressivity index of overall tax wedge and its components – personal income tax, employer’s and employee’s social security contributions. The results enabled cross-country comparisons: we found that in a most OECD members both employees’ and employers’ social security contributions systems are regressive or flat, while personal income tax systems are progressive in all countries except Hungary with flat tax schedule. Moreover, in OECD countries with highest GDP per capita the employees bear average labor tax burden with simultaneously low employers’ social security contributions rates.

Key words: personal income tax; social security contributions; consumption tax; social VAT; progressivity.

JEL Classification: E20, H22, H24, P51

## 1. Introduction

In modern economies, the tax burden on labor typically includes personal income taxes and social security contributions paid by both employers and employees. In most of countries worldwide the structure of personal income tax is quite complex (in contrast to social security contributions) and includes several tax brackets, different tax rates, tax incentives etc.

Taxes on labor income have a direct impact on business activities influencing on both labor demand and labor supply levels, and indirect impact through government spending (based on tax revenue) related to the financing of provision of social goods and services.

The taxation of labor leads to the reduction of employment in the formal sector of economy and consequently to the increase of employment in the informal sector, to the reduction of both output and employment in industries using primarily low-skilled and low-paid workforce, and also to the increase of domestically produced output, i.e. goods and services, produced and consumed in the household without being distributed by market channels.

The openness of the economy leads to the new challenges, related to the international tax competition and tax incidence, which often aggravate the problem of shifting the corporate tax burden on labor. These issues are particularly topical for the small open economy with no competitive power in international markets.

The mentioned problems and their consequences reduce economic efficiency of labor taxation. The tax distortions violate basic principles of equity and neutrality and slow down economic growth. The progressivity of taxation allows to come close to the achieving the equity principle, but it simultaneously violates the neutrality. In turn, consumption tax with broader base and uniform rate makes possible to maintain some degree of neutrality, but with simultaneous failure of equity principle.

So, today the reforms of labor taxation, aimed to address these distortions and to ensure the effective distribution of resources, are actively discussed in societies.

Accordingly, the purpose of the paper is to evaluate main indicators of labor taxation and the progressivity of tax wedge and its components in OECD countries.

The article is structured as follows. First, we briefly discuss the theoretical background of labor income taxation in an open economy and main current trends of labor taxation reforms. The empirical part includes analysis of indicators of labor income taxation in OECD countries. Notably, Section 2 presents material and methodology, and Section 3 describes results and discussion. Section 4 concludes.

## 2. Material and Methods

For today, the economy of almost all countries worldwide more or less can be considered as open – goods and services, capital and labor move across the borders.

According to the tax theory, for the small open economy the source-based capital tax, taking into account the perfect mobility of capital and immobility of labor, would never be optimal, because the small economy have no market power to change the rate of return of its residents or other capital owners, in other jurisdictions. In this case, the tax burden falls entirely on the immobile labor [1; 8].

Taking this into consideration the taxation of labor income of employers is more effective. Moreover, the higher is the degree of market integration, the more the rate of employment depends on tax changes [2; 4; 5; 7].

The strengthening or weakening the government's role as the guarantor of risk minimization in the open economy depends crucially on the level of labor mobility. And, since the labor mobility increases permanently, such function of the government tends to weaken [19, p. 28-31].

The current tax theory considers *two main directions of reforms of labor income taxation*:

the shifting the burden of taxation from income to consumption and/or property, and

the broadening of the tax base by reducing tax rates and by eliminating main tax incentives.

In the context of labor taxation, it means the reduction of tax burden borne by labor in order to increase employment and enhance economic growth.

Basic arguments in favor of such tax reform in an open economy include the following. Shifting taxes from labor to consumption can generate the same revenue with lower tax rates and lower distortions since the latter is financed by a number of sources other than labor income – intergovernmental transfers, savings etc. In addition, the openness of the economy means the lower mobility of labor income comparing with corporate income since workforce overall is less mobile than capital [16].

At the same time, the main consumption tax (the VAT) has relatively immobile tax base because it is levied according to the destination principle [3; 6]. This makes its base even less mobile than the labor income, quite apart from real estate, which is the least influenced by globalization processes.

Accordingly, the VAT is the main "alternative" of labor taxes due to its large tax base, and the increase in VAT rate is considered as the major component of tax reform. It is referred to the so-called "social VAT", which partially replaced social security contributions in several countries (Table 1.).

**Table 1. "Social" VAT in OECD countries (Source: author, based 9; 10; 12).**

| Country | Year of introduction | Key features |
|---|---|---|
| Denmark | 1987 | 2% increase in VAT rate for (to 21%) with simultaneous abolishment of compulsory social security contributions for employers |
| French overseas territories | 1994 | The reduction of social security contributions rate, paid by employers, with simultaneous increase in VAT rate from 7,5% to 9,5%. |
| Germany | 2007 | 3% increase in VAT rate (to 19%) with simultaneous 1,8% reduction in employers' social security contributions rate |
| Hungary | 2009 | 5% increase in VAT rate (to 27%) with simultaneous 5% reduction in employers' social security contributions rate (to 22%) |
| Japan | 2014 | 5% increase in consumption tax rate (to 8%) with simultaneous abolishment of compulsory social security contributions, paid by employers to the state pension funds. |
| France<br>Belgium | 2007<br>2015 | The discussion was started, but currently there are no concrete results on this issue |

The consequences of introduction of "social" VAT in countries with progressive and flat schedules of labor income tax are usually evaluated with macroeconomic simulation models. Their results show positive effects in the medium-term (the increase of demand on labor due to reduced labor costs), despite the short-term negative effects as a result of increase in consumer prices subsequent to the increase in VAT rate.

Also in an open economy, there are several positive effects on the competitiveness of domestic producers on both domestic and foreign markets, especially with fixed exchange rate. They benefit in the domestic market, since importers pay the increased VAT, without any gain from reduced labor costs. The domestic exporters also increase their competitiveness in foreign markets due to reduced labor costs.

However, the effects of introduction of "social" VAT both for progressive and flat tax schedules depend crucially on model assumptions and on economic and institutional environment of the country. Notably, the evaluation of such a reform in Hungary, which has flat schedules of labor income taxation (see below), is substantially complicated by consequences of global financial crisis 2008-2009, by decisions of national government, and by presence of informal economy. The latter means that administrative costs and possibilities for tax evasion differ for consumption taxes and labor income taxes [13, p. 26-27].

Now in USA the House Tax Cuts and Jobs Act is actively debated. It is a kind of a revenue neutral tax plan aimed to reduce personal income tax rates for middle-income groups, to raise the consumption tax, and to expand the Earned Income Tax Credit. According to estimates, such measures can contribute to economic growth [11; 18].

In terms of progressivity, such a reform involves reduction of progressivity of labor income taxation and reduction of its marginal rates, especially for higher tax brackets. In OECD countries the sum of personal income tax, levied by different levels of government (state, provincial, cantonal, or local), employee and employer social security contributions and payroll tax less cash transfers, if any, determines the tax wedge, which is usually expressed as a percentage of labor cost.

Therefore, to evaluate the progressivity of tax wedge and its components in OECD countries we used comparative and graphical analysis.

The relevant quantitative analysis is based on data for OECD countries over the period for 2000-2016, provided by OECD Statistics.

## 3. Results and Discussion

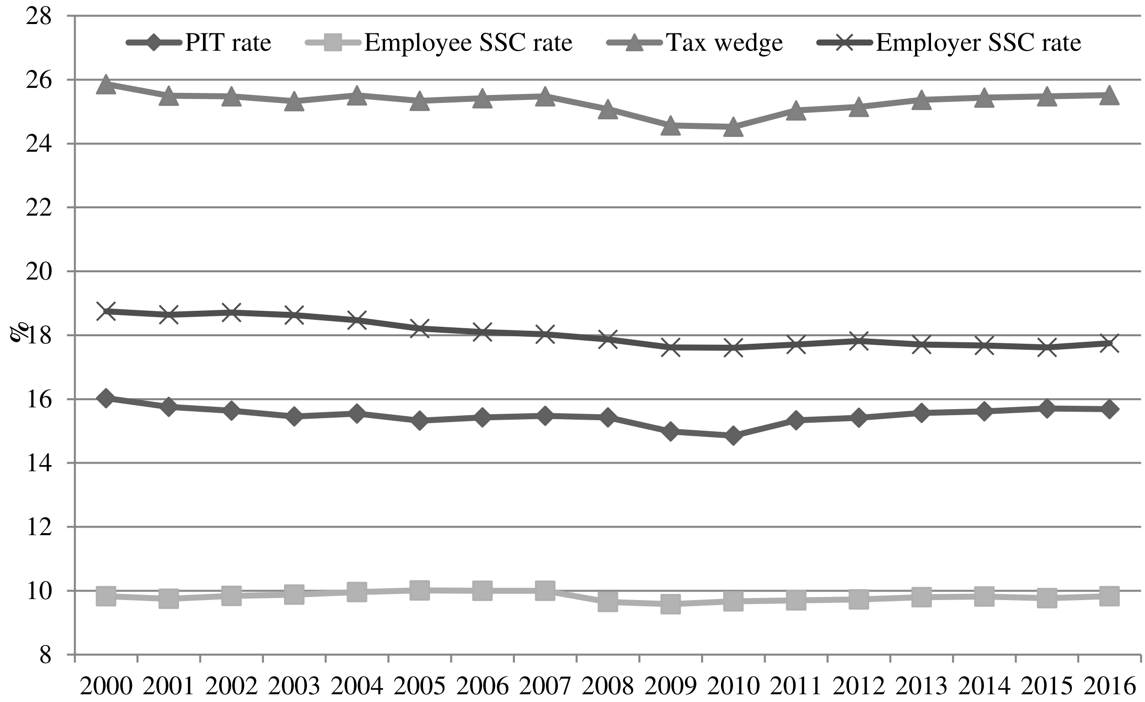
Over the last three decades, OECD countries provided more than 3000 reforms, related to the labor income taxation. Their largest part addressed personal income taxation. Italy and Ireland provided maximum number of such transformations – 121 and 199 respectively, while Austria put in practice only 14.

The number of reforms related to the employers' social security contributions exceeded more than 1,5 times the quantity of reforms associated with employees' social security contribution. Whereas, with regard to social security contributions rate, the majority of reforms increased it for employers' social security contributions, and reduced – for employees' social security contributions.

According to OECD Taxing Wages 2017 now the maximum tax wedge is in Belgium (53,96%), while the minimum – in New Zealand (17,89%). But in New Zealand there are no compulsory levies on social security, only voluntary, paid by both employers and employees, which are not reflected in OECD official statistic reports. Employers in Denmark have similar possibility to pay social contributions to the unemployment fund voluntarily.

Fig. 1. presents main indicators of labor income taxation in OECD countries.

**Figure 1. Main indicators of labor income taxation in OECD countries for 2000-2016 (Source: author, based on 14; 15).**




Note: henceforth we use indicators based on a single person at 100% of average earnings, with no child;

SSC – social security contributions.

As one can see on Fig.1., during 2000-2016 there is no important change in both PIT rates and social security contributions rates in OECD countries. The insignificant reduction of indicators relates to the remedial actions to overcome 2008-2010 economic downturn.

According to the EC Report, the tax policy responses in the area of labor income taxation include:

a temporary increase in transfers to the unemployed or low income households;

a temporary lengthening of the duration of unemployment benefit;

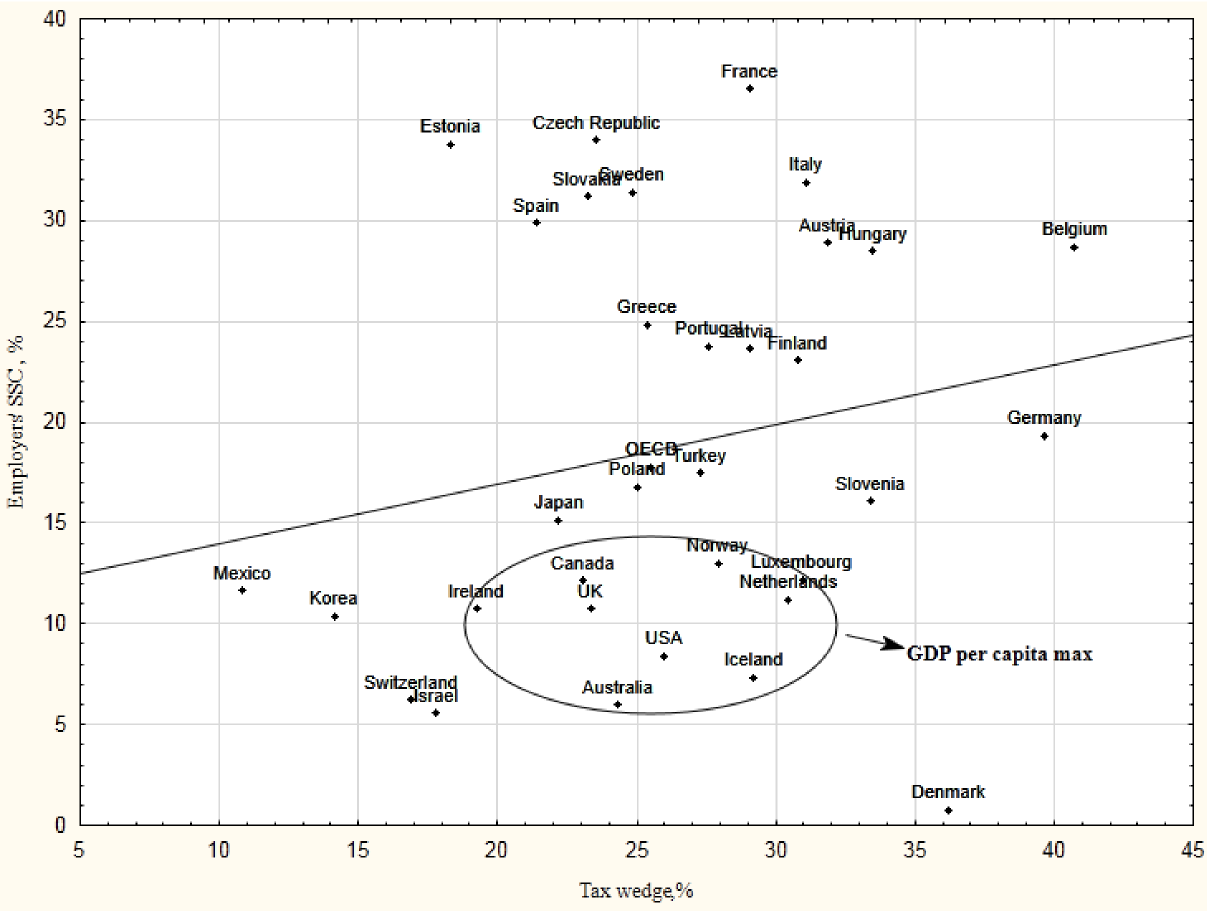
temporary reductions of the standard VAT rate;

a reduction of social contributions paid by employers on low-skilled low-paid employees in order to promote their employability;

the removal of the requirement for micro-enterprises to submit annual accounts [19].

Fig. 2. illustrates comparison between some indicators of labor income taxation in OECD countries.

**Figure 2. Indicators of labor income taxation in OECD countries, 2016 (Source: author, based on 14; 15).**




As one can see on Fig. 2, in 2016 the highest social security contributions rate, paid by employers, was in France, while the lowest – in Denmark and Israel. The maximum tax wedge was in Belgium and Germany, and the minimum was in Mexico and Korea.

However, the countries with highest GDP per capita (between OECD states) are grouped together at the bottom of Fig. 2. In terms of labor income taxation it could be evidence that in the richest OECD countries employees bear average tax burden with simultaneously low social security contributions rates paid by employers.

In general, the reforming of labor income taxation in most of OECD countries aimed not only to shift the tax burden on consumption, but also to reduce both the degree of progressivity of labor income taxes, and their marginal rates, especially, for higher tax brackets.

To estimate the level of progressivity of labor taxation in OECD countries we calculated the progressivity index of labor income taxation for OECD countries for 2016. We estimated the progressivity of tax wedge components: personal income tax, employers' and employees social security contributions.

For this, we used the following formula:

$$Progressivity\ of\ tax\ schedule = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{METR_i}{AETR_i}\right) \qquad (1)\ ,$$

where $METR$ is the marginal tax rate;

$AETR$ is the average tax rate, i.e. the share of tax burden in the taxpayer's gross labor income;

$N$ are levels of labor income (50%-250% of the average workers income); $N = 201, i = 1 \dots N$ [17].

Table 2. presents the results of calculation.

**Table 2. Progressivity index for the tax wedge and its components in OECD countries, 2016 (Source: author's calculations, based on 14; 15).**

| Country | Employer's SSC | Employee's SSC | Personal income tax | Overall tax wedge |
|---|---|---|---|---|
| Austria | 0,69 | 0,53 | 1,28 | 1,07 |
| Belgium | 1,03 | 1,13 | 1,39 | 1,23 |
| Canada | 0,55 | 0,32 | 1,45 | 1,24 |
| Czech Republic | 1 | 1 | 1,26 | 1,11 |
| Estonia | 1 | 1 | 1,25 | 1,08 |
| Finland | 1 | 1,02 | 1,47 | 1,27 |
| France | 1,18 | 0,90 | 1,33 | 1,20 |
| Germany | 0,44 | 0,43 | 1,15 | 1,03 |
| Greece | 1 | 1 | 1,52 | 1,28 |
| Hungary | 1 | 1 | 1 | 1 |
| Ireland | 1,03 | 0,997 | 2,16 | 1,64 |
| Israel | 1,27 | 1,42 | 1,85 | 1,69 |
| Italy | 1 | 1,04 | 1,49 | 1,23 |
| Japan | 0,74 | 0,72 | 1,25 | 1,10 |
| Korea | 0,79 | 0,73 | 1,49 | 1,25 |
| Luxembourg | 0,77 | 0,82 | 1,40 | 1,26 |
| Mexico | 0,72 | 1,16 | 3,36 | 1,33 |
| Netherlands | 0,29 | 0,52 | 1,49 | 1,32 |
| Norway | 1 | 1 | 1,35 | 1,24 |
| Poland | 1 | 1 | 1,14 | 1,08 |
| Portugal | 1 | 1 | 1,60 | 1,29 |
| Slovakia | 1,03 | 1,03 | 1,29 | 1,14 |
| Slovenia | 1 | 1 | 1,34 | 1,23 |
| Spain | 0,57 | 0,57 | 1,52 | 1,099 |
| Sweden | 1 | 0,31 | 1,52 | 1,27 |
| Switzerland | 0,97 | 0,97 | 1,48 | 1,36 |
| Turkey | 1 | 1 | 1,26 | 1,16 |
| UK | 1,21 | 0,64 | 1,45 | 1,35 |
| USA | 0,84 | 0,91 | 1,28 | 1,195 |
| OECD average | 0,93 | 0,89 | 1,37 | 1,22 |

The results allowed us to determine the following current trends in taxation of labor income in OECD countries:

in most of OECD countries the schedule of social security contributions, paid by employer, is regressive (11 countries) or flat (12 countries);

the schedule of social security contributions, paid by employee, in most OECD countries is regressive (14 countries) or flat (9 countries);

the schedule of personal income tax is progressive in all OECD countries except Hungary, where this schedule is flat.

The Israeli labor income tax system is found to be the most progressive system overall (1,69) as well as social security contributions system – 1,27 for social security contributions, paid by employer, and 1,42 – for social security contributions, paid by employee. Mexico stands out with a very progressive schedule of personal income tax (3,36), exceeding 3 times the OECD average. At the same time, country has the 33rd lowest tax wedge among the 35 OECD members – the average single worker in Mexico faces a tax wedge of 20,1% compared with the OECD average of 36,0%. Ireland occupies the 2nd place on the level of progressivity of personal income tax – 2,16. For other OECD countries, the progressivity index for personal income tax falls within 1 and 2; the less progressive personal income tax schedules are in Poland (1,14) and Germany (1,15).

The less progressive systems of social security contributions are in Netherlands – 0,29 for social security contributions paid by employer and Sweden – 0,31 for social security contributions paid by employee. In general, OECD countries have regressive schedules of social security contributions paid by employer and employees – 0,93 and 0,89 respectively, while the schedule of personal income tax is progressive (1,37).

## 4. Conclusion

The developed countries worldwide are actively discussing two main direction of reforms of labor income taxation:

the shifting of taxation from more mobile tax bases to the less mobile ones, notably, from taxation of income to taxation of consumption and/or property;

the reduction of tax rates with simultaneous broadening of the tax base.

In general, according to the current tax theory, the switching from income to consumption taxes (with no impact on tax revenue), is intended to reduce the tax burden on labor in order to increase the employment and economic growth.

But in practice, the government's fiscal policy faces a number of challenges caused by openness of the economy, which means the lower mobility of labor income comparing with corporate income since workforce overall is less mobile than capital.

The mentioned problems relate, particularly, the possibilities of shifting of the corporate income tax burden onto labor. In terms of labor supply, the income tax is considered as distortive, because it discourage individuals' economic activity and leads to the reduction of number of working hours. However, consumption taxes have similar impact on labor supply, by reducing the real wage. Nevertheless, due to their broader tax base and their "proportionality" they are less distortive for achieving the same level of income (compared to labor income taxes).

When government is concerned about social equity and distribution purposes, such a reform should include the reduction of the tax rate at the same value for each tax bracket on order to maintain the progressivity of the tax system.

The empirical section includes analysis of indicators of labor income taxation in OECD countries. Notably the graphical analysis showed that in countries with highest GDP per capita, workers bear average labor tax burden (personal income tax plus employee's social security contributions) accompanied simultaneously by low employer' social security contributions rates. We calculated the progressivity index of labor income taxation for OECD countries for 2016; we estimated the overall tax wedge and its components: personal income tax, employer's and employee's social security contributions separately. For this we used the data for a basic household type – single person at 100% of average earnings (average workers wage), without children, provided by OECD statistics. The results enabled cross-country comparisons of progressivity of tax wedge and its components in OECD countries. In particular, our results showed that in most OECD countries the schedules of employers' and employees social security contributions are regressive of flat, while schedule of personal income tax rate is progressive in all countries, except Hungary with flat tax schedule.

The calculation and analysis of tax wedge using the time series data for OECD countries will allow to estimate the progressivity of schedules of labor income taxation in more detail, so that will be the topic for the future work.

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