IZVIRNI ZNANSTVENI ČLANKI – ORIGINAL SCIENTIFIC PAPERS

LEVEL AND PROGRESSIVITY OF LABOUR INCOME TAXATION IN SLOVENIA: CHANGES SINCE 1991 AND INTERNATIONAL COMPARISON

Raven in progresivnost obdavčitve dela v Sloveniji: spremembe po letu 1991 in mednarodna primerjava

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Abstract

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The paper provides an overview of the main reforms of the labour income tax system in Slovenia since 1991. Since OECD does not provide estimates of the level of labour income taxation for Slovenia, average and marginal tax rates are estimated for the period 1991-2007 according to OECD methodology. Labour income tax progressivity is measured by coefficient of residual income progression. The results show that, despite important reductions of the marginal tax rates on labour income after 2004, the tax burden on labour income remains notably above the average for the OECD countries, especially for workers without children. The evolution of progressivity of labour income taxation shows a somewhat erratic pattern. According to international comparisons, the progressivity of labour income taxation is modest in Slovenia.

Keywords: labour income, tax wedge, tax progressivity, Slovenia, OECD.

Izvleček

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Članek predstavlja glavne reforme na področju obdavčitve dohodkov iz dela v Sloveniji od leta 1991. Predstavljene so ocene povprečnih in mejnih davčnih stopenj za dohodke iz dela za obdobje 1991-2007, izračunane na podlagi metodologije OECD. OECD namreč za Slovenijo teh ocen ne zagotavlja. Ocene progresivnosti obdavčitve dohodkov iz dela temeljijo na koeficientu progresivnosti neto dohodka. Rezultati kažejo, da raven obdavčitve dohodkov iz dela v Sloveniji kljub pomembnim znižanjem po letu 2004 ostaja precej nad povprečjem držav OECD, še posebej za delavce, ki ne uveljavljajo otroških olajšav. Za gibanje progresivnosti obdavčitve dohodkov iz dela je značilen neenakomeren vzorec. Po mednarodnih primerjavah je progresivnost obdavčitev dela v Sloveniji zmerna.

Ključne besede: dohodki iz dela, davčni primež, davčna progresivnost, Slovenija, OECD.

JEL: H24, K34, J30

1. Introduction

In Slovenia, income from employment or labour income is one of the categories of personal income that is, as in the majority of the OECD[1] countries, subject to a progressive tax rate schedule. Beside personal income tax (PIT), employees are obliged to pay compulsory social security contributions (SSC), which are (as in almost half of the OECD member states) proportional to gross wage earnings, but in contrast to several OECD countries do not have an upper ceiling. As in most OECD countries, PIT is being withheld from gross wages by the employer together with SSC every month as part of payroll accounting (so called pay-as-you-earn – PAYE taxation). By adding together *net wage*, PIT, and employee SSC (SSC_e), we get the corresponding *gross wage*, which is subject to additional charges. In Slovenia, employers are liable for employer SSC (SSC_f) and for a special payroll tax charged on gross wages. By summing PIT, SSC_e, SSC_f, and the special payroll tax altogether, we get the absolute value of *total tax burden on labour income,* which drives a wedge between *total labour costs* (labour compensation as paid by the employer) and net take-home pay of the worker. Due to different wage levels within and across countries, it is convenient to express tax burden as a percentage of total labour costs or tax base, respectively, which enables a comparative analysis of labour income taxation at the national and international levels. In this paper we adopt the established microeconomic measure of labour income taxation – the so-called tax wedge as defined by the OECD (2008).[2] The OECD provides estimates of the tax wedge for only its 30 member states (including the Czech Republic, Hungary, Slovakia, and Poland). So far, there is no paper that would thoroughly analyse inter-temporal development of the average and marginal tax wedge for different wage levels in Slovenia and provide international comparisons.

In this paper we provide an insight into the inter-temporal pattern of the level and progressivity of the tax wedge in Slovenia and illustrate the current international position of Slovenian workers regarding taxes. To estimate the level

[1] Organisation for Economic Cooperation and Development (OECD)

[2] Eurostat, on the other hand, calculates the implicit tax rate for labour income, which is a macroeconomic indicator calculated from national accounts data with the same structure as the tax wedge. However, the tax wedge is more indicative with respect to the incentive and behaviour of an individual worker since it shows variation in the effective tax rate across different wage levels and household types, and is therefore chosen for the analysis of labour income taxation in this paper.

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and progressivity of labour income taxation in Slovenia in the last seventeen years, we employ the methodology of the OECD (2008).

There are a few motives for this analysis. The first is that the OECD does not provide the estimates of average and marginal tax rates on labour income for Slovenia. These estimates could be widely used in academic research and in the formulation and evaluation of social and economic policies. The second motive is related to a lengthy list of past changes in the system of labour income taxation in Slovenia and discussions suggesting tax reforms in this field. The third one derives from the modest results of past tax reforms that have moved Slovenia only slightly closer to the average tax wedge in the European Union (EU), while most other new EU member states (i.e. Slovakia, Romania, Bulgaria, and the Baltic states) have decided to adopt more radical approaches.

The paper is structured as follows. The introduction is followed by Section 2, which briefly describes changes in the labour income tax system since the declaration of Slovenian independence. In Section 3 we describe the methodology used for estimation of the average and marginal tax rates applied to labour income. In Section 4 we firstly analyze the evolution of the level of labour income taxation in Slovenia in the period 1991-2007; next we provide a detailed analysis of labour income taxation for eight family types in 2007. In addition, we illustrate the structure of the overall tax burden on labour income in Slovenia and draw parallels with the OECD countries. Section 5 presents an analysis of labour income tax progressivity in Slovenia during the past seventeen years and a comparison with other developed countries. Section 6 concludes by summarizing the main findings of the quantitative analysis.

2. Overview of the development of the labour income tax system in Slovenia

Before turning to the methodology and the analysis, we briefly describe changes in the labour income tax system since the declaration of Slovenian independence. That will enable a good reasoning of the inter-temporal pattern of the level and progressivity of labour income taxation in Slovenia.

Since 1990, when the foundations of the Slovenian tax system were laid down, several changes to the tax system have taken place. However, we address only those that are related to the taxation of labour income and used for the simulations of tax charges from wages in Slovenia for the period 1991-2007.

Labour income is one of the categories of personal income and is thus subject to PIT. From the very beginning, each person in Slovenia is taxed separately and couples cannot opt to be taxed jointly. However, certain tax allowances depend on family circumstances. From the outset, the tax year matches up with the calendar year, which has remained unchanged. According to the 1990 PIT Act, taxes from income sources that were withheld during the year were calculated according to different tax rate schedules (e.g., tax rates for labour income were 12, 22, 25 and 30 percent of the gross wage). On the annual level (after submitting the annual tax return), the final PIT was assessed with respect to a progressive tax schedule with 5 tax brackets with rates ranging from 19 to 45 percent. The 1990 PIT Act did not assign any basic tax allowance to taxpayers but did, however, allow them to lower their tax base for the amount of their special expenses up to 10 percent of the tax base. Tax allowances for the first and the second child amounted each to 8 percent of the average gross wage in Slovenia.

In 1993, a new PIT Act was adopted. It introduced several changes that came into force in 1994. It broadened the tax base and equalized withholding tax rates for different income sources. Tax rates for advance tax payments were harmonized with the annual tax rate schedule. The latter was made more progressive with marginal tax rates of 17, 35, 37, 40, 45 and 50 percent. The 1993 PIT Act restructured tax allowances by introducing a basic tax allowance equalling 11 percent of the average gross annual salary in Slovenia and lowering the allowable tax deduction of special expenses from 10 to 3 percent of the annual tax base. Thereon, the PIT rate schedule and the formula for the basic tax allowance was not changed until 2004.

In 2004, the new PIT Act was adopted, which entered into force on 1 January 2005. The number of tax brackets was cut from 6 to 5, while preserving the top marginal tax rate of 50 percent (16, 33, 38, 42, and 50 percent). The threshold for tax-exempt income increased and higher tax allowances for children were given. Further changes to the tax code affecting labour income taxation were adopted in 2006 and are effective from January 2007. Thenceforth, there are only three tax brackets in the annual tax schedule with tax rates of 16, 27 and 41 percent for active income, with the highest marginal tax rate finally being lowered. Let us just mention that the 2006 PIT Act introduced dual income taxation with a flat tax rate of 20 percent on dividend and interest, and a flat tax rate on capital gains that depends on the holding period.

The most important element of labour income taxation in Slovenia is compulsory SSC paid by employees and employers. The law of 1990 on SSC prescribed high contribution rates that were subsequently lowered several times. In 1991 the overall SSC rate amounted to 46.06 percent of the gross salary. It reached a peak in 1992, when SSC rates added up to 50.35 percent. Since 1992, the overall SSC rate was gradually reduced to 47.8 percent in 1993, 45.3 percent in 1994, 44.7 percent in 1995, and 42 percent in the first half of 1996. The overall SSC rate was additionally lowered by 4 percent by the introduction of the Social Security Contributions Act (SSC Act) in June 1996. From 1997 to 2001, the overall SSC rate was stable at 38 percent, while it was raised slightly again to 38.2 percent in 2002, and has not changed since then.

In June 1996, at the same time as SSC rates for employers were lowered by 4 percentage points, Slovenia introduced a

special highly progressive payroll tax on labour income paid by employers. The aim of this tax reform was primarily to reduce the tax burden for low-income workers and thus on labour intensive firms. The payroll tax is levied on gross wage payments of employees who are obliged to pay SSC under a special law. The tax is applied to a gross wage at progressive rates, which have been changed several times since the introduction of the payroll tax. Although this type of tax is relatively easy to collect, it has a serious drawback that is caused by the steep progressivity of tax rates. This is one of the reasons why this tax is being gradually reduced and will be completely phased out on 1 January 2009.

In the next section, we present the methodology used to show how the described changes in the labour income tax system have affected the level and progressivity of labour income taxation in Slovenia.

3. Methodology

We employ the methodology of the OECD (2008) on taxing wages to estimate the level and progressivity of labour income taxation in Slovenia in the last seventeen years. We focus on two microeconomic indicators of labour income taxation. The first indicator is the *personal tax rate*, which takes into account only taxes on labour income legally imposed on workers. We distinguish between the average and marginal personal tax rate. The *average personal tax rate (ATRp)* denotes the sum of PIT and employee SSC (net of cash benefits) expressed as a percentage of gross wage earnings:

$$ATR_p = \frac{PIT + SSC_e\ (-cash\ benefits)}{w + PIT + SSC_e} \qquad (1)$$

This measure reveals the relative difference between gross wage earnings ($W = w + PIT + SSC_e$) and net wage (w) of a worker and does not take into account taxes and SSC that are imposed on the employer. The *marginal personal tax rate (MTRp)* is calculated by considering the impact of a 1-percent increase in gross wage earnings on taxes and SSC imposed on employees.

The second indicator is the *tax wedge between total labour costs and net take-home pay* (hereafter referred to as the tax wedge). The tax wedge is a broader measure of labour income taxation than the personal tax rate, since it takes into account all taxes and (employee and employer) SSC levied on labour income. We distinguish between the average tax wedge (simply called the tax wedge) and the marginal tax wedge, which play different roles in decision making concerning employment (see Cahuc & Zylberberg 2004, p. 766, and Sørensen 1997). According to the OECD (2008) methodology, the *average tax wedge (ATW)* is calculated on the basis of national tax legislation and does not relate to the actual tax revenue. The ATW is the ratio of total labour taxes to total labour costs as paid by a hypothetical employer:

$$ATW = \frac{PIT + SSC_e + SSC_f + T_f - cash\ benefits}{(w + PIT + SSC_e) + SSC_f + T_f} \qquad (2)$$

Hereby total labour taxes are defined as the sum of PIT, employee plus employer compulsory SSC, and any payroll tax (*Tf*) lowered by direct cash benefits for dependent children. Total labour costs are defined as gross wage earnings plus employer SSC and special payroll taxes (OECD 2008). It should be recognized that the considered total labour costs may not reflect the true labour costs faced by employers since they do not include food and mobility reimbursement (which are tax free in Slovenia). The *marginal tax wedge (MTW)* is calculated by considering the impact of a 1-percent increase in total labour costs (the numerator in Equation 2) on taxes and SSC imposed on employees and employers (the denominator in Equation 2).

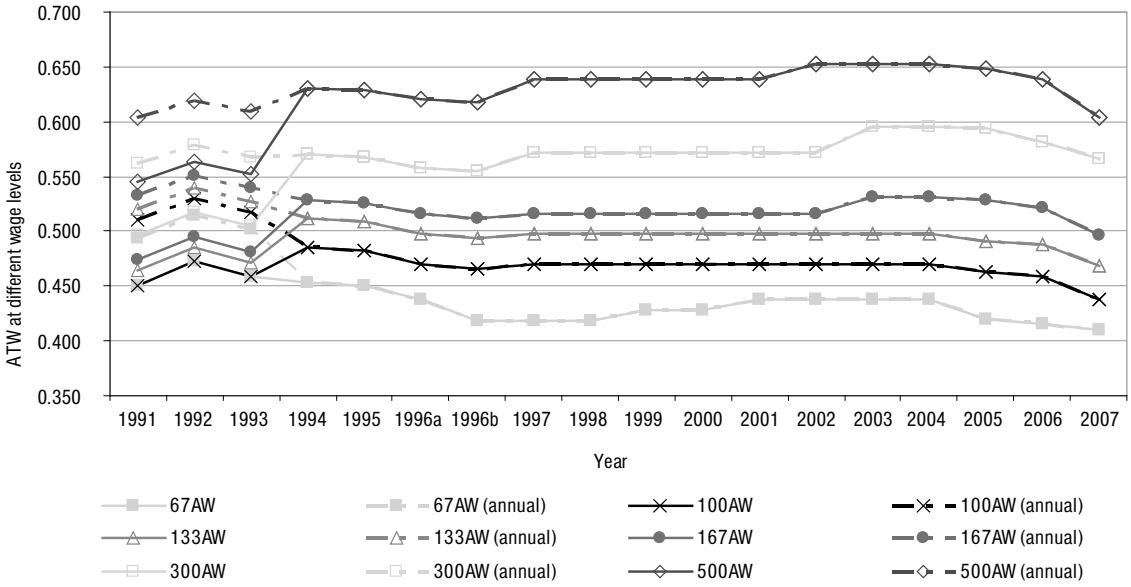
The OECD calculates the indicators for eight family types that differ by income levels and household composition. Following the OECD (2008) methodological approach, we assume that the annual income of a single worker or a family corresponds to their annual income from employment as there are no other income sources. It is expressed as a fraction of the average gross wage earnings of a full-time average worker (AW) covering industry sectors C-K in ISIC Rev. 3. We do not consider any income tax that might be due to non-wage income or other kinds of taxes.

4. Level of labour income taxation in Slovenia

To analyze the level of labour income taxation in Slovenia in the period 1991-2007, we use the following indicators of labour income taxation: the ATR_p, the MTR_p, the ATW, and the MTW. Firstly, we illustrate the inter-temporal pattern of labour income taxation of a single individual without children. Afterwards, we show the values of chosen tax indicators for eight family types and illustrate the structure of the tax wedge in 2007. Lastly, we move to international comparisons.

Figure 1 portrays the evolution of the ATW for a single person without children at six different wage levels since 1991 in Slovenia. Wage levels are expressed in terms of the gross wage of an average worker (hereafter referred to as average gross wage or simply average wage) in Slovenia in the respective year. Until 1994 we have two separate lines showing the ATW for the same income group of workers. The solid line refers to the ATW estimated on the annual level, while the dashed line refers to the ATW estimated on the monthly level. After 1994 the lines overlap since the 1993 PIT Act harmonized the monthly withholding tax rate schedule with the annual tax rate schedule. The curves are all hump-backed in the second half of the period but reach maxima in different years. We can observe that the ATW for workers earning at the most five-thirds of the average wage reaches its maximum level (51 to 55 percent, depending on the wage level) in the period 1992-1994. In 2007 the ATW for these workers is notably lower and ranges from 41 to 50 percent. The ATW for higher-wage earners reaches the maximum level in the period 2002-2004 (59 and 65 percent at three and five average wages, respectively). In 2007 the ATW for these workers ranges from 57 to 60 percent. Thus, while the level of taxation of low to medium-high wages started to fall in the early 1990s, the tax burden on the highest wages was not cut down till 2004.

Figure 1: *Average tax wedge (ATW) for single persons without children at different wage levels in Slovenia in the period 1991-2007*

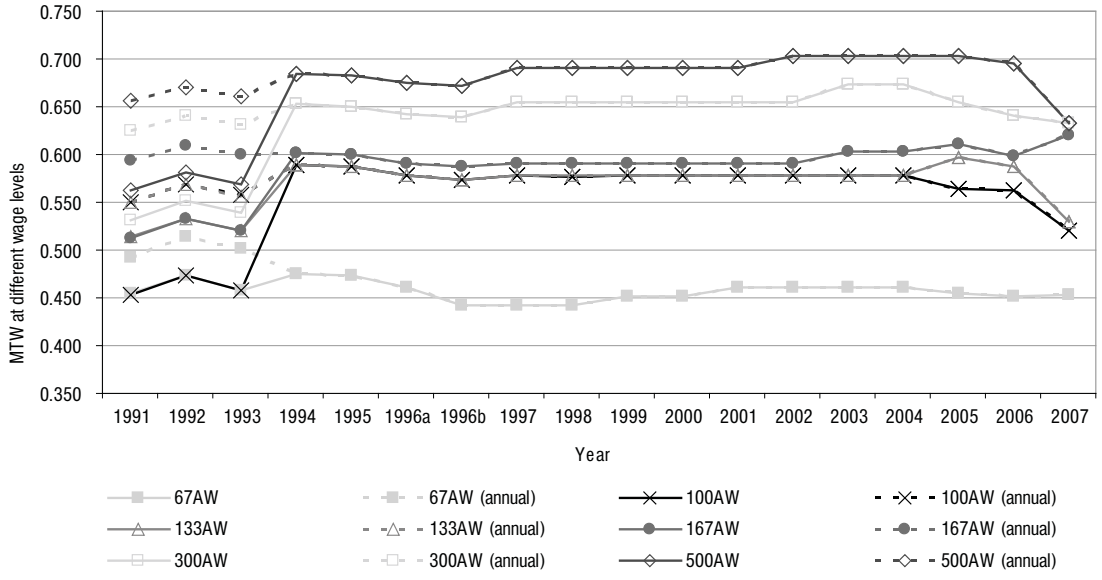


Notes: Wage levels are expressed as a percentage of the gross wage of an average worker (AW) in the respective year. AW67, for example, denotes two-thirds of the gross wage of an AW. Other labels are interpreted analogically. The solid lines refer to annual estimates, while the dashed lines refer to monthly estimates. Monthly estimates refer to July of the respective year. The only exception is year 1996, for which we prepared two estimates: the first (denoted by 1996a) is for the period prior to introduction of the payroll tax, and the second (denoted by 1996b) refers to the period after introduction of this tax.

We use the new definition of an average worker (see OECD 2008) over the whole time period to provide inter-temporal comparability of the estimates for Slovenia.

Source: Authors' calculations.

Figure 2: *Marginal tax wedge (MTW) for single persons without children at different wage levels in Slovenia in the period 1991-2007*



Notes: See Figure 1.

Source: Authors' calculations.

Figure 2 displays the inter-temporal pattern followed by the MTW for a single individual without children at six different wage levels that are expressed as a percentage of the average gross wage. The evolution of the MTW for all wage levels, except for the lowest, shows an upward trend until 2003, when the MTW reached up to 70 percent. However, the MTW at most wage levels went down for the first time in 2007. The exceptions are single workers earning two-thirds and five-thirds of the average wage, for whom it slightly increased. In 2007 the MTW ranges from 45 percent at the lowest wage level to 64 percent at the highest considered wage level.

There are some remarkable differences not only across the various income classes but also across different family-types. Namely, as in a majority of OECD countries, parents in Slovenia are provided cash benefits related to dependent children. To get the overall picture of how this reflects on the effective tax rates, we provide a more detailed analysis of wage taxation in Slovenia for 2007. In Table 1 we summarize the amounts of taxes, SSC and direct cash benefits for eight family-types, which differ by income level and household composition. We also present the calculated ATR_p, MTR_p, ATW, and MTW. Although in Slovenia there is no taxation of a couple/household as a whole, the marital status of a taxable person does affect the tax wedge when a parent claims child benefits. In Slovenia, the amount of direct child benefits depends on the amount of gross income per family member. Thus, it is important whether we are talking about a one- or a two-parent household. However, it is not important whether wage earners are married or not. Consequently, we do not make a distinction between a spouse and a common law partner. Note that a denotation of how many children a person has actually tells us for how many children a worker is claiming a tax allowance.

Table 1: *The tax/benefit position of married couples in Slovenia in 2007*

Family-type	single, no ch	single, no ch	single, no ch	single, 2 ch	married, 2ch	married, 2ch	married, 2ch	married, o ch
Wage level (% of AW)	**67**	**100**	**167**	**67**	**100/0**	**100/33**	**100/67**	**100/33**
Gross wage earnings	10278.32	15417.48	25695.80	10278.32	15417.48	20556.64	25695.80	20556.64
Income tax finally paid	833.09	1738.76	4406.98	143.17	453.15	976.26	1616.80	1931.30
Employee SSC	2271.51	3407.26	5678.77	2271.51	3407.26	4543.02	5678.77	4543.02
Cash transfers (for two children)	0.00	0.00	0.00	2040.24	2040.24	1247.16	1032.12	0.00
Take-home pay	7173.72	10271.46	15610.05	9903.88	13597.30	16284.52	19432.34	14082.32
Employer SSC	1654.81	2482.21	4137.02	1654.81	2482.21	3309.62	4137.02	3309.62
Special payroll tax	236.40	354.60	1207.70	236.40	354.60	354.60	591.00	354.60
Total cost to employer	12169.53	18254.30	31040.53	12169.53	18254.30	24220.86	30423.83	24220.86
Average tax rates								
Income tax [a]	0.081	0.113	0.172	0.014	0.029	0.047	0.063	0.094
Employee SSC [b]	0.221	0.221	0.221	0.221	0.221	0.221	0.221	0.221
Average personal tax rate (ATR_p) [c]	0.302	0.334	0.393	0.036	0.118	0.208	0.244	0.315
Average tax wedge (ATW) [d]	0.411	0.437	0.497	0.186	0.255	0.328	0.361	0.419
Marginal tax rates								
Total payments less cash transfers (MTR_p): Principal earner[e]	0.346	0.431	0.540	0.346	0.346	0.346	0.346	0.431
Total payments less cash transfers (MTR_p): Spouse[e]	n.a.	n.a.	n.a.	n.a.	0.221	0.346	0.346	0.346
Marginal tax wedge (MTW): Principal earner[f]	0.447	0.520	0.620	0.447	0.447	0.447	0.447	0.520
Marginal tax wedge (MTW): Spouse[f]	n.a.	n.a.	n.a.	n.a.	0.329	0.436	0.447	0.436

Notes: Wages are expressed as a percentage of the gross wage earnings of an average worker (AW). Two-earning income (married) couples: The first figure is ascribed to a principal earner, whereas the second (after the slash) holds for the spouse. Note that a denotation of how many children (ch) a person has tells us for how many children this person exercises the entitlement to a child allowance. Average tax rates are calculated as (OECD 2008):

[a] share of PIT in gross wage earnings;

[b] share of employee SSC in gross wage earnings;

[c] share of PIT and employee SSC minus benefits in gross wage earnings;

[d] share of PIT and all SSC minus benefits in gross labour costs.

Marginal tax rates are calculated as (OECD 2008):

[e] increase in income tax and employee SSC minus benefits as a share of the related increase in gross wage earnings (both for the principal earner and the spouse); and,

[f] increase in tax and all SSC minus benefits as a share of the related increase in gross labour costs (both for the principal earner and the spouse).

Source: Authors' calculations according to OECD (2008) methodology.

To see what percent of an annual gross wage a worker pays in PIT and employee SSC, we refer to the ATR_p. In 2007 the ATR_p for a single worker without children who earns two-thirds of the average wage adds up to 30.2 percent (see Table 1). This rate rises to 33.4 percent for a single person without children at the average wage and 39.3 percent for a single person without children at five-thirds of the average wage. A two-earner couple without children earning four-thirds of the average wage faces an ATR_p of 31.5 percent. Due to direct child benefits and relatively generous child tax allowances, a single worker with two children earning two-thirds of the average wage faces significantly lower ATR_p (amounting to 3.6 percent) than her/his counterpart without children. A one-earner married couple with two children earning the average wage faces an ATR_p of 11.8 percent. This rate is 9 percent and 12.6 percent higher for two-earner couples with two children earning four-thirds and five-thirds of the average wage, respectively.

Let us now move to the broader measure of labour income taxation that includes all taxes and SSC expressed as a percentage of labour costs. The ATW for a single person without children amounts to 41.4 percent in case this person earns two-thirds of the average wage (see Table 1). It rises to 43.7 percent if this person earns the average wage, and to 49.7 percent at five-thirds of the average wage. We can observe that the ATW rises steeply with labour income, which might be a disincentive for firms to hire skilled workers. The ATW for a couple without children earning four-thirds of the average wage adds up to 41.9 percent. As mentioned, married couples in Slovenia do not benefit from larger tax allowances than single individuals, but the difference exists for families with children. Thus, the ATW amounts to 18.6 percent for a single person with two children earning two-thirds of the average wage, 25.5 percent for a one-earner couple with two children earning the average wage, and 32.8 and 36.1 percent for a couple with two children earning four-thirds and five-thirds of the average wage, respectively. We can observe from Table 1 that, due to receipt of cash benefits and more advantageous tax treatment, the tax wedge for a married couple with two children earning four-thirds of the average wage is much lower than for a couple at the same income level without any children.

Table 1 also summarizes MTR_p and MTW, showing the part of an increase of gross earnings or total labour costs that is paid in taxes and SSC. We can observe that the MTR_p for a principal earner ranges from 34.6 percent (for five family-types) to 54 percent (for a single individual without children earning five-thirds of the average wage). The MTW ranges from 44.7 percent (for five family-types) to 62 percent (for a single individual without children earning five-thirds of the average wage). The latter figure means that the net pay of the worker represents only 38 percent of total labour costs to the employer, whereas the rest goes for taxes and SSC.

Even though some changes have been made regarding taxation of labour income in recent years, Slovenian workers and firms still face a relatively high tax burden on labour income, as shown in Table 2. We underline the average figures for a considered group of countries in case they are more favourable than in Slovenia.

Table 2: *International comparison of the average and marginal tax wedge, 2007*

Family-type	single, no ch	single, no ch	single, no ch	single, 2 ch	married, 2ch	married, 2ch	married, 2ch	married, no ch
Wage level (% of AW)	67	100	167	67	100/0	100/33	100/67	100/33
Average tax wedge – ATW (%)								
Slovenia	41.0	43.7	49.7	18.6	25.5	32.8	36.1	41.9
OECD av.	33.8	37.7	42.1	18.2	27.3	29.5	32.4	34.5
OECD11 av.	25.4	28.4	32.6	10.4	19.6	22.4	24.8	26.3
EU15 av.	38.0	42.5	47.7	21.7	31.9	33.4	36.6	38.5
NMS av.	40.9	44.7	47.4	26.4	31.7	34.7	37.4	42.3
Marginal tax wedge – MTW (%)								
Slovenia	44.7	52.0	62.0	44.7	44.7	44.7	44.7	52.0
OECD av.	43.8	46.5	48.5	45.7	47.4	45.7	47.6	45.3
OECD11 av.	32.0	37.0	39.5	35.9	40.5	37.9	40.8	36.0
EU15 av.	51.3	52.1	54.1	52.7	52.4	50.4	51.5	50.5
NMS av.	48.1	51.5	52.2	46.1	47.4	49.8	51.7	51.5

Notes: av. - arithmetic average. For other relevant notes see Table 1.

Source: OECD (2008) for OECD countries, authors' calculations for Slovenia.

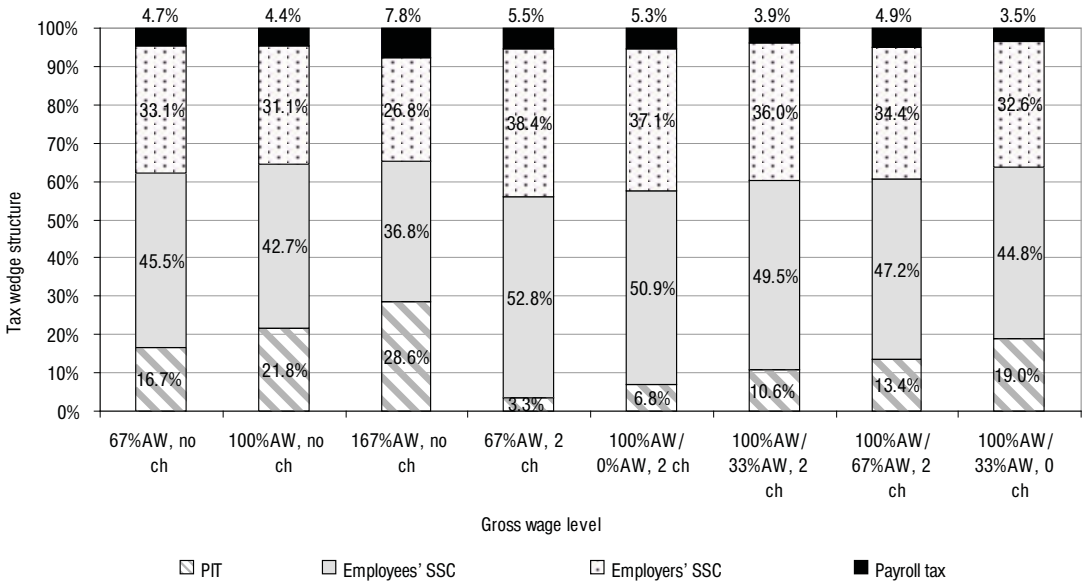
ATW for eight family-types in Slovenia are higher than in the considered OECD member states that are not part of the EU (OECD11). In comparison to the old EU member states (EU15), Slovenian workers are treated less favourably only if they claim no child tax allowance and are not entitled to direct child benefits. Families with children are, regarding the effective tax burden on labour income, better off in Slovenia. Labour income in Slovenia is on average somewhat less heavily taxed than on the average in the new EU member states (NMS4) that are the members of the OECD.

The difference between Slovenia and the OECD11 is even more pronounced in the case of the MTW. The MTW is lower in the OECD11 for all family-types and wage levels; the average difference amounts to about 11 percentage points. However, the MTW in Slovenia is lower than the MTW in the EU15 and NMS4 for couples with children and for a single person without children earning at most the average wage. The MTW in Slovenia for single persons without children earning above-average wages is very high relative to all country groups. The fact that these workers receive only 38 percent of labour costs related to additional working hours in their bank accounts reduces the incentives for skilled workers to increase their labour supply.

The weakness of the OECD (2008) analysis is that it includes only workers earning no more than five-thirds of the average wage. Many high-skilled people in Slovenia and elsewhere earn higher wages. These workers are taxed even more heavily in Slovenia, as is represented by Figures 1 and 2.

In Table 1 all average tax rates except the ATW are expressed as a percentage of gross wage earnings, whereas the ATW shows the part of the total labour costs which is taken in taxes and SSC (less cash benefits). By converting average tax rates so as to express taxes and SSC as a percentage of total labour costs, we get the structure of the ATW (or simply the structure of the tax wedge) presented in Figure 3. We can see that in Slovenia SSC accounts for the largest portion of the tax wedge, amounting from 63.6 percent for a single worker without children earning five-thirds of the average wage to 91.2 percent for a single worker with two children earning two-thirds of the average wage. The PIT share in the tax wedge ranges from 3.3 to 28.6 percent, while a special payroll tax makes 3.5 to 7.8 percent of the tax wedge. Therefore, the main drivers of the high tax wedge in Slovenia are SSC.

Figure 3: *Tax wedge structure in Slovenia in 2007*



Notes: Wages are expressed as a percentage of gross wage earnings of an average worker (AW). SSCf stands for employer SSC, whereas SSCe denotes employee SSC.

Two-earning couples: The first figure after AW is ascribed to a principal earner, while the second (stated after the slash) holds for the spouse.

Source: Authors' calculations according to OECD (2008) methodology.

The characteristic that overall SSC represents a major part of the tax wedge is common to most EU member states (see Appendix). By contrast, in the United States employee plus employer SSC and PIT imposed on labour income are evenly represented in the tax wedge. The analysis of the tax wedge structure shows that in Slovenia the share of employee SSC in the tax wedge is notably above the EU15 and NMS4 average, and above the figure for the United States. On the other hand, the share of employer SSC in the tax wedge in Slovenia is lower than in the EU15 and NMS4. In Slovenia and Austria employers are liable to a special payroll tax, which represents a small proportion of the tax wedge.

5. Progressivity of labour income taxation in Slovenia

Income tax is considered to be progressive if its share in the tax base increases with income level. A progressive tax has a redistributive effect since it reduces the inequality of income distribution. The rate of progressivity can be measured either globally or locally. Global progressivity and redistributive measures, such as the Kakwani index, are relatively simple because they sum up all information in a single number. Nonetheless, they do not give any information about the effect of the tax along the income scale (Cabré 2003, p. 17). Therefore, we employ a microeconomic or a local measure of tax progressivity. There are several local measures of tax progressivity (see Jakobsson 1976; Musgrave and Musgrave 1989, p. 359; Lim and Hyun 2004). We decided to use the coefficient of residual income progression (CRIP) proposed by Musgrave and Thin (1948), which is widely used in theoretical and empirical studies (e.g. by Sørensen 1997, Brunello and Sonedda 2007, and Bovenberg 2006) and is adopted also by the OECD (2008).

The CRIP we use is a form of elasticity that reveals the percentage increase in net income when total labour costs (TC) rise by 1 percent. Hence, it can also be called the elasticity of post-tax income to total labour costs. This measure of elasticity captures the progressivity of all parts of the tax wedge (PIT, employee and employer SSC, and special payroll taxes). It is given by:

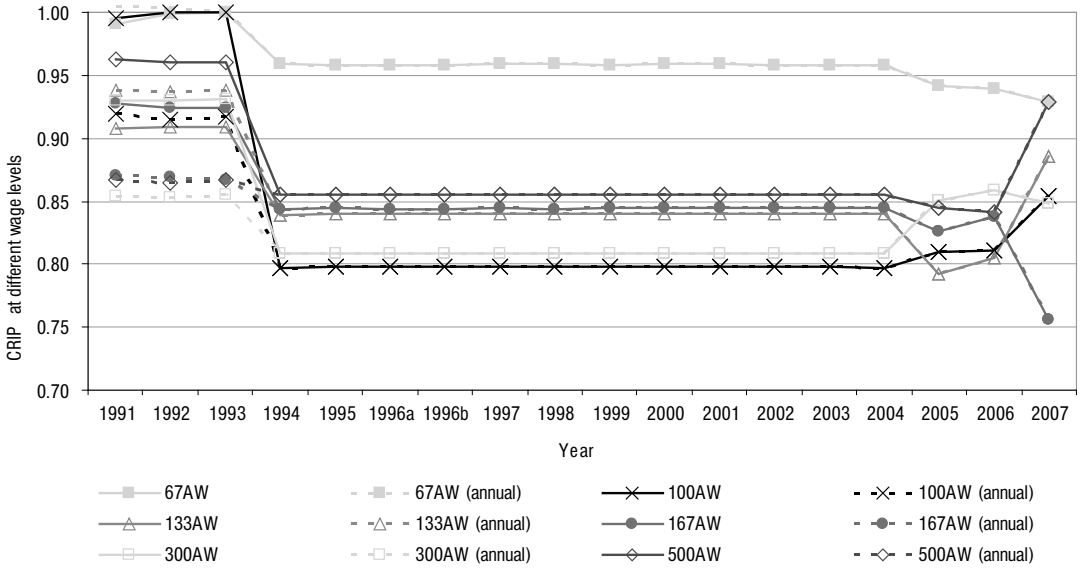
$$CRIP = \frac{\Delta w/w}{\Delta TC/TC} = \frac{1-MTW}{1-ATW}, \text{ at a given level of gross wage (W),} \quad (3)$$

where TC equal gross wage earnings, plus employer SSC and special payroll taxes ($TC = W + SSC_f + T_f$). The coefficient can be easily calculated. Tax progressivity exists at an income level W if CRIP(W) < 1. The smaller the CRIP, the higher is the degree of local progressivity. By way of an example, CRIP(AW) = 0.84 means that a 1-percent increase of total labour costs related to an average worker triggers an increase of that worker's net income by 0.84 percent.

Figure 4 depicts the pattern of the CRIP for six gross wage levels in Slovenia in the period 1991-2007. As expected, all coefficients are smaller than one, which means that labour income taxation in Slovenia shows progressivity throughout the considered period. We have shown that a major part of the tax wedge is represented by SSC, which are proportional to gross wages. The only progressive tax on labour income directly faced by employers is a special payroll tax, whose share in the tax wedge is rather small. Therefore, the progressivity of the tax wedge in Slovenia stems almost entirely from the PIT schedule (at least for wage levels no higher than three average wages).

We can observe that the progressivity of labour income taxation was constant in the first few years of the 1990s.

Figure 4: *CRIP for single workers without children at different wage levels in Slovenia in the period 1991- 2007*



Notes: The lines represent the coefficients of residual income progressivity (CRIP), which denotes the elasticity of post-tax income to total labour costs. For other notes see Figure 1.

Source: Authors' calculations.

After the enforcement of the PIT Act in 1994, it increased for all labour income groups and stagnated thereafter until 2004. In the last few years the pattern of the CRIP is somewhat erratic. Figure 4 shows that in 2007 tax progressivity for single workers without children earning no less than the average wage was lower than in 2004. The exceptions are workers earning five-thirds of the average wage. By contrast, tax progressivity for workers who earn only two-thirds of the average wage has increased slightly since 2004. However, workers in the lowest wage class still represent a group that, apart from top wage earners, faces the lowest degree of tax progressivity in 2007. In this year, the highest progressivity is faced by workers earning five-thirds of the average wage.

Although some studies try to show that labour income taxation in Slovenia is among the highest and most progressive in Europe (e.g. Egoume-Bossogo & Tuladhar 2006, p. 13), our results do not confirm these conclusions. The CRIP for individual countries and country groups (see Table 3) show that the progressivity of labour income taxation in Slovenia for most family-types does not exceed the average progressivity for the OECD and EU15 countries. However, it is on average higher than the progressivity of wage taxation in eleven non-EU OECD member states (OECD11) and in the new EU member states that are the members of the OECD (NMS4). In Table 3 we underline the average figures for a considered group of countries in case they show lower progressivity than in Slovenia.

6. Concluding remarks

The Slovenian tax system has faced several changes since 1991, which has to some extent influenced the level and progressivity of labour income taxation. The average tax wedge for the low-wage class reached the highest level in the period 1992-1994 and has thereafter in general decreased. The largest reductions occurred after 2004. The high-wage class had not faced tax reductions until after 2004, when top marginal rates were importantly cut and gradual abolishment of the highly progressive payroll tax started. Even though some important tax changes have been made in recent years, Slovenian workers and firms still face a relatively high tax burden on labour income, especially in comparison to the non-EU OECD member states. Workers in the EU15 are treated more favourably than Slovenian workers only if they claim no child tax allowance and are not entitled to direct child benefits. Families with children are, regarding the effective tax burden on labour income, better off in Slovenia. Labour income in Slovenia is on average somewhat less heavily taxed than on the average in the new EU member states that are part of the OECD (the Czech Republic, Hungary, Poland, and Slovakia).

The difference between Slovenia and the considered non-EU OECD countries is even more pronounced in the case of the marginal tax wedge. The marginal tax wedge for single persons without children earning above-average wages is very high in Slovenia, also relative to the old and new EU member states that are part of the OECD group. However, a wage increase for couples with children and for single persons without children who do not earn more than the average wage is taxed more favourably in Slovenia. In times of increasing unemployment among highly skilled first-time job seekers, tax policy makers should perhaps consider further reductions of the marginal tax wedge so as to lower the tax burden for workers earning somewhat above average wages.

In Slovenia, social security contributions account for the largest portion of the tax wedge (from about two thirds at higher wages to more than 90 percent for workers with 2 children at the bottom of the wage scale) and are thus the main drivers of the high tax wedge. The share of personal income tax in the tax wedge is close to negligible for workers with two children at the lowest wage level and reaches almost a third at higher wages. The rest represents the progressive payroll tax, which will be completely phased out by 2009. A high share of social security contributions in the tax wedge is common in most EU member states but not in the United States, where personal income tax and contributions are evenly represented in the tax

Table 3: *Elasticity of post-tax wages to total labour costs (CRIP) for eight family-types in Slovenia and chosen groups of OECD countries, 2007*

Family type	single, no ch	single, no ch	single, no ch	single, 2 ch	married, 2ch	married, 2ch	married, 2ch	married, no ch
Wage level (% of AW)	67	100	167	67	100/0	100/33	100/67	100/33
Slovenia	0.93	0.85	0.76	0.68	0.74	0.82	0.87	0.83
OECD av.	0.84	0.86	0.89	0.68	0.73	0.77	0.77	0.83
OECD11 av.	0.91	0.88	0.90	0.74	0.75	0.81	0.79	0.87
EU15 av.	0.78	0.83	0.88	0.62	0.71	0.74	0.76	0.80
NMS av.	0.88	0.87	0.90	0.75	0.77	0.77	0.77	0.84

Notes: See Table 1 and Table 2.

Source: OECD (2008) for OECD countries, authors' calculations for Slovenia.

wedge. However, in Slovenia social security contributions imposed on employees are larger than in most other developed countries.

In Slovenia, progressivity of labour income taxation was constant in the first few years of the 1990s. After 1994 it increased for all labour income groups and had stagnated thereafter until 2004. In the last few years the pattern of tax wedge progressivity has been somewhat erratic. In 2007 tax wedge progressivity for single workers without children earning no less than the average wage was lower than in 2004. The exceptions are workers earning five-thirds of the average wage. By contrast, tax progressivity for workers who earn only two-thirds of the average wage has increased slightly since 2004. However, workers in the lowest wage class still represent a group that, apart from top wage earners, faces the lowest degree of tax progressivity. The progressivity of the tax wedge stems almost completely from personal income tax since social security contributions are proportional to gross wage, whereas the progressive payroll tax represents a minor part of the tax wedge. The progressivity of the tax wedge in Slovenia does not exceed the average progressivity for the OECD and the old EU member states. However, it is higher than the progressivity of labour income taxation in eleven of the most developed non-EU OECD member states and in the four new EU member states that are part of the OECD.

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Appendix

Tax wedge structure for a single person without children at three different wage levels in chosen groups of countries and in Slovenia, 2006

	EU15 average	NMS4 average	United States	Slovenia
67% of gross wage of an average worker (in %)				
PIT	26.8	11.9	45.4	16.8
Employee SSC	26.9	31.2	26.8	44.6
Employer SSC	45.2	56.9	27.7	32.5
Payroll tax	1.0	0.0	0.0	6.1
Average tax wedge	100.0	100.0	100.0	100.0
100% of gross wage of an average worker (in %)				
PIT	33.8	19.6	50.4	24.7
Employee SSC	23.6	28.8	24.5	40.4
Employer SSC	41.6	51.6	25.1	29.4
Payroll tax	0.9	0.0	0.0	5.5
Average tax wedge	100.0	100.0	100.0	100.0
167% of gross wage of an average worker (in %)				
PIT	44.5	25.4	57.4	30.3
Employee SSC	18.7	26.8	21.2	34.6
Employer SSC	35.9	47.8	21.5	25.2
Payroll tax	0.8	0.0	0.0	9.9
Average tax wedge	100.0	100.0	100.0	100.0

Note: PIT – personal income tax, SSC – compulsory social security contributions.

Source: Authors' calculations based on the OECD data.