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**Effect of expenditures in
personal income taxation on
horizontal equity in Croatia**



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Abstract

Tax expenditures include all reliefs and other tax procedures used for reducing or deducting the amount of tax that would otherwise have to be paid by taxpayers. There are many personal income tax expenditures in Croatia and they represent an important segment of the tax and social policies. This paper analyses the effect of expenditures in personal income taxation in Croatia on horizontal equity. Accordingly, the analysis has been made according to sources of income. The paper includes the period since 2001, when most reliefs that are still in effect were introduced into the personal income tax system. The analysis includes only those taxpayers who filed annual personal income tax returns, which is a precondition for acquiring most of the tax reliefs. The research findings show that tax reliefs significantly reduce the amount of taxable income, and the differences in the effective tax burden between the analyzed sources of income show that there is horizontal inequity in the personal income tax in Croatia.

Key words

personal income tax, annual tax return, tax expenditures, reliefs, horizontal equity, Croatia

JEL classification

H24

1. INTRODUCTION

Personal income tax (PIT) in Croatia is a complex form of taxation. Not only are there numerous reliefs, but there are many other elements, such as multiple sources (types) of income, method of calculating the final tax due and conditions and possibilities of filing an annual personal income tax return that conduce to this complexity. When it comes to PIT expenditures, in addition to the basic personal allowance, many reliefs can usually be claimed through the annual tax return. As tax expenditures (reliefs) have a significant effect on horizontal equity, this analysis for Croatia must be conducted through the prism of the annual tax return. In order to examine the effect of expenditures on horizontal equity, analysis of tax expenditures is performed according to the different sources of income related to PIT in Croatia.

The bases for this analysis are the statistical reports from the Tax Administration on the processed annual tax returns. As it is impossible to separate PIT from surtax in the aforementioned reports, they have to be examined jointly in the empirical part of the analysis. The problem with these reports is that they do not include taxpayers not liable to file a tax return. Furthermore, statistical data for other sources of income were formed differently before the year 2005. As a result, the only data available for the period 2001-2004 are for employment income and self-employment¹ income. There is a similar problem with data on the amount of various types of reliefs according to the sources of income, as they are available from 2005. Still, the considerable number of annual tax returns filed and the equal treatment of all sources of income in it (which results claims to numerous reliefs) lead to the conclusion that such data can be a good base for the analysis of the effect of expenditures on horizontal equity in PIT.

The main goal of this paper is to determine how expenditures incurred through a tax return affect horizontal equity. Besides the theoretical framework and an overview of existing studies, the paper will examine the types and evolution of reliefs and exemptions in PIT, as well as the most important changes in the period 2001-2010. After that, a study of trends in the number of annual tax returns and the structure of tax refunds will be made. The central part of the paper examines the amount and the structure of PIT reliefs and their effect on the average and effective tax burden. The basic methodology used for that is the calculation of average and effective tax rates according to the sources of income. The findings show that tax expenditures have a significant effect on horizontal equity in personal income taxation.

2. TAX EXPENDITURES AND HORIZONTAL EQUITY: THEORETICAL ISSUES AND LITERATURE REVIEW

Tax expenditures are a frequent instrument used by a government to achieve specific economic and social goals. All countries use tax expenditures, mostly with direct taxes (personal and corporate income tax). Due to their increasing number and volume, their correct use as well as quality administration and registration have become a great challenge for fiscal authority and government in general. Tax expenditures lead to higher costs of administration, thus reducing government revenue. Although there are certain advantages of implementing tax expenditures, the normative theory of public finance tends to emphasize their drawbacks (Bratić, 2006b: 123-125).

One of the characteristics of tax expenditures is that they result in a partial definition of taxable income, by which the horizontal and vertical equity of PIT is weakened (Bratić, 2006b:122). With respect to horizontal inequity, which is the subject of this paper, tax expenditures are often regarded as one of the main causes, for an increase in the number of reliefs augments the possibility of a distortion in the tax base. This often results in different taxes due from taxpayers with similar or equivalent income, which is a direct distortion of the principle of horizontal equity (World Bank, 2003).

In the Croatian literature, studies related to tax expenditures and horizontal equity are scarce and usually part of a broader study of personal income taxation.² Studies of tax expenditures in Croatia and other countries of the region are usually in the form of comparative analysis and studies of corporate income tax (CIT) incentives (Kraljić, 2001; Raičević and Nenadić, 2005; Šimović and Mihelja Žaja, 2010; Pita and Pita, 2012). There is only one analysis of PIT and CIT expenditures in Slovenia (Klun, 2012), but there are comparative analyses of PIT reliefs (Blažić, 2006; Blažić and Drezgić, 2012).

Bratić and Urban conducted the only systematic study of tax expenditures in Croatia (Bratić and Urban, 2006). They analyzed PIT, CIT, value-added tax and real property transaction tax expenditures. Bratić (2011) analyzed CIT expenditures in Croatia as well.

¹ Self-employment income or income from independent activities and tradesmen.

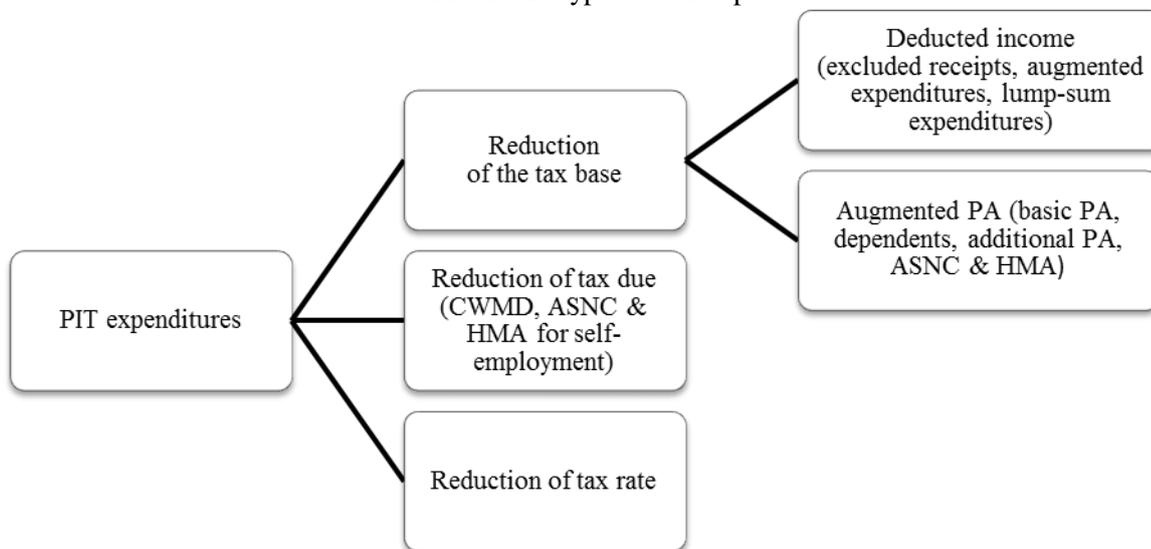
² Horizontal equity is usually analyzed based on microdata, models with special data on individuals/families or hypothetical data (see Čok and Urban, 2007; Bönke and Eichfelder, 2010). For a good overview of literature on horizontal inequality see Duclos and Araar (2006).

These studies show that there are numerous tax reliefs and tax exemptions in Croatia that result in a reduction of the tax base and a distortion in the consistency of the tax system. Other studies only marginally examine tax reliefs or horizontal equity. When speaking generally about equity in taxation, the Croatian literature has a considerable number of debates and analyses of consumption-based and income-based tax systems (for a quality overview and analysis see Blažić, 2006). On the other hand, the few empirical studies tend to be focused on the issues of progressivity and vertical and horizontal equity, as well as inequity in the distribution of income and the tax burden (Kesner-Škreb et al., 2001; Kesner-Škreb and Madžarević-Šujster, 2004; Sever and Drezgić, 2003; Urban, 2006; Čok and Urban, 2007; Šimović, 2012). Although the research focus of these papers is progressivity in the tax system and income distribution, they clearly state that tax expenditures (primarily the personal allowance) have a significant effect on tax progressivity and on the existence of horizontal inequity in the distribution of the tax burden and income among different social groups. Along with these empirical studies, there is an ample number of reviews that showing that the PIT system is highly complex due to the large number of existing tax expenditures and the consequent distortion of the principle of horizontal equity (see Zuber, 2010; Šimović and Deskar Škrbić, 2010).

3. PERSONAL INCOME TAX EXPENDITURES IN CROATIA

The introduction stated that PIT is a complex form of taxation in Croatia. This complexity is partly due to the number of tax expenditures. According to definition, tax expenditures are taxation procedures that reduce or deduct the amount of tax that the taxpayers would otherwise have to pay (Bratić, 2006a.). Therefore, PIT expenditures can be divided into two groups: reduction of the tax base and reduction of tax due. In this context, the reduced tax rate used for different sources of income can be viewed as a third type of tax expenditures (see Picture 1). Personal income from assets and property rights, from capital and from some other sources is taxed with one tax rate, so the paid advance payments are treated as final tax due (submission of tax return is not obligatory). In these cases (excluding the capital income tax), certain tax expenditures that reduce the tax base are allowed. This can lower the advance payments made below the tax due that would be assessed according to the application of the progressive tariff in the tax return. In this light, a reduced tax rate can be viewed as a tax expenditure as well.

Picture 1: Types of PIT expenditures



Annotation: PA – Personal Allowance, CWMD-Croatian Wartime Military Disabled, ASNC- Areas of Special National Concern, HMA- hill and mountain areas.

Source: author

As the subject of this paper includes the instrument of an annual tax return, analysis will be focused on tax expenditures made or reliefs acquired through the return. This primarily includes the different types of tax base reductions and tax due reductions. Basic personal allowance and additional personal allowance for dependents, which are claimed in the PAYE system, are especially important in the tax base reduction.

Table 1 shows the types of tax expenditures, i.e. nominal amounts of reliefs and deducted income in tax returns for the period 2002-2009. In this period, 20 types of tax expenditures existed according to the classification of the Tax Administration.³

Since 2001, when the new Personal Income Tax Act was introduced (OG 127/00), up to the latest observed modifications of the existing Act in the July of 2010 (OG 80/10), it can be said without hesitation that there is constancy only in the many changes in tax expenditures.⁴ In 2001 a new Act was introduced, and most of the reliefs that were then brought in exist to this day (additional personal allowance, reliefs and exemptions for CWMD, ASNC, incentives for employment etc.). In the next modification of the Act (OG 150/02), the basic personal allowance was increased (1,500 HRK) and the additional personal allowance for dependents was adjusted. Generally speaking, a change in basic personal allowance causes a change in additional personal allowance for dependents and in personal allowance for taxpayers in ASNC. The next modification of the Act (OG 136/03) introduced reliefs for research and development (R&D) and brought in changes to existing reliefs. The latest modification of the previous Act (OG 30/04) once again consisted of changes in tax expenditures, i.e., of an increase of personal allowance with respect to income derived from pensions.

Table 1 shows that there was a significant increase in the nominal amount of reliefs in 2003, mostly due to augmentation of personal allowance in ASNC, but also because of other reliefs that were acquired through additional personal allowance, the upper limits of which had not been set.

The intention behind the existing Personal Income Tax Act (OG 177/04), introduced in 2005, was to simplify taxation and limit the maximum amount of additional personal allowance (12,000 HRK per year). It also meant an increase in basic personal allowance to 1,600 HRK and changes in additional personal allowance for dependents. In the next modification of the Act (OG 73/08), the basic personal allowance was increased to 1,800 HRK, and changes in July 2010 (OG 80/10) led to the most significant changes in tax expenditures. Reliefs acquired through additional personal allowances were abolished.⁵ On the other hand, new non-taxable receipts for self-employment income were introduced, such as aid for a layette, pension supplements paid by local and regional government etc. Deducted income for expenditures for education and awards to pupils was harmonized with state aid regulations. In addition, expenditures up to 6,000 HRK per year for payment of premiums for voluntary pension insurance (on behalf of employees or the employer himself) became tax deductible (for a more detailed review of reliefs' modifications in the Personal Income Tax Act, see Table A2).

³ Table A1 is an addition to Table 1 as it shows the number of taxpayers for every tax expenditure in the period under observation. For more precise classification of PIT expenditures, see Bratić and Urban (2006).

⁴ Table A2 shows the table with changes in PIT expenditures in the period 2001-2010.

⁵ The following reliefs were abolished: reliefs for premiums for life insurance that have characteristics of savings, for additional and private health insurance and for voluntary pension insurance, as well as reliefs for medical services, purchase or building of the first residential premises, interest paid on dedicated housing loans or on loans for the maintenance of existing residential premises.

Table 1: Nominal amount of reliefs (expenditures) in tax returns for the period 2002-2009 (in millions kuna)

No.	Type of PIT expenditure	2002	2003	2004	2005	2006	2007	2008	2009
1.	Salaries paid out to newly employed persons	49.1	84.3	76.3	69.5	38.5	29.9	25.3	15.0
2.	Rewards to pupils for practical work	9.2	4.3	4.0	4.4	3.3	2.8	2.5	1.6
3.	Expenditures for education and professional improvement		7.4	10.8	13.7	13.8	13.4	14.1	13.9
4.	Expenditures for R&D		0.2	0.7	1.2	0.9	0.7	0.7	0.6
5.	Tax loss brought forward and deducted	61.3	154.4	168.3	178.6	193.5	210.2	164.0	154.4
6.	Non-taxable receipts of artists	0.4	0.7	0.7	0.9	0.7	0.8	0.9	0.8
7.	Non-taxable part of artists' fees	25.9	30.8	32.9	21.7	22.3	23.5	20.1	16.6
8.	Payment of premiums for life insurance having the features of savings	177.0	363.2	430.5	457.7	517.2	580.3	596.2	543.2
9.	Payment of premiums for additional and private health insurance	184.8	188.5	177.7	189.3	182.4	182.7	191.8	426.7
10.	Payment of premiums for voluntary pension insurance		15.0	31.4	55.6	85.6	118.0	129.1	123.9
11.	Augmented depreciation costs	231.8	367.8	422.1					
12.	Tax deductible entertainment costs	2.2	3.5	4.0	2.9	2.5	1.4	0.9	0.7
13.	Deducted income in ASNC and other areas	87.1	163.4	200.7					
	Total deducted income	828.8	1,383.6	1,560.2	995.4	1,060.6	1,163.7	1,165.9	1,297.4
14.	Part of PA for contributions for health insurance in the country		0.8	0.6	0.1	2.8	2.7	3.9	4.7
15.	Part of PA for medical services		57.0	113.0	138.5	205.6	291.4	371.8	381.4
16.	Part of PA for housing expenses		428.5	560.4	593.2	696.1	797.1	921.9	904.8
17.	Part of PA for gifts	3.1	4.0	5.0	5.9	4.0	3.9	4.6	4.2
18.	Difference of PA in ASNC	609.7	1,612.4	1,802.3	2,050.7	1,947.1	2,876.8	2,825.3	2,005.2
	Total enlargements of PA	612.8	2,102.7	2,481.5	2,789.9	2,855.5	3,972.0	4,127.5	3,900.3
19.	Tax reduction based on relief CWMD	8.2	11.4	13.4	12.9	15.9	22.2	28.8	30.1
20.	Tax reduction based on self-employment in ASNC and HMA				20.5	12.9	14.2	11.7	8.4
	Total reduction of tax and surtax	8.2	11.4	13.4	33.4	28.9	30.4	40.5	38.5
	TOTAL	1,449.8	3,497.6	4,055.1	3,818.8	3,945.0	5,166.0	5,333.9	5,236.3

Note: PA - Personal Allowance, R&D - Research and Development, CWMD - Croatian Wartime Military Disabled, ASNC - Areas of Special National Concern; no data available for the year 2001.

Source: Ministry of Finance, Tax Administration, 2011.

If we observe the effect of tax expenditures on horizontal equity, the development of tax expenditures shows that existing tax expenditures only apply to specific sources of income. Most of the tax expenditures are related to self-employment income as the business expenses of this kind of income are tax deductible. As Table 1 shows, types of tax expenditures related exclusively to self-employment income are: salaries paid out to newly employed persons, awards to pupils, expenditures for education and professional improvement, expenditures for R&D, tax deductible entertainment costs, tax loss brought forward and deducted and tax and surtax reduction based on self-employment in ASNC and HMA.

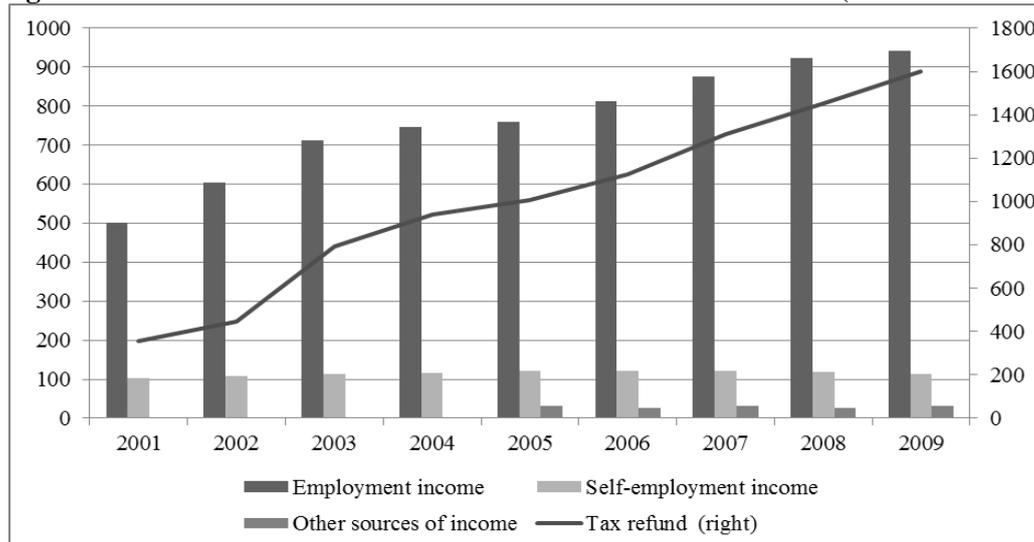
All other reliefs can be used by all personal income taxpayers (of course, if they are entitled to them). Still, there are certain special features for some categories of taxpayers. For example, some reliefs for self-employment that are considered state aid (for R&D etc.) or non-taxable receipts of artists and non-taxable part of artists' fees which are acquired through special regulations (Freelance Artists and Support of Cultural and Artistic Creation Act, OG 43/96 and 44/96). The following analysis will emphasize the tax expenditures structure according to the sources of income in order to determine their effect on horizontal equity.

4. ANNUAL PERSONAL INCOME TAX RETURN ACCORDING TO THE SOURCES OF INCOME

In order to acquire most of the previously mentioned reliefs, a taxpayer has to file an annual tax return. Filing the return is obligatory only for self-employment income taxpayers. With other sources of income, it is mandatory only in special cases.⁶ If the taxpayer does not want to file the return, the advance payments made during a given tax period are considered his final tax due. Even though one can acquire certain tax reliefs through the return, there are always situations when it is not beneficial for the taxpayer to file it, as it can mean a greater final tax due in the end (when compared to paid advanced payments). For that reason, the tax return has a significant, but still not crucial effect on horizontal equity in income taxation in Croatia.

Nevertheless, numerous tax expenditures or reliefs reduce the tax due (see Figure 1). The figure shows the number of filed tax returns according to the sources of income and the total amount of tax refund. The introduction of generous reliefs in the PIT system in 2001 led to a significant rise in the number of filed tax returns (firstly with employment income) in the period 2001-2009. A rise in tax refunds confirms that the increase in the number of filed tax returns is the result of the possibility of claiming certain reliefs.

Figure 1: Number of filed annual tax returns and the amount of tax refund (in thousands kuna)



Note: data on other sources of income for the period 2001-2004 isn't available.

Source: Ministry of Finance, Tax Administration, 2001-2009, adapted by the author

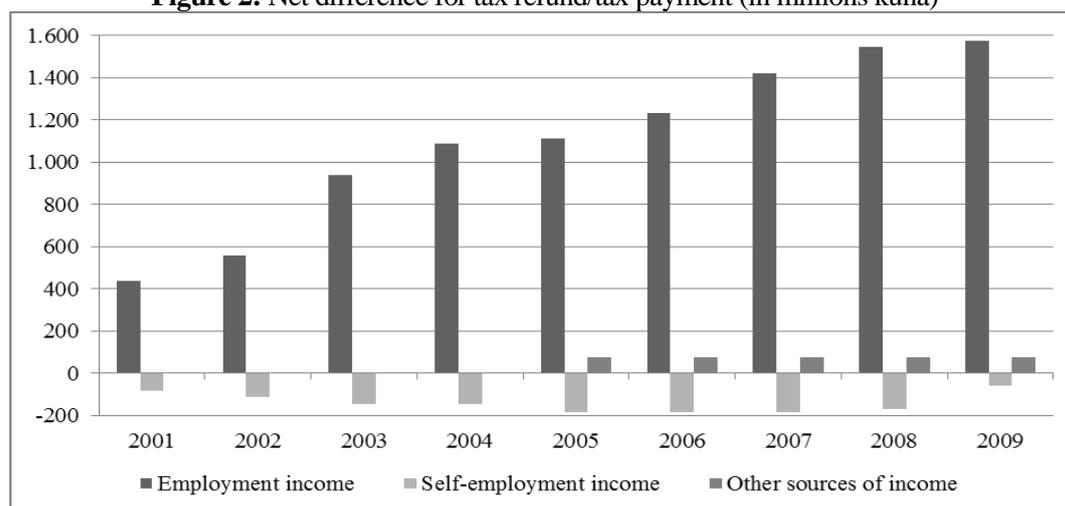
⁶ Usually that is the case for an employment income originated from two or more employers in the same year or when income was earned abroad. See Article 39 of Personal Income Tax Act and Articles 85-86 of Personal Income Tax Regulation.

The number of filed tax returns from taxpayers who earn self-employment income is relatively constant. As these taxpayers have an obligation to file a return, that amount depends on the number of self-employed persons and freelance occupations. Figure 1 shows that the number of taxpayers who earn their income exclusively from other sources of income and file a return is modest. Usually an annual tax return is filed by taxpayers who earn employment income or self-employment income, whilst occasionally earning income from other sources (besides their regular income).

Figure 2 is complementary to Figure 1, and it shows the net difference for tax refund or tax payment, according to the sources of income. Once again, it is apparent that the increase in the tax refund amount in the period 2001-2009 is conditioned by the number of taxpayers who earn employment income and who filed a return in order to acquire the aforementioned reliefs.

Regardless of the large number of tax reliefs incurred in the case of income from self-employment, self-employed taxpayers usually have to pay the net difference of PIT.

Figure 2: Net difference for tax refund/tax payment (in millions kuna)



Note: data on other sources of income for the period 2001-2004 isn't available.

Source: Ministry of Finance, Tax Administration, 2001-2009, adapted by the author

5. ACQUIRING RELIEFS THROUGH AN ANNUAL TAX RETURN AND ITS EFFECT ON HORIZONTAL EQUITY

In order to examine the effect of PIT expenditures on horizontal equity, an analysis of the size and structure of reliefs according to the sources of income has to be made. Thereafter, average and effective tax rate according to the sources of income is calculated in order to see the effect of tax expenditures (for different sources of income) on the reduction of tax due.

5.1. Size and structure of personal income tax reliefs

As previously stated, the most important PIT expenditures are reductions of the tax base (the amount of annual personal allowance, to be more precise). Table 2 shows the nominal amount of reliefs according to the sources of income. Most of the expenditures are related to earners of employment income as they make up majority of taxpayers and bear the greatest share of the tax burden. Nevertheless, different sources of income acquire different reliefs. In order to come to certain conclusions, the structure of reliefs (most importantly of ones that reduce the tax base) needs analyzing.

Figure 3 shows the average structure of PIT expenditures according to the sources of income in the period 2005-2009. It is clear that certain tax expenditures are related to certain sources of income. It has been mentioned before that particular tax expenditures are applied to self-employment income only (salaries of newly employed persons, rewards, R&D etc.). In addition, employment income expenditures are generally the difference in the personal allowance, i.e. the reduction of the tax base due to additional personal allowance (insurance premiums, housing expenses, medical services etc.). Other sources of income mostly use reliefs based on rights from special regulations, such as non-taxable receipts of artists and non-taxable part of artists' fees.

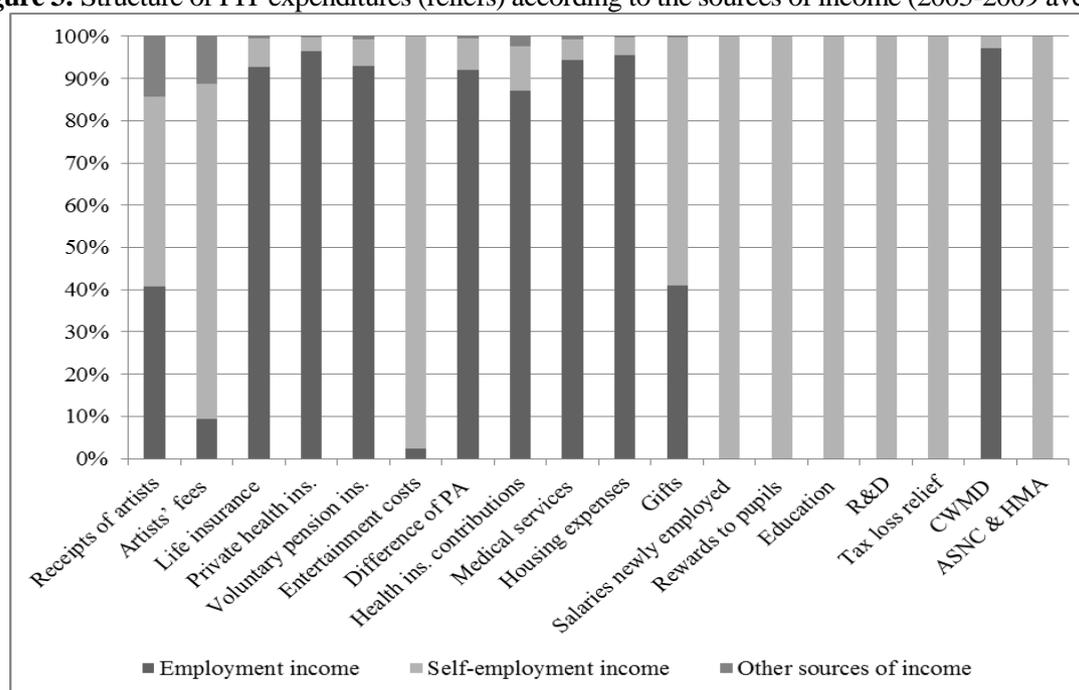
Table 2: Nominal amount of reliefs from tax returns according to the sources of income for the period 2005-2009 (in millions kuna)

	2005	2006	2007	2008	2009
Employment					
Reduction of the tax base	3,242.2	3,392.1	4,500.6	4,703.2	4,686.4
Reduction of tax due	12.4	15.4	21.5	28.0	29.4
Self-employment					
Reduction of the tax base	517.6	509.7	609.3	563.8	488.6
Reduction of tax due	21.0	13.5	14.9	12.5	9.1
Other sources of income					
Reduction of the tax base	26.9	21.3	25.7	26.7	23.7
Reduction of tax due	-	-	-	-	-
Total					
Reduction of the tax base	3,786.8	3,923.1	5,135.7	5,293.7	5,198.7
Reduction of tax due	33.4	167.9	36.4	40.5	38.5

Note: data on other sources of income before year 2005 isn't available due to differences in methodology.

Source: Ministry of Finance, Tax Administration, 2005-2009, adapted by the author

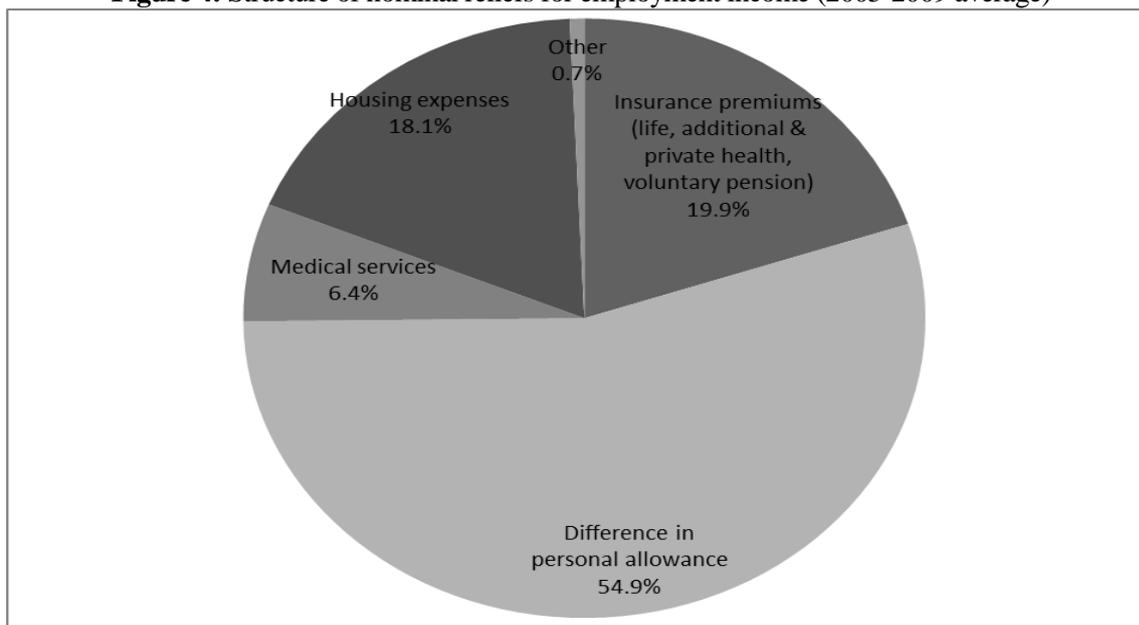
Figure 3: Structure of PIT expenditures (reliefs) according to the sources of income (2005-2009 average)



Note: PA - Personal Allowance, CWMD - Croatian Wartime Military Disabled, ASNC - Areas of Special National Concern, HMA - Hill and Mountain Areas

Source: authors' calculation

As previously shown, the majority of the reliefs (according to the nominal amount of reliefs) apply to employment income. In such a context, it is necessary to analyze the structure of employment income expenditures only. In the 2005-2009 period, reductions of the employment income tax base increased from HRK 3.24 billion to HRK 4.68 billion of, with an average of HRK 4.12 billion per year. Figure 4 shows the structure of nominal reliefs for employment income. Differences in personal allowance account for the largest portion of the tax base reduction (54.9%). The remainder relates mainly to reliefs acquired through additional personal allowances, most importantly tax deductible paid insurance premiums (19.9%), enlargements of personal allowance for housing expenses (18.1%) and for medical services (6.4%).

Figure 4: Structure of nominal reliefs for employment income (2005-2009 average)

Source: author's calculation

5.2. Average and effective tax burden according to the sources of income

In order to determine the effect of these expenditures on horizontal equity, average and effective tax burdens according to sources of income for the period 2001-2009 ought to be calculated. Tables 3-5 show the average and effective tax burden on employment income, on self-employment income and on other sources of income.

Average tax rate (ATR) is determined by the share of PIT in the income that is the subject of taxation (Kesner-Škreb, 1997). In other words, ATR is calculated as the ratio of final tax and surtax and the tax base. Final tax and surtax is the amount of paid tax after the reduction of tax due, and tax base is taxable income after the reduction of the tax base.

Effective tax rate (ETR) measures the real tax due of the taxpayer. It is calculated as the share of collected PIT in income not adjusted to the statutory provisions of income calculation ('income before tax') (Kesner-Škreb, 1997). That is, ETR is calculated as ratio of annual tax and surtax due (before the reduction of tax due) and total earned income (before the reduction of the tax base).

ETR reflects the real economic tax burden for the taxpayer, whereas ATR makes that burden seem larger because it puts the same collected tax in relation to income minus tax exemptions, reliefs and other expenditures (Kesner-Škreb, 1997.). Differences in these figures for different sources of income, primarily for ETR, additionally point to the unequal tax treatment of certain sources of income, i.e. horizontal (un)equity of PIT in Croatia.

Employment income expenditures (Table 3) have a significant effect on the final tax due. The most important type of these expenditures is the increase in annual personal allowance, whereas other types are practically negligible. In the period under observation, the tax base was almost halved due to tax expenditures. That is reflected in the double difference between ATR and ETR as well. The two rates did not change significantly in the observed period, which means that numerous changes in tax expenditures did not affect the real tax burden on income from employment. In the period 2001-2009, ATR for employment income was 22.8% on average, and ETR was 11.3% on average. In other words, had it not been for the tax expenditures that reduced the tax base, employment income taxpayers would have been twice as burdened with PIT. As reliefs which applied to additional PA (and which made up 45% of total tax base reduction) were abolished in 2010, a greater tax burden on employment income is to be expected in the following period.

ATR and ETR on self-employment income haven't changed substantially, although the ATR on this income has been in slight decline since 2005 (Table 4). This decrease can be explained through a decrease in total receipts and income from self-employment, rather than through changes in tax expenditures. The new Personal Income Tax Act (OG 177/04) introduced *other income* as a sixth

source of income. Other income is acquired occasionally outside employment and, until 2005, it was a part of income from other self-employment activities.

As mentioned above, self-employment ought to be observed with special care as it is related to tax expenditures that stem from the nature of its activity, which is not the case with other sources of income (net expenditures).⁷ According to the definition of ETR, these tax expenditures are included in the calculation of total income, although they significantly reduce the income compared to total receipts. As in employment income, there is an important difference between ATR (22.8% in 2009) and ETR (11.6% in 2009). In this case, the reduction of tax due is not crucial for the real tax burden as well.

Like ATR, ETR on self-employment income has decreased in the observed period as well. In the period 2001-2009, ETR for self-employment income was 13.4% on average, which is high compared to that for income from employed work and from other sources of income.

⁷ Self-employment accounts for a relatively high share of the hidden economy. In addition, these taxpayers can become corporate income taxpayers (voluntarily or by law), so they ought to be included in the analysis for a more realistic picture of tax burden on the self-employment income.

Table 3: Average and effective tax burden on employment income (in millions kuna)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
1. Employment income	19,557.8	25,126.5	33,813.9	37,360.9	39,021.5	43,507.5	49,319.8	55,907.0	58,433.1
2. Other sources of income	1,680.1	1,905.5	1,129.5	1,097.8	1,500.6	1,386.1	1,513.4	1,580.4	1,591.1
3. TOTAL ANNUAL INCOME (1+2)	21,237.9	27,031.9	34,943.4	38,458.7	40,522.1	44,893.6	50,833.2	57,487.4	60,024.2
4. Annual personal allowances	10,439.7	12,755.3	18,119.6	19,650.7	21,745.5	23,549.5	25,727.3	28,699.3	30,264.9
5. Tax loss brought forward	0.7	1.3	4.6	6.0	-	-	-	-	-
6. Total reduction of the tax base (4+5)	10,440.4	12,756.6	18,124.2	19,656.7	21,745.5	23,549.5	25,727.3	28,699.3	30,264.9
7. TAX BASE (3-6)	10,797.6	14,275.4	16,819.3	18,802.0	18,776.6	21,344.1	25,105.9	28,788.1	29,759.3
8. Annual tax and surtax due	2,365.7	3,219.3	3,855.3	4,363.7	4,246.1	4,897.1	5,855.8	6,696.2	6,829.1
9. Reduction of tax due (CWMD)	11.3	8.2	11.1	13.2	12.4	15.4	21.5	28.0	29.4
10. FINAL TAX AND SURTAX (8-9)	2,354.4	3,211.1	3,844.1	4,350.4	4,233.7	4,881.7	5,834.3	6,668.2	6,799.6
<i>Average tax rate (10/7*100)</i>	<i>21.8%</i>	<i>22.5%</i>	<i>22.9%</i>	<i>23.1%</i>	<i>22.5%</i>	<i>22.9%</i>	<i>23.2%</i>	<i>23.2%</i>	<i>22.8%</i>
<i>Effective tax rate (8/3*100)</i>	<i>11.1%</i>	<i>11.9%</i>	<i>11.0%</i>	<i>11.3%</i>	<i>10.5%</i>	<i>10.9%</i>	<i>11.5%</i>	<i>11.6%</i>	<i>11.4%</i>

Note: CWMD - Croatian Wartime Military Disabled.

Source: authors' calculation

Table 4: Average and effective tax burden on self-employment income (in millions kuna)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
1. Receipts	26,226.6	29,764.3	34,613.1	37,975.3	40,270.0	32,424.5	33,670.6	33,865.9	28,637.7
2. Net expenditures	22,588.6	25,906.0	30,460.3	33,712.0	35,389.5	27,775.3	28,883.2	29,094.4	24,547.1
3. Self-employment income (1-2)	3,638.0	3,858.3	4,152.8	4,263.4	4,880.5	4,649.2	4,787.4	4,771.5	4,090.6
4. Other sources of income	704.6	822.1	865.8	914.2	1,110.8	1,226.3	1,360.6	1,475.6	1,472.3
5. Annual PA	1,798.2	1,908.8	2,220.7	2,294.3	2,679.5	2,762.2	2,835.1	2,927.0	2,775.7
6. TAX BASE (3+4-5)	2,544.4	2,771.5	2,797.8	2,883.3	3,311.8	3,113.2	3,313.0	3,320.1	2,787.2
7. Annual tax and surtax due	603.2	675.3	694.6	727.7	850.8	757.3	803.8	791.2	644.4
8. Total reduction of tax due	0.1	0.1	0.3	0.2	21.0	13.5	14.9	12.5	9.1
8.1. Reductions 1. group of ASNC and the city of Vukovar	-	-	-	-	6.9	7.3	8.2	8.1	6.5
8.2. Reductions 2. group of ASNC	-	-	-	-	11.6	4.7	5.1	3.1	1.6
8.3. Reductions 3. group of ASNC and HMA	-	-	-	-	2.1	0.9	0.9	0.5	0.4
8.4. Reductions CWMD	0.1	0.1	0.3	0.2	0.5	0.5	0.7	0.8	0.7
9. FINAL TAX AND SURTAX (7-8)	603.2	675.2	694.4	727.5	829.8	743.8	788.9	778.7	635.3
<i>Average tax rate (9/6*100)</i>	<i>23.7%</i>	<i>24.4%</i>	<i>24.8%</i>	<i>25.2%</i>	<i>25.1%</i>	<i>23.9%</i>	<i>23.8%</i>	<i>23.5%</i>	<i>22.8%</i>
<i>Effective tax rate ((7/(3+4))*100)</i>	<i>13.9%</i>	<i>14.4%</i>	<i>13.8%</i>	<i>14.1%</i>	<i>14.2%</i>	<i>12.9%</i>	<i>13.1%</i>	<i>12.7%</i>	<i>11.6%</i>

Note: PA-personal allowance, CWMD - Croatian Wartime Military Disabled, ASNC - Areas of Special National Concern, HMA - Hill and Mountain Areas.

Source: authors' calculation

As mentioned in the introduction, because the data for other sources of income were calculated differently up to 2005, they can be observed starting from that year (Table 5). Total income from other sources is relatively low, which can be attributed to the consumption-oriented system. Other income has the greatest share in other sources, followed by income from assets and property rights and income earned abroad. Income from capital and insurance are practically insubstantial.

ATR and ETR on other sources of income did not change drastically in the period 2005-2009. As in previous cases, a considerable reduction of the tax base is acquired through the annual personal allowance claimed, whereas certain reductions of tax due for this type of income do not exist.⁸ Here as well tax expenditures (annual amount of personal allowance) have a considerable effect on the reduction of effectively paid personal income tax and surtax.

Table 5: Average and effective tax burden on other sources of income (in millions kuna)

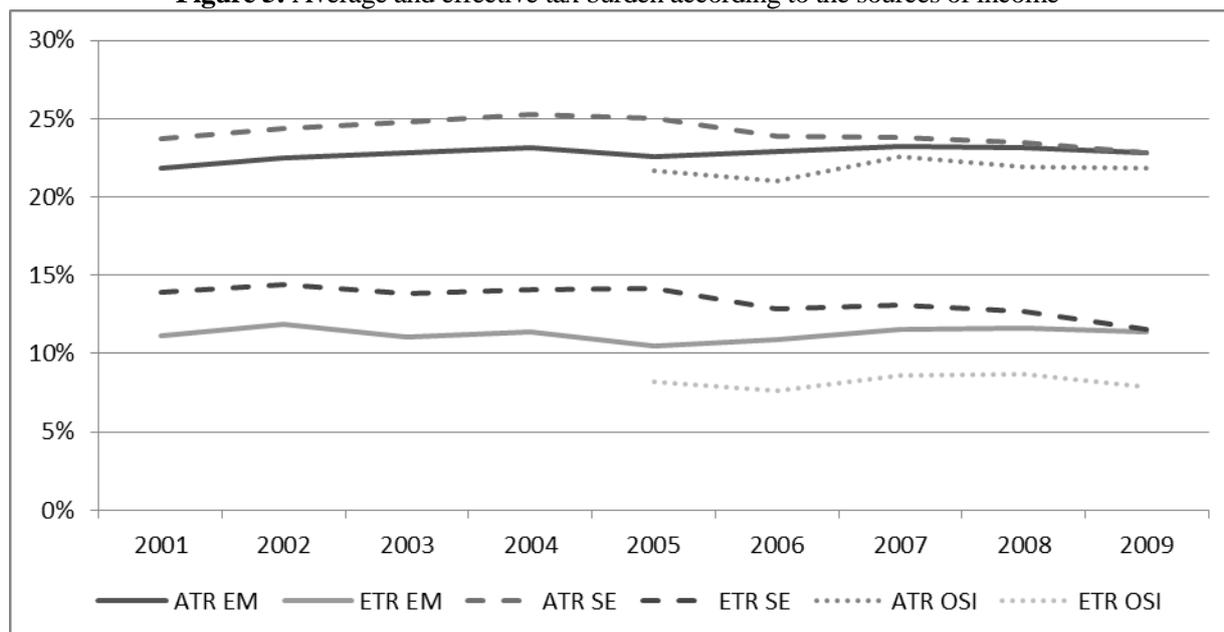
	2005	2006	2007	2008	2009
1. Income from assets and property rights	38.2	53.3	62.6	71.6	76.0
2. Income from capital	2.4	2.3	0.6	0.6	0.3
3. Income from insurance	0.2	0.4	0.5	0.8	1.0
4. Other income	385.8	368.7	383.5	388.1	371.9
5. Income earned abroad	11.3	8.0	19.1	62.2	56.3
6. TOTAL ANNUAL INCOME	437.9	432.7	466.2	523.3	505.6
7. Annual personal allowance	271.9	275.5	288.1	316.6	323.5
8. TAX BASE (6-7)	166.0	157.2	178.2	206.7	182.1
9. FINAL TAX AND SURTAX	36.0	33.0	40.2	45.3	39.8
<i>Average tax rate (9/8*100)</i>	21.7%	21.0%	22.6%	21.9%	21.9%
<i>Effective tax rate (9/6*100)</i>	8.2%	7.6%	8.6%	8.7%	7.9%

Source: authors' calculation

In order to come to a conclusion about horizontal equity, or the lack of it, differences in effective tax burden on different types of income must be analyzed. Figure 5 shows the previously calculated ATR and ETR for observed types of income.

Although the differences in ATR between different types of income do exist, they are not very great, so it can be concluded that the average tax burden tended towards uniformity over the last couple of years. Also, it did not change significantly in the observed period. The largest change is visible with self-employment after 2005, but that is the result of introducing the category of other income, as mentioned before.

⁸ Most of the other sources of income are entitled to a small number of existing expenditures in the PIT system. Some sources of income, such as income from capital, are not entitled to any reliefs (not even personal allowance). Considering that other sources of income are dominated by other income, acquired reductions of the tax base through personal allowance should be examined through other income.

Figure 5: Average and effective tax burden according to the sources of income

Note: ATR – average tax rate, ETR – effective tax rate, EM – employment income, SE – self-employment income, OSI – other sources of income

Source: authors' calculation

ETR shows the real tax burden on observed types of income. Differences in ETR between different types of income are greater than the differences in ATR. As deviations among ETR percentages are significant, it can be concluded that different types of income do not have the same treatment, and thus the basic precondition of horizontal equity is not fulfilled. Income from self-employment has the greatest ETR (13.4% in average), followed by employment income (11.2% in average) and other sources of income (8.2% in average). After 2005, there was an increase in ETR on employment income and a reduction in ETR on income from self-employment, bringing these two rates closer together in 2009.

Still, unequal ETR for different types of income was retained throughout the observed period. This points to the inefficiency of PIT changes (which were mostly tax expenditures and not tax rate changes). Also, unequal burdens indicate the significant effect of the tax expenditures in PIT on the horizontal equity or inequity, i.e. distortion of the horizontal equity principle in the existing PIT system in Croatia.

6. CONCLUSION

PIT in Croatia is a complex form of taxation. Although numerous elements characterise the PIT system, tax expenditures are among the most important. This claim is supported by the many changes in Personal Income Tax Act, mostly initiated by the changes in tax reliefs and exemptions. This trend is especially noticeable after 2001, when the comprehensive (synthetic) tax was abolished for the most part and a sizeable number of reliefs, which exist to this day, were introduced. Most of the reliefs are claimed through the annual tax return, which was the basis for this analysis. The results show a significant increase in the number of annual tax returns and tax refunds in the observed period, especially with employment income.

Furthermore, the analysis showed that certain types of tax expenditures ought to be observed in the context of certain sources of income, particularly self-employment income, which is entitled to specific tax expenditures and tax due reduction (stemming from the nature of the activity). Regardless of the somewhat different types of taxation of certain types of income, the gap between ATR and ETR of more than 10 percentage points for every observed type of income shows the significant effect of tax expenditures in the reduction of real tax due. In addition, discrepancies between ETR for observed types of income indicate the existence of horizontal inequity in PIT in Croatia. Self-employment

income had the greatest tax burden in the observed period (13.4% in average). At the same time, ETR for employment income was 11.2% in average and 8.2% in average for other sources of income.

Considering the restrictions of this analysis (the number of taxpayers considered is limited to those who filed an annual tax return; drawbacks for certain types of income and taxpayers exist in the statistical data), it can be concluded that tax expenditures have a significant, but not a crucial effect on horizontal inequity in Croatia. Besides tax expenditures, explanation of horizontal inequity can be found in the repeal of comprehensive PIT. Comprehensive tax was repealed when it was allowed that advanced payments with a lower marginal tax rate were considered final tax due for certain types of income. In that context, the instrument of the tax return is the only way to apply the same progressive tariff on all sources of income. Paradoxically, the same instrument is often the only way to acquire reliefs that, as we saw, distort the horizontal equity principle.

As the Tax Administration has augmented its capacities for processing a large number of tax returns filed, an improvement in horizontal equity can be produced by making the tax return mandatory, or, even more simply, by a tax decision (ruling), rather than constant changes and apparent simplifications of the PIT system. Modification of the Personal Income Tax Act (July 2010), introduced with the intention of simplifying the system and doing away with the additional personal allowance, could lead to distortion of horizontal equity and an amplification of the tax burden on employment income. The aforementioned reform, like many others, partially removed one group of reliefs, leaving the others unaffected (ASNC, HMA etc.). Having that in mind, future reforms should be consistent and offer an equal treatment of all reliefs. Furthermore, if we observe social security contributions (which are the greatest burden on labor in Croatia), the root of horizontal inequity should not be sought in tax expenditures, but rather in the consumption-oriented tax system which almost exclusively burdens the labor income.

APPENDIX

Table A1: Reliefs and deducted income from tax returns for the period 2002-2009 (number of taxpayers)

No.	Type of PIT expenditure	2002	2003	2004	2005	2006	2007	2008	2009
1.	Salaries paid out for newly employed persons	1,892	2,861	2,487	2,090	1,288	1,000	787	542
2.	Rewards to pupils for practical work	521	415	363	363	262	214	202	157
3.	Expenditures for education and professional improvement		1,593	2,158	2,451	2,444	2,376	2,338	2,280
4.	Expenditures for R&D		11	39	88	99	96	94	81
5.	Tax loss brought forward and deducted	2,394	6,934	7,532	7,554	9,657	10,505	9,337	8,935
6.	Non-taxable receipts of artists	37	59	61	112	99	112	120	136
7.	Non-taxable part of artists' fees	1,957	1,961	1,763	964	793	713	570	484
8.	Payment of premiums for life insurance having the features of savings	97,180	112,409	127,529	129,738	142,989	154,755	159,761	146,679
9.	Payment of premiums for additional and private health insurance	231,113	234,812	213,640	218,248	216,322	211,595	223,133	447,287
10.	Payment of premiums for voluntary pension insurance		4,312	9,013	15,529	23,983	32,141	38,398	37,484
11.	Augmented depreciation costs	4,712	5,710	5,944					
12.	Tax deductible entertainment costs	996	1,385	1,349	918	672	579	520	428
13.	Deducted income in ASNC and other areas	2,614	3,015	4,643					
14.	Part of PA for contributions for health insurance in the country		282	320	1,029	1,865	1,844	2,063	2,746
15.	Part of PA for medical services		26,053	51,923	69,482	112,922	169,176	178,459	181,637
16.	Part of PA for housing expenses		54,985	69,793	75,263	86,645	96,295	106,031	103,446
17.	Part of PA for gifts	1,197	1,570	1,806	1,880	2,059	2,845	4,010	4,319
18.	Difference of PA in ASNC	33,628	106,096	111,454	112,881	103,733	164,227	174,797	173,001
19.	Tax reduction based on relief CWMD	3,406	4,850	5,458	5,890	6,965	9,341	11,727	12,007
20.	Tax reduction based on self-employment in ASNC and HMA				594	398	387	322	252

Note: PA-personal allowance, R&D – research and development, CWMD - Croatian Wartime Military Disabled, ASNC - Areas of Special National Concern.

Source: Ministry of Finance, Tax Administration, 2011.

Table A2: Changes in PIT expenditures in the period 2001-2010

Act change	Decrease in tax rate	Tax reduction	Reduction of the tax base	
			Deducted income	PA enlargement
New Act since January 1 st 2001 (OG 127/00)	Bottom rate decreased to 15% (final tax for certain types of income)	<ul style="list-style-type: none"> • CWMD exemption • Exemption for self-employment in the city of Vukovar (conditioned) 	<ul style="list-style-type: none"> • Non-taxable receipts (25%) for taxpayers who carry out some artistic or cultural activity • Incentives for employment (for self-employment) • Reliefs for ASNC and the city of Vukovar for self-employment 	<ul style="list-style-type: none"> • Reliefs for ASNC and the city of Vukovar introduced
January 2003 (OG 150/02)				<ul style="list-style-type: none"> • An increase in the basic PA from 1,250 to 1,500 HRK • Modifications of the PA for dependents • Additional PA introduced (for premiums for life, additional and private health and voluntary pension insurance, for housing expenses, for medical services etc.) • Modifications of the PA for ASNC and the city of Vukovar
October 2003 (OG 163/03)			<ul style="list-style-type: none"> • Incentives for research and development (for self-employment, for the year 2003) • Incentives for education and professional improvement of employees (for self-employment, for the year 2003) • Reliefs for HMA (self-employment, for the year 2003) 	<ul style="list-style-type: none"> • Reliefs for HMA introduced
April 2004 (OG 30/04)				<ul style="list-style-type: none"> • An increase in the PA for pensions
New Act since January 1 st 2005 (OG 177/04)		<ul style="list-style-type: none"> • Reliefs for self-employment in ASNC, HMA and the city of Vukovar 	<ul style="list-style-type: none"> • An increase in the relief for ASNC (2nd category) for self-employment 	<ul style="list-style-type: none"> • Additional PA limited to 12,000 HRK total • An increase in the basic PA to 1,600 HRK • An increase in the reliefs for ASNC, HMA and the city of Vukovar
July 2008 (OG 73/08)				<ul style="list-style-type: none"> • An increase in the basic PA to 1,800 HRK
July 2010 (OG 80/10)	Bottom rate decreased to 12% (final tax for certain types of income)		<ul style="list-style-type: none"> • Additional deducted income for education and training and rewards to pupils for practical work (for SE) 	<ul style="list-style-type: none"> • Additional PA abolished (it could be acquired for the first six months of 2010)

Note: CWMD - Croatian Wartime Military Disabled, ASNC - Areas of Special National Concern, HMA - Hill and Mountain Areas, PA – Personal Allowance

Source: Personal Income Tax Act (OG 127/00, 150/02, 163/03, 30/04), Corporate Income Tax Act (OG 177/04, 73/08, 80/10), adapted by the author

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