

Sandra Krtalić
Juraj Dobrila University of Pula
Faculty of Economics and Tourism
"Dr. Mijo Mirković"
52100 Pula, Croatia
skrtalic@unipu.hr

Paula Peruško
OTP banka d.d.
52100 Pula, Croatia
paula.perusko@otpbanka.hr

JEL: H24, J38
Original scientific article
<https://doi.org/10.51680/ev.36.1.1>

Received: February 22, 2022
Revision received: July 19, 2022
Accepted for publishing: July 19, 2022

This work is licensed under a
Creative Commons Attribution-
NonCommercial-NoDerivatives 4.0
International License



COMPARATIVE ANALYSIS OF THE TAX WEDGE IN CROATIA AND SLOVENIA FROM 2005 TO 2020

Abstract

Purpose: Personal income tax (PIT) and social security contributions (SSC) play a significant role in tax systems. Since both of them affect employers and employees, it is important to analyse the labour costs paid by the employer (gross wage) and the net wage received by the employee, i.e., the tax wedge.

Methodology: Following OECD's *Taxing Wages* methodology, this paper analyses the characteristics of the tax wedge and the tax wedge policy in the Republic of Croatia and the Republic of Slovenia in the period from 2005 to 2020.

Results: The conducted analysis has shown that a Slovenian taxpayer faces the highest average net tax wedge for each observed family type, and that the Croatian tax wedge is lower in all hypothetical units observed. The taxpayer with the highest average gross wage also faces the highest tax burden. The problem of a relatively high tax wedge in Croatia and Slovenia does not lie with the personal income tax, which is relatively low, but with social contributions.

Conclusion: The tax wedge primarily depends on the level of income, it decreases if the taxpayer has (more) children, and its amount depends on various levels of tax, deductions and social security contributions. In the future, the focus will be on alleviating the labour tax burden. However, this begs the question of how to further alleviate the burden on labour without implementing major structural reforms in the pension and healthcare system and/or introducing new tax forms.

Keywords: Labour costs, personal income tax, social contributions, tax wedge, Croatia, Slovenia

1. Introduction

By changing the structure and amount of the labour tax burden, fiscal policy holders can make a significant impact on labour market trends and the overall economy. Bearing this in mind, over the last 20 years, many developed and developing countries

have implemented numerous changes in the labour tax system. Individual income taxes, payroll taxes and consumption taxes make up a large portion of tax revenue in many countries. These taxes combined make up the tax burden on labour both by taxing wages directly and through the tax burden on wages used for consumption. Personal income tax

(PIT) and social security contributions (SSC) play a significant role in the tax systems of many countries worldwide. Since personal income tax and social security contributions affect both employers and employees, EU and OECD member states use the tax wedge as a measure of the labour tax burden. The tax burden on labour, i.e. “a tax wedge,” refers to the difference between an employer’s cost of an employee and the employee’s net disposable income.

The wedge is determined by several factors: the amount of pretax income (referred to as “labour cost”) of a worker, the taxes that apply to that income, and whether the taxpayer is filing as a single worker or as a family. The tax wedge represents the amount of benefits payable to the state out of the total labour costs. State benefits are prescribed by law and differ between countries. Tax liabilities and tax contributions vary between different types of taxpayers depending on the employee’s wage level, place of residence and dependent family members affecting the taxpayer’s personal allowance. Since 1979, the OECD has been covering tax burden calculations for different family types (married, with or without children) as well as different wage levels. According to the OECD (OECD, 2015, 2016a, 2016b, 2016c, 2021), taxes and contributions levied on gross earnings constitute three levels of burden: 1) the tax burden (the share of personal income tax in the gross wage); 2) the net tax burden or personal average tax rate (the share of the sum of personal income tax and social security contributions paid by the employee in the gross wage); and 3) the total tax burden or tax wedge (the sum of personal income tax and employee and employer social security contributions expressed as a percentage of labour costs).

Croatia and Slovenia are transition countries, the EU member states with shared history (the former SFRY republics), but different in many aspects – population, national income level, living standard, per capita income, employment levels, and the like. The current Croatian and Slovenian tax systems have significantly changed since their establishment in the early nineties, and they have been aligned with the practice of most European countries. Over the years, both countries have implemented numerous reforms in the personal income tax system. On the one hand, taxation of wages in Croatia and Slovenia vary in several respects, such as the number and types of tax relief, the number and width of the

PIT schedule brackets, the levels of PIT marginal tax rates across the schedule brackets, the numbers and types of SSC, as well as the rates and definitions of their bases. However, on the other hand, the common characteristics of these two countries regarding the taxation of wages are a progressive national PIT tax schedule and the taxation of gross wages with the employers’ and employees’ SSC (the basis for SSC is the gross wage; the employees’ SSC always includes pension contributions and the employers’ SSC always includes healthcare contributions).

There are not too many papers which investigate the developments and the tax burden on labour income in Croatia and Slovenia. According to the main empirical results of the analysis of the taxation of labour income in Croatia and Slovenia (Blažić & Trošelj, 2012; Beketić, 2016; Čok et al., 2013; Dolenc & Vodopivec, 2005; Šimović & Deskar-Škrbić, 2015; Grdović Gnip & Tomić, 2010; Šeparović, 2009; Urban, 2006; Urban et al., 2019), it can be observed that although they have many similarities, these countries have pursued different economic and fiscal strategies and achieved different results in the area of income taxation.

The key goal of this paper is to analyse and compare the changes in labour income taxation in Croatia and Slovenia, with special emphasis on the creation of a tax wedge. According to the OECD methodology, we will analyse the tax wedge for the following two types of taxpayers in the Republic of Croatia and the Republic of Slovenia for the period from 2005 to 2020:

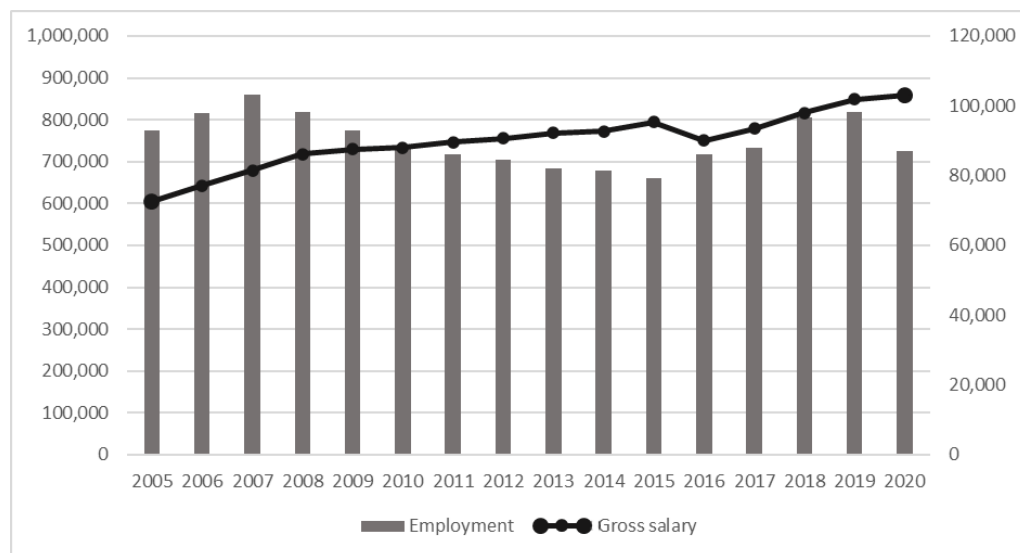
1. An individual enjoying 67%, 100% and 167% of the average gross wage - a single taxpayer without dependent children or family members, approved only of the basic personal allowances, with factor 1.
2. A one-earner married couple with two children, where the employed spouse enjoys 67%, 100% and 167% of the average gross wage, and the other spouse and two children represent the dependent family members. Therefore, this taxpayer is entitled to the basic personal allowance (factor 1) and a deduction for the first child (factor 0.7) and the second child (factor 1), which ultimately constitutes the basic personal allowance with the total factor of 2.7.

2. Analysis of the tax wedge in the Republic of Croatia

Since its independence, Croatia has been regulating income tax through a number of legislative solutions that have undergone numerous changes in terms of taxable income, personal allowance level, schedule and number of tax classes and tax rates, number of tax reliefs, and the manner of taxation of individual types of income. Croatian taxpayers are also subject to surtax determined at the local level. Surtax rates differ between cities and municipalities.¹ When calculating a tax wedge, the average annual gross

wage is calculated following OECD's methodology. During the observation period, the largest number of workers was employed in the processing industry (sector D), whereas the smallest number was employed in mining and extraction (sector C), and after 2008, in sector B. From 2005 to 2006, the lowest average gross wage was observed in sector F (construction), while from 2007 to 2009, it was observed in sector H and sector I. In the period from 2010 to 2019, the lowest average gross wage was again observed in sector F (construction), switching to sector I in 2020.²

Graph 1 Employment in sectors C-K (left axis) and the average gross wage in sectors C-K (right axis) in the Republic of Croatia in the period from 2005 to 2020



Source: Authors' calculations based on the data of the Croatian Bureau of Statistics, 2005-2020

¹ The average weighted surtax rate is calculated by taking as the weight the number of persons with residence in a certain municipality and city according to the 2001 census. Since certain local units have increased the surtax rate over time, and the rate was therefore probably somewhat higher, in 2020, due to the COVID-19 pandemic, some local units reduced or even eliminated the surtax. Therefore, this paper relies on the weighted average of surtax rates, which is 11.16% (as calculated by Grdović Gnip and Tomić, 2010, p. 13)

² For the period 2005-2007, we used the methodology applied since 2004, that is, the 2002 National Classification of Activities, while for the period 2008-2020, we used the 2007 National Classification of Activities, where the structure of activities was somewhat modified.

According to the presented employment and average annual gross wage trends obtained using OECD's methodology in the period 2005-2020, we can see that during the observation period employment was at its highest in 2007 when the number of employed persons was 858,851. After that, this number started falling until 2015 when the lowest number of employed persons was recorded (661,391), which constitutes a 23% decrease. From 2016 to 2019, employment rates went up, while in 2020, due to the coronavirus pandemic, the number of employed persons (725,340) fell by 11.46% in comparison to 2019. The average annual gross wage during the observation period increased between 2005, when it was HRK 72,481, and 2015, when it was HRK 95,293.67, constituting an overall increase of 31%. The average gross wage decreased in 2016, followed by an upward trend until 2020. The reason for the indicated decrease lies with the international financial crisis, the consequences of which could be felt until 2016, whereas the decrease in 2020 was caused by the COVID-19 pandemic, the consequences of which were felt in 2020 and 2021. The COVID-19 crisis in 2020 resulted in the greatest decrease in the average tax wedge at the level of OECD countries since the 2008-2009 global financial crisis, which caused the countries throughout the world and in the EU to implement numerous changes due to the decrease in the average wage caused by the pandemic and the changes implemented by the countries in their labour tax systems in response to the pandemic. For an individual enjoying 100% of the average gross wage it was HRK 72,481 in 2005, while it was HRK 102,965.97 in 2020. On the other hand, in the case of an individual enjoying 67% of the average gross wage, it was HRK 48,562.27 in 2005, and HRK 68,987.20 in 2020, and for an individual enjoying 167% of the average gross wage, it was HRK 121,043.27 in 2005, and HRK 171,953.17 in 2020. The gross wage in 2005 for these three hypothetical units observed was higher by HRK 48,562.27 in relation to an individual enjoying 100% or 67% of the average gross wage. The gross wage in 2020 for these three hypothetical units observed was higher by HRK 68,987.20 in relation to an individual enjoying 100% of the average gross wage.

An individual taxpayer is a single worker without dependent children or family members and the only allowance such a taxpayer can enjoy is the basic personal allowance. In this case, a single individual enjoys 100% of the amount of the average annual gross wage. An individual taxpayer is a single worker that can only use the basic personal allowance; in this case such a taxpayer enjoys 67% of the average gross wage and is referred to as a taxpayer of lower economic/wage power. The analysis of the tax wedge for an individual taxpayer of higher economic power should show whether such a taxpayer's tax burden is heavier.

Table 1 shows all three levels of the tax burden for a Croatian individual taxpayer enjoying 67%, 100% and 167% of the average gross wage, and for a taxpayer with two children who enjoys 67%, 100% and 167% of the average gross wage in the period from 2005 to 2020.³

3 The tax burden shows the share of personal income tax and surtax in the gross wage. This share decreases if the level of personal income changes, that is, if the tax burden on the taxpayer is alleviated. The net tax burden shows the share of personal income tax, surtax and contributions from the salary in the gross personal income, while the tax wedge represents the share of tax, surtax, contributions from the salary and contributions on the salary in the total labour cost.

Table 1 Comparative overview of tax wedges for an individual taxpayer and a taxpayer with two children, who enjoyed 67%, 100% and 167% of the average gross wage in the Republic of Croatia from 2005 to 2020 (in %)

	2005		2006		2007		2008		2009		2010		2011		2012		
	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	
Tax burden	67%	6.57	0.00	7.15	0.00	7.48	0.44	7.45	0.57	7.20	0.00	6.51	0.00	5.87	0.14	5.23	0.10
	100%	8.98	3.58	9.79	4.22	10.45	4.70	10.39	4.65	9.90	4.30	9.13	3.90	8.57	3.60	9.54	2.65
	167%	14.30	9.01	14.78	9.82	15.18	10.47	15.14	10.41	14.85	9.92	14.39	9.48	14.05	9.24	14.63	9.17
Net tax burden	67%	26.75	20.00	27.15	20.00	27.48	20.44	27.45	20.57	27.20	20.00	26.51	20.00	25.87	20.14	25.23	20.10
	100%	28.98	23.58	29.79	24.22	30.45	24.70	30.39	24.65	29.90	24.30	29.13	23.90	28.57	23.60	29.54	22.65
	167%	34.30	29.01	34.78	29.82	35.18	30.47	35.14	30.41	34.85	29.92	34.39	29.48	34.05	29.24	34.63	29.17
Tax wedge	67%	37.50	31.74	37.84	31.74	38.12	32.12	38.10	32.23	37.89	31.74	37.29	31.74	36.75	23.86	35.83	31.43
	100%	39.40	34.80	40.10	35.34	40.66	35.75	40.16	35.71	40.19	35.41	39.53	35.07	39.05	34.81	39.53	33.61
	167%	43.94	39.43	44.35	40.12	44.69	40.68	44.65	40.63	44.41	40.21	44.02	39.83	43.73	39.62	34.90	39.21

	2013		2014		2015		2016		2017		2018		2019		2020		
	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	
Tax burden	67%	4.97	0.00	5.00	0.00	4.15	0.00	3.77	0.00	1.93	0.00	2.82	0.00	3.51	0.00	2.78	0.00
	100%	10.13	2.27	10.20	2.32	9.13	1.06	8.36	0.50	8.34	0.00	8.93	0.00	9.39	0.00	8.91	0.00
	167%	14.99	9.59	10.26	6.05	14.39	7.85	13.93	7.01	13.55	4.84	13.91	5.60	14.19	6.18	13.90	5.98
Net tax burden	67%	24.97	20.00	25.00	20.00	24.15	20.00	23.77	20.00	21.93	20.00	22.82	20.00	23.51	20.00	22.78	20.00
	100%	30.13	22.27	30.20	22.32	29.13	21.06	28.36	20.50	28.34	20.00	28.93	20.00	29.39	20.00	28.91	20.00
	167%	34.99	29.59	30.26	26.05	34.39	27.85	33.93	27.01	33.55	24.84	33.91	25.60	34.19	26.18	33.90	25.98
Tax wedge	67%	34.87	30.56	35.46	31.15	35.28	31.74	34.96	31.74	33.39	31.74	34.14	31.74	34.34	31.33	33.72	31.33
	100%	39.35	32.52	39.93	33.15	39.53	32.65	38.88	32.17	38.85	31.74	39.36	31.74	39.39	31.33	38.98	31.33
	167%	43.57	38.88	39.96	36.36	44.02	38.44	43.62	37.72	43.25	35.81	43.61	36.52	43.51	36.64	43.26	36.47

Source: Authors' calculations based on the data of the Croatian Bureau of Statistics, the Ministry of Finance, the Income Tax Act, and the Contributions Act

It is evident that the heaviest tax burden was borne in the observation period by the taxpayer who enjoyed 167% of the average gross wage, that is, the one with the highest gross wage. The lowest tax wedge and the lowest tax burden were borne by the individual with the smallest average gross wage, that is, the individual with the lowest economic power. Throughout the observation period, mild oscillations in the tax burden were recorded in all hypothetical units observed. In the case of a taxpayer who enjoyed 100% of the average gross wage, the tax burden decreased by 1.1%, while in the case of a taxpayer who enjoyed the highest average gross wage, it decreased by 1.6%, and for an individual with the lowest economic power, it decreased by almost four percentage points or as much as 10.1% relatively. This was a result of numerous changes in the personal allowance, tax rates and tax classes throughout the observation period, but with an emphasis on the fact that contributions from and on the salary were equal for all taxpayers, thereby increasing the tax burden on all of them. In the same period, the only change that occurred was the one in healthcare insurance contributions charged to the employer, which increased by 16.5%.

If we analyse a taxpayer with two children enjoying 167% of the average gross wage in the observation period, it is evident that such a taxpayer carried the heaviest tax burden. A taxpayer with two children enjoying 100% of the average gross wage carried a lower tax burden, while a taxpayer with two children enjoying 67% of the average gross wage carried the lowest tax burden as well as lower economic power. Throughout the observation period, a mild decrease in the tax wedge was observed, so a taxpayer with two children enjoying 167% of the average gross wage faced a tax burden of 39.43% in 2005, whereas a taxpayer with two children benefiting from 67% of the average gross wage faced a tax burden of 31.74%, which is 19.5% less. In 2020, the tax wedge for a taxpayer with two children enjoying 167% of the average gross wage was 36.47%, while for a taxpayer with two children enjoying 67% of the average gross wage it was 31.33%, i.e., 14.09% less. From 2017 to 2020, a taxpayer with two children enjoying 100% and the one with 67% of the average gross wage faced the same level of the tax wedge, precisely due to an increase in the personal allowance and tax deduction factors for dependent children, which resulted in a low tax base.

Looking at the structure of the tax wedge in Croatia, we can conclude that the amount of the wedge primarily depends on social security contributions, and not on the personal income tax or the surtax for both taxpayer types. The greatest share pertains to contributions from the salary and contributions on the salary which have remained almost unchanged, holding the tax wedge at a high level. An individual taxpayer who enjoyed 100% of the average gross wage faced the greatest share of tax and surtax in 2007 (8.91%), and the lowest one in 2017 (7.11%). Such a taxpayer faced the largest share of net personal income in 2017 (61.15%), and the lowest one in 2007 (59.34%), precisely due to a high tax burden. An individual taxpayer who enjoyed 67% of the average gross wage had the largest share of tax and surtax in the total cost (6.8%) and the lowest share of net income (61.88%) in 2007 due to a high tax burden, while such a taxpayer had the highest share of net income (66.61%) and the lowest tax liability (1.65%) in 2017. A taxpayer who enjoyed 167% of the average gross wage had the highest share of tax and surtax in the total labour cost in 2012, when it amounted to 13.69%, and the lowest share in 2014 (9.59%). On the other hand, such a taxpayer had the highest net income in 2014 (58.97%), and the lowest in 2007 (55.31%), which represents an increase of 6.21%.

An individual taxpayer with two children who enjoyed 100% of the average gross wage had the highest share of tax and surtax in the total labour cost in 2007 (4.01%), while the lowest share was recorded in the period between 2017 and 2020, when it amounted to 0% due to an increase in the personal allowance and a change in the deduction factor for dependent children. Such a taxpayer achieved the highest net income in 2019 and 2020 (68.67%) and the lowest net income in 2007 (64.25%), which is consistent with a high tax burden. An individual taxpayer with two children who enjoyed 67% of the average gross wage had the highest share of tax and surtax in the total labour cost in 2008 (0.49%), and the lowest one in the period from 2005 to 2006, and 2009 to 2010, and also from 2013 to 2020, when it amounted to 0% due to an increase in the personal allowance and a change in the deduction factor for dependent children. Such a taxpayer achieved the highest and the lowest net income in 2013 (69.44%) and in 2008 (67.77%), respectively. An individual taxpayer with two children who enjoyed 167% of the average gross

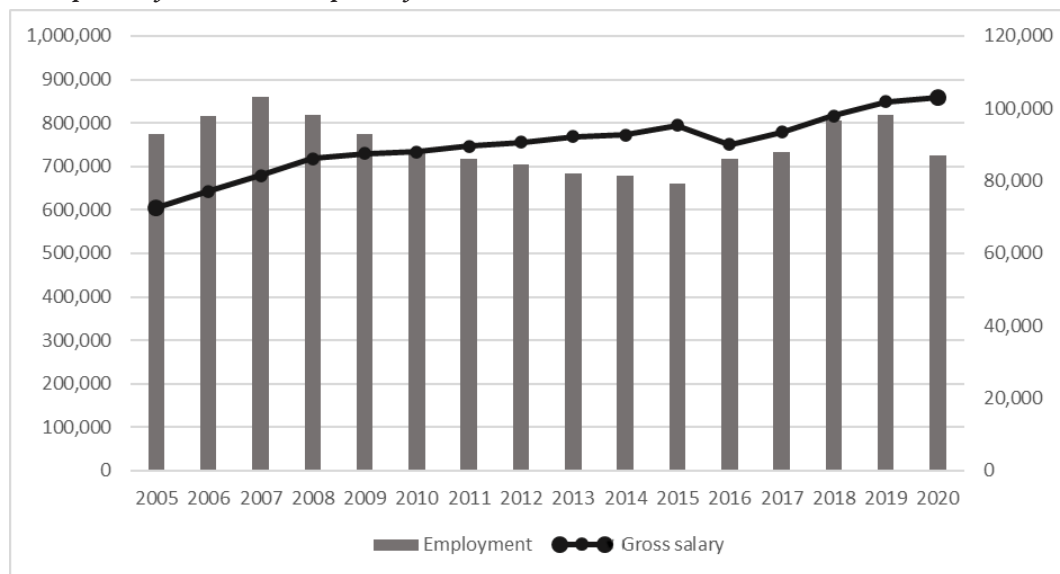
wage had the highest share of tax and surtax in the total labour cost in 2007 (8.94%), and the lowest share in 2017 (4.14%). Such a taxpayer achieved the highest and the lowest share of net personal income in 2017 (64.19%) and in 2007 (59.32%), respectively.

3. Analysis of the tax wedge in the Republic of Slovenia

Slovenia and Croatia are both transition countries of the former socialist block and republics of the former SFRY that commenced in the early 1990s their processes of privatising state-owned property, return of seized property, and economic and political transformation of national economy, turning toward a market-based economy. In doing so, both countries underwent numerous processes and reforms that modified the structure of society, and thus also of the economy, where (active) fiscal policy played an important role. In this part of the

paper, we will analyse the tax wedge in the Republic of Slovenia for the same hypothetical units and the same income levels as in the case of the Republic of Croatia, so as to gain insight into the similarities and/or differences between these two countries in relation to the tax burden on income. During the observation period, the largest number of employees worked in sector D, i.e., the processing industry, while the lowest number of employees from 2005 to 2007 was observed in sector K, i.e., sector L in real estate trade, rental and business services, and in 2008 and onwards, it was observed in mining and extraction (sector C) and in sector B. The highest average gross wage in the observation period was observed in sector J, i.e., K (financial mediation), followed by sector C (sector B) - mining and extraction. The lowest average gross wage was observed in sector H (sector I) - hotels and restaurants.

Graph 2 Employment in sectors C-K (left axis) and the average gross wage in sectors C-K (right axis) in the Republic of Slovenia in the period from 2005 to 2020



Source: Authors' calculations based on the data of the Statistical Office of the Republic of Slovenia, 2005-2020, and the Croatian National Bank

Throughout the observation period, employment rates peaked in 2008 with 502,775 employees, followed by a gradual decline in the number of employees until 2014 when it reached its lowest -

405,780, which is a decline of 19.29%. From 2015 to 2019, a slight increase in employment occurred. In 2020, the number of employed persons decreased by 1.84% in relation to 2019, amounting to 460,161.

The average annual gross wage gradually increased throughout the observation period. It was at the lowest level in 2005 when it amounted to HRK 92,307.43. It increased gradually, reaching HRK 146,641.41 in 2017, which is a 58.86% increase in relation to 2005. In 2019, the average annual gross wage was at the highest level and amounted to HRK 149,917.54, while in 2020, the gross wage was HRK 146,564.53, meaning it decreased by 2.24%. For a taxpayer enjoying 100% of the average gross wage, it amounted to HRK 92,307.43 in 2005 and HRK 146,564.53 in 2020. For an individual enjoying 67% of the average annual gross wage, it amounted to HRK 61,845.98 in 2005 and HRK 98,198.24 in 2020. For a taxpayer enjoying 167% of the average gross wage, it amounted to HRK 154,153.41 in 2005 and HRK 244,762.77 in 2020. The gross wage for all three hypothetical units observed was HRK 61,845.98 higher in 2005 in relation to an individual enjoying 100% of the average gross wage (67%). The gross wage for these three hypothetical units observed was HRK 98,198.24 higher in 2020 in relation to

an individual enjoying 100% of the average gross wage (67%). A decrease in the number of employed persons and the average annual gross wage in 2009 and 2020 was caused, just like in Croatia, by the international financial crisis and the COVID-19 pandemic.

In the observation period, the heaviest tax burden was borne by the taxpayer who enjoyed 167% of the average gross wage, that is, the one with the highest gross wage and economic power. The lowest tax wedge and the lowest tax burden were observed for an individual with the lowest economic power. For a taxpayer who enjoyed 100% of the average gross wage, the tax wedge decreased by 1.45%, while for a taxpayer who enjoyed 167% of the average gross wage, it decreased by 6.21%. The tax wedge for the taxpayer with the lowest economic power increased by 1.1%. However, in both Slovenia and Croatia, the contributions from and on the salary are equivalent for all three taxpayers analysed, indicating that the contribution burden does not depend on the income level.

Table 2 A comparative overview of tax wedges for an individual taxpayer and a taxpayer with two children, who enjoyed 67%, 100% and 167% of the average gross wage in the Republic of Slovenia from 2005 to 2020 (in %)

		2005		2006		2007		2008		2009		2010		2011		2012	
		Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple
Tax burden	67%	8.61	0.55	8.87	1.24	8.69	1.40	8.83	1.61	8.75	1.55	8.93	2.01	9.01	2.20	8.94	2.04
	100%	13.51	4.80	14.27	5.26	12.00	5.37	12.31	5.51	12.30	5.47	12.55	5.78	12.72	5.91	12.57	5.80
	167%	20.00	12.53	20.59	13.51	18.29	11.34	18.75	11.58	18.83	11.58	19.11	12.00	19.37	12.37	19.18	12.08
Net tax burden	67%	24.71	16.65	24.97	17.34	24.79	17.50	24.93	17.71	24.85	17.65	25.03	18.11	25.11	18.30	25.04	18.14
	100%	29.61	20.90	30.37	21.36	28.10	21.47	28.41	21.61	28.40	21.57	28.65	21.88	28.82	22.01	28.67	21.90
	167%	36.10	28.63	36.96	29.61	34.39	27.44	34.85	27.68	34.93	27.68	35.21	28.10	35.47	28.47	35.28	28.18
Tax wedge	67%	38.34	31.74	38.55	32.30	38.40	32.43	38.51	32.61	38.45	32.56	38.60	32.93	38.66	33.09	38.61	32.96
	100%	42.35	35.22	42.97	35.60	41.12	35.68	41.37	35.80	41.36	35.76	41.56	36.02	41.70	36.12	41.58	36.03
	167%	47.67	41.55	48.15	42.35	46.26	40.57	46.64	40.77	46.70	40.77	46.94	41.11	47.15	41.42	46.99	41.18

		2013		2014		2015		2016		2017		2018		2019		2020	
		Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple	Single individual	Married couple
Tax burden	67%	9.05	2.08	8.98	2.13	9.03	2.27	9.09	2.42	9.38	3.16	9.38	3.14	9.51	3.48	9.13	2.88
	100%	12.64	5.82	12.65	5.86	12.77	5.95	12.91	6.05	13.56	6.55	13.55	6.54	13.84	7.02	12.76	6.36
	167%	17.75	11.94	17.89	12.03	18.09	12.20	17.65	12.30	17.99	13.00	17.98	12.98	18.33	13.29	16.39	12.32
Net tax burden	67%	25.15	18.18	25.08	18.23	25.13	18.37	25.19	18.52	25.48	19.26	25.48	19.24	25.61	19.58	25.23	18.98
	100%	28.74	21.92	28.75	21.96	28.87	22.05	29.01	22.15	29.66	22.65	29.65	22.64	29.94	23.12	28.86	22.46
	167%	33.85	28.04	33.99	28.13	34.19	28.30	33.75	28.40	34.09	29.10	34.08	29.08	34.43	29.39	32.49	28.42
Tax wedge	67%	38.70	32.99	38.64	33.03	38.68	33.14	38.73	33.27	38.97	33.87	38.97	33.86	39.07	34.13	38.76	33.64
	100%	41.64	36.05	41.65	36.08	41.75	36.16	41.86	36.24	42.39	36.65	42.38	36.64	42.62	37.04	41.74	36.49
	167%	45.82	41.06	45.94	41.14	46.10	41.28	45.74	41.38	46.02	41.93	46.01	41.92	46.30	42.17	44.71	41.38

Source: Authors' calculations based on the data of the Statistical Office of the Republic of Slovenia and the Financial Administration of the Republic of Slovenia

The observation period shows that the highest tax burden lies with the taxpayer with two children who enjoyed 167% of the average gross wage, that is, the one with the highest economic power. A taxpayer enjoying 100% of the average gross wage had a lower tax burden, while a taxpayer with two children enjoying 67% of the average gross wage had the lowest tax burden. Throughout the observed period, the tax wedge for the taxpayer supporting two children and enjoying 100% and 67% of the average gross wage was increasing gradually, while it was decreasing in the case of a taxpayer enjoying 167% of the average gross wage. The taxpayer with two children enjoying 167% of the average gross wage faced a tax burden of 65.13% in 2005, while a taxpayer with 67% of the average gross wage faced a tax burden of 49.75%, which is 23.61% less. In 2020, the tax wedge for a taxpayer with two children enjoying 167% of the average gross wage was 64.86%, while for a taxpayer with two children enjoying 67% of the average gross wage it was 52.73%, i.e., 18.7% less.

In both Croatia and Slovenia, social contributions are the main factor that defines the structure of the tax wedge and keeps it at a high level. An individual taxpayer who enjoyed 100% of the average gross wage had the greatest and the lowest share of tax in 2006 (11.69%) and in 2007 (9.83%), respectively. Such a taxpayer achieved the largest share of net personal income in 2007 (58.88%), and the lowest in 2006 (57.02%). Throughout the observation period, the greatest share pertained to contributions on the salary, followed by contributions from the salary and then tax. From 2005 to 2020, the tax burden decreased by 5.6%, while the contributions on and from the salary remained unchanged. A mild increase in net income was observed (1.06%). A taxpayer who enjoyed 67% of the average gross wage had the highest and the lowest share of tax in the total labour cost in 2019 (7.79%) and in 2005 (7.05%), respectively; such a taxpayer achieved the highest share of net income in 2005 (61.66%)

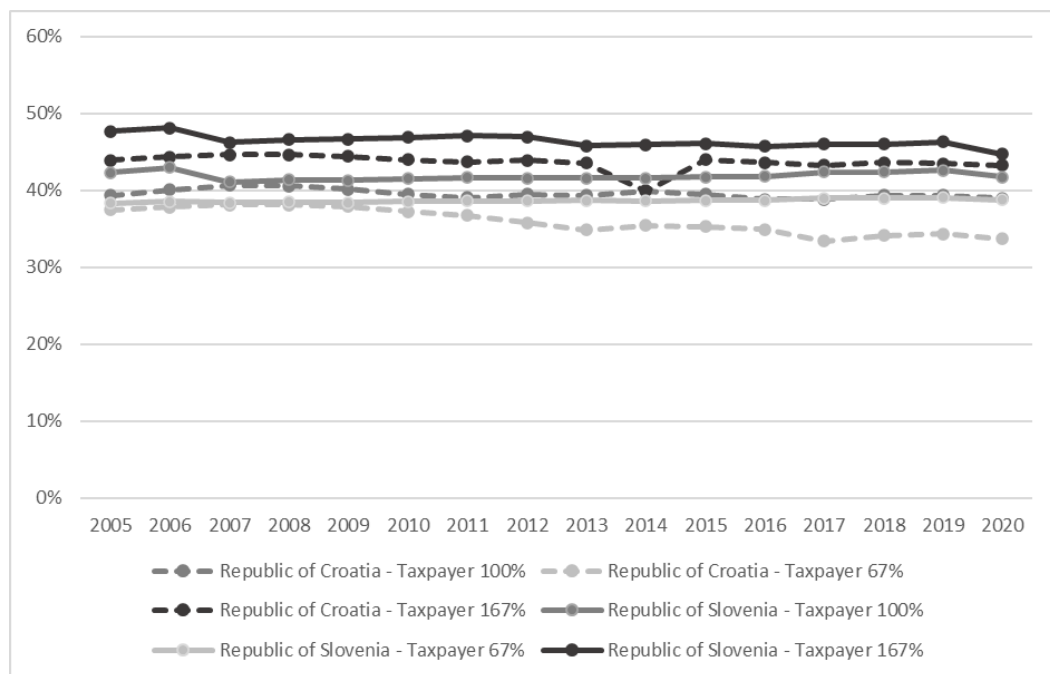
and the lowest in 2019 (60.93%). Their tax burden was lower and their net income in 2020 was 4.87% higher than that of the taxpayer enjoying 100% of the average gross wage. The taxpayer enjoying 167% of the average gross wage achieved the highest and the lowest share of net income in 2020 (55.29%) and in 2006 (51.85%), respectively, while the contributions from and on the salary remained unchanged throughout the period.

4. Comparison of the tax wedge in the Republic of Croatia and the Republic of Slovenia

A comparison of the tax burden can be impeded by different limitations because countries vary according to properties such as national income level, living standard, income per capita, employment rates, level of development, structure of fiscal income and expenditure, etc. Having compared the tax wedge for an individual taxpayer enjoying 100%, 67%, 167% of the average gross wage in Croatia and Slovenia who uses only the personal allowance, it is evident that the highest tax burden in the observation period pertained to the Slovenian taxpayer enjoying 167% of the average gross wage.

At the beginning of the observation period, the said taxpayer was subject to a 7.82% higher tax than the same taxpayer in Croatia. Throughout the period, this difference was reduced and in 2020, the Slovenian taxpayer was taxed 3.24% more than the Croatian taxpayer. The next is a taxpayer enjoying 100% of the average gross wage. A Slovenian taxpayer was taxed 6.97% more than a Croatian taxpayer in 2005, while in 2020, this difference was reduced to 6.61%. The lowest tax burden pertains to a taxpayer with the lowest economic power, that is, a taxpayer enjoying 67% of the average annual gross wage. In 2005, the tax difference was quite small, more precisely, the Slovenian taxpayer paid 2.2% more tax than a Croatian taxpayer. This difference increased gradually, reaching 13.01% in 2020.

Graph 3 Comparative tax wedges for an individual taxpayer who enjoyed 67%, 100% and 167% of the average gross salary in the Republic of Croatia and the Republic of Slovenia from 2005 to 2020

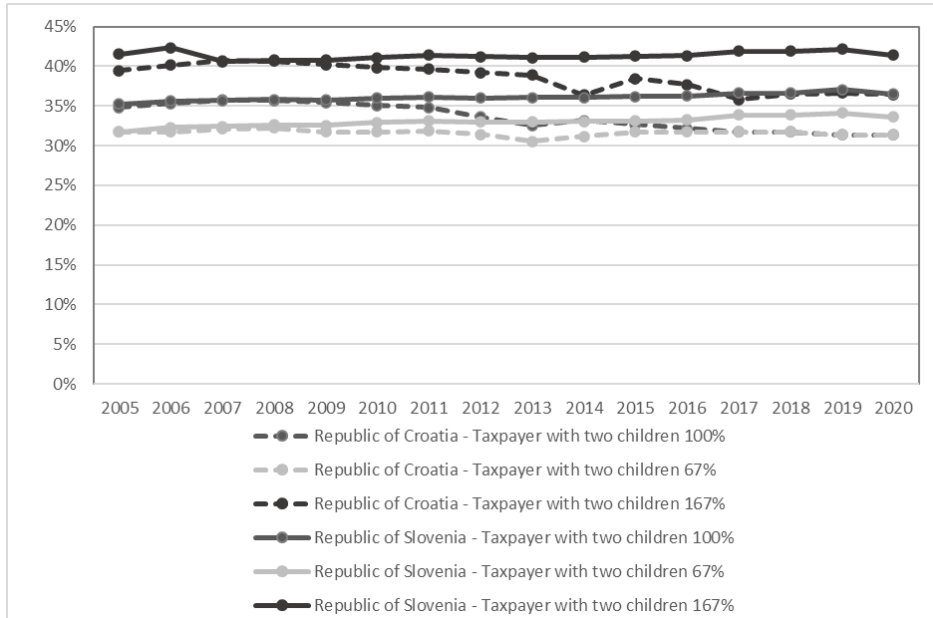


Source: Authors' calculations

If we compare the trend of the tax wedge for a taxpayer with two children who enjoys 100%, 67% and 167% of the annual gross wage in Croatia and in Slovenia, where the personal allowance additionally increased due to dependent children, we can conclude that the highest tax burden is borne by the taxpayer with the highest economic power, in this case, the Slovenian taxpayer supporting two children, who was taxed 3.58% more than a Croatian taxpayer supporting two children. During the observation period, the tax wedge decreased in both countries. However, overall, the Slovenian taxpayer is still taxed as much as 11.87% more. On the other hand, in 2005, a Slovenian taxpayer supporting two children and enjoying 100% of the average annual gross wage was taxed 1.20% more than the same taxpayer in Croatia, while in 2020, the Slovenian taxpayer was taxed 14.14% more. It is obvious that

the tax wedge for a Slovenian taxpayer supporting two children gradually increased, while it gradually decreased in Croatia. The lowest tax burden pertains to a taxpayer supporting two children and enjoying 67% of the average annual gross wage. In 2005, the tax burden was equal in both countries, but during the observation period, in the Republic of Croatia, it gradually decreased, while it increased in the Republic of Slovenia. This is why the Slovenian taxpayer was taxed 6.87% in 2020. The problem with the tax wedge level in the observed countries does not lie with personal income tax, but with the contributions from and on the salary, which constitute a large share in the total labour cost. However, a decrease in the contributions is related to reforms in pension (and health) insurance, which is a topic for entirely new research.

Graph 4 Comparative tax wedges for a taxpayer who supported two children and enjoyed 67%, 100% and 167% of the average gross salary in the Republic of Croatia and the Republic of Slovenia from 2005 to 2020



Source: Authors' calculations

5. Conclusion

There are a number and variety of factors according to which individuals in a certain country pay taxes and other duties from their earnings. Most citizens of any country want to keep as much of it as possible, that is, have as much as possible with minimum labour-related costs. In this paper, tax burden indicators were compared for various types of families and various levels of income in Croatia and Slovenia. Although the analysed countries are geographically relatively similar, share a common past, are now EU Member States, the research conducted did not reveal similarities from the standpoint of progressiveness because wage taxation systems of both Croatia and Slovenia are progressive, that is, the average tax rate increases with an increase in the gross salary. Throughout the entire analysis period, the tax burden on income from employment was lower in Croatia than in Slovenia. In this period, Slovenia modified its personal income taxation system to a lesser extent than Croatia. Slovenia reshaped its three-level income tax schedule (16, 27 and 41%) to a five-level one (from 16 to 50%), while

Croatia changed its four-level income tax schedule (15, 25, 35 and 45%) to a two-level schedule (24 and 36%, that is, 20 and 30% as of 2021) and significantly increased the amounts of the basic personal allowance.

A Slovenian taxpayer had the highest average tax wedge for each observed type of family and the Croatian tax wedge was lower for all hypothetical units observed. Therefore, an individual living in Croatia and enjoying 100% of the average gross wage in 2020 was subject to a 38.98% tax burden, while the tax burden borne by an individual with lower economic power was 33.72% and that borne by a taxpayer enjoying 167% of the average gross wage was 43.26%. We can conclude that the taxpayer with the highest average gross wage also had the highest tax burden. As regards families, the lowest tax burden pertains to a taxpayer supporting two children and enjoying 67% of the average annual gross wage. The problem of a relatively high wedge in Croatia and Slovenia does not lie with the personal income tax (which is relatively low) but with contributions. Decreasing the amount of contributions is related

to reforms of the health and pension insurance system, which are very extensive and demanding issues that need to be analysed separately. Contributions on and from the salary in the observation period changed more often in Croatia than in Slovenia, where they in fact remained unchanged. In both countries, the contributions constitute the largest share in the total labour cost. In both countries, an individual's net income makes up about 60% of the total employer's labour cost, while the rest pertains to benefits payable to the state in the form of tax, surtax and contributions in the amount of 40%.

The results show that the tax wedge primarily depends on the level of income and decreases if the taxpayer has (more) children, and that its amount depends on various amounts of tax and social security contributions, the burden of which is distributed between the employer and the employee. Croatian fiscal policy holders intervened in the labour tax system more often than their Slovenian

counterparts, and they introduced amendments to legal acts to facilitate a decrease in the tax burden on wages, which was most affected by a significant increase in the basic personal allowance and an increase in the deduction coefficient for children and dependent family members. The amendments in both Slovenia and Croatia affected an increase in the available income of taxpaying employees, but did not affect the labour cost for employers because of the amount of contributions.

In the future period, the emphasis will still be on a decrease in the labour tax burden which, considering the existing deficits in the pension and healthcare system, begs the question of how to alleviate the labour tax without introducing new forms of taxes and/or more significant structural reforms in the pension and healthcare system. Future research can be more interesting if a larger number of transition countries are used and with more factors according to which the wedge is determined.

REFERENCES

1. Blažić, H. & Trošelj, I. (2012). Međunarodna usporedba poreznog opterećenja radne snage: utjecaj nove metodologije na položaj Hrvatske. In Božina, L. et al. (Eds.), *Financije i menadžment u globalnoj ekonomiji* (pp. 185-204). Juraj Dobrila University of Pula, Department of Economics and Tourism.
2. Beketić, I. (2016). Porezni klin u Hrvatskoj, Sloveniji, Češkoj Republici, Portugalu i Francuskoj. *Financial Theory and Practice*, 40(2), 169-199. <https://doi.org/10.3326/op.38>
3. Contributions Act (Official Gazette 84/08, 152/08, 94/09, 18/11, 22/12, 144/12, 148/13, 41/14, 143/14, 115/16, 106/18)
4. Croatian Bureau of Statistics (2007). *National Classification of Activities 2007 – Methodology for statistical application of the National Classification of Activities 2007*. <http://www.propisi.hr/print.php?id=7048>
5. Croatian National Bank (2021). *Exchange rate list*. <https://www.hnb.hr/temeljne-funkcije/monetarna-politika/tecajna-lista/tecajna-lista>
6. Čok, M., Grulja, M. A., Turk, T. & Verbič, M. (2013). Taxation of wages in the Alps-Adriatic region. *Financial Theory and Practice*, 37(3), 259-277. <https://doi.org/10.3326/fintp.37.3.2>
7. Dolenc, P. & Vodopivec, M. (2005). Porezni klin u Sloveniji: međunarodna usporedba i preporuke za ekonomsku politiku. *Financijska teorija i praksa*, 23(3), 283-297.
8. Financial Administration of the Republic of Slovenia (2020). *Income tax, dependent family members and contributions*. <https://www.fu.gov.si/prebivalci/#c5621>
9. Grdović Gnip, A. & Tomić, I. (2010). How hard does the tax bite hurt? Croatian vs. European worker. *Financial Theory and Practice*, 34(2), 109-142.
10. Income Tax Act (Official Gazette 109/93, 177/2004, 143/2014, 106/18, 115/16, 106/18, 121/19, 32/20, 138/20)
11. Ministry of Finance (2021). *Official website of the Ministry of Finance of the Republic of Croatia*. <https://mf.gov.hr/>
12. OECD (2015). *Non-tax compulsory payments as an additional burden on labour income*. http://www.oecd.org/tax/tax-policy/Non-tax-compulsory-payments-_2014.pdf
13. OECD (2016a). *Average annual wages*. <https://data.oecd.org/earnwage/average-wages.htm>
14. OECD (2016b). *OECD Tax Database*. <http://www.oecd.org/tax/taxpolicy/tax-database.htm>
15. OECD (2016c). *Taxing Wages: comparative tax burden indicators*. <https://stats.oecd.org/index.aspx?DataSetCode=AWCOMP>
16. OECD (2021). *Taxing Wages: Special feature: Impact of Covid-19 on the tax wedge in the OECD countries*. <https://doi.org/10.1787/83a87978-en>
17. Statistical Office of the Republic of Slovenia (2020). *Average monthly earnings and index of average monthly earnings by registered natural persons by activities*. <https://pxweb.stat.si/SiStatData/pxweb/sl/Data/-/0701070S.px>
18. Statistical Office of the Republic of Slovenia (2020). *Methodological explanation*. <https://www.stat.si/statweb/File/DocSysFile/8212>
19. Šeparović, A. (2009). Utjecaj poreznog klina na nezaposlenost u zemljama OECD-a i usporedba s Hrvatskom. *Financijska teorija i praksa*, 33(4), 463-477.
20. Šimović, H. & Deskar-Škrbić, M. (2015). Učinak promjena poreznih stopa na porezno opterećenje rada u Hrvatskoj. *EFZG Working Paper Series*, (13), 1-17.
21. Urban, I. (2006). Progresivnost poreza na dohodak u Hrvatskoj: dekompozicija učinaka osnovice i poreznih stopa. *Financijska teorija i praksa*, 30(3), 205-230.
22. Urban, I., Čok, M. & Verbič, M. (2019). The burden of labour taxation in Croatia, Slovenia and Slovakia in the period 2011-2017. *Economic research-Ekonomska istraživanja*, 32(1), 1430-1456. <https://doi.org/10.1080/1331677X.2019.1638291>