Title: Distribution of Personal Income Tax Changes in Slovenia

Authors: Čok Mitja, Sambt Jože, Košak Marko, Verbič Miroslav, Majcen Boris

The final version of this preprint (working paper) was published in an article entitled *Distribution of Personal Income Tax Changes in Slovenia* in the journal *Post-Communist Economies*.

DOI: http://dx.doi.org/10.1080/14631377.2012.729662

DISTRIBUTION
OF PERSONAL
INCOME TAX CHANGES
IN SLOVENIA

Mitja Čok
Jože Sambt
Marko Košak
Miroslav Verbič
Boris Majcen

Mitja Čok[1], Jože Sambt[2], Marko Košak[3], Miroslav Verbič[4], Boris Majcen[5]

DISTRIBUTION OF PERSONAL INCOME TAX CHANGES IN SLOVENIA

WORKING PAPER No. 57, 2011

[1] University of Ljubljana, Faculty of Economics, Ljubljana, Slovenia; email: mitja.cok@ef.uni-lj.si
[2] University of Ljubljana, Faculty of Economics, Ljubljana, Slovenia; email: joze.sambt@ef.uni-lj.si
[3] University of Ljubljana, Faculty of Economics, Ljubljana, Slovenia; email: marko.kosak@ef.uni-lj.si
[4] Institute for Economic Research, Ljubljana, Slovenia; email: miroslav.verbic@guest.arnes.si
[5] Institute for Economic Research, Ljubljana, Slovenia; email: majcenb@ier.si

Abstract

Slovenia belongs to a group of EU member states that have reduced their personal income tax burden during the current financial and economic crisis. The latest changes, introduced in the personal income tax system during the last two years, have primarily reduced the tax burden on low-income taxpayers. However, this was only the last step in a series of personal income tax reforms since 2004 that have on average reduced the tax burden on all taxpayers. Using an exclusive database of taxpayers and utilising a general-equilibrium modelling platform, we assess the consequences of these reforms at both the micro and the macro level. From a macroeconomic point of view, the initial positive consequences of higher private consumption and welfare are declining over time due the increased budget deficit and reduced investment.

Keywords: general equilibrium model, income inequality, macroeconomic effects, microsimulation, personal income tax, Slovenia, tax reform.

JEL classification: D31, D63, H23, H24.

1. Introduction

Since the beginning of the financial crisis, EU member states have taken different approaches to changing the personal income tax (hereinafter: PIT) system. In most cases, the PIT burden on low-income individuals is being reduced; some countries have the reduced tax bill for all taxpayers, while others have increased PIT for the highest income brackets or certain types of income sources. Slovenia is among those countries that have recently reduced the PIT burden on low-income individuals. This has been done by splitting the general tax allowance into three sizes depending on individual income and, as a result, the aggregated amount of PIT has declined[1]. However, irrespective of the recent financial and economic crisis, Slovenia has been already experiencing a series of PIT reforms.

The first post-independence PIT system from 1991 remained almost unchanged until 2004, when a new tax code was passed by parliament, coming into effect in January 2005. However, this code was changed in 2005, with the most important new element being the introduction of the schedular taxation of interest, dividends and capital gains, whereby a single 20% tax rate was introduced for these types of income. This code was only used in the fiscal years 2005 and 2006. In January 2007, a completely new PIT law came into effect. It retained the schedular taxation of capital income, while changing the tax schedule for other (non-capital) income. A major change was the replacement of the highest, 50% marginal tax rate with a new one of 41% (Čok, 2007). In addition, further changes in the tax code simplified the tax compliance procedure and costs (Klun, 2009). This law is still in use, even though it has been subject to several new amendments – a major one being the split of the general tax allowance into three sizes in 2008, depending on individual income, as already mentioned. As a direct response to the financial crisis, the general tax allowance for taxpayers with the lowest income was further increased in 2009.

---

[1] Other PIT changes recently accepted in Slovenia have minor consequences on government revenue and include, e.g., an extension of the investment allowance for self-employed individual entrepreneurs, an increase in effective taxation of income from agriculture (agriculture subsidies), and special additional 49% taxation of remuneration of managers and supervision boards in companies receiving government aid (valid only in 2010). While the last two brought addition revenue to the budget, they has relatively low impact on budget revenue.

One can distinguish three broad systems of PIT in Slovenia. The first one was effective prior to (and including) 2004, the second one in the 2005–2006 period, and the last one from 2007 onwards. The aim of this paper is to assess the microeconomic and macroeconomic consequences of these reforms and the distribution of the PIT burden under these three systems. We shall attempt to identify the winners and losers of the PIT reforms that led from one system to another. For this purpose, the PIT systems active in years 2004, 2006 and 2010 were chosen to assess the distribution of the tax burden.

In the article, we consider the question of what the individual income would be (how much PIT would have been paid) in 2010, had the PIT codes from 2004 and 2006 not been changed. As the results reveal, on average all taxpayers were better off after the reforms, while the relative winners are those with the lowest income. From a macroeconomic point of view, a reduction of PIT at the level of individual taxpayers led to a decrease in government revenue, with a positive impact on private consumption and employment and a negative impact on gross fixed investment. Reduction of the PIT burden on low-income individuals made a significant contribution to their subjective well-being, regardless of the "happiness paradox" (Slabe-Erker and Lavrač, 2011)[2].

The outline of the article is as follows. Section 2 includes a brief review of the PIT reforms in the EU and outlines the possible routes of development of a personal income tax system. Section 3 is devoted to the data employed in our article and the methodology implemented in order to answer our research questions. Section 4 represents the crucial results on income, consumption, tax burden, tax rates, welfare, income inequality, and other microeconomic and macroeconomic indicators. Section 5 offers the main concluding remarks.

2. Reforming the personal income tax

Personal income can be taxed according to three basic approaches (OECD, 2006; Zee, 2005): comprehensive income tax, dual income tax, and flat tax. The comprehensive income tax system uniformly taxes labour and capital incomes that are reduced by deductions according to the same (usually) progressive tax schedule. The dual income tax system includes a proportional tax rate on capital income while retaining progressive rates on labour income. This solution was developed in Scandinavian

---

[2]   Easterlin's (1974) "happiness paradox" occurs as rapid economic growth has increased material well-being, but not also quality of life.

countries in the late 1980s and early 1990s for technical and political reasons (difficulties) connected to the taxation of capital income (Sorensen, 2006) and has been subsequently adopted by several countries, including Slovenia (since 2005). In the 1990s, the flat-tax[3] concept dominated most of the income tax reforms in Eastern Europe (*cf.* Ivanova *et al.*, 2005; Moore, 2005), whereas in Western Europe the concept has not been implemented in any country (Fuest *et al.*, 2008). In Slovenia the flat-tax concept also triggered a lively public discussion six years ago (Government Office for Growth, 2005), although it was ultimately not introduced in practice.

All three basic PIT approaches can be found in the EU and, as a result, the share of PIT in GDP varied (in 2008) from 3% in Bulgaria to 14.2% in Sweden, and even to 25.3% in Denmark[4], while the EU average amounted to 8.1%. The same pattern appeared among the top marginal PIT rates. The average top PIT rate in the EU was 37.5%, but it varied from 10% in Bulgaria and 56.4% in Sweden (EU Commission, 2010). In general, the new member states reveal below-average top rates, with the exception of Slovenia and Hungary (both with a top rate of 41%). The average top marginal PIT rate has been steadily decreasing in the EU; from 47.3% in 1995 to 37.1% in 2009. However, in 2010 increases in the UK, Greece and Latvia pushed the average top marginal PIT rate to the present value of 37.5% (other countries kept their top PIT rates unchanged).[5]

During the recent crisis, many EU member states have introduced changes to their PIT system, mostly in the direction of reducing the tax burden. According to a recent report by the EU Commission which covers developments up until March 2010, three EU member states (Estonia, Greece and Latvia) have introduced changes in their PIT system that increase the share of PIT in GDP. Fifteen member states, including Slovenia, are reducing the share of PIT in GDP, while for the rest an assessment is not made or the PIT changes are revenue-neutral. In Slovenia, the PIT changes made during the period of crisis are estimated to reduce PIT as a proportion of GDP by 0.11 percentage points (EU Commission, 2010).

---

[3] The term "flat-tax" in this context means a PIT system with a single, proportional tax rate, which is levied on personal income above a set threshold. However, this is not the Hall-Rabushka (1995) flat-tax, which is essentially a singular cash-flow tax on corporate income and wages. An interesting tax experiment was also implemented in Croatia that adopted in the mid-1990's a PIT system based on the "consumption-based tax" concept (*cf.* Blažić, 1999), which was later modified to the conventional PIT system.

[4] The high share of PIT in GDP for Denmark was a consequence of relatively low social security contributions.

[5] The top PIT rate does not completely reflect the PIT burden, though, since the latter also depends on the number of tax brackets, their width, and the system of tax allowances.

3. Data and methodology

The modelling platform of the Slovenian economy is represented by a dynamic general equilibrium model of the Slovenian economy (Bayar *et al.*, 2006; 2011), linked to a microsimulation model (Majcen *et al.*, 2007). The resulting modelling framework, entitled SloMod, takes into account the structure and all the fundamental mechanisms of the Slovenian economy, as well as all the important elements of the structural and tax reforms, including the reform of social transfers, government expenditure, and the volume and structure of financial flows between the Slovenian and EU budgets.

The modelling platform incorporates the economic behaviour of four economic agents, i.e. firms, households, government and the foreign sector, which are assumed to adopt optimising behaviour under relevant budget constraints, and where all markets operate under the perfect competition assumption. Five household income groups are distinguished in the model according to income levels. Each quintile group receives a share of capital income, labour income and mixed income plus transfers from the government (unemployment benefits, pensions, family, social and other transfers), transfers from firms and transfers from the EU.

Production is disaggregated into 25 branches and in each of them, one or several types of 25 different commodities are produced. Five branches are split into market and public parts. The production of public branches is exogenously determined through government final consumption; employment, salaries, costs of material and services, and investment. Substantial rigidity is introduced into the model.

Market producers operate in perfectly competitive markets and maximise profits (or minimise costs for each level of output) to determine the optimal levels of inputs and output. The gross output for each market branch is determined from a nested production structure. Labour is differentiated according to education levels into three skill groups; unskilled labour, skilled labour and highly skilled labour. Rigidities in the labour market are introduced by wage differentials at the branch and skill level, derived as the ratio between the wage rate by branch and skill and the average wage rate by skill level.

The model accounts for a detailed cost structure at the branch level, including taxes on intermediate consumption, labour, capital and a mixed factor. Upon intermediate consumption firms receive subsidies from the government, pay excise duties, the non-deductible part of value-added tax and other taxes on products. Firms pay trade and

transport margins on intermediate consumption. With regard to labour, the model accounts for the social security contributions paid by employees and employers and for payroll taxes. Firms pay corporate income tax on their profits. In the derivation of the corporate income tax paid by firms, the share of reliefs, losses and extraordinary income/expenditure is taken into account.

The economy is treated as a small open economy with no influence on (given) world market prices. Three main groups of trading partners are distinguished in the model; the EU-15, the new EU member states, and the rest of the world. The assumption of limited substitution possibilities between domestically produced and imported goods is also adopted in the model. It indicates that domestic consumers use composite imported and domestically produced goods, according to a CES function.

Total government revenues consist of excise duties, value-added tax and other taxes on products, personal income taxes and social security contributions paid by employees, employers and the self-employed, payroll taxes, corporate income tax, other taxes on production and transfers from the EU. Total government expenditures are given by subsidies on products and on production, transfers to households, to the EU and to the rest of the world, gross capital fixed formation and current consumption. Transfers to households include unemployment benefits, pensions, social, family and other transfers differentiated by quintile groups and level of education.

The assessment of micro effects (at the level of taxpayers) is based on the PIT database for 2007 prepared by the Statistical Office of the Republic of Slovenia (SORS), which includes 113,000 individual tax records with all variables required to calculate individual PIT (i.e. all types of incomes subject to tax and tax allowances) and is a representative sample of the population. To enable a comparison of the results based on the PIT systems from 2004 and 2007 with those from 2010, data on income were uprated by the growth of the average wage between 2007 and 2010. Using such an amended database, we then applied the PIT regulations from 2004, 2007 and 2010.

The PIT of each individual from the sample is calculated according to the parameters of all three systems and deducted from their gross income to obtain their net after-tax income as a final result. To estimate the aggregate amount of PIT at the national level, the results were multiplied with a factor corresponding to the ratio between the sample size and the population size. All of the calculations are static, i.e. they do not take into account any shifts in behaviour that might occur due to changes in

the tax parameters. The tax parameters from all three systems that were taken into account are presented in Table 1.

The general tax allowance, which is given to all taxpayers, was increased in the 2006 system compared with the 2004 system as compensation for abolishing the allowance for different purposes, which represented 2% or even 4% of an individual tax base. The seniority, invalidity and voluntary pension insurance allowances did not change substantially. Self-employed journalists and cultural professionals obtained an additional allowance after 2004, while the student work allowance was reduced. In the 2004 system, a grossing up mechanism was used to calculate the PIT on pensions. It was subsequently replaced by a special pensioner allowance (tax credit) with the same effect. Both of them meant that only a few pensioners with the highest pensions effectively pay PIT. A substantial reduction of standardised costs, which are deducted from gross income before tax allowances, were introduced for royalties after 2004, while standardised costs for other types of income (contractual work and rents) were not changed. Significant changes have been introduced to the tax schedule since 2004 and as a result there are only three tax brackets now, with the highest marginal tax rate of 41%. The reduction of the highest marginal rate of 50% coincides with the general EU trend (EU Commission, 2010; *cf*. IBFD, 2008).

Table 1: Personal income taxation parameters (in EUR at 2010 prices)

	2004 system	2006 system	2010 system
Tax allowances (EUR):			
– general	1,968.87	2,856.39	3,100.17 / 4,147.67 / 6,120.00
– children[1]	1) 1,789.88 2) 2,684.83 3) 3,579.77	1) 2,29177 2) 2,491.08 3) 3,321.60	1) 2,287.48 2) 2,486.78 3) 4,147.58
– seniority (for those aged 65+)	1,431.91	1,328.54	1,334.18
– 100% invalidity	17,898.84	16,608.00	16,575.94
– invalidity	7,159.54	5,790.96	3,100.17
– self-employed journalists and cultural professionals	–	3,755.63	3,750.00
– voluntary pension insurance[2]	2,913.48	2,651.29	2,646.21
– pensioners	grossed up	14.5%	13.5%
– allowance for different purposes[3]	3%	2% / 4%	–
– allowance for daily international migrants	–	–	7,112.00
Standardised costs (%):			
– contractual work (including student work)	10%	10%	10%
– royalties	40%	10%	10%
– rents	40% / 60%	40%	40%
Tax schedule:			
– number of tax brackets	6	5	3
– marginal tax rates (%)	17 / 37 / 40 / 45 / 50	16 / 33 / 37 / 41 / 50	16 / 27 / 41
Indexation of the schedule and allowances	growth of the average gross wage	growth of the retail price index	growth of the retail price index
Schedular taxation of capital income	No	Yes	Yes

Notes: (1) In all three years, the tax allowance for any adult dependent family member equals the allowance for the first dependent child. (2) In all three years, these tax allowances cannot exceed 5.844% of an individual taxpayer's annual gross wage or exceed the amount mentioned in Table 1. (3) The allowance for different purposes is defined as the sum of a taxpayer's expenses for selected purchases, such as the acquisition of books or government securities. It cannot exceed 3% (2% / 4%) of an individual taxpayer's tax base.

Source: Chamber of Accountants, Financials and Auditors of Slovenia (2010); own calculations.

All parameters in Table 1 are calculated, as mentioned, in 2010 prices using the system of upgrading tax parameters (revalorisation) which was in place in a particular year. Under the 2004 system, this is growth of the average gross wage. Since 2007 the upgrading mechanism is based on growth of the retail price index. The introduction of the retail price index also means that the majority of taxpayers are approaching the top tax bracket since the growth of wages as the major income source is generally exceeding the growth of prices in the long term. Capital income, which is taxed on a schedular basis (dividends, bank interest, and capital gains), is not taken into account. The reason for this is to allow the comparison since in the 2004 system bank interest, as a major source of capital income, was not taxed with PIT. Considering this, one should

be aware that the results, presented in the article, only reflect the taxation of income from labour, and only to a certain level is the taxation of capital income taxed according to a progressive tax schedule (rents and royalties). Taking into account the PIT schedules from all three years and using their methods of valorisation, the PIT schedules for all three years (in 2010 prices) are presented in Table 2.

Table 2: PIT schedules (in 2010 values)

	From (EUR)	To (EUR)	Marginal tax rate
2004 system			
1	0	8,888.85	17%
2	8,888.85	17,777.68	35%
3	17,777.68	26,666.54	37%
4	26,666,54	35,555.36	40%
5	35,555.36	53,333.05	45%
6	53,333.05		50%
2006 system			
1	0	6,273.54	16%
2	6,273.54	12,257.54	33%
3	12,257.54	24,804.62	37%
4	24,804.62	49,850.53	41%
5	49,850.53		50%
2010 system			
1	0	7,528.99	16%
2	7,528.99	15,057.96	27%
3	15,057.96		41%

Source: Own calculations.

Table 2 reveals substantial changes in the tax schedules from one system to another. If the 2004 system was still in use in 2010, the schedule would have consisted of six tax brackets and a taxable income above EUR 53,333.05 would have been taxed with a 50% marginal tax rate. In practice, the 2010 tax schedule only consisted of three tax brackets, with the highest marginal rate of 41% for taxable income above EUR 15,057.96.

As can be inferred, the modelling platform enables both the macro and the micro level of analysis, where the former is based primarily on the general equilibrium model and the latter rests primarily on the microsimulation model, thus exploiting the synergies between the two.[6] The model was built within the general algebraic modelling system (GAMS) and solved numerically with the PATH algorithm.

---

[6] Applications include analyses of foreign trade liberalisation and financial flows (Majcen *et al*., 2005), of labour market reforms (Čok *et al*., 2009), of personal income tax reforms (Majcen *et al*., 2009), and of influence of R&D on economic performance (Verbič *et al*., 2011).

4. The results

Results on the level of individual taxpayers are presented in Table 3. Taxpayers are arranged in decile groups based on paid PIT according to the 2004 system. For each decile group the average net (after-tax) income for all three systems is calculated. The results reveal different magnitudes of the tax reforms. While the reform of 2004 (the 2004 system versus the 2006 system) only improved the position of low-income individuals (by 2.7% on average in the first three deciles) and reduced the after-tax income of the wealthy (by 0.4% on average in the last three deciles), the second reform also improved the net income of higher-income individuals. Finally, under the 2010 system all taxpayers were better off (see last two columns of Table 3).

The biggest relative winners of the reforms were obviously individuals from the first few decile groups. Namely, the average net income in the first decile group[7] increased by 8.4% between the 2010 system and the 2004 system (by 5.1% between the 2010 system and the 2006 system) due to the PIT changes, while the average net income of the top 10% individual taxpayers increased by 1.0% (by 1.9% between the 2010 system and the 2006 system).

Table 3: Average net income (in EUR)

Decile group	2004 system	2006 system	2010 system	2006/2004	2010/2006	2010/2004
1	3,865.1	3,985.9	4,189.9	3.1%	5.1%	8.4%
2	6,067.3	6,223.2	6,609.1	2.6%	6.2%	8.9%
3	7,236.4	7,404.8	7,678.7	2.3%	3.7%	6.1%
4	8,357.5	8,501.0	8,626.7	1.7%	1.5%	3.2%
5	9,545.5	9,579.8	9,735.7	0.4%	1.6%	2.0%
6	10,736.3	10,751.9	10,956.8	0.1%	1.9%	2.1%
7	12,155.8	12,178.6	12,458.7	0.2%	2.3%	2.5%
8	14,048.7	14,045.7	14,455.2	0.0%	2.9%	2.9%
9	17,008.1	16,952.0	17,453.4	–0.3%	3.0%	2.6%
10	28,483.7	28,227.7	28,764.2	–0.9%	1.9%	1.0%

Source: Own calculations.

---

[7] Pensioners represent a major share of low-income taxpayers, due to special tax allowance (see Table 1), which effectively nullified their tax bill. However, under the 2004 system the amount of PIT paid by the retired taxpayers reached 140.3 million EUR, while subsequent reforms reduced this amount to 136.3 million (2006 system), and further to 105.6 million EUR (2010 system).

Table 4 includes average PIT rates[8], which reveal an opposite picture compared with the changes on net income from Table 3. While the first reform slightly increased the tax rate for the top two decile groups (by as little as 0.45 percentage points or 2.1% on average), the second reform reversed this effect (the PIT rate decreased by 2.57 percentage points or 30.5% on average, taking into account all deciles).

The final result is an overall reduction of average tax rates, which is especially severe at the bottom of income distribution (see Table 4). Namely, the average tax rate in the first decile group is 7.31 percentage points or 89.8% lower, while the average PIT rate in the first three deciles is 6.93 percentage points or 77.6% lower on average in the 2010 system compared with the 2004 system.

Table 4: Average personal income tax rates

Decile group	2004 system	2006 system	2010 system	2006/2004	2010/2006	2010/2004
1	0.0814	0.0515	0.0083	–36.7%	–83.9%	–89.8%
2	0.0921	0.0690	0.0123	–25.1%	–82.2%	–86.6%
3	0.0977	0.0769	0.0427	–21.3%	–44.5%	–56.3%
4	0.0989	0.0835	0.0700	–15.6%	–16.2%	–29.2%
5	0.1066	0.1031	0.0890	–3.3%	–13.7%	–16.5%
6	0.1182	0.1166	0.1005	–1.4%	–13.8%	–15.0%
7	0.1279	0.1260	0.1068	–1.5%	–15.2%	–16.5%
8	0.1416	0.1415	0.1176	–0.1%	–16.9%	–16.9%
9	0.1703	0.1728	0.1486	1.5%	–14.0%	–12.7%
10	0.2372	0.2436	0.2314	2.7%	–5.0%	–2.4%

Source: Own calculations.

As the values of Gini coefficient, squared coefficient of variation (I_2) and Atkinson index show (Table 5), the reforms also influenced the distribution of net income in the society. Income inequality has subsequently been reduced by all PIT codes, though more by the first PIT reform than by the second one. Namely, the Gini coefficient decreased by 2.0% after the first reform and by only 1.1% after the second one, the squared coefficient of variation decreased by 3.7% after the first reform and by only 1.3% after the second one, while the Atkinson index decreased by 4.1% after the first reform and by only 2.8% after the second one. Additionally, we have to take into account that the duration of the first reform was much shorter than of the second one.

---

[8] Average personal income tax rate is defined as a proportion of PIT to gross income reduced by employee's social security contributions. This definition of average tax rate covers fluctuation in the PIT burden that have occurred in reforms through changes in standardised costs, tax allowances, tax schedule and indexation (see Table 1).

The final result is then an overall reduction of the inequality measures. Namely, the Gini coefficient decreased by 3.0%, the squared coefficient of variation decreased by 4.9%, while the Atkinson index decreased by as much as 6.8% in the 2010 system compared with the 2004 system (see Table 5).

Table 5: Inequality measures

Inequality measure	2004 system	2006 system	2010 system	2006/2004	2010/2006	2010/2004
Gini	0.3004	0.2944	0.2913	–2.0%	–1.1%	–3.0%
I_2	0.4487	0.4321	0.4265	–3.7%	–1.3%	–4.9%
Atkinson ($\varepsilon = 2$)	0.2761	0.2647	0.2573	–4.1%	–2.8%	–6.8%

Source: Own calculations.

The lower amount of PIT collected at the taxpayer level represented a decrease in government revenues (Table 6). Government revenues were thus EUR 327.9 million (14.4% in absolute terms or 0.9 percentage points of GDP) lower under the 2010 system than they would have been if the 2004 system was still in use. The majority of this decrease occurred with the second PIT reform (13.1% in absolute terms or 0.8 percentage points of GDP). Consequently, the internationally already low PIT-to-GDP ratio (5.7% in Slovenia compared to a weighted average of 9.0% in the EU-27 in 2004; *cf*. EU Commission, 2010) has been further reduced.

Table 6: Aggregate amount of PIT in absolute and relative terms

	2004 system	2006 system	2010 system	2006/2004	2010/2006	2010/2004
Amount of PIT	2,283.9	2,250.8	1,956.0	–1.4%	–13.1%	–14.4%
% of GDP	6.4%	6.3%	5.5%	–0.1pp	–0.8pp	–0.9pp

Notes: Aggregate amount of PIT (first line) is in EUR million at 2010 prices, thus the corresponding changes are in percentages. Aggregate amount of PIT is then expressed as percentage of 2010 GDP (second line), thus the corresponding changes are in percentage points (pp).

Source: IMAD (2010); own calculations.

The long-term macroeconomic consequences are presented in Tables 7 and 8. The year 2004 is used as the reference for comparison (base year of the general equilibrium model) and we therefore prepared a business-as-usual (BAU) scenario, in which we assume that the personal income tax system from 2004 is valid throughout the complete simulation period. In the second step, two scenarios (simulations) with the PIT system in 2006 and 2010 were performed.

As can be seen from Table 7, introduction of the 2006 system did not lead to substantial changes at the macro level. The changes in real GDP, exports, imports and employment were negligible compared to the BAU scenario, while there was some change in private consumption (0.3%) and grossed fixed investment (–0.5%). In contrast, introduction of the 2010 system caused some tangible effects. Namely, real GDP increased by 0.3% compared to the BAU scenario, household private consumption increased by 1.5%, while the gross fixed investment decreased by 2.1%.

Table 7: Macroeconomic effects of different personal income tax systems (percentage change compared to the BAU scenario)

	2006 system	2010 system
Gross domestic product	0.0	0.3
Private consumption	0.3	1.5
Gross fixed investment	–0.5	–2.1
Exports	0.0	0.1
Imports	0.0	0.1
Employment	0.0	0.2

Source: Own calculations.

The lower personal income tax burden therefore increased the disposable income of households and their private consumption. Conversely, it reduced the government tax revenue, which led (based on the assumption of unchanged government expenditure) to a government deficit, and consequently to increased interest payments and debt. All of these elements had a negative impact on gross fixed investment, which in the long term eliminated the positive effect on GDP growth.

Table 8 shows the macroeconomic consequences at the household level. For this purpose, households were arranged in quintile groups by disposable income. The results again reveal[9] that households with lower income gained more, in terms of both real consumption and welfare[10]. Namely, real consumption of first two quintiles increased on average by 0.7% under the 2006 system and by 1.8% under the 2010 system, while welfare of first two quintiles increased on average by 0.5 percentage points under the 2006 system and by 1.3 percentage points under the 2010 system, all compared to the BAU scenario. Conversely, real consumption of last two quintiles increased on average by 0.2% under the 2006 system and by 1.4% under the 2010 system, while welfare of

---

[9] Macroeconomic effects on households' income should be interpreted together with the distribution of average net income in Table 3 and the distribution of PIT rates in Table 4.

[10] Welfare is examined by equivalent variation in income, which measures the income needed to make the household as well off as in the new-scenario equilibrium evaluated at benchmark prices. The equivalent variation is positive for welfare gains from the policy scenario and negative for losses (*cf.* Harrison and Kriström, 1999; Verbič, 2007).

first two quintiles increased on average by 0.1 percentage points under the 2006 system and by 0.9 percentage points under the 2010 system, again compared to the BAU scenario. Real saving increased even more on average; by 0.9% under the 2006 system and by 3.6% under the 2010 system (see Table 8).

Table 8: Macroeconomic effects on households' quintile levels (change compared to the BAU scenario)

Quintile group	Real consumption		Real saving		Welfare gain/loss (% of household income)	
	2006 system	2010 system	2006 system	2010 system	2006 system	2010 system
1	0.7%	1.8%	1.5%	4.3%	0.5pp	1.3pp
2	0.6%	1.8%	1.3%	4.0%	0.4pp	1.2pp
3	0.6%	1.8%	1.1%	3.8%	0.4pp	1.2pp
4	0.4%	1.6%	0.8%	3.4%	0.3pp	1.0pp
5	–0.1%	1.2%	–0.1%	2.6%	–0.1pp	0.7pp

Note: The effects on real consumption and real saving are given in percentages, while the effects on welfare are presented in percentage points (pp), all compared to the BAU scenario.

Source: Own calculations.

Additionally, under the 2010 system households in all quintile groups were better off compared with the 2004 system, compared to the 2006 system, where the results for the fifth quintile group suggest a negative outcome (see Tables 3 and 8). However, with respect to the latter finding, one should be aware of the fact that we did not take into account the introduction of schedular taxation of interest, dividends and capital gains with a single 20% tax rate – a change that has positive effects primarily on disposable income of the higher-income individuals and households.

5. Concluding remarks

In this article, we studied the influence of PIT reforms in Slovenia since 2004, including the latest changes that were a consequence of the current financial and economic crisis. While the PIT reform of 2004 reduced the tax burden of low-income individuals and increased it for the wealthy, the second reform of 2007 reduced the tax burden of all taxpayers. Namely, an important part of this reform was an additional increase in the general tax allowance for low-income taxpayers in 2008 and a further one in 2009. With this solution, Slovenia adopted an approach similar to those in many EU member states that reduced the PIT burden of most vulnerable members of the society.

Regarding the Slovenian government budget, the reform represented a substantial decrease in government revenue, assessed at some 0.9% of GDP compared to the "pre-

reform" year 2004. From a macroeconomic point of view, the reduced PIT burden initially increased household disposable income, private consumption and welfare. However, in the long term these positive effects are diminished through a negative impact on the government deficit and gross fixed investments.

From the policy point of view, one should take the static nature of our results into account as they do not include any shifts in behaviour that might occur due to changes in the tax system. In addition, the results do not include part of capital income, the taxation of which has been transferred from the progressive schedule to the proportional 20% regime. However, the results do capture the bulk of income subject to tax and, since they are based on a representative sample of the population, they enable a clear insight into PIT policy trends over the last decade in Slovenia, which are in line with trends in (most) other EU member states.

References

Bayar, A. – Mohora, C. – Majcen, B. – Čok, M. – Opese, M. – Verbič, M. – Kump, N. (2006): *An analysis of complex sectoral and macro effects of the tax reform and reform of social transfers with a dynamic general equilibrium model of the Slovenian economy*. Ljubljana: Institute for Economic Research.

Bayar, A. – Majcen, B. – Verbič, M. – Mohora, C. – Opese, M. – Čok, M. – Lavrač, I. – Ogorevc, M. – Mavrič, A. (2011): *Upgrade of the recursive dynamic general equilibrium model of the Slovenian economy in the period 2007–2009*. Ljubljana: Institute for Economic Research.

Blažić, H. (1999): Potrošnja kao mjera jednakosti: primjer Hrvatske. *Financijska praksa*, 23(3): 355–374.

Chamber of Accountants, Financials and Auditors of Slovenia (2010): *Provisions on charges*. Ljubljana: Chamber of Accountants, Financials and Auditors of Slovenia.

Čok, M. (2007): Reforms of the Slovenian personal income tax system. *Economic and Business Review*, 9(4): 351–361.

Čok, M. – Domadenik, P. – Redek, T. – Verbič, M. (2009): Labour market reforms in the context of political power theory: The case of Slovenia. *Proceedings of Rijeka Faculty of Economics*, 27(1): 57–82.

Easterlin, R. A. (1974): Does Economic Growth Improve the Human Lot? In: David, P. A. – Reder, M. V. (eds.): *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*. New York: Academic Press, pp. 89–125.

EU Commission (2010): *Taxation trends in the European Union*. Brussels: Office for Official Publications of the European Communities.

Fuest, C. – Peichl, A. – Schaefer, T. (2008): Is a flat tax reform feasible in a grown-up democracy of Western Europe? A simulation study for Germany. *International Tax and Public Finance,* 15(5): 620–636.

Government Office for Growth (2005): *Guidelines for economic and social reforms for the increase of economic growth and employment*. Ljubljana: Government Office for Growth of the Republic of Slovenia.

Hall, R. E., Rabushka, A. (1995): *The flat tax*. 2nd ed., Stanford: Hoover Press.

Harrison, G. W. – Kriström, B. (1999): General equilibrium effects of increasing carbon taxes in Sweden. In: Brännlund, R. – Gren, I.-M. (eds.): *Green taxes: Economic theory and empirical evidence from Scandinavia*. Cheltenham, UK: Edward Elgar, pp. 59–108.

IBFD – International Bureau of Fiscal Documentation (2008): *European tax handbook*. Amsterdam: International Bureau of Fiscal Documentation.

IMAD – Institute of Macroeconomic Analysis and Development (2010): *Autumn forecast of economic trends 2010*. Ljubljana: Institute of Macroeconomic Analysis and Development of the Republic of Slovenia.

Ivanova, A. – Keen, M. – Klemm, A. (2005): The Russian 'flat tax' reform. *Economic Policy*, 20(43): 397–444.

Klun, M. (2009): Pre-filled income tax returns: Reducing compliance costs for personal income taxpayers in Slovenia. *Financial Theory and Practice*, 33(2): 219–233.

Majcen, B. – Verbič, M. – Knežević, S. (2005): The effects of foreign trade liberalisation and financial flows between Slovenia and the EU after accession. *Post-Communist Economies*, 17(2): 251–267.

Majcen, B. – Čok, M. – Verbič, M. – Kump, N. (2007): *Development and usage of the microsimulation model*. Ljubljana: Institute for Economic Research.

Majcen, B. – Verbič, M. – Bayar, A. – Čok, M. (2009): The income tax reform in Slovenia: Should the flat tax have prevailed? *Eastern European Economics*, 47(5): 5–24.

Moore, D. (2005): *Slovakia's 2004 tax and welfare reforms*. IMF Working Paper 133, Washington, DC: International Monetary Fund.

OECD – Organisation for Economic Co-operation and Development (2006): *Reforming Personal Income Tax*. Policy Brief March 2006, Paris: Organisation for Economic Co-operation and Development.

Slabe-Erker, R. – Lavrač, V. (2011): The application of multiple criteria assessment of production sectors on increasing quality of life. *Društvena istraživanja*, 20(2): 337–357.

Sorenson, P. B. (2006): Dual income tax: Why and how? *FinanzArchiv*, 61(4): 559–586.

Verbič, M. (2007): Varying the parameters of the Slovenian pension system: An analysis with an overlapping-generations general equilibrium model. *Post-Communist Economies*, 19(4): 449–470.

Verbič, M. – Majcen, B. – Ivanova, O. – Čok, M. (2011): R&D and economic growth in Slovenia: A dynamic general equilibrium approach with endogenous growth. *Panoeconomicus*, 58(1): 67–89.

Zee, H. H. (2005): *Personal income tax reform: Concepts, issues, and comparative country developments*. IMF Working Paper 87, Washington, DC: International Monetary Fund.

PUBLISHED PAPERS IN THE SERIES

1. Lado Rupnik: **THE NEW TAX SYSTEM IN SLOVENIA**, IER, Ljubljana, 1993, 16 p.
2. Franc Kuzmin: **SOME DILEMMAS IN THE THEORY OF COST-PUSH INFLATION – SLOVENIAN CASE**, IER, Ljubljana, 1993, 17 p.
3. Miroslav Glas: **SLOVENE SMALL BUSINESS**, IER, Ljubljana, 1993, 26 p.
4. Tine Stanovnik: **SOCIAL SECURITY IN SLOVENIA**, IER, Ljubljana, 1993, 14 p.
5. Peter Stanovnik, Ivo Banič: **THE ROLE OF FDIs IN SLOVENIA'S ECONOMIC DEVELOPMENT**, IER, Ljubljana, 1993, 13 p.
6. Vladimir Lavrač: **THE ADJUSTMENT OF THE SLOVENIAN MONETARY SYSTEM TO THE EUROPEAN MONETARY INTEGRATION PROCESS**, IER, Ljubljana, 1993, 14 p.
7. Andrej Kumar: **EUROPEAN INTEGRATION – REALITY OR A DREAM?**, IER, Ljubljana, 1994, 20 p.
8. Frančiška Logar, Danica Zorko: **UPSWING OF TOURISM IN SLOVENIA**, IER, Ljubljana, 1994, 23 p.
9. Milena Bevc: **EDUCATIONAL CAPITAL IN SLOVENIA IN THE EARLY 90s**, IER, Ljubljana, 1994, 28 p.
10. Franc Kuzmin: **THE MAIN CHARACTERISTICS OF SLOVENE LABOUR MARKET DURING TRANSITION PERIOD – THE PROBLEM OF UNEMPLOYMENT**, IER, Ljubljana, 1994, 9 p.
11. Emil Erjavec, Miroslav Rednak, Jernej Turk: **THE MAIN ISSUES INVOLVED IN THE ECONOMIC TRANSITION OF SLOVENE AGRICULTURE**, IER, Ljubljana, 1994, 16 p.
12. Stanka Kukar: **THE HIDDEN ECONOMY AND THE LABOUR MARKET IN SLOVENIA IN THE PERIOD OF TRANSITION**, IER, Ljubljana, 1994, 16 p.
13. Milan Lapornik, Peter Stanovnik: **INDUSTRIAL AND ENTERPRISE RESTRUCTURING IN SLOVENIA**, IER, Ljubljana, 1995, 24 p.
14. Vladimir Lavrač: **COMMON CAPITAL MARKET OF CEFTA COUNTRIES – A POSSIBLE WAY OF DEEPENING CEFTA**, IER, Ljubljana, 1997, 15 p.
15. Valentina Prevolnik: **HEALTH CARE REFORM IN SLOVENIA**, IER, Ljubljana, 1997, 17 p.
16. Tine Stanovnik: **THE TAX SYSTEM AND TAX REFORM IN SLOVENIA**, IER, Ljubljana, 1997, 16 p.

WORKING PAPERS

1. Vladimir Lavrač: **EXCHANGE RATE OF THE SLOVENIAN TOLAR IN THE CONTEXT OF SLOVENIA'S INCLUSION IN THE EU AND IN THE EMU**, IER, Ljubljana, 1999, 18 p.

2. Tine Stanovnik, Nada Stropnik: **ECONOMIC WELL-BEING OF THE ELDERLY AND PENSION REFORM IN SLOVENIA**, IER, Ljubljana, 1999, 34 p.

3. Marjan Simončič, Franc Kuzmin: **MACROECONOMIC EFFECTS OF THE PENSION REFORM IN SLOVENIA**, IER, Ljubljana, 1999, 26 p.

4. Jože Pavlič Damijan: **EFFICIENCY OF FREE TRADE AGREEMENTS: DID THE REDUCTION OF TRADE BARRIERS HAVE ANY EFFECT ON INCREASING TRADE BETWEEN SLOVENIA AND THE CEFTA COUNTRIES?**, IER, Ljubljana, 1999, 18 p.

5. Boris Majcen: **SECTOR PERFORMANCE IN THE SLOVENE ECONOMY: WINNERS AND LOSERS OF EU INTEGRATION**, IER, Ljubljana, 2000, 37 p. + appendix

6. Peter Stanovnik, Art Kovačič: **SOME QUESTIONS OF THE INTERNATIONAL COMPETITIVENESS OF NATIONAL ECONOMIES WITH EMPHASIS ON SLOVENIA**, IER, Ljubljana, 2000, 24 p.

7. Janez Bešter: **TAKEOVER THEORIES AND PREDICTION MODELS – THE CASE OF SLOVENIAN PRIVATISED COMPANIES**, IER, Ljubljana, 2000, 16 p.

8. Jeffrey David Turk, Hedvika Usenik: **BUYER SUPPLIER RELATIONSHIPS IN THE ENGINEERING INDUSTRIES IN SLOVENIA AND COMPARISONS WITH HUNGARY**, IER, Ljubljana, 2000, 22 p.

9. Jože Pavlič Damijan, Boris Majcen: **TRADE REORIENTATION, FIRM PERFORMANCE AND RESTRUCTURING OF SLOVENIAN MANUFACTURING SECTOR**, IER, Ljubljana, 2001, 16 p.

10. Jože Pavlič Damijan, Boris Majcen, Matija Rojec, Mark Knell: **THE ROLE OF FDI, R&D ACCUMULATION AND TRADE IN TRANSFERRING TECHNOLOGY TO TRANSITION COUNTRIES: EVIDENCE FROM FIRM PANEL DATA FOR EIGHT TRANSITION COUNTRIES**, IER, Ljubljana, 2001, 26 p.

11. Matija Rojec, Jože Pavlič Damijan, Boris Majcen: **EXPORT PROPENSITY OF ESTONIAN AND SLOVENIAN MANUFACTURING FIRMS: DOES FOREIGN OWNERSHIP MATTER?**, IER, Ljubljana 2001, 22 p.

12. Nevenka Hrovatin, Sonja Uršič: **THE DETERMINANTS OF FIRM PERFORMANCE AFTER OWNERSHIP TRANSFORMATION IN SLOVENIA**, IER, Ljubljana, 2001, 21 p.

13. Vladimir Lavrač, Tina Žumer: **EXCHANGE RATE ARRANGEMENTS OF ACCESSION COUNTRIES IN THEIR RUN-UP TO EMU: NOMINAL CONVERGENCE, REAL CONVERGENCE AND OPTIMUM CURRENCY AREA CRITERIA**, IER, Ljubljana, 2002, 35 p.

14. Vladimir Lavrač: **MONETARY, FISCAL AND EXCHANGE RATE POLICIES FROM THE VIEWPOINT OF THE ENLARGEMENT OF THE EUROZONE: SURVEY OF THE LITERATURE**, IER, Ljubljana, 2002, 21 p.

15. Jože Pavlič Damijan, Črt Kostevc: **THE EMERGING ECONOMIC GEOGRAPHY IN SLOVENIA**, IER, Ljubljana 2002, 30 p.

16. Boris Majcen: **THE EFFECTS OF FOREIGN TRADE LIBERALIZATION AND FINANCIAL FLOWS BETWEEN SLOVENIA AND EU AFTER THE ACCESSION**, IER, Ljubljana 2002, 33 p.

17. Jože Pavlič Damijan, Mark Knell, Boris Majcen, Matija Rojec: **TECHNOLOGY TRANSFER THROUGH FDI IN TOP-10 TRANSITION COUNTRIES: HOW IMPORTANT ARE DIRECT EFFECTS, HORIZONTAL AND VERTICAL SPILLOVERS?**, IER, Ljubljana, 2003, 23 p + appendix

18. Jože Pavlič Damijan, Črt Kostevc: **THE IMPACT OF EUROPEAN INTEGRATION ON ADJUSTMENT PATTERN OF REGIONAL WAGES IN TRANSITION COUNTRIES: TESTING COMPETITIVE ECONOMIC GEOGRAPHY MODELS**, IER, Ljubljana, 2003, 27 p.

19. Vladimir Lavrač: **ERM 2 STRATEGY FOR ACCESSION COUNTRIES,** IER, Ljubljana, 2003, 21 p.

20. Renata Slabe Erker: **ENVIRONMENTAL SUSTAINABILITY IN SLOVENIA,** IER, Ljubljana, 2003, 25 p.

21. Tine Stanovnik, Miroslav Verbič: **PERCEPTION OF INCOME SATISFACTION AND SATISFACTION WITH THE QUALITY OF LIVING; AN ANALYSIS OF SLOVENIAN HOUSEHOLDS,** IER, Ljubljana, 2003, 18 p.

22. Vladimir Lavrač: **FULFILLMENT OF MAASTRICHT CONVERGENCE CRITERIA FOR SLOVENIA AND OTHER ACCEDING COUNTRIES**. IER, Ljubljana, 2004, 15 p.

23. Janez Bešter: **ANATOMY OF A POST-MERGER INTEGRATION: THE CASE OF SLOVENIA.** IER, Ljubljana, 2004, 21 p.

24. Miroslav Verbič: **ECONOMETRIC ESTIMATION OF PARAMETERS OF PRESERVATION OF PERISHABLE GOODS IN COLD LOGISTIC CHAINS.** IER, Ljubljana, 2004, 33 p.

25. Egbert L. W. Jongen: **AN ANALYSIS OF PAST AND FUTURE GDP GROWTH IN SLOVENIA.** IER, Ljubljana, 2004, 42 p.

26. Egbert L. W. Jongen: **FUTURE GDP GROWTH IN SLOVENIA: LOOKING FOR ROOM FOR IMPROVEMENT.** IER, Ljubljana, 2004, 37 p.

27. Peter Stanovnik, Marko Kos: **TECHNOLOGY FORESIGHT IN SLOVENIA.** IER, Ljubljana, 2005, 22 p.

28. Art Kovačič: **COMPETITIVENESS AS A SOURCE OF DEVELOPMENT.** IER, Ljubljana, 2005, 25 p.

29. Miroslav Verbič, Boris Majcen, Renger van Nieuwkoop: **SUSTAINABILITY OF THE SLOVENIAN PENSION SYSTEM: An ayalysis with an overlapping-generations General Equilibrium Model.** IER, Ljubljana, 2005. 24 p.

30. Miroslav Verbič: **AN ANALYSIS OF THE SLOVENIAN ECONOMY WITH A QUARTERLY ECONOMETRIC MODEL.** IER, Ljubljana, 2006. 26 p.

31. Vladimir Lavrač, Boris Majcen: **ECONOMIC ISSUES OF SLOVENIA'S ACCESSION TO THE EU.** IER, Ljubljana, 2006. 37 p.

32. Miroslav Verbič, Renata Slabe Erker: **ECONOMIC VALUATION OF ENVIRONMENTAL VALUES OF THE LANDSCAPE DEVELOPMENT AND PROTECTION AREA OF VOLČJI POTOK**. IER, Ljubljana, 2007. 28.p.

33. Boris Majcen, Miroslav Verbič. **MODELLING THE PENSION SYSTEM IN AN OVERLAPING-GENERATIONS GENERAL EQUILIBRIUM FRAMEWORK.** IER, Ljubljana, 2007. 37 p.

34. *Boris Majcen, Miroslav Verbič (corresponding author), Ali Bayar and Mitja Čok.* **THE INCOME TAX REFORM IN SLOVENIA: SHOULD THE FLAT TAX HAVE PREVAILED?** IER, Ljubljana, 2007. 29 p.

35. Miroslav Verbič. **VARYING THE PARAMETERS OF THE SLOVENIAN PENSION SYSTEM: AN ANALYSIS WITH AN OVERLAPPING-GENERATIONS GENERAL EQUILIBRIUM MODEL.** IER, Ljubljana, 2007. 28 p.

36. Miroslav Verbič, **SUPPLEMENTARY PENSION INSURANCE IN SLOVENIA: AN ANALYSIS WITH AN OVERLAPPING-GENERATIONS GENERAL EQUILIBRIUM MODEL.** IER, Ljubljana, 2007. 32 p.

37. Matjaž Črnigoj: **RISK AVERSE INSIDERS WITH SPECIFIC OBJECTIVE FUNCTION AND CAPITAL STRUCTURE.** IER, Ljubljana, 2007. 13 p.

38. Renata Slabe Erker, Janez Filiplič: **MONITORING SUSTAINABILITY FOR SLOVENIA'S REGIONS.** IER, Ljubljana, 2007, 22 p.

39. Jože P. Damijan, Črt Kostevc: **TRADE LIBERALIZATION AND ECONOMIC GEOGRAPHY IN TRANSITION COUNTRIES: CAN FDI EXPLAIN THE ADJUSTMENT PATTERN OF REGINAL WAGES?** IER, Ljubljana, 2008, 40 p.

40. Jože P. Damijan, Matija Rojec, Boris Majcen, Mark Knell: **IMPACT OF FORM HETEROGENEITY ON DIRECT AND SPILLOVER EFFECTS OF FDI: MICRO EVIDENCE FROM TEN TRANSITION COUNTRIES.** IER, Ljubljana, 2008, 25 p.

41. Jože P. Damijan, Črt Kostevc, Matija Rojec. **INNOVATION AND FIRMS' PRODUCTIVITY GROWTH IN SLOVENIA: SENSIVITY OF RESULTS TO SECTORAL HETEROGENEITY AND TO ESTIMATION METHOD.** IER, Ljubljana, 2008, 37 p.

42. Jože P. Damijan, Jose de Sousa, Olivier Lamotte. **DOES INTERNATIONAL OPENNESS AFFECT PRODUCTIVITY OF LOCAL FORMS? EVIDENCE FROM SOUTHERN EUROPE.** IER, Ljubljana, 2008, 29 p.

43. Jože P. Damijan, Črt Kostevc, Sašo Polanec. **FROM INNOVATION TO EXPORTING OR VICE VERSA?** IER, Ljubljana, 2008, 28 p.

44. Milena Bevc. **DEVELOPMENT OF THE NATIONAL SYSTEM OF INTERNATIONALLY COMPARABLE INDICATORS OF FORMAL EDUCATION – CASE STUDY FOR A NON-OECD COUNTRY.** IER, Ljubljana, 2009, 27 p.

45. Miroslav Verbič, Boris Majcen, Mitja Čok. **EDUCATION AND ECONOMIC GROWTH IN SLOVENIA: A DYNAMIC GENERAL EQUILIBRIUM APPROACH WITH ENDOGENOUS GROWTH.** IER, Ljubljana, 2009, 21 p.

46. Miroslav Verbič, Boris Majcen, Mitja Čok. **R&D AND ECONOMIC GROWTH IN SLOVENIA: A DYNAMIC GENERAL EQUILIBRIUM APPROACH WITH ENDOGENOUS GROWTH.** IER, Ljubljana, 2009, 21 p.

47. Valentina Prevolnik Rupel, Marko Ogorevc. **LONG TERM CARE SYSTEM IN SLOVENIA.** IER, Ljubljana, 2010, 34 p.

48. Jože P. Damijan, Črt Kostevc. **LEARNING FROM TRADE THROUGH INNOVATION: CAUSAL LINK BETWEEN IMPORTS, EXPORTS AND INNOVATION IN SPANISH MICRODATA.** IER, Ljubljana, 2010, 30 p.

49. Peter Stanovnik, Nika Murovec. **TERRITORIAL ICT KNOWLEDGE DYNAMICS IN SLOVENIA.** IER; Ljubljana, 2010, 35 p.

50. Nika Murovec, Peter Stanovnik. **THE KNOWLEDGE DYNAMICS OF ICT IN SLOVENIA – Case study.** IER; Ljubljana, 2010, 59 p.

51. Vladimir Lavrač. **INCLUSION OF SLOVENIA IN THE EURO AREA AND PERSPECTIVES OF ENLARGEMENT AFTER THE GLOBAL FINANCIAL CRISIS.** IER, Ljubljana, 2010. 15 p.

52. Sašo Polanec, Aleš Ahčan, Miroslav Verbič. **RETIREMENT DECISIONS IN TRANSITION: MICROECONOMETRIC EVIDENCE FROM SLOVENIA.** IER, Ljubljana, 2010. 24 p.

53. Tjaša Logaj, Sašo Polanec. **COLLEGE MAJOR CHOICE AND ABILITY: WHY IS GENERAL ABILITY NOT ENOUGH?** IER, Ljubljana, 2011. 41 p.

54. Marko Ogorevc, Sonja Šlander. **SHAREHOLDERS AND WAGE DETERMINATION.** IER, Ljubljana, 2011. 13 p.

55. Boris Majcen, Miroslav Verbič, Sašo Polance. **INNOVATIVENESS AND INTANGIBLES: THE CASE OF SLOVENIA.** IER, Ljubljana, 2011. 31 p.

56. Valentina Prevolnik Rupel, Marko Ogorevc. **QUALITY COUNTRY REPORT FOR SLOVENIA.** IER, Ljubljana, 2011. 13 p.

OCCASIONAL PAPERS

1. Helen O'Neill: **IRELAND'S ECONOMIC TRANSITION: THE ROLE OF EU REGIONAL FUNDS – AND OTHER FACTORS**, IER, Ljubljana, 2000, 16 p.
2. Sanja Maleković: **CROATIAN EXPERIENCE IN REGIONAL POLICY**, IER, Ljubljana 2000, 13 p.
3. Peter Backé, Cezary Wójcik: **ALTERNATIVE OPTIONS FOR THE MONETARY INTEGRATION OF CENTRAL AND EASTERN EUROPEAN EU ACCESSION COUNTRIES**, IER, Ljubljana, 2002, 17 p.
4. Andreas Freytag: **CENTAL BANK INDEPENDENCE IN CENTRAL AND EASTERN EUROPE ON THE EVE OF EU-ENLARGEMENT,** IER, Ljubljana, 2003, 29 p.
5. Jasmina Osmanković: **REGIONALIZATION AND REGIONAL DEVELOPMENT IN BOSNIA AND HERZEGOVINA IN THE POST-WAR PERIOD**, IER, Ljubljana, 2004, 16 p.
6. Carlos Vieira, Isabel Vieira, Sofia Costa: **MONETARY AND FISCAL POLICIES IN EMU: SOME RELEVANT ISSUES,** IER, Ljubljana, 2004, 36 p.
7. Bojan Radej. **THE FOUR CAPITAL MODEL, MATRIX AND ACCOUNTS.** IER, Ljubljana, 2007. 25 p.
8. Bojan Radej. **APPLES AND ORANGES IN PUBLIC POLICIES. MESO-MATRICAL SYNTESIS OF THE INCOMMENSURABLE.** IER, Ljubljana, 2008. 23 p.