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**Effective tax rate measures (Survey of
methods, computations and comparison to
statutory tax rates in the Czech Republic)**

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Prohlášení

Prohlašuji, že jsem rigorózní práci vypracovala samostatně a použila jsem pouze uvedené prameny a literaturu.

Declaration

Hereby I declare that I compiled this PhDr. thesis independently, using only the listed literature and resources.

Prague, 7 February 2010

Jana Kábrtová

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Abstract:

Structure of tax systems of particular countries across the world features with great complexity and largely differ from one country to another. Statutory tax rates are not a good measure of the tax burden imposed by the tax nor are they a good tool for comparing of different tax systems or analysing the effects of changes in tax laws. To gather all these information we need to construct synthetic indicators as effective tax rates that are the main subject of this thesis. The effective tax rates can be calculated using several different methods. The first part of this thesis describes and summarizes these methods of computation of effective tax rates and points its strengths and weaknesses. The second part of the thesis then bases on my own effective tax rate's computations and compares effective tax rates in the Czech Republic with effective tax rates in Europe. The aim of this part is to find out whether the final tax burden in the Czech Republic is higher or lower than in EU-15 countries. Moreover I compare the effective tax rates with the statutory ones and describe the features of Czech tax system. The last part of the thesis is talking about the proposed tax reform with focus on the impact of this reform to effective tax rates.

Abstrakt:

Struktura daňových systémů jednotlivých zemí světa je značně složitá a v mnohém se liší. Jelikož statutární sazby daně nejsou dobrými nástroji pro měření daňového zatížení nebo pro porovnávání rozdílných daňových systému jednotlivých zemí, abychom získali všechny tyto potřebné informace, musíme vypočítat vlastní, „umělou“ sazbu. Tato práce se zabývá efektivními daňovými sazbami, syntetickými indikátory, které se dají vypočítat několika různými metodami a jsou dostatečnými nástroji pro měření skutečného daňového zatížení. Součástí práce je jednak shrnutí a popis jednotlivých metod výpočtu s důrazem na jejich přednosti a zápory, jednak samotný výpočet efektivních daňových sazeb pro Českou republiku. Získané efektivní daňové sazby jsou porovnávány s efektivními daňovými sazbami v jiných evropských zemích a v USA s cílem zjistit, zda je daňové zatížení v České republice větší či menší než v zemích evropské patnáctky. Vypočtené efektivní sazby daně jsou dále porovnávány i se statutárními sazbami. Poslední část práce se pak zabývá připravovanou daňovou reformu a jejím vlivem na efektivní daňové sazby.

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1. Introduction

The Structures of tax systems of countries across the world are extremely complex and largely differ from one country to the next. Each tax system disposes of the visible tax rate. The statutory tax rate is well known but is not a good measure of the tax burden imposed by the tax nor it is an effective tool for comparison of the different tax systems or analysis of the effects of changes in tax laws.

But as *anything essential is invisible to the eyes*, to have an indicator which can give us answers to all of the above-mentioned issues, we have to construct one. The effective tax rate is then nothing but a constructed synthetic tax indicator that takes into account country-specific characteristics and that is therefore a valuable analytical tool for the analysis of the structure of different tax systems.

However, there is not just one method for calculation of the effective tax rates. The purpose of the theoretical part of this thesis is therefore to describe and compare different approaches to the effective tax rates. In the practical part I will then choose the most suitable approach and calculate the effective tax rates for the Czech Republic, EU-15 states, several other European states and the USA. Derived results will allow me to compare Czech tax systems with tax systems of other European countries and with that of the USA. Moreover it will enable me to analyse the structure of the Czech tax system, to compare statutory and effective tax rates and to assess the impact of the proposed tax reforms.

In chapter 2 I will start with the definition of the effective tax rate, describe a goal of this indicator and compare it with other tax rates. Chapter 3 will discuss the connection of effective tax rates to corporations. I will mention two different reporting systems that give the reason for the choosing of effective tax rates among other available indicators.

Chapter 4 will deal with different methods of computation of effective tax rates, compare the characteristics of the theoretical concepts and state their advantages and disadvantages. Different approaches will be classified into three categories according to the data used for the computations. These categories are as follows: micro forward looking-studies; micro backward-looking studies; and macro backward-looking studies. In chapter 5, I will follow

these approaches to effective tax rates more closely. I will describe particular approaches and discuss their strengths and weaknesses.

The primary focus in chapter 6 will be to affirm or deny the hypothesis that the tax burden in the Czech Republic is lower than the European average. I will compute non-wage labour costs' effective tax rates, personal income effective tax rates, effective tax rates on labour, effective tax rates on consumption, effective labour tax wedges and effective tax rates on capital income. I will compare these indicators computed for the Czech Republic with the effective tax rates in European countries, in the so called EU-15 and the USA. The cross-country comparison will not be my only focus in this chapter. I will also compare effective tax rates with the statutory tax rates in the Czech Republic and assess the impacts of proposed tax reforms. Chapter 7 concludes.

2. The definition of effective tax rate

2. 1. Effective tax rate – the definition

An effective tax rate (or simply ETR) is the ratio of taxes paid over the income. Tax can be defined as the amount of money that an individual or a legal entity pays to the state following the valid legislation. In other words it is charge against a citizen's person or property or activity for the support of government. Taxes are divided into direct and indirect. Direct taxes (i.e. personal income taxes and corporate income taxes, including social security contributions) are paid directly by the person or organization on whom they are levied. Indirect taxes (i.e. VAT, sales tax, excise tax, stamp duties and expenditure tax) are taxes levied on goods and services.

Income is the financial gain (earned or unearned) accruing over a given period of time. Income can have several schemes. It refers to wages, salaries, profits, interest payments, rents, earnings from shares and dividends, prizes. Slightly different meaning has income of individuals and of legal entities. The latter can also be used as a measure of profitability of a company and considerable discussion occurs when we distinguished between taxable income (or tax base) and financial accounting income of the company. For the explanation see chapter 3.

Income is de facto taxed twice. First by income taxes and then when the income is used for consumption by indirect taxes.

Effective tax rate describes the real taxation. It shows the percentage of income that is deducted in favor of the government. The exact definition of ETR can differ. According to Martinez-Mongay (2000:8) or The International Comparison of Australia's Taxes (2006:35) the effective tax rate is the amount of tax that an individual or a firm pays, the total tax obligation, including all relevant taxes and credits, divided by total income or consumption. It is the average rate of taxation for every dollar of income or consumption.

The effective tax rates are not specified in the tax law as for example the statutory tax rates. There are several different methods to measure the effective tax rates. Those methods are described in chapter 4 and examples of different approaches are given by chapter 5. The validity and predicative ability of different methods depends on the data used for the

calculation of the ETRs and the method itself. According to Janssen (2000) for example, there is a difference between tax expenses and actual taxes paid. Most approaches to effective tax rates' measures use an estimate of the actual taxes paid (tax expenses) instead of the actual tax payments itself. The difference between the estimate of the actual taxes and actual taxes themselves is obvious. In the case of the actual tax payments we are working with the real data and our results should be unbiased. On the other hand in the case of the estimate of the actual taxes first of all we need to find or develop a mechanism for computation of this estimate using different data (that are not always available) and second the result is almost always biased.

The question is why to use the estimate of actual taxes instead of the actual taxes when the result should be better and easier to achieve? The thing is simply that the data of actual tax payments and taxable incomes are not always available or can be proprietary information. In the past it was really a problem to get the information on actual tax payments. Up till the change in financial accounting standards gave more information on the actual tax payment and taxable income became available. In my opinion it is more appropriate to use an effective tax rate measure based on actual taxes paid than on tax expenses but in certain situations the estimate of actual tax payment can give us comparable results. For example if we simply need to compare the tax rates of some countries, we have comparable data and estimates computed on the basis of the same ratios.

2. 2. Why do we care about effective tax rate?

Effective tax rates give us the information on the real tax burden, on the actual percentage of income that is lost in the form of tax. Effective tax rates take into account not only the statutory tax rate, but also other aspects of the tax system which determine the amount of tax paid, such as tax-deductible and non tax-deductible items, allowances or tax reliefs. What is this good for? Who could use this information? I will give some examples:

- 1) An individual that considers moving to a foreign country. He has a choice of similar working places and all he wants to know is where he is going to pay less on taxes;
- 2) An individual who wants to set up a firm in country with the lowest taxation, or the firm wants to set up its branch;
- 3) A government that is preparing a tax reform and tries to predict its consequences;
- 4) Researchers that want to compare the tax systems in different countries; etc.

Tax systems are not simple. If we could just take income and tax it with the statutory tax rate, we would not need to bother with computation of the effective tax rates. If the tax systems would be the same in each country we also would not need to. However, the complexity of tax systems across the world makes a simple comparison of tax systems impossible. Unless we use the effective tax rates. As explained in the next subchapter no other tax rate has such predicative ability about the real tax burden as effective tax rate.

Effective tax rates are important not only for researchers but also for the state and its legislators as well as for investors or special sort of people.

There is not one single goal for all effective tax rates as there are more classes of them and methods of measures (as described later in chapter 4). It always depends on the researcher and the goal of his/her work. However, there is a goal that gets more than just researchers' interest. The analysis of the impacts of tax reforms on the taxes on labour, capital and consumption is the key policy concern in the European Community.

2. 3. Basic differences and definitions of tax rates

In this subchapter I will compare the effective tax rates with other kinds of tax rates. With the comparison I will prove that the effective tax rate is best for the measure of total tax burden. No other tax rate has such predicative ability.

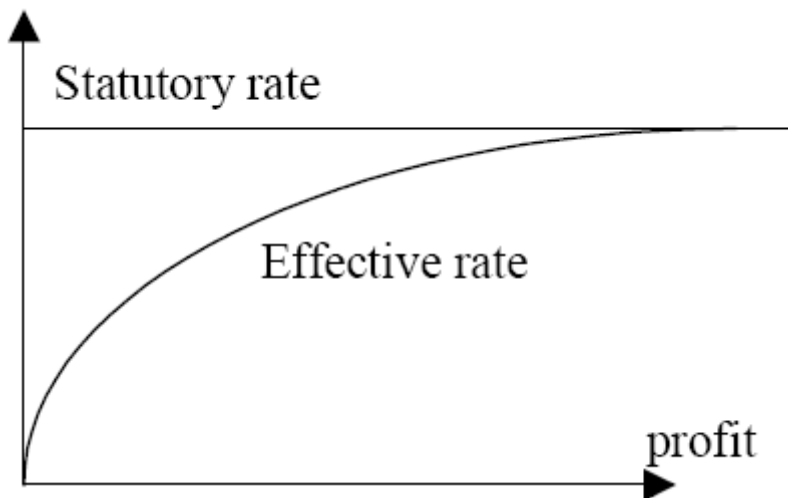
2. 3. 1. ETR versus statutory tax rate (STR)

Statutory tax rate is the legally imposed rate, usually is defined as a number (percentage) and is visible to everyone. It is interesting to point the differences between the statutory and effective tax rate. Statutory tax rate is the most basic measure of taxes but it is not a sufficient tool for measuring the tax burden. Why? The statutory tax rate is the ratio of the tax liability before utilising the tax relief over the tax base. The problem is that the rules for making this tax base are given by the legislation imposed in different countries and differ across the world. For corporate income taxes for example there is a number of approaches studying the differences between the taxable income (or the tax base) and the financial accounting income that is reported to the shareholders and investors. The taxable income is obtained from financial accounting income after adjusting tax-deductible or non-taxable and

adding non tax-deductible and taxable items. Similar process is used for getting the tax base for the personal income tax.

As already mentioned if the tax systems would be the same in all countries and the difference between the financial accounting and taxable income would be the same we would not need effective tax rates. The difference between the taxable and financial accounting income is described in chapter 3.

The possible relationship of effective tax rate and statutory tax rate is given by the graph published by Nicodeme (2001: 17). The graph shows the statutory tax rate that is the same for all levels of profit. When the profit is zero, the effective tax rate is zero. For infinite profit the effective tax rate is equal to the statutory tax rate.



Graph 1: Effective and statutory tax rates, Source: Nicodeme (2001: 17)

2. 3. 2. ETR versus average tax rate (ATR)

Average tax rate is the ratio of taxes paid to taxable income. Taxes in this case refer to the final tax liability after utilising of all possible deductions, allowances and tax reliefs. If the taxpayer could not claim any allowances his average tax rate would be similar to the statutory tax rate. Average tax rate can be calculated as:

$$a = \frac{t}{i}$$

Where a is the average tax rate, t is the tax liability and i is the taxable income.

Effective tax rate is different from the average tax rate because it usually uses other than taxable measures of income (i.e. “economic income”, financial accounting income before taxes etc.). The effective average tax rate was introduced by Devereux and Griffith (1998) for cases in which investors face a choice between mutually exclusive projects.¹ Average tax rate uses as well as the statutory tax rate the taxable income. The discussion why the average tax rate is not a good measure of tax burden would be the same as in the previous example.

2. 3. 3. ETR versus marginal tax rate (MTR)

Marginal tax rate applies to the taxpayer’s last dollar of taxable income. MTR is widely used for measuring the change in one’s tax obligation when there is a change in income. Marginal tax rate can be calculated as:

$$m = \frac{\Delta t}{\Delta i}$$

Where m is the marginal tax rate, t is the tax liability and i is the taxable income.

Marginal effective tax rates and effective marginal tax rate used by King and Fullerton (1984) taxed the capital income. The effective marginal tax rate (EMTR) may differ from marginal tax rate because tax payer may be in an income range in which he is a subject to a phase-out of some exclusion or deduction. Both the marginal tax rate and effective marginal tax rate are commonly used to assess the economic effects of the tax system. For example the effective marginal tax rate (EMTR) on capital income is, according to Fullerton (1999) and Devereux, Griffith and Klemm (2002), the expected pre-tax rate of return minus the expected after-tax (or post-tax) rate of return on a new marginal investment, divided by the pre-tax rate of return. The higher the EMTR, the greater the required pre-tax rate of return, and hence the lower is the incentive to invest.

It is necessary to say that some tax rates are relevant in different situations. Marginal tax rates on marginal decisions, effective tax rates on re-allocation new investment and for measuring the tax burden.

¹ This approach summarises the distribution of tax rates for an investment project over a range of profitability. It is important to mention that in this approach “average” doesn’t mean average taxation paid by investor but it refers to investment in the sense of “average taxation borne by an investment for different level of profitability.” (Nicodeme, 2001:8)

2. 3. 4. ETR versus implicit tax rate (ITR)

Implicit tax rate is in some literature a synonym for effective tax rate. For example Devereux, Griffith and Klemm (2002) used this term to refer to the tax rates estimated from data on the tax revenues while the “effective tax rate” introduced in their approach referred only to measures based on tax legislation. Also Martinez-Mongay (2000) refers to “implicit” tax rate as a synonym of “effective” tax rate. In his approach these synthetic tax indicators are calculated as the ratios between the tax revenues from particular taxes and the corresponding tax bases obtained from national accounts. Nicodeme (2001:11) distinguishes effective and implicit tax rate in the sense that backward-looking studies compute effective tax rates (observed; actual) while forward-looking studies compute implicit tax rates (using theoretical features of tax systems, not real-life data).

3. Effective tax rates and corporations

The corporate effective tax rates (CETRs) have special standing among other kinds of effective tax rates. Therefore I decided to devote them special chapter.

Great part of the effective tax rates' approaches concern on taxes paid by corporations. For the so-called micro studies that are using microeconomic data (for detailed explanation see chapter 4) corporate effective tax rate or effective tax rate on capital income is the main subject of study. Indeed, effective tax rates and corporate income taxes have special relationship. Why?

- 1) The systems of creating the tax base (or taxable income) for corporate income taxes is more complex than for other kinds of taxes. For getting the idea of the real taxation it is more necessary to use effective tax rates than in the case of other taxes.
- 2) Not only the tax burden on corporations can be measured by effective tax rates. The usage of effective tax rate is in this case much more wide. Callihan (1994) described three main reasons for computing of the level of corporate effective tax rates:
 - to measure the impact of taxes on incentives for investment (this is addressed by marginal effective tax rate, that is the tax rate on an additional dollar of investment return earned);
 - as an indication of corporate tax burden;
 - as measurement of corporate tax preferences (using not estimates but actual data).
- 3) Because the data on corporations are usually more available than other data it is possible to use higher spectrum of methods for computation of effective tax rates. While for other kinds of taxes usually only macro data are applicable, corporate income effective tax rates can be computed from micro data as well.

According to Janssen (2000) and Scholes and Wolfson (1992) the corporate effective tax rates are often defined as (current or total) tax expense over financial accounting income before taxes, where the (current or total) tax expense is an estimate of the actual taxes paid

or (if we focus on the particular effective tax rate of corporations) an estimate of the company's real tax burden taking into account permanent and temporary differences between financial accounting income and taxable income that are evident in the countries using so-called two-book system. In this case financial accounting income refers to the income that is used as a measure of financial profitability of the firm. Financial accounting income is reported on the market. On the other hand taxable income is used for the purpose of computation of the corporate income tax liability. Because this difference is one of the reasons why we need to compute effective tax rate I am going to tell more about this topic in the next sub-chapter.

Omer, et al. (1991) defined CETR as a tax expense measure (either including or excluding deferred taxes) divided by a financial accounting income before tax paid, where the exact definition was dependent upon the researcher's interest as well as the source of information used to provide estimates of tax and income.

Special place among corporate effective tax rates' approaches has the method of King and Fullerton (1984). This method does not compute the corporate effective tax rate but instead the effective tax rate on capital income. These two effective tax rates may seem similar but still they are slightly different. According to Nicodeme (2001: 6) "corporate effective tax rates take into account only taxes paid by companies: corporate income taxes, wealth taxes or taxes on property. Taxes on capital are based on a factor of production approach, and include a broader range of taxes such as withholding taxes paid by individuals on dividends, taxes paid by self-employed, or taxes on capital gains."

The main purpose of this chapter is to give the explanation of the biggest issue of corporate effective tax rates: the difference between the financial accounting and taxable income. As I already mentioned, the financial accounting income is used as the measure of the firm's profitability while the taxable income is used for the purpose of taxation. According to how these different incomes are reported and according to how they are constructed we distinguish two different reporting systems: one-book system and two-book system. The attributes of those two different systems are crucial in the analysis of the difference between financial accounting income (or book income) and taxable income (or tax income) and of the impact of this difference. However, I will explain on the example of the Czech Republic that these two systems are not that different as one could think.

3. 1. One - book system:

In the so-called one-book system (or uniform reporting) that is typical for Germany (see Figure 1) and most of European Countries e.g. in Belgium, Denmark, France, Italy, Norway, Spain, Sweden, Switzerland or Japan the taxable income is derived from financial accounting income which means that single measure of income is both reported to shareholders and used, with relatively few adjustments, to determine income-tax liability. One-book countries use their tax books as the basis for financial reporting. Both financial accounting income and taxable income are computed from bookkeeping. Firms in one-book countries may be reluctant to claim certain tax allowances and investment incentives if reductions in their taxable incomes can be misinterpreted by financial market participants as signals of lower profitability. “Firms in one-book countries may have to equate the benefit of tax minimization strategies, which effectively reduce their reported taxable income, with two potential costs: lower reported income may inadvertently signal that the firm’s prospects have worsened and may, in addition, reduce the pool of funds that can be legally distributed to shareholders. These tradeoffs may make firm investment in this environment much less sensitive to tax policy than is the case in the United States that is discussed below.” (Cummins, Harris, Hassett, 1994:182)

Figure 1 summarizes the basic organization of the German system. All reporting is based on the Commercial Code. Each subsidiary files a separate, unconsolidated tax return with the Ministry of Finance, as does the parent. This is the first key difference from the two-book system. In Germany, tax law applies at the level of the “legal entity,” not to the entire consolidated company. For example, losses by one branch of a company can usually not be used to offset profits elsewhere in the group (subject to certain profit-sharing conditions). The Ministry of Finance can also alter accounting rules via the tax law. Tax rules can feed back into the reporting practice via the “reverse authoritative principle,” which requires firms to use tax rules when constructing their financial reports if no relevant rules exist in the Commercial Code. The parent also prepares a consolidated statement to present to its shareholders. This group report is based on reports from the individual legal entities (Cummins, Harris, Hassett, 1995: 98).

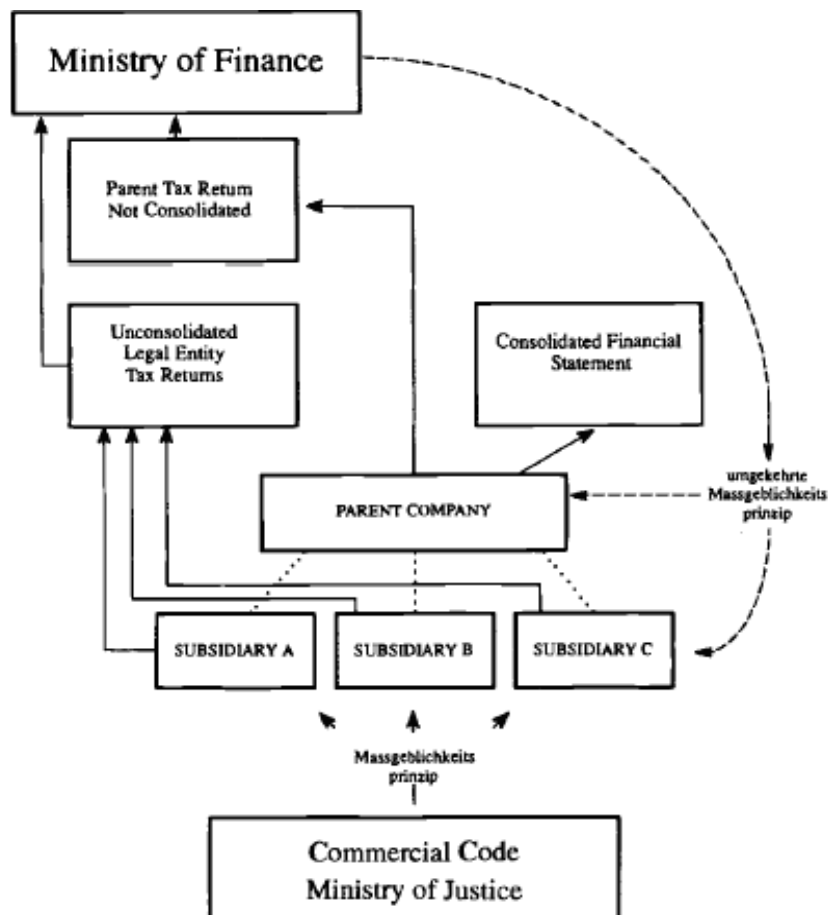


Figure 1: Corporate taxation regulatory organization: Germany, source: (Cummins, Harris, Hassett, 1995: 99).

Note: *Umgekehrte Massgeblichkeitsprinzip* means reverse authoritative principle; *Massgeblichkeitsprinzip* means authoritative principle.

3.2. Two - book system²:

The so-called two-book system (or separate reporting) that is typically used in the USA (see Figure 2) and also in countries like Australia, Canada, Ireland, The Netherlands, New Zealand or The United Kingdom separates tax accounting and financial accounting. Generally speaking, in these countries the methods used to calculate accounting profits are completely separate from those used to calculate taxes. That means that two-book countries keep tax and financial reporting book separate. Financial accounting income is computed from bookkeeping while taxable income from cash-flow (from the difference between earnings and expenditures). Advantage of this method is that firms do not need to be afraid to claim all possible allowances and achieve as low tax liability as possible because the tax allowances have no effect on the financial accounting income that is the most informative signal to the stock market about the firm's profitability.

² The designation „two-book“ does not mean that all measures for accounting and tax purposes are different. It more likely refers to the regulatory environment that separates accounting and tax reporting. (Cummins, Harris, Hassett, 1994: 181)

On the other hand, separate from the problem of the so-called “book-tax gap” that I am going to describe later, Cummins, Harris and Hassett (1995: 95-96) described another issue connected to the separate reporting and accounting methods LIFO³ and FIFO. While LIFO is not permitted in countries using International Financial Reporting Standards (IFRS) (including the Czech Republic) the US Generally Accepted Accounting Principles (US GAAP) system that is used in the USA allows the companies to use both methods. LIFO is useful especially in the period with high inflation because it reduces income taxes. The most recently purchased good will be the most expensive and the difference between sale price and cost will then be the smallest. In the 1970s was therefore LIFO used by US firms but when the firm used LIFO to calculate its taxable income it was obliged to use LIFO also for the calculation of its financial accounting income. The problem was that LIFO lowered taxes by lowering reported profits which might be a signal to the stock exchange that the firm is not doing well.

Figure 2 summarizes the basic organization of the U.S. system. In the United States, a firm aggregates information received from its subsidiaries into a consolidated tax return. The rules for constructing the return are designed by the tax authority, and reflect various policy objectives. At the same time, the parent firm provides a consolidated financial report for its shareholders that is filed with the Securities and Exchange Commission (SEC). The rules that govern the construction of this report are designed to provide useful valuation information to stakeholders. Of course, accurate information about taxes is important for evaluating the profitability of the firm. For this purpose, the consolidated financial statements provide detailed footnotes about net tax expenses and liabilities (Cummins, Harris, Hassett, 1995:97-98).

³ FIFO and LIFO are methods of recording the value of inventory. LIFO refers to „last in, first out“ which means that the firm records the last unit purchased and the first unit sold while FIFO means „first in, first out“ which means that the firm records the first unit purchased and the first unit sold.

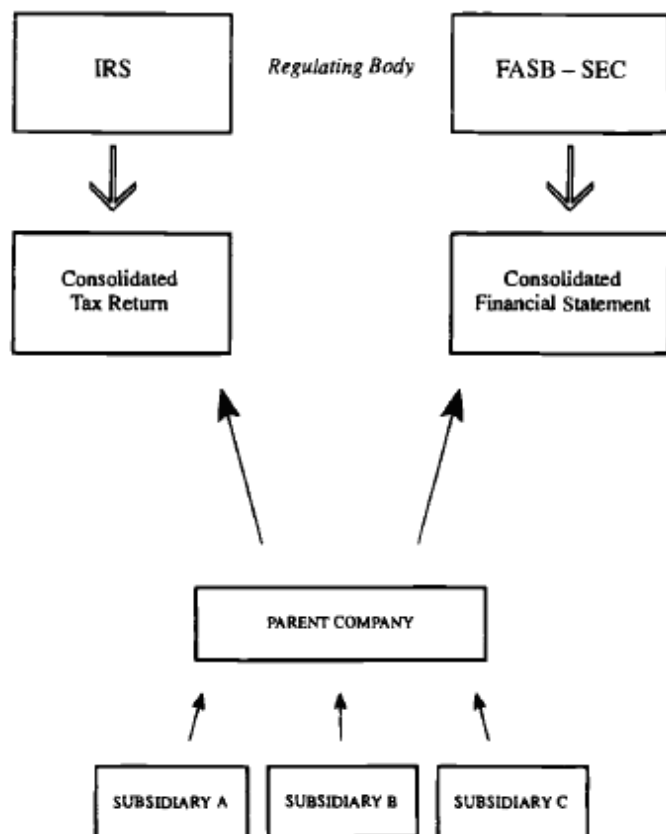


Figure 2: Corporate taxation regulatory organization: United States, source (Cummins, Harris, Hasset, 1995: 98).

3. 3. Conclusion

To conclude, the difference between financial accounting and taxable income is that in the two-book system they are used for different purposes and therefore calculated in a different way. While the financial accounting income is used as an indicator of firm's prospect the taxable income is used for the calculation of corporate income tax. Because both incomes are calculated in a different way they may significantly differ. The problem that arise from this difference is that even a well-performing company that has high earnings and high financial accounting income and is reporting this good performance to its investors can at the same time report low or zero taxable income showed in the tax return resulting in low or zero tax liability⁴. Corporate managers are facing two goals: earnings management of increasing reported financial accounting income and tax-planning of reducing the taxable income. Those corporate manager's incentives cause so-called "book-tax gap" or "excess of companies' reported financial accounting income over their taxable income." Obviously this problem is significant mostly in the two-book countries, namely in the USA. According to Shaviro (2009:425) in 2003 all taxpaying US corporations that filed US corporate income tax return were estimated to have reported financial accounting income before taxes of \$899

⁴ In this case I should point out the case of Enron.

billion, as compared to net taxable income of only \$455 billion. That means the book-tax gap was \$444 billion – almost equal to the net taxable income.

There are some studies about finding the optimal relationship between taxable income and financial accounting income. Shaviro (2009:484) for example suggested requiring a 50% adjustment of taxable income towards financial accounting income for large, publicly traded companies.

3. 4. The Czech Republic

What is the situation in the Czech Republic? As the rest of the Europe (except of the United Kingdom and Ireland) the Czech Republic is using one-book system. That means that the same methods are used for calculating both the financial accounting and taxable income. Using the IFRS both financial accounting and taxable income come from book-keeping and are given by the difference between revenues and expenses before tax. For obtaining final tax liability we need to add the non tax-deductible expenses, deduct the non-taxable incomes and claim possible allowances to get the tax base. After this we get a tax base that can still be decreased by tax reliefs as foreign tax credit.

The financial accounting income, that in the tax return refers to the result of economic activity (and reports gain of loss), has to be adjusted for tax purposes. In the end those adjustments are decreasing the difference between the one-book and two-book systems. In the two-book system for example financial accounting and tax accounting differ in the calculation of depreciations. But even in the one-book system accounting and tax depreciations are different and the calculation of depreciations is more or less the same as in the two-book system. The calculation of accounting depreciations is determined by specific asset life. Tax depreciations are based on explicit asset classifications that allow faster deductions than those implied by accounting depreciations. The difference between tax and accounting depreciations causes the changes to the financial accounting income. The same thing applies to the difference between tax and accounting residual values. If the tax depreciations are higher than accounting depreciations the financial accounting income will decrease by the difference between tax and accounting depreciations. If the tax depreciations are lower than accounting depreciations the financial accounting income will increase by the difference between tax and accounting depreciations. The same rule applies for the difference between tax and accounting residual values.

Moreover the so-called tax base that in the Czech Republic multiplied by statutory tax rate gives the tax liability is in fact an analogy to the taxable income in the US system.

3. 5. The difference between IFRS and US GAAP

I mentioned in the sub-chapter about the two-book system that there is a difference between the accounting standards used in Europe – IFRS and accounting standards used in the USA – US GAAP. Also the difference between these two accounting systems causes the difference between the computation of both financial accounting income and taxable income – not within the country but internationally. This difference is then projected into the computation of effective tax rates. Let me therefore close this sub-chapter with the table that shows the major differences between IFRS and US GAAP in the case of financial statements and inventories.

	U.S. GAAP	IFRS
Income statement – extraordinary items	Restricted to items that are both unusual and infrequent. Negative goodwill is always treated as extraordinary.	Prohibited.
Income statement – significant items (unusual or infrequently occurring)	Presented separately on the face of the income statement as a component of continuing operations.	Separate disclosure of the nature and amount is required, but can be done in the income statement or in the notes.
Changes in equity	Present all changes in each caption of stockholders' equity in either a footnote or a separate statement.	At a minimum, present components related to "recognized income and expense" as part of a separate statement (referred to as the SORIE if it contains no other components). Other changes in equity either disclosed in the notes, or presented as part of a single, combined statement of all changes in equity (in lieu of the SORIE).
Disclosure of performance measures	SEC regulations define certain key measures and provide requirements and limitations on the ability of public companies to disclose non-GAAP measures within the financial statements. Any non-GAAP measures presented must be reconciled to the corresponding GAAP measurement.	Certain traditional concepts such as "operating profit" are not defined; therefore, diversity in practice exists regarding line items, headings and subtotals presented on the income statement when such presentation is relevant to an understanding of the entity's financial performance.

Table 1: The difference between financial statements in IFRS and US GAAP, source: Ernst & Young, 2007: 3

	U.S. GAAP	IFRS
Costing methods	LIFO is an acceptable method. Consistent cost formula for all inventories similar in nature is not explicitly required.	LIFO is prohibited. Same cost formula must be applied to all inventories similar in nature or use to the entity.
Measurement	Inventory is carried at the lower of cost or market. Market is defined as current replacement cost as long as market is not greater than net realizable value (estimated selling price less reasonable costs of completion and sale) and is not less than net realizable value reduced by a normal sales margin.	Inventory is carried at the lower of cost or net realizable value (best estimate of the amounts inventories are expected to realize, taking into consideration the purpose for which the inventory is held. This amount may or may not equal fair value).
Reversal of inventory write-downs	Any write-downs of inventory to the lower of cost or market create a new cost basis that subsequently cannot be reversed.	Previously recognized impairment losses are reversed, up to the amount of the original impairment loss when the reasons for the impairment no longer exist.

Table 2: The difference between inventories in IFRS and US GAAP, source: Ernst & Young, 2007: 10

4. Methods of computation of effective tax rates

Let me now point out some approaches to effective tax rates' measures. I divided these approaches into several groups according to different criteria as the "class" of the effective tax rate, data sources or methodology.

There are several "classes" of effective tax rates that differ according to what we want to compute and in which field is our interest. Used tax indicators refer to effective rates on non-wage labour costs, personal income effective tax rates, effective tax rates on labour and on unemployed labour, effective tax rates on capital or corporate effective tax rates, and effective tax rates on consumption. Researchers may be interested in all mentioned "classes", along with politicians considering the effects of their policies or impacts of their reforms, auditors for example are only interested in corporate effective tax rates.

The computed effective tax rates differ according to the database used for the calculation. The most widely used databases for these purposes were:

OECD Revenue Statistics (OECDRS)– database kept by the OECD.

AMECO – Economic and Financial Affairs The Directorate General (European Commission's) (ECFIN DG) macroeconomic database that is fed on the basis of standardised information provided by EU member states, some non-EU countries, US and Japan. The series in AMECO are being updated twice a year, AMECO includes projected data on two years beyond the current one.

The Bank for the Accounts of Companies Harmonised (BACH) Database - contains aggregated financial statements of companies at a sectoral level, available at the web pages of European Commission.

And finally there are several methodologies that focus on measuring the effective tax rates. These methodologies can be distinguished according to some characteristics (Nicodeme, 2001:11-12):

- Do they use real-life data or theoretical features of tax systems?
- What is the level of aggregation they take?

- Can the methodology isolate the effect of specific features of the tax system?
- Does the approach investigate taxation based on the nationality of the tax system or on the nationality of companies?

Three main methodologies can be distinguished: the macro backward-looking approach, micro backward-looking approach and micro forward-looking approach⁵. Common sense would add the macro forward-looking approach. However this approach is not being used, actually it does not exist. Later I will point out why. According to Nicodeme (2001:6-7) who focused on the effective corporate tax rates the distinction between the macro and micro approaches depends on the data used.

Macro studies (according to Nicodeme, 2001:6) compute tax rates from the aggregate macroeconomic data such as national accounts. These effective rates are measured as ratios of taxes paid to a measure of the tax base. The usage of macroeconomic data allows wider range of computed tax rates than microeconomic data. Macro studies compute all direct and indirect effective tax rates.

Micro approaches compute effective tax rates using the elements of financial statements, either with a theoretical perspective or with empirical data (Nicodeme, 2001:6). They usually concern on corporate effective tax rates of effective tax rates on capital income. Micro approaches compute these rates using the elements of financial statements, either with a theoretical perspective or with an empirical data.

The distinction between the backward-looking and forward-looking approaches is based on the type of information used. Backward-looking approaches use ex-post real-life data to estimate the tax burden that the taxpayer bear. Forward-looking approaches use statutory features of the tax system to assess the tax aspects of specific decisions.

4. 1. Micro forward-looking studies:

The attractiveness of this method lies in the isolation of the specific tax features. The possible shortcomings emerge due to the complexity of the tax systems. According to Nicodeme (2001:9) the main problem of this method is that it does not allow us to capture observed effective taxation and compares instead differences in theoretical taxation. It does

⁵ The methodologies of forward- and backward-looking approaches are recognized by several researches, e.g. Nicodeme (2001), Fullerton (1999) or OECD (2000)

not take into account important elements of the tax base that can dramatically affect the effective taxation. Another negative factor of this method is that it does not capture the tax enforcement. The third issue is then related to the choice of a desired after-tax return. The method is only valid for a marginal investor since the possibility of infra-marginal returns is not taken into account. The last but not least disadvantage I will mention is the fact that the complexity of the tax systems makes computing effective marginal tax rates extremely difficult, since there is no simple databank that can be used as in the case of backward studies. Moreover it is not possible to get sufficient data without grants. This method can then be used by the researchers working at institutions as the ministry of finance but for the purpose of this thesis this method is unusable.

The first well-known study in this field was “The Taxation of Income from Capital” from King and Fullerton (1984), which was revisited by Devereux and Griffith (1998). These approaches derive two measures: Effective Marginal Tax Rate (EMTR) on capital income and Effective Average Tax Rate (EATR) on capital income. “Marginal Tax Rates combine information on statutory tax rates, tax return, and tax codes with data on income distribution and household surveys, as well as with projections of real present values for investment projects” (Martinez-Mongay, 2000:8).

4. 2. Micro backward-looking studies:

An advantage of this methodology is, according to Nicodeme (2001) who uses the micro backward-looking approach, to derive effective corporate taxation with the help of financial statements, that it uses real data and allows all the elements of taxation to be taken into account. It also enables for a study of effective taxation at a sectoral level and for different sizes of companies. It usually computes ratio of tax accrued to other items of the balance sheet such as pre-tax profit or gross operating profit. Because of such features the micro-backward studies are used mostly for the computation of corporate effective tax rates.

The disadvantage of this method is that it does not isolate the different features of national tax systems and it is also not possible to isolate the effect of national tax system from the effects of foreign tax system. In the case of corporate effective tax rates this effective tax rate does not represent implicit tax rates derived from the national tax systems but the tax burden that companies located in a specific country have to bear. I see another disadvantage of this method in the data it uses. The data on financial statements are not

always available. For example, Nicodeme (2001) used for his research the BACH database available at European Commission that presents the financial structures of non-financial companies, aggregated at various sectoral and size levels, but only in twelve member states of the EU (Austria, Belgium, Denmark, Great Britain, Finland, France, Germany, Greece, Ireland, Netherlands, Portugal, Spain), the United States and Japan. It is not possible to obtain the data for the Czech Republic.

4. 3. Macro backward-looking studies:

An advantage of macro studies is the availability of aggregate data which can be easily obtained from statistical institutes and easy computation of ratios along with the possibility of easy prediction based on the forecast of the aggregate data.

The disadvantage of macro studies is the aggregate data they use which do not generally offer separated entries for different taxpayers. Macro studies cannot compute effective tax rates at a sectoral level because the data on corporate taxes and operating profits are often not available. Martinez-Mongay (2000: 14) described the ECFIN estimates of effective tax rates that he explained in his paper as “the second-best solution compared to the information provided in the OECD or in European Commission (2000).” The reason was the AMECO database he used that provided relatively poor information on tax revenues, because total tax revenues were broken down into only three items: social security contributions, taxes on income and wealth (direct taxes), and indirect taxes. The other shortcoming of AMECO database that Martinez-Mongay pointed out was that it did not provide a proxy to household income as accurate as OECD databases.

Positive is that both shortcomings mentioned above can be overcome. The poor information that is provided by AMECO can be complemented with the data in OECD Revenue Statistics as Martinez-Mongay (2000) did. The problem of inaccurate proxy to household income can then be solved by replacing the operating surplus of unincorporated enterprises, household property and entrepreneurial income and wages⁶ by exact measure of the personal income.

The macro-backward studies were used by Mendoza et al. (1994) or Gordon and Tchilinguirian (1998) who used as a tax base gross operating surplus of companies and

⁶ Martinez-Mendoza (2000) referred to the denominator of ratio given by Mendoza, Razin and Tesar (1994) for computation of effective tax rate on personal income.

Martinez-Mongay (1997) who measured the effective tax rates as ratio of taxes paid by corporations, including taxes to their net wealth, to gross operating surplus of all companies and the gross operating surplus of unincorporated companies.

4. 4. Macro forward-looking studies?

Macro forward-looking approach is not used for computing the effective tax rates. Why? To answer this question let me describe how would this method look. As macro approach it would use aggregate macroeconomic data as national accounts and as forward-looking approach it would use statutory features of the tax system to assess the tax aspects of specific decisions. Aggregate macroeconomic data are usually available with 2-years lag. Macro forward-looking studies would need its estimate. The result would be highly biased.

4. 5. Conclusions

Each study has its advantages and disadvantages but all can be used for valid research from the economic point of view. It is up to the researcher to choose the right approach according to what he or she wants to measure.

5. Description of particular methods

Let me now describe some of the well-known methods of computation of effective tax rates. I will follow the distinction of methods on micro, macro, backward- and forward-looking studies. For each method I will describe one basic approach and continue with the approaches that result from this basic approach.

5. 1. Micro forward-looking studies

I will start with the micro forward-looking studies – with the approach from King and Fullerton (1984) that even after fifteen years is still inspiring and used and follow with its successors.

5. 1. 1. King and Fullerton (1984)

The approach of King and Fullerton was released in *The Taxation of Income from Capital: A Comparative Study of the U.S., U.K., Sweden and West Germany* (1984). It was not a completely new micro forward-looking approach but it extended Hall and Jorgenson's (1967) cost of capital approach by taking into account personal taxes on corporate income and the range of forms of corporate finance. In 1998 this approach was revisited by Devereux and Griffith.

King and Fullerton's approach uses real data and International Financial Statistics. It computes marginal effective tax rate on capital income.

One of the first significant approaches to effective tax rates measures calculates overall effective marginal tax rates on income from capital for different combinations of asset, industry, source of finance, and ownership categories. Rates of taxation on marginal investments are given as the percentage difference between after- and before-tax net rates of return on specific investment projects. The before-tax real rate of return is defined as the value of the marginal rate of return that equates the expected discounted present value of the future stream of after-tax profits of the project with its cost, net of grants and allowances, and after deducting the rate of depreciation. Before-tax rate of return is also termed "the cost of capital" and indicates the rate of return earned by companies while the after-tax rate of return is earned by individual investors.

Table 3 shows the basic equations used for the calculation of marginal effective tax rates in King and Fullerton’s approach. Marginal effective tax rates are de facto measured by tax wedge that reflects the overall size of distortion in the market caused by corporate and personal taxes.

The marginal effective tax rate	$\tau = \frac{p - s}{p}$
The marginal effective tax rate (tax-exclusive measure) ⁷	$\tau_e = \frac{p - s}{s}$
The tax wedge	$w = p - s$
$p =$ pre-tax real rate of return on a marginal investment project	
$s =$ post-tax real rate of return to the saver	

Table 3: Effective marginal tax rates on capital income, source: King and Fullerton (1984)

The aim of this approach was to examine the incentives to save and invest in the private nonfinancial corporate sector offered by the tax system in each country. King and Fullerton focused on the flow of private savings into real corporate investment and the flow of profits which result from this investment back to households. They assumed that without taxes savers would earn the same rate of return on their savings as companies on their investments and it is tax that drive the wedge between the return on investment and return on savings. As I already mentioned King and Fullerton calculated effective marginal tax rates, where marginal meant the small increase in the level of real investment in the domestic nonfinancial corporate sector, financed by an increase in the savings of domestic households.

Significant role in King and Fullerton’s approach played inflation and real interest rate which company pays on the saver’s financial claims.

King and Fullerton studied four countries: United Kingdom, West Germany, Sweden and USA and used series of hypothetical projects that corresponded to particular combinations of asset (machinery, buildings, inventories), industry (manufacturing, other industry, commerce), source of finance (debt, new share issues, retained earnings) and owner

⁷ An alternative measure where the tax wedge was divided by the after tax return to the saver. To this measure King and Fullerton referred as to “tax exclusive” while the measure where the tax wedge was divided by the before-tax rate of return was referred to as „tax inclusive“. King and Fullerton concerned mainly on the tax inclusive measure.

(households, tax-exempt institutions, insurance companies). In series of projects King and Fullerton compared tax rates corresponding to a common value of p (before-tax rate of return) that provided a picture of the incentives offered by the tax system for particular kinds of investment projects and common value of r (real interest rate). They computed an effective marginal tax rate for both the “fixed- p ” (if they were interested in tax schedule facing potential investors) and “fixed- r ” cases (if they were interested in the proportion of marginal factor income).

Moreover they examined the effect of inflation and calculated effective marginal tax rates for three different rates of inflation (zero, 10%, actual).

King and Fullerton found out that the effective tax rates for the fixed- r cases were higher than for the fixed- p cases but the ranking for the countries remained the same. The highest overall effective tax rates were in Germany, followed by Sweden, the USA and the United Kingdom. Interesting results were achieved in the case of the effect of inflation on effective marginal tax rates that was different for each country. In Sweden for example the effective marginal tax rates rose with inflation while in United Kingdom effective tax rates fell. In Germany, overall taxes rose initially, due to historical cost depreciation, but eventually fell as nominal interest deductions became more important at higher rates of inflation. And finally in the USA the curve was similar to German but the effective marginal tax rates rose with lower inflation rates.

Comparison gave interesting results of effective marginal tax rates and comprehensive income tax. In United Kingdom the overall effective marginal tax rate was 40% below the average marginal personal rate, taking weighted averages over household rates on debt and equity. In Sweden this difference was 21% and in the USA 6%. Contrary result gave Germany that had effective marginal tax rate above the average marginal personal rate.

Moreover King and Fullerton found out that the countries with higher growth rate tend to have higher effective marginal tax rates. Germany had the highest overall effective tax rate on income from capital and the highest growth rate while the United Kingdom had the lowest effective tax rate on income from capital as well as the lowest growth rate.

The advantage of this approach is that it provides accurate results on microeconomic level. Moreover, according to Holečková, Vitek, Půbal (2003: 3 - 8) this method allows

complicated provisions of tax codes to be modelled in a rigorous manner and allows the effect of different types of tax treatments to be compared systematically, both within countries (on different types of investment, financed in different ways) and across countries.

Possible criticism of this method comes from Mendoza et al. (1994: 319) and points to the fact that the tax rates computed by King and Fullerton differ significantly in accordance to the sector where the hypothetical investment aims. Moreover the difference between the tax rates depends on the orientation of the investment within each sector and on its financing. Another critique comes from Gordon, Kalambokidis and Slemrod (2003: 39-41) who points out that while King-Fullerton's approach takes into account what are presumed to be the most important aspects of the tax law and the most important types of behavioural responses, in practice many aspects of the law and of behaviour have to be omitted. "A user must hope that the effects of these omitted issues are of second-order importance." Moreover according to these authors King-Fullerton's approach is biased by the tax revenue that arises from intramarginal investments or risk premia imbedded in the average return to capital and overestimates the effective tax rate.

5. 1. 2. The successors of King and Fullerton

Many researchers followed the concept given by King and Fullerton. I will mention five of them: Boadway (1988), Devereux and Griffith (1998), Fullerton (1999), Gordon Kalambokidis and Slemrod (2003) and one of the published studies on effective tax rates in the Czech Republic - Holečková, Vitek, Půbal (2003).

Besides those that were mentioned above micro-forward looking approach can be found also in the book or papers from: Baker & McKenzie (1999), PricewaterhouseCoopers (1999) or Jacobs & Spengel (1999).

Boadway (1988)

Robin Boadway used the approach of King and Fullerton for measuring marginal effective tax rates in Canada. Boadway made some adjustments to the original method that can be summarized as follows:

- 1) Boadway's approach attempts to measure actual marginal tax rates rather than hypothetical ones (as it was in the case of King and Fullerton).

- 2) Boadway incorporated an open capital market and used different arbitrage assumptions.
- 3) Boadway's method uses actual data on rates of return and expected inflation.
- 4) Boadway extended the analysis to investment decisions other than those on depreciable capital.

Boadway undertook a variety of effective tax rates' computations for Canada in the period from 1980 to 1988. His measures were made for different types of capital goods (buildings, machinery, land and inventories), different sizes of firms, industries and two different provinces (Ontario and Quebec).

Boadway's analysis gave some recordable results. For example that the liberalization of deductions for capital expenditures reduced effective tax rates or that the rise in inflation had little effect on effective tax rates except for inventories. This was in contradiction with the results King and Fullerton had, where inflation had an effect on effective tax rates. Size-analysis showed that small businesses in Canada are taxed by lower statutory tax rate but the smallest asset-size firms have slightly larger effective tax rates than the next firm size.

Devereux & Griffith (1998)

Devereux and Griffith extended the King and Fullerton's approach as they introduced the concept of effective average tax rate (EATR) that was used for cases for which investors face a choice between mutually exclusive projects that are expected to earn more than the minimum required rate of return. Devereux and Griffith argued that the choice depends on the level of the after-tax economic rent that would be earned from each project. The impact of the tax in this case was measured by the proportion of the before-tax economic rent taken by the government in the term of the EATR (Devereux and Griffith, 1998:2).

Whereas "margin" was in King and Fullerton's approach used for the small increase in the level of real investment in the domestic nonfinancial corporate sector, financed by an increase in the savings of domestic households, "average" meant average taxation borne by an investment for different level of profitability. The measure of effective average tax rates summarizes the distribution of tax rates for an investment project over a range of profitability.

Devereux and Griffith's showed that the EATR on an investment project was a crucial factor for US multinational firms choosing where within the Europe to set up a production facility. Whereas the effective marginal tax rate developed by King and Fullerton was relevant in determining the optimal scale of the investment conditional on the location having been chosen. The choice of location depended on the level of after-tax economic rent; the impact of tax was through its effect on this level, determined by the effective average tax rate (Devereux and Griffith, 1998:3).

Devereux and Griffith's estimates of EATR's were presented for four countries (Germany, Japan, UK and USA) over the period 1979-1997.

Fullerton (1999)

Fifteen year after publishing King and Fullerton (1984), Fullerton revisited the method of computation of marginal effective tax rates on capital income. This approach was also used for measuring incentives for investment and determining the impact of tax applied to an additional dollar of capital income. The marginal effective tax rate on capital income was then the expected before-tax rate of return minus the expected after-tax rate of return on a new marginal investment, divided by the pre-tax rate of return. The marginal effective tax rate on capital income might include just corporate income taxes, or it might also include personal taxes and local property taxes (Fullerton, 1999:270-271).

In this renewed approach Fullerton pointed the difference between the "old view" of marginal effective tax rates where dividend taxes did matter and the "new view" where the dividend taxes didn't matter. Fullerton's approach brought several interesting results as:

- 1) The effective tax rate is equal to the statutory tax rate if investment tax credit is zero and depreciation allowances are based on replacement cost.
- 2) The effective tax rate is equal to zero with expensing of new investment.
- 3) Uniform effective tax rates can be achieved at any rate between zero and statutory tax rate, if all assets receive an investment tax credit that is proportional to $(1-z)$ where z is the present value of depreciation allowances per dollar of investment.

Another results were achieved with inclusion of personal taxes:

- 1) When we consider a tax-exempt investor such as university endowment or pension fund and if we consider that the marginal investment is entirely financed by debt, then with economic depreciation and replacement cost, the marginal effective total tax rate is zero. Why? The normal return to the asset is paid out as interest, which is deductible against the corporate income tax.
- 2) “Marginal effective tax rate can be large for an asset with no investment tax credit and slow depreciation allowances based on historical cost with high inflation.” (Fullerton, 1999: 271).

Gordon, Kalambokidis, Slemrod (2003)

The approach of Gordon, Kalambokidis and Slemrod is more robust than the King-Fullerton one for many commonly omitted complications in the tax law. As well as King and Fullerton also Gordon, Kalambokidis and Slemrod constructed effective tax rates on capital income and studied how this measure is affected by several factors including resale of assets, risk, pure profits, debt finance and arbitrage, and choice of organizational form. Their approach was developed for “estimating the net revenue collected by taxing capital income.” This net revenue was estimated by calculating “how much tax revenue would change if new investment could be expensed⁸, rather than depreciated, and if all financial income were free of tax” (Gordon, Kalambokidis, Slemrod, 2003: 40). In their paper Gordon, Kalambokidis and Slemrod proposed a new effective tax rate measure that was based on the above explained methodology for calculating the net revenue collected from capital income. According to its authors this effective tax rate should be more accurate than the one from King and Fullerton (1984) because it is not biased by the tax revenue arising from inframarginal investments or risk premia set-in the average return to capital.

Holečková, Vítek, Půbal (2003)

This approach measures the effective tax rates in the central and Eastern European countries during transition. From the results they achieved let me mention those:

- 1) On average, rate of return of the company before taxation was 1.95 percentage points higher than the rate of return after tax actually received by the investor. This total tax wedge was lower than the OECD average that was 2.4.

⁸ Expensing is “a system allowing a taxpayer to deduct—expense—the costs of acquiring a depreciable capital asset immediately as these costs are incurred, instead of taking a stream of depreciation deductions over the useful life of the asset (Cordes, 1999). In this case a zero marginal tax rate on new investment and saving was imposed.

- 2) In the Czech Republic (and former Czechoslovakia) the tax wedge at the beginning of reforms taken after revolution in 1989 was very high. However, at the early nineties the inflation and marginal rates of income taxation decreased and gradual writing-off accelerated. Therefore the tax wedges fell down on the level corresponding to the average rates of developed countries.
- 3) The approach gave also one general result: “while corporation profit tax is characterized by permanent reduction of marginal tax rate, the marginal tax rate of the individual income does not show any distinction in any economy” (Holečková, Vítek, Půbal, 2003: 8-10).

5. 2. Micro backward-looking studies:

Micro-backward looking studies mostly focus on the computation of corporate effective tax rate. As I haven't found any basic micro backward-looking approach that would be a starting point for all other approaches I will describe an approach that in my opinion gives a good picture about the corporate effective tax rates calculation – the approach of Nicodeme (2001).

5. 2. 1. Nicodeme (2001)

Nicodeme's (2001) approach that used for the computation of the effective tax rates BACH database containing individual accounts of companies extends the method of Buijink (1999). Nicodeme computes only corporate effective tax rates.

The method described by Nicodeme (2001) uses the Profit and Loss account available in BACH. It computes the effective corporate tax rate as the ratio of tax paid on gross operating surplus (Nicodeme, 2001:21). The ratio is similar as the one in Martinez-Mongay (2000) and can be expressed as:

$$\tau = \frac{T}{GOP}$$

Where τ defines the corporate effective tax rate, T means taxes paid and GOP is gross operating profit.

Nicodeme calculated effective tax rates for 11 European countries, the USA and Japan. The purpose of the research was to support the idea that there are large differences between statutory tax rates and effective tax rates and also between countries for different sectors and companies' sizes. The approach also suggested that effective corporate taxation was sensitive to the business cycle.

Nicodeme's research showed that the average statutory tax rates until 1993 were slightly higher than effective tax rates but after 1993 the trend was opposite as European countries introduced new tax reforms that cut statutory corporate tax rates. Interesting is that the statutory corporate tax rates decreased but in contrary the effective corporate tax rates were increasing which means that the tax burden imposed on companies was higher.

The international comparison of tax rates showed that Denmark, Germany, Italy and Netherlands can be seen as high-taxed countries, while Austria or Sweden can be seen as low-taxed countries.

Part of Nicodeme's research focused on the comparison of effective and statutory tax rates. Nicodeme pointed out the fact that the countries with high level of statutory tax rates compensate with lower tax base and/or lower enforcement. That means that where the statutory tax rate is high there is higher possibility to utilise tax-deductible or non-taxable items or other tax allowances. Nicodeme compared the ratios of effective tax rates over statutory tax rates in each country. The result of this analysis was that this ratio is highest in Italy, Finland, Denmark, Germany and Netherlands which means that these countries offer the least tax incentives or highest tax enforcement. In Austria, Belgium or Portugal the situation was the opposite. Nicodeme also showed that effective tax rates are more homogenous across countries than statutory tax rates.

The attractiveness of this method is that both taxes paid and gross operating profit can be easily obtained from the Profit and Loss account available in BACH database. Moreover this method allows sectoral and size analysis.

According to Nicodeme (2001:21) "possible shortcoming of this method is the impact of financial activities on the ratio." But this possible shortcoming would be relevant only for financial sector that is not included in the BACH database. Another disadvantage can be seen in the BACH database this approach is using. The data of BACH database are limited only to several countries of European Union, United States and Japan. Because this

database does not provide data on Czech Republic, Nicodeme's approach using the BACH database cannot be used for our purposes.

Moreover I would see another shortcoming in the basic expression. Effective tax rate is the ratio of tax paid on gross operating surplus. But what if a company incurred loss and gross operating surplus is negative? Or what if the gross operating surplus is zero? If the company is paying no taxes the effective tax rate should be zero. But this is not the only possible case. It can happen that the company incurred loss but is still paying taxes because its taxable income is positive. In this case the ratio would give us negative effective tax rate. Usually there are not many cases like this so this shortcoming would not normally influence the aggregate effective tax rate. But in the situations as financial crises when more companies incur losses the influence could be remarkable. Nicodeme (2001) showed that the effective tax rate is a function of profit and statutory tax rate. This is logical because company with zero profit would not pay any taxes. That is why during periods of low economic activity, effective taxation tends to concentrate in levels close to zero taxation which causes that there are only small differences between the effective tax rates in different countries. In my opinion that is why firms that incur losses should be omitted from the effective tax rate's calculation.

5. 3. Macro backward-looking studies:

I will start with the description of the so-called MRT methodology. This approach from Mendoza, Razin and Tesar was not the first approach among macro backward-looking studies because it follows the approaches of Lucas (1990, 1991) and Razin and Sadka (1993), but it is the most known and widely used methodology in this area. Then I will closely look at the ECFIN's effective tax rates that revisit the MRT approach as I am going to use the ECFIN's effective tax rates further in my own research.

Besides those that were already mentioned macro backward-looking approach can be found also in the book or papers from: Gordon & Tchilinguirian (1998), the OECD and EC2000.

5. 3. 1. The MRT methodology (Mendoza, Razin and Tesar, 1994)

The so called MRT approach was first published in Journal of Monetary Economics 34 (1994: 297-323) in an article called Effective tax rates in macroeconomics, Cross-country

estimates of tax rates on factor incomes and consumption. As already mentioned this approach used OECD Revenue Statistics database and OECD National Accounts database and computed time series of effective tax rates on consumption, capital income and labour income.

The MRT methodology originally comes from the theoretical foundations proposed by Razin and Sadka (1993) who studied optimal taxation in Izrael. Razin and Sadka's approach was based on the method proposed by Lucas (1990, 1991) and whose approach produced measures of tax rates that were consistent with the concept of aggregate tax rates at the national level and representative agent assumption. The MRT approach extends this method and because it considers three goods economy (with consumption, labour and capital) it computes time series of effective tax rates on consumption, capital income and labour income as "ad valorem estimates by classifying virtually all forms of tax revenue at the general government level into one of the three taxes. Each measure of tax revenue is then expressed as a fraction of a precise estimate of the corresponding tax base" (Mendoza et al., 1994:299).

The aim of the research Mendoza, Razin and Tesar were doing was the international comparison of tax rates for G-7 countries (United States, United Kingdom, France, Germany, Italy, Canada, Japan) over the period 1965-1988. Their method constructs aggregate effective tax rates based on actual tax payments and national accounts and computes the effective tax rate on consumption (assuming a representative household that purchases an aggregate consumption good and pays an ad valorem tax), capital income (assuming that all sources of household's incomes are taxed uniformly) and labour (see tables 4-6).

Effective tax rate on consumption	$\tau_c = \frac{5110 + 5121}{C + G - GW - 5110 - 5121} * 100$
<i>5110 = General taxes on goods and services</i>	
<i>5121 = Excise taxes</i>	
<i>C = private final consumption expenditure</i>	
<i>G = government final consumption expenditure</i>	
<i>GW = compensation of employees paid by producers of government services.</i>	

Table 4: Effective tax rate on consumption, source: Mendoza, Razin, Tesar (1994:303)

Household's average tax rate on total income	$\tau_h = \frac{1100}{OSPUE + PEI + W} * 100$
Effective tax rate on labour	$\tau_l = \frac{\tau_h W + 2000 + 3000}{W + 2200} * 100$
<i>OSPUE = Operating surplus of private unincorporated enterprises</i>	
<i>PEI = Household's property and entrepreneurial income</i>	
<i>W = Wages and salaries</i>	
<i>$\tau_h W$ = Revenue from the income tax on wages and salaries (can be substituted by a direct measure of tax revenues from the personal taxes on labour income)</i>	
<i>1100 = Taxes on income, profits, and capital gains of individuals</i>	
<i>2000 = Total social security contributions</i>	
<i>2200 = Employer's contribution to social security</i>	
<i>3000 = Taxes on payroll and workforce</i>	

Table 5: Effective tax rate on labour income, source: Mendoza, Razin, Tesar (1994:305)

Effective tax rate on capital income	$\tau_k = \frac{\tau_h (OSPUE + PEI) + 1200 + 4100 + 4400}{OS} * 100$
<i>$\tau_h W$ = Household's average tax rate on total income</i>	
<i>OSPUE = Operating surplus of private unincorporated enterprises</i>	
<i>PEI = Household's property and entrepreneurial income</i>	
<i>OS = Total operating surplus of the economy</i>	
<i>1200 = Taxes on income, profits, and capital gains of corporations</i>	
<i>4100 = Recurrent taxes on immovable property</i>	
<i>4400 = Taxes on financial and capital transactions</i>	

Table 6: Effective tax rate on capital income, source: Mendoza, Razin, Tesar (1994:305)

From the results that MRT method gave I will focus on those that can be used generally in the effective tax rate's theory rather than on results of international comparison of tax rates (that in general are similar as in other studies). Except for other possible results Mendoza, Razin and Tesar found out that:

- 1) The effective tax rates fluctuated in response to both long-term fiscal reforms and shot-term policy changes in statutory tax rates, tax credit, deductions and exemptions.
- 2) Countries that taxed consumption and labour income more (less) tended to tax capital income less (more).
- 3) Higher savings and investment rates tend to be associated with lower income tax rates and higher consumption and labour income taxes.

Interesting is the comparison of the MRT approach with already mentioned study of marginal effective tax rates on capital income by King and Fullerton (1984). While for the calculation of MRT effective tax rates the researcher takes the data available at the OECD webpage for the calculation of marginal effective tax rates as described by King and Fullerton one needs to obtain the information on the statutory tax rates and information on application of taxes as credits and exceptions according to form of financing and accounting of depreciation together with the information on the expected path of inflation and the market discount factor. The effective tax rates obtained from MRT and King and Fullerton's approach differ significantly depending on the sector to which investment is going, on whether, within each sector, it is oriented towards equipment, structures, or inventories, or on whether it is financed by debt, new share issues, or retained earnings. Moreover it depends on whether it is undertaken by firms owned by households subject to personal income taxes or by tax-exempt institutions, and on the assumed inflation and market discount rates (Mendoza, Razin, Tesar, 1994: 319).

One of the possible advantages is the OECD data source that is easily available on the OECD website. According to the authors of the method other advantage can be seen in the fact that it achieves three important objectives: "a) it takes into account the net effect of existing rules regarding credits, exemptions, and deductions, b) it separates taxes on labour income from taxes on capital income, and c) it incorporates the effects of taxes not filed with individual income tax returns on factor income taxation" (Mendoza et al., 1994:299).

Mendoza, Razin and Tesar (1994) stated as important disadvantage the fact that this method omits the information on statutory tax rates and the distribution of income per tax bracket. Moreover this method does not take into account specifics of the tax laws of each country. Another disadvantage of the MRT approach was described by Martinez-Mongay (2000:13) and adverts to the fact that MRT method needs detailed macroeconomic data that are usually available only with lag and this shortcoming causes a 2 to 3-year lag in the production of MRT.

5. 3. 2. ECFIN's Effective tax rates

ECFIN's effective tax rates that were described by Martinez-Mongay (2000) were calculated and analyzed by DG ECFIN⁹ and published in Public Finances in EMU-2000 (calculation and analysis of series of effective rates on labour, capital and consumption over the period 1970-2001). This approach combined OECD Revenue Statistics with the AMECO database. The computation of ECFIN's effective tax rates is not a completely new approach but it extends the MRT methodology and the work of Carey and Tchiliguirian (2000).

The aim of this approach is computation of effective tax rates on labour, capital and consumption. ECFIN's effective tax rates were already used for assessing the impact of EU-15¹⁰ tax reforms on the tax burdens on labour, capital and consumption over the period 1999-2001. ECFIN databank on effective taxation should supplement the information in other databanks (namely EC2000 or OECD)

This method is used for computation of non-wage labour costs effective tax rate, personal income effective tax rate, effective tax rate on labour, effective tax rate on consumption, effective labour tax wedge and effective tax rates on capital income. Above mentioned rates can be computed as shown in tables 7-11.

Non-wage labour costs effective tax rate (NWLC)

Non-wage labour costs that include social security contributions and taxes on payroll and workforce can be calculated as the ratio of total social security contributions to total labour costs. Because the taxes on payroll and workforce do not exist in most countries non-wage labour cost can be also expressed as the ratio of total social security contributions to total labour costs. The effective tax rate includes the imputed wage of the self employed and also the social security contributions paid by this category of labour (Martinez-Mongay, 2000:15-16). Non wage labour costs on total employment assume that as the self-employed pay social security contributions, part of their income is treated as labour income. But on the other hand they also receive some income as owners of capital.

⁹ The Directorate General for Economic and Financial Affairs

¹⁰ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

Non-wage labour costs on total employment count with total employment, total labour costs. Martinez-Mongay distinguished also two other types of non-wage labour costs: non-wage labour costs on employed labour (NWEL) and non-wage labour costs paid pay the employers (NWER).

NWEL assume that all income earned by the self-employed is capital income and employees are the only production factor obtaining labour income. NWEL were defined as “the ratio of social security contributions paid by the employees plus social security contributions paid by the employers plus taxes on payroll and workforce to the total compensation of employees, thus excluding the gross wage income of the self-employed” (Martinez-Mongay, 2000:18).

NWER are the part of NWEL that refer only to the social security contributions paid by the employers. Then NWER can be calculated as the ratio of the social security contributions paid by the employers to the total wage bill of employed labour (Martinez-Mongay, 2000:20).

What I found strange is that Martinez-Mongay did not compute the part of the social security contributions paid by the employees. This ratio that I would refer to as NWEM would be the part of NWEL that refers only to the social security contributions paid by the employees and it would be calculated as the ratio of the social security contributions paid by the employees to the total wage bill of employed labour.

According to the calculations made by Martinez-Mongay the non-wage labour costs were declining and/or practically stagnated in most of the EU-15 states. According to the prediction in 2000 they were about to fall in Belgium, Germany, Ireland and the Netherlands and increase in Portugal.

Non-wage labour costs effective tax rate	$NWLC = \frac{NWRV}{LETB}$
Total labour costs	$LETB = \frac{COEL * OCCP}{EMPL}$
Non-wage labour costs on employed labour	$NWEL = \frac{ELRV}{COEL}$
Social security contributions attributable to employed labour	$ELRV = NWRV * SELR$
Non-wage labour costs of employed labour as percentage of non-wage labour costs	$SELR = \frac{(SSCER + SSCEM + TPRWF)}{(SSCER + SSCEM + SSCSE + SSCOT + TPRWF)}$
Non-wage labour costs paid by the employers	$NWER = \frac{ERRV}{COEL}$
Social security contributions paid by the employers	$ERRV = NWRV * SERR$
Social security contributions paid by the employers as percentage of non-wage labour costs	$SERR = \frac{SSCER}{(SSCER + SSCEM + SSCSE + SSCOT + TPRWF)}$
Non-wage labour costs paid by the employees	$NWEM = \frac{EMRV}{COEL}$
Social security contributions paid by the employees	$EMRV = NWRV * SEMR$
Social security contributions paid by the employees as percentage of non-wage labour costs	$SEMR = \frac{SSCEM}{(SSCER + SSCEM + SSCSE + SSCOT + TPRWF)}$
$NWRV = \text{Total social security contributions}$	
$COEL = \text{Total compensation of employees}$	
$OCCP = \text{Occupied population (total employment)}$	
$EMPL = \text{Number of employees (wage and salary earners)}$	
$SSCER = \text{Social security contributions paid by employers}$	
$SSCEM = \text{Social security contributions paid by employees}$	
$SSCSE = \text{Social security contributions paid by self-employed}$	
$SSCOT = \text{Social security contributions not allocable between SSCER, SSCEM and SSCSE}$	
$TPRWF = \text{Taxes on payroll and workforce}$	

Table 7: Non-wage labour costs, source: Martinez - Mongay (2000: 15-21)

The personal income effective tax rate (PITR)

Calculation of the personal effective tax rate is slightly more difficult. To get the right numbers it is necessary to isolate the personal tax revenues from the total direct taxes. Because AMECO database does not directly include taxes on labour income as it only provides aggregate series on direct taxes on income and wealth. Not even OECD Revenues Statistics (OECDRS) contain personal tax revenues. It is therefore necessary to decompose its aggregate series on direct taxes on income and wealth to three single categories of direct taxes: taxes on personal income (including taxes on personal income from capital), taxes on corporate income and taxes on property and wealth (Martinez-Mongay, 2000:21).

Personal income effective tax rate	$PITR = \frac{PIRV}{PITB}$
Tax revenues from personal income taxes in percentage of total direct taxes	$TRIIR = \frac{TRII}{(TRII + TRCI + PROP)}$
Tax revenues from corporate income taxes in percentage of total direct taxes	$TRCIR = \frac{TRCI}{(TRII + TRCI + PROP)}$
Tax revenues from taxes on property in percentage of total direct taxes	$PROPR = \frac{PROP}{(TRII + TRCI + PROP)}$
Personal tax revenues	$PIRV = DTRV * TRIIR$
Corporate tax revenues	$CORV = DTRV * TRCIR$
Property tax revenues	$PWRV = DTRV * PROPR$
Total labour costs	$LETB = \frac{COEL * OCCP}{EMPL}$
Personal income tax base	$PITB = LETB - NWRV - NOS - (LETB - COEL) - CORV - PWRV$
	$PITB = COEL + NOS - NWRV - CORV - PWRV$
<i>TRII (RS 1100) = Taxes on income, profits, and capital gains of individuals</i>	
<i>TRCI (RS 1200) = Taxes on income, profits, and capital gains of corporations</i>	
<i>PROP (RS 4000) = Taxes on property</i>	
<i>DTRV = Taxes on income and wealth (Direct taxes)</i>	
<i>NWRV = Total social security contributions</i>	
<i>NOS = Net operating surplus</i>	
<i>COEL = Total compensation of employees</i>	
<i>OCCP = Occupied population (total employment)</i>	
<i>EMPL = Number of employees (wage and salary earners)</i>	

Table 8: The personal income effective tax rate, source: Martinez - Mongay (2000: 21-25)

The effective tax rate on personal income (PITR) is the ratio of tax revenues from income taxes paid by individuals to the total income received by them, a part of which are

revenues from capital. “Such personal income is the sum of total labour costs, including the imputed wages of the self-employed and excluding the social security contributions, and the net operating surplus of the economy, adjusted for the imputed wages of the self-employed and excluding taxes on corporate income and on property and wealth” (Martinez-Mongay,2000:23).

According to Martinez-Mongay’s results the effective tax rate on personal income in the Euro zone was around 16% in 1999. The prediction said that the effective personal income tax rate were (except of Portugal) about the decrease in early 2000’s.

Interesting is the comparison of ECFIN effective personal income tax rates with the effective personal income tax rates from the MRT methodology (household’s average tax rate on total income).

- 1) The ECFIN expression of personal income tax rates is based on rough approximation to the personal, taxable income. ECFIN tax rates include enterprises’ net savings in the personal tax base, assuming that the profits are fully distributed.
- 2) ECFIN use broader definition of property taxes (using item 4000 from the Revenue Statistics) than MRT approach (using items 4100 and 4400). The advantage of using the aggregate Revenue Statistics item 4000 (RS4000) is that when the personal income is approximated in this way the researcher can use variables, such as the compensation of employees and the net operating surplus that are updated twice a year. Another advantage is that aggregate items in the OECDRS, such as RS4000, are more often updated than their components (Martinez-Mongay, 2000:24).

The effective tax rate on labour (LETR)

The effective tax rate on labour can be computed as the ratio of the sum of non-wage labour costs plus the personal income tax revenues attributable to labour income to the pre-tax labour income (Martinez-Mongay, 2000:26). How does the effective tax rate on labour differ from the personal income effective tax rate? LETR refers only to the part of the income that comes from labour (it excludes the capital income, gains from stocks, lease etc.). It includes wages as well as the social security contributions that are not a part of

PITR. Briefly speaking the effective tax rate on labour is then given by the ratio of the total sum of revenues that the state receives from the wages (social security contributions paid by both employees and employers and personal income tax) before the people use the income for consumption over the total labour costs.

Effective tax rate on labour	$LETR = \frac{NWRV + PITR * (LETB - NWRV)}{LETB}$
Effective tax rate on the income of employed labour	$LITR = \frac{ELRV + PITR * (COEL - ELRV)}{COEL}$
<i>NWRV = Total social security contributions</i>	
<i>PITR = Personal income effective tax rate</i>	
<i>LETB = Total labour costs</i>	
<i>ELRV = Non-wage labour costs attributable to employed labour</i>	
<i>COEL = Total compensation of employees</i>	

Table 9: The effective tax rate on labour, source: Martinez - Mongay (2000: 25-27)

Because $NWLC = \frac{NWRV}{LETB}$ if we make some arrangement to the figure of LETR shown in the

above table we get that: $LETR = NWLC + PITR - \frac{PITR * NWRV}{LETB}$ which is equal to:

$$LETR = NWLC + PITR - NWLC * PITR$$

That means that the effective tax rate on labour is equal to the non-wage labour costs effective tax rate plus the personal income effective tax rate minus their product.

Martinez-Mendoza's computations showed that the effective tax rate on labour in the euro zone was close to 40% in 1999. Effective tax rate on labour was projected to decrease by 1.3%. Large falls were expected especially in Belgium, Germany, Ireland, the Netherlands, Austria and Denmark.

The effective tax rate on consumption (CETR)

The effective tax rate on consumption can be computed similarly as the effective tax rate on labour: as a ratio of tax revenues from consumption taxes to the pre-tax value of consumption, where consumption taxes can be proxied by indirect taxes available in AMECO (Martinez-Mongay, 2000:27). In this case ECFIN approach follows the MRT methodology where the pre-tax value of consumption can be calculated as private final

consumption, plus government final consumption, minus the compensation of employees of general government, minus consumption tax revenues. The effective tax rate on consumption can also be computed as the difference between the consumer price (a post-tax price) and the producer price (the pre-tax price) expressed as a percentage of the latter. (Martinez-Mongay, 2000: 27-28). This reminds the tax-exclusive measure of King and Fullerton’s approach (see table 3) used for the computation of the effective marginal tax rate on capital income.

If we follow the King and Fullerton’s approach further and use the “classical ratio” we will get the expression of the tax wedge in terms of consumer prices (consumption implicit tax rate). The consumption implicit tax rate is equivalent to the effective tax rate on consumption because: $citr = \frac{cetr}{1 + cetr}$

Effective tax rate on consumption	$CETR = \frac{INRV}{PFC + GFC - CEGG - INRV}$	$cetr = \frac{P_c - P_p}{P_p}$
Consumption implicit tax rate	$CITR = \frac{INRV}{PFC + GFC - CEGG}$	$citr = \frac{P_c - P_p}{P_c}$
<i>INRV = Taxes linked to imports and production (Indirect taxes)</i>		
<i>PFC = Private final consumption expenditure at current prices</i>		
<i>GFC = Final consumption expenditure of general government at current prices</i>		
<i>CEGG = Compensation of employees in % of GDP</i>		

Table 10: The effective tax rate on consumption, source: Martinez - Mongay (2000: 27-30)

The results of effective tax rate on consumption show that due to the VAT introduction and the introduction of the environmental and energy taxes the effective tax rate on consumption increased. The forecast points small change in the effective tax rate on consumption (Martinez-Mongay, 2000: 29-30).

The effective labour tax wedge (WEDG)

First of all it is necessary to say why we should care about the effective labour tax wedge and what does this rate show. Layard, Nickell and Jackman (1991: 209) described the total wage wedge as “the gap between the real labour costs of the firm, on the one hand, and the real, post-tax consumption wage of worker, on the other.” According to Martinez-Mongay (2000:30) “the tax wedge arises because labour income is first taxed through social security contributions; then, the workers have to pay income taxes on the remaining

income, which in turn, once direct taxes have been deducted, will be subject to indirect taxes when consumed.”

In other words the effective labour tax wedge can be expressed as “the difference between the gross wage deflated by the producer’s price and the gross wage net of social security contributions and personal income taxes on labour income deflated by the consumer’s price”:

$$wedg = \frac{w_p - w_c}{w_p}$$

Where w_p is the real producer wage while w_c is the real consumer wage.

Effective labour tax wedge	$WEDG = 1 - (1 - NWLC)(1 - PITR)(1 - CITR)$
Tax wedge for employed labour (the whole income of the self-employed is a capital income)	$TWEL = 1 - (1 - NWEL)(1 - PITR)(1 - CITR)$
<i>NWLC = Non-wage labour costs effective tax rate</i>	
<i>PITR = Personal income effective tax rate</i>	
<i>CITR = Effective tax rate on consumption</i>	
<i>NWEL = Non-wage labour costs paid by the employees</i>	

Table 11: The effective labour tax wedge, source: Martinez - Mongay (2000: 30-32)

Effective tax rates on capital income

The basic assumption of the effective tax rates on capital income computations is that total taxes on capital income should include taxes on personal income from capital, taxes on corporate income and property taxes.

The effective tax rate on capital income can be computed in more ways (as shown in table 12) according to whether the whole income of the self-employed is considered as a capital income or not and whether the capital income should include or exclude depreciation. For my own computations in the next chapter I used the capital effective tax rate assuming that the imputed wage income of the self-employed is not a capital income but it includes the gross operating surplus (the depreciation) in the tax base (KETG). My choice was similar to the choice of Martinez-Mendoza because it is the best approximation to the corporate income effective tax rate and can be compared to the statutory corporate income tax rate. On the other hand the MRT approach uses the capital effective tax rate assuming that the whole income of the self-employed is considered as a capital income and that the depreciation should be excluded from the tax base (KITN) (Martinez-Mongay, 2000: 32-33).

Capital effective tax rate ¹¹	$KITG = \frac{CORV + PWRV + (NWRV - ELRV) + PITR * (NOS - (NWRV - ELRV) - CORV - PWRV)}{GOS}$
Capital effective tax rate ¹²	$KITN = \frac{CORV + PWRV + (NWRV - ELRV) + PITR * (NOS - (NWRV - ELRV) - CORV - PWRV)}{NOS}$
Capital effective tax rate ¹³	$KETG = \frac{CORV + PWRV + PITR * (NOSA - CORV - PWRV)}{GOSA}$
Capital effective tax rate ¹⁴	$KETN = \frac{CORV + PWRV + PITR * (NOSA - CORV - PWRV)}{NOSA}$
Gross operating surplus	$GOSA = GOS - (LETB - COEL)$
Net operating surplus	$NOSA = NOS - (LETB - COEL)$
<i>CORV = Corporate tax revenues in % of GDP</i>	
<i>PWRV = Property tax revenues in % of GDP</i>	
<i>NWRV = Total social security contributions</i>	
<i>ELRV = Part of NWRV that refers to employed labour</i>	
<i>PITR = Personal income effective tax rate</i>	
<i>NOS = Net operating surplus</i>	
<i>GOS = Gross operating surplus</i>	
<i>LETB = Total labour costs</i>	
<i>COEL = Total compensation of employees</i>	

Table 12: The effective tax rates on capital income, source: Martinez - Mongay (2000: 32-36)

Comparison of taxes with efficiency and growth effects

At the end of his paper Martinez-Mongay (2000: 53-54) described the impact of ECFIN tax rates on economic efficiency (investment and employment) and growth. The conclusion of this part of his research was that:

- 1) “Labour and capital taxes negatively affect the private investment rate in the long run.”

¹¹ Assuming that the whole income of the self-employed is considered as a capital income and if depreciation is not excluded from the tax base

¹² Assuming that the whole income of the self-employed is considered as a capital income and if depreciation is excluded from the tax base

¹³ Assuming that the imputed wage income of the self-employed is not a capital income but it includes the gross operating surplus in the tax base

¹⁴ Assuming that the imputed wage income of the self-employed is not a capital income and that the imputed wage of the self-employed is not treated as a capital income, but one considers that depreciation should be excluded from the base

- 2) “Taxes are overall negatively correlated with growth. However, their effects on growth are lower than those on investment.”
- 3) Because the ECFIN approach does not “take account of the interplay of labour taxes with benefits and other market institutions, there are no significant effects of taxes on the employment and the unemployment rates” (Martinez-Mongay, 2000: 54).

According to Martinez-Mongay (2000:4, 14), using the AMECO data, this method provides a complete, transparent, replicable and internationally comparable set of tax indicators which can regularly be updated on the basis of European Commission Spring and Autumn forecasts. This method offers possible assessment of tax reforms in terms of the changes in the effective rates of non-wage labour costs, personal income taxes, direct taxes on labour and on employed labour, direct taxes on capital, and consumption taxes. Moreover this approach includes an indicator of the total tax wedge of labour and offers timeliness.

According to Martinez-Mongay (2000:4, 14) one of the important disadvantages of this method lies in the data limitations in AMECO that provides only poor information on the tax revenues. Total tax revenues are broken down into three items: social security contributions, taxes on income and wealth (direct taxes), and indirect taxes – that’s why the taxes on income and wealth need to be decomposed further into the revenues from the direct taxes on labour and the revenues from the direct taxes on capital. Moreover, AMECO does not provide an accurate proxy to household income so the denominator has to be proxied by a more or less exact measure of the personal income.

Other advantages and disadvantages come from the macro-backward methodology (see section 3.3).

6. Computation of effective tax rate for the Czech Republic

My major interest in the first part of this section is to prove or deny the hypotheses that the tax burden in the Czech Republic is lower than the European average. I will compare computed effective tax rates in the Czech Republic with the effective tax rates in European countries, in the so called EU-15 and in the USA. However the across country comparison will not be my only interest in this chapter. At least as interesting as across country comparisons of effective tax rates is the comparison of effective tax rates and statutory tax rates given by the law.

For this part of my research I will mostly use the ECFIN approach (as described in previous section) using the macroeconomic data available in OECD Revenue Statistics and AMECO database that I will in some cases compare to the MRT approach or to the Nicodeme's approach. For the comparison of the effective tax rates in the Czech Republic and European Union (and the USA) I have chosen an approach that is macro-backward looking for these reason: 1) the data are available easily and for free (AMECO database is available without any limitations, OECD databases are accessible after free subscription for one week), 2) macro-backward looking studies do not generally offer separated entries for different taxpayers but offer sufficient data for comparison of tax burdens in EU countries. I am looking for the comparison of each economies as a whole, not for size or sectoral study. That is why I have chosen a method that uses macroeconomic entries.

From all macro-backward looking approaches I have chosen the ECFIN approach because: 1) it gives us comparable results we would get from other macro-backward looking approaches but because it combines the data of OECD Revenue Statistics with AMECO database, it offers better comparison of tax burdens, 2) this approach includes an indicator of the total tax wedge of labour and offers timeliness, 3) using the OECD database can give us other useful aspects. According to Martinez-Mongay (2000:21) OECD Revenue Statistics database provides a more detailed breakdown of direct taxes. OECD Revenue Statistics distinguish between taxes on income, profits and capital gains of individuals (TRII), corporate taxes on income, profits and capital gains (TRCI), and revenues from any kind of property taxes (PROP).

Despite the fact that the chosen method was the best for this part of my research, I found some limitations and difficulties that need to be mentioned. Except for the limitations in data that were already mentioned in previous chapter the particular use of those data uncovered another shortages: 1) compared to the AMECO database that offers data (or their estimation) until the year 2010, the data from OECD Revenue Statistics' database have one year lag (the latest available data are from 2007), 2) there are no or only limited data for some countries (as Poland, Hungary or Slovakia) and 3) the data for EU-15 offered by AMECO are stated in Euros while those offered by OECD are stated in USD, the result is then biased according to the exchange rate that is used.

6. 1. Non-wage labour costs effective tax rate (NWLC)

6. 1. 1. Across-country comparison

From the computation of non-wage labour costs effective tax rate (or simply non-wage labour costs) for the Czech Republic and other states of European Union is obvious that NWLC in the Czech Republic is above average. This can be seen in table 13 and graph 2 that shows the comparison of average non-wage labour costs in the period from 2000 to 2007. The interpretation of the results is following: the difference between the nominal wage paid by the employer (including social security contributions and taxes on payroll) and the nominal wage received by the worker (excluding social security contributions and taxes on payroll) before paying personal income taxes is in the Czech Republic higher than in the most of European countries (and is also higher than in USA). In other words the workers in the Czech Republic contribute to the social security system with higher percentage of their income than workers in most of the European countries.

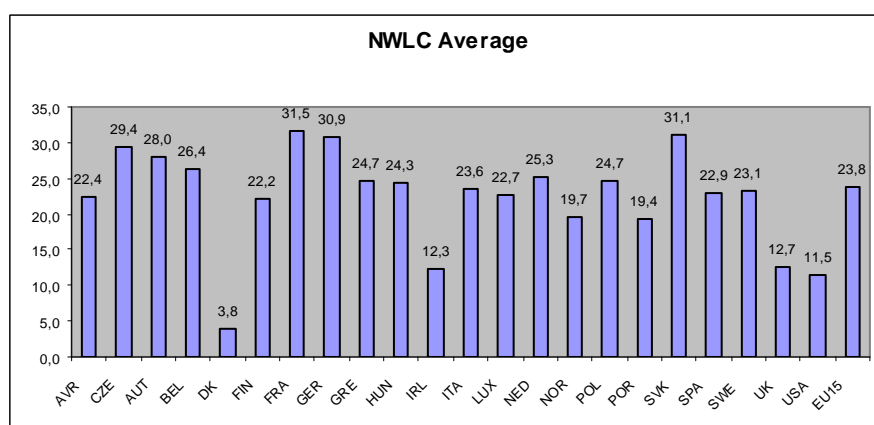
The average NWLC in the Czech Republic was almost 30% while the EU-15 average NWLC was around 23.5%. On graph 1 next to the Czech Republic on the left column AVR represents overall average of computed NWLC. Average value of 22.4% is again lower than the value of NWLC in the Czech Republic.

NWLC in the Czech Republic can be compared to NWLC in Austria, Germany, France or Slovakia. While the NWLC in the Czech Republic increased in last three years, the NWLC in other countries remained the same or signaled decrease. Interesting is comparison with other states, especially with Denmark that has NWLC less than 5%. The reason for such

low non-wage labour costs effective tax rate in Denmark is personal income effective tax rate (as is shown in the table of PITR) that is in this country very high.

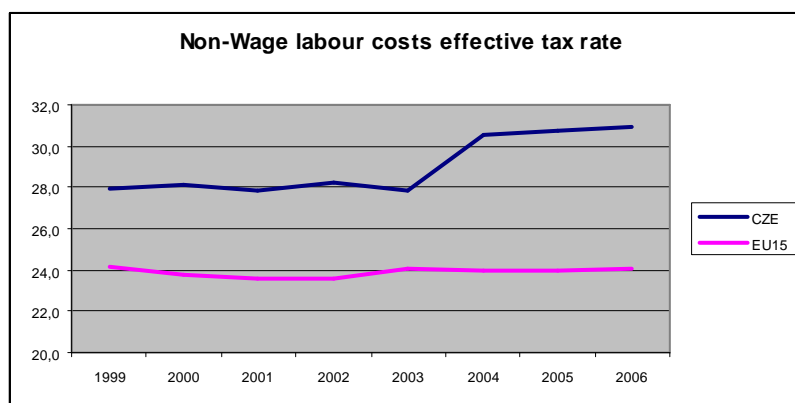
	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	IRL	ITA	LUX	NED	NOR	POL	POR	SVK	SPA	SWE	UK	USA	EU15
1990	-	23.5	25.6	2.8	20.0	33.8	-	16.9	-	11.8	22.8	21.1	26.7	20.2	-	14.9	-	-	-	11.2	11.3	
1991	-	23.7	25.9	3.0	20.2	33.8	27.8	18.0	-	12.2	23.3	21.1	27.8	20.2	-	14.8	-	-	-	11.3	11.4	
1992	-	24.5	26.2	3.2	22.2	34.4	28.1	18.1	26.5	12.3	23.8	21.5	28.1	20.5	19.9	15.2	-	-	-	11.3	11.5	
1993	-	25.3	26.5	3.3	24.6	34.7	29.0	19.9	29.0	12.4	24.6	21.7	27.8	19.2	20.1	15.8	-	-	22.1	11.6	11.5	
1994	-	26.2	26.4	3.9	26.8	35.0	30.3	20.4	28.5	12.3	25.0	21.1	29.8	19.2	19.5	16.6	31.0	-	22.6	11.8	11.6	
1995	28.9	26.9	26.2	3.6	25.6	35.0	30.6	20.5	26.9	11.9	25.4	21.3	28.1	19.1	20.0	17.3	35.3	21.1	22.8	11.8	11.7	
1996	27.8	27.6	26.3	3.6	24.5	35.4	31.8	21.3	25.1	11.3	26.0	21.3	27.3	19.1	20.0	16.9	36.1	21.4	23.7	12.0	11.6	
1997	28.2	27.9	26.3	3.5	23.8	34.9	32.7	21.5	26.1	11.0	26.4	21.2	27.4	19.1	20.1	17.1	32.9	21.4	23.3	12.2	11.6	
1998	28.1	27.9	26.6	3.5	23.7	31.6	32.3	21.8	26.2	10.6	23.3	21.5	26.9	19.1	20.2	17.5	32.7	21.4	23.4	12.0	11.5	
1999	27.9	28.1	26.4	4.3	23.7	31.7	31.8	21.9	25.7	11.1	23.2	22.1	27.9	19.1	24.2	17.5	31.7	21.6	21.1	12.1	11.4	24.2
2000	28.1	28.0	26.2	4.7	22.5	31.3	30.9	22.9	25.3	11.5	23.3	21.9	27.9	19.2	23.4	17.8	32.0	21.9	23.5	12.1	11.3	23.8
2001	27.8	28.0	26.1	4.5	22.5	31.2	30.7	23.8	24.7	11.9	23.1	22.2	25.0	19.5	23.5	18.1	33.0	22.3	23.6	12.1	11.4	23.6
2002	28.3	27.8	26.5	3.6	22.2	31.2	31.0	24.2	24.5	12.3	23.3	22.1	24.0	19.8	23.7	18.8	33.7	22.5	23.5	11.9	11.4	23.6
2003	27.9	27.8	26.6	3.6	21.8	31.6	31.3	25.4	23.8	12.3	23.4	23.0	24.8	19.8	24.4	19.4	32.4	22.9	23.3	12.5	11.4	24.0
2004	30.6	28.2	26.7	3.7	21.7	31.5	31.1	24.6	23.1	12.6	23.5	22.9	25.2	19.9	25.0	19.7	31.7	23.2	23.1	13.0	11.5	24.0
2005	30.7	28.3	26.5	3.6	21.9	31.7	31.1	24.6	23.4	12.4	23.7	23.1	24.2	19.9	25.5	20.1	29.9	23.3	23.1	13.4	11.6	24.0
2006	30.9	28.3	26.3	3.4	22.4	31.9	30.9	25.6	23.9	12.5	23.5	23.0	26.1	19.9	25.9	20.3	28.2	23.5	22.5	13.3	11.6	24.0
2007	31.1	28.1	26.3	3.2	22.4	31.8	30.0	26.3	26.1	12.6	24.7	23.2	24.9	19.7	25.8	21.0	28.3	23.7	22.3	13.4	11.5	

Table 13: Non-wage labour costs effective tax rate, source: own computations using the OECD and AMECO data



Graph 2: NWLC Average (2000-2007), source: own computations using the OECD and AMECO data

Graph 3 compares the non-wage labour costs effective tax rate in the Czech Republic and EU-15. We can see that until 2003 NWLC in the Czech Republic was around 28 per cent, it they rose to 30.6 in 2004 and the increasing trend continued to 31.1 in 2007. In EU-15 NWLC moved around 24% with slight decrease between 2000 and 2003. From 1999 to 2003 NWLC in the Czech Republic was approximately about 4% higher than in EU-15, from 2004 to 2006 this rate was approximately 7% higher in the Czech Republic than in EU-15.



Graph 3: Comparison of NWLC in the Czech Republic and EU-15, source: own computations using the OECD and AMECO data

6. 1. 2. Effective vs. statutory tax rate in the Czech Republic

The comparison of the non-wage labour costs effective tax rate with the “statutory” non-wage labour costs in the Czech Republic given by the social security contribution paid by both employees and employers is interesting (see table 14). From 1996 until 2008 employees paid 8% for social insurance and 4.5% for health insurance from their salary and employers paid for each employee 26% social insurance and 9% health insurance from his salary. That means that all together the statutory social security contributions varied from 50 to 45% of the salaries with decreasing trend. But the non-wage labour costs effective tax rates are much lower when vary from 28 to 31 % and have increasing trend. What causes this difference?

Certain sources of income are not the subject to social security contributions – for example contracts of services or income above the ceiling for the payment of social security contributions (i.e. in 2008 cumulated yearly incomes higher than CZK 1,034,880).

Period	social insurance			health insurance			total SSC		
	employee	employer	total	employee	employer	total	employee	employer	total
1.1.1993-30.6.1993	9	27	36	4.5	9	13.5	13.5	36	50
1.7.1993-31.12.1995	8.75	26.25	35	4.5	9	13.5	13.25	35.25	49
1996-2008	8	26	34	4.5	9	13.5	12.5	35	48
2009	6.5	25	31.5	4.5	9	13.5	11	34	45

Table 14: The development of social security contributions in the Czech Republic, source: Income Tax Act in recent version for each year

The statutory rates for social and health insurance in the Czech Republic changed this year (employees pay 6.5% for social insurance and 4.5% for health insurance from their salary

and employers pay for each employee 25% social insurance and 9% health insurance from salary they pay to the employee).

The increase in the Czech non-wage labour costs effective tax rate in 2004 is interesting because the statutory rates for social and health insurance remained the same. The explanation lies rather in outer effects affecting the Czech Republic than in the Czech tax law system. In May 2004 the Czech Republic joined the EU.

In light of the Czech tax law the computation of non-wage labour costs effective tax rate for the year 2009 would be interesting. Because this year the system of social security contributions changed.

6. 1. 3. Non-wage labour costs paid by the employers and the employees

For better orientation in the non-wage labour costs and for better comparison of the different system in different countries I decided to compute also the non-wage labour costs paid by the employees (NWEM) and the non-wage labour costs paid by the employers (NWER) (see tables 15 and 16 and graphs 4 and 5).

	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	IRL	ITA	LUX	NED	NOR	POR	SVK	SPA	SWE	UK	USA	EU15
1990	-	12.0	19.5	0.0	18.7	23.0	-	14.6	-	8.6	22.3	11.4	6.3	14.3	11.2	-	-	-	7.7	6.3	-
1991	-	12.0	20.0	0.0	19.4	22.9	15.4	15.4	-	8.8	22.3	11.2	6.5	14.1	11.2	-	-	-	7.8	6.4	0.0
1992	-	12.4	19.9	0.0	19.2	23.2	15.5	15.6	26.1	8.7	22.6	11.4	6.3	14.2	11.4	-	-	-	7.8	6.4	0.0
1993	-	12.8	19.9	0.0	20.2	23.1	16.0	16.8	27.2	8.6	22.1	11.5	6.1	12.8	11.8	-	-	21.1	8	6.5	0.0
1994	-	12.9	19.7	0.0	20.9	23.1	16.8	16.8	27.2	8.4	22.4	10.9	5.1	12.5	12.0	-	-	21.0	7.7	6.6	0.0
1995	21.9	13.2	19.3	0.0	20.8	22.8	16.9	16.1	26.2	8.5	22.7	10.8	5.4	12.3	13.5	-	18.0	19.5	7.6	6.5	16.5
1996	21.5	13.6	19.4	0.0	20.1	22.6	17.4	17.0	24.7	8.0	24.6	10.6	5.4	12.3	13.5	-	18.3	19.6	7.8	6.5	17.0
1997	21.9	13.6	19.5	0.0	19.6	22.7	17.9	17.1	24.0	8.0	25.2	10.5	4.9	12.3	13.7	-	18.1	18.3	7.7	6.4	16.8
1998	21.8	13.4	19.7	0.0	19.8	22.7	17.7	17.1	23.6	7.9	22.0	10.7	9.6	12.3	14.3	22.9	17.9	16.8	7.5	6.3	16.5
1999	21.7	13.3	19.5	0.0	19.8	22.7	17.4	16.6	21.5	8.3	22.1	10.4	9.3	12.4	14.2	21.9	17.8	13.1	7.7	6.2	16.2
2000	21.9	13.2	19.0	0.0	18.9	22.3	16.9	17.5	21.4	8.7	22.0	10.3	9.4	12.4	14.5	22.6	19.0	16.7	7.9	6.1	16.0
2001	21.8	13.0	18.8	0.0	19.1	22.1	16.8	17.7	20.6	9.2	21.7	10.5	9.3	12.6	14.6	22.4	19.4	17.1	7.9	6.2	16.0
2002	22.1	12.9	19.2	0.1	19.0	21.9	17.0	18.2	20.3	9.2	21.7	10.5	9.2	12.9	15.1	22.5	19.6	17.1	7.7	6.2	16.0
2003	22.1	12.9	19.3	0.1	18.5	22.1	17.2	18.5	20.1	9.0	22.1	10.8	9.1	12.9	15.2	21.9	19.8	16.3	8.1	6.2	16.3
2004	24.1	12.9	19.3	0.1	18.5	21.9	17.0	17.6	19.5	8.9	22.1	10.8	8.8	13.0	15.7	21.0	19.9	16.3	8.3	6.4	16.2
2005	24.0	13.1	19.1	0.1	18.5	21.9	16.9	17.4	19.9	8.9	21.9	10.8	8.9	13.0	16.0	19.0	20.0	16.4	8.5	6.4	16.2
2006	23.8	13.0	19.2	0.1	18.6	22.2	16.6	18.2	20.2	8.7	21.5	10.6	9.9	13.1	16.2	17.4	20.2	15.2	8.6	6.3	16.2
2007	23.8	12.9	-	0.0	18.6	22.1	16.1	-	20.6	9.2	22.3	10.5	9.7	12.9	16.9	17.5	20.2	15.1	8.7	-	-

Table 15¹⁵: Non-wage labour costs paid by employers, source: own computations using the OECD and AMECO data

¹⁵ Sum of the columns from tables 15 and 16 does not add up to column in table 13. This difference is caused by the difference in the ratios of NWLC and NWER and NWEM. While in the ratio of NWLC total social security contributions (NWRV) are divided by total labour costs (LETB), in the ratios of NWER and NWEM social security contributions paid by employers (ERRV) or employees (EMRV) are divided by total

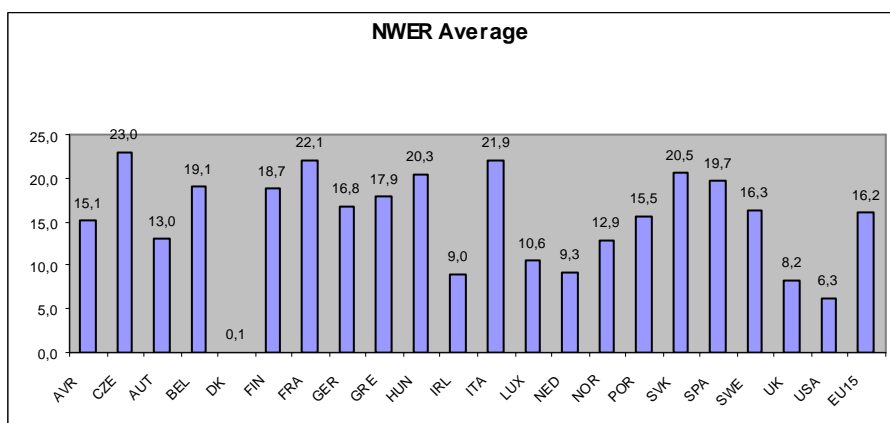
	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	IRL	ITA	LUX	NED	NOR	POR	SVK	SPA	SWE	UK	USA	EU15
1990	-	10.3	9.5	2.4	2.7	11.2	-	14.6	-	5.0	6.0	8.9	19.5	7.2	6.9	-	-	-	5.1	5.4	-
1991	-	10.3	9.3	2.4	2.3	11.0	13.6	15.4	-	5.0	6.3	9.0	20.3	7.2	6.9	-	-	-	5.1	5.5	0
1992	-	10.8	9.4	2.7	3.7	11.2	13.8	15.6	6.2	5.2	6.5	9.1	20.8	7.3	7.1	-	-	-	5.1	5.4	0
1993	-	11.1	9.8	2.5	5.3	11.4	14.2	17.2	7.0	4.9	7.0	9.1	20.6	7.2	7.3	-	-	0.9	5.1	5.4	0
1994	-	11.5	9.8	3.4	6.2	11.6	14.9	17.7	6.4	4.9	7.2	9.1	23.0	7.4	7.9	-	-	1.6	5.8	5.5	0
1995	8	11.4	9.9	3.3	5.6	11.5	14.9	14.4	5.2	4.6	7.3	9.3	21.2	7.3	7.1	-	4.2	2.8	5.9	5.5	11
1996	7.5	11.5	9.9	3.2	5.4	11.6	15.5	14.7	4.6	4.4	7.0	9.5	20.7	7.3	6.6	-	4.3	3.5	5.8	5.5	10
1997	7.6	11.5	9.8	3	5.2	10.9	16.1	14.6	4.9	3.8	7.1	9.6	21.0	7.2	6.6	-	4.1	3.8	6.1	5.5	10
1998	7.6	11.3	9.8	2.7	5	8.0	15.9	14.4	4.7	3.4	6.8	9.8	15.9	7.1	6.7	6.9	4.1	4.3	5.9	5.5	9.3
1999	7.6	11.3	9.7	3.9	5	8.1	15.6	14.4	5	4.0	6.1	10.5	16.4	7.1	6.7	7	4.1	4	5.8	5.5	9.1
2000	7.7	11.2	9.9	4.5	4.8	8.0	15.1	14.7	4.9	4.2	6.0	10.5	16.2	7.1	6.9	7.1	3.9	4.4	5.6	5.4	8.9
2001	7.6	11.3	9.9	4.2	4.6	8.0	15.0	15.2	5	4.1	6.0	10.7	13.8	7.1	7.3	7.5	3.9	4.3	5.6	5.5	8.7
2002	7.8	11.2	9.9	3.2	4.5	8.0	15.1	14.9	5.2	4.3	6.0	10.5	13.0	7.3	7.4	7.5	4.0	4.3	5.4	5.5	8.6
2003	7.8	11.2	9.8	3.2	4.4	8.1	15.3	16.0	5.1	4.5	5.8	10.9	13.7	7.3	7.9	7.3	4	4.3	5.9	5.4	8.7
2004	8.5	11.3	9.9	3.2	4.4	8.1	15.1	15.0	5.3	4.8	5.8	10.8	14.4	7.3	7.6	7.9	4	4.3	6.2	5.5	8.7
2005	8.4	11.3	9.7	3.2	4.6	8.1	15.3	15.2	5.1	4.4	5.6	10.9	13.7	7.2	7.6	8.2	4.1	4.3	6.3	5.4	8.6
2006	8.5	11.3	9.4	3	4.9	8.1	15.3	15.4	5.5	4.7	5.6	11.0	14.5	7.1	7.5	7.6	4.2	4.2	6.4	5.5	8.6
2007	8.5	11.1	-	2.7	4.8	8.1	14.9	-	7.5	4.6	5.7	11.2	13.6	7	7.7	7.7	4.2	4.1	6.4	-	-

Table 16: Non-wage labour costs paid by employees, source: own computations using the OECD and AMECO data

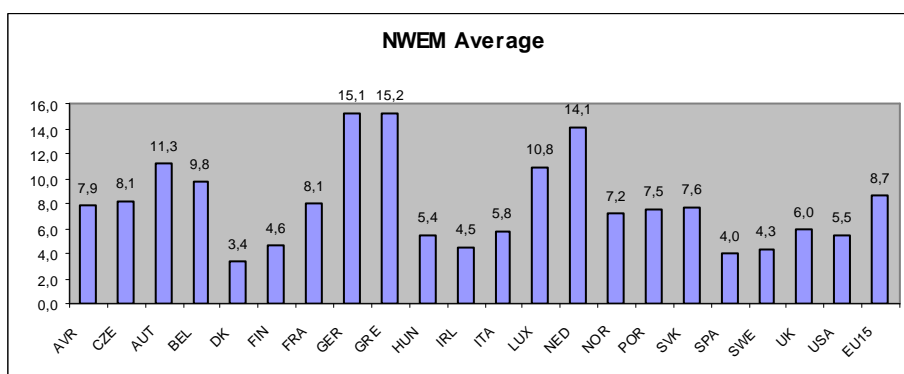
As we can see from tables 15 and 16 except for Denmark non-wage labour costs paid by employers are usually higher than those paid by employees. In Denmark all social security contributions are paid by employees. However it is not important who pays the social security contributions. Common economic argument implies that the sum of money that after deducting the SSC the employee gets is always the same regardless of whether he pays all the contributions or not. In my opinion the allocation of SSC between employees and employers changes a visibility of social security contributions to those contributing.

The so-called super-gross salary (including the social security contributions paid by both employees and employers) introduced in the Czech tax law in 2008 allows the employees see how much the employers pay from their salary. But as the final tax liability is calculated from this super-gross salary it may as well seem little confusing. The tax is calculated from “hypothetical” salary, from money that the employee will never receive. Overall it does not matter if the final tax liability is computed from the tax base including social security contribution or not. Only the effective tax rate shows the real burden imposed on each employee.

compensation of employees (COEL). Moreover NWLC include not only social security contributions but also taxes on payroll that are a part of tax systems in some countries.



Graph 4: NWER Average (2000-2007), source: own computations using the OECD and AMECO data



Graph 5: NWEM Average (2000-2007), source: own computations using the OECD and AMECO data

If we look at graphs 4 and 5 we can see that the average non-wage labour costs paid by employers are in the Czech Republic higher than the non-wage labour costs paid by the employees. The difference between them more or less corresponds to the difference between the statutory social security contributions. However we can again see that the non-wage labour costs effective tax rates are lower than the statutory ones.

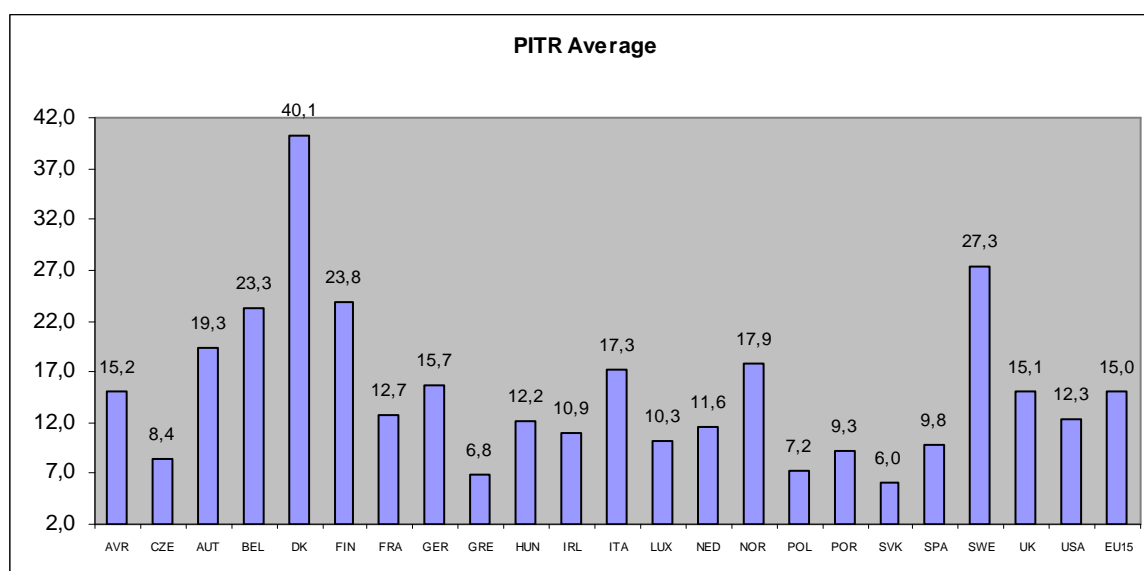
6. 2. The personal income effective tax rate

6. 2. 1. Across-country comparison

In comparison with other EU states the effective personal income tax rate in the Czech Republic is lower than the European average and actually is one of the lowest. The highest PITR was as expected in Denmark (recall very low NWLC) followed by other Scandinavian countries and Belgium.

	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	IRL	ITA	LUX	NED	NOR	POL	POR	SVK	SPA	SWE	UK	USA	EU15
1990	-	15.6	21.1	38.1	26.5	7.4	-	4.3	-	14.1	16.0	12.3	18.6	19.1	-	7.0	-	-	-	16.8	11.7	
1991	-	16.3	20.9	38.1	27.6	8.4	15.3	4.6	-	14.8	16.5	10.8	21.1	17.8	-	7.9	-	-	-	16.8	11.1	
1992	-	17.0	20.8	38.1	26.9	7.4	16.3	3.8	-	15.1	16.5	10.9	20.0	18.3	-	9.8	-	-	-	16.6	10.9	
1993	-	17.6	22.3	39.6	26.8	8.0	16.4	4.1	-	15.4	18.5	11.4	21.3	18.1	-	8.9	-	-	26.9	14.5	11.1	
1994	-	16.3	22.5	41.0	29.6	8.2	16.0	5.2	-	15.8	16.8	11.9	16.2	19.1	-	8.7	-	-	27.3	14.4	11.2	
1995	9.1	17.2	23.3	40.9	26.1	8.1	16.2	5.7	-	13.9	16.8	12.5	14.3	19.2	14.0	9.1	-	10.8	26.1	14.8	11.8	
1996	8.7	18.6	23.3	41.2	28.3	8.7	16.2	2.9	-	13.9	17.3	12.7	13.4	19.5	13.5	9.6	-	10.8	28.3	13.8	12.5	
1997	8.9	20.0	24.0	40.7	26.0	9.2	15.9	6.2	-	13.7	18.7	12.9	11.6	18.7	12.8	9.1	-	10.4	28.9	13.2	13.2	
1998	8.3	20.0	24.2	40.3	25.0	12.6	16.5	7.5	-	12.7	17.8	11.9	11.1	19.3	12.5	8.7	9.4	9.9	29.9	14.8	14.0	
1999	8.1	20.0	23.8	41.6	24.4	13.3	17.1	7.6	-	12.5	18.7	10.8	11.4	19.8	9.2	8.7	9.4	9.6	31.1	15.2	14.2	14.7
2000	8.4	19.2	24.0	40.6	26.4	13.4	18.0	7.3	13.0	12.3	18.0	10.7	11.0	18.1	8.2	9.4	7.4	9.4	30.7	15.6	15.2	23.3
2001	8.2	21.1	24.7	39.8	24.6	13.1	17.2	6.8	13.3	11.4	17.9	11.0	10.9	18.5	8.1	9.4	7.5	9.6	28.5	15.9	14.5	14.6
2002	8.6	20.3	24.6	39.2	24.3	12.3	16.1	7.0	13.1	9.9	16.9	10.0	11.7	19.1	8.1	9.2	7.0	9.7	25.6	14.8	11.4	13.8
2003	9.1	20.0	23.9	39.7	23.6	12.2	15.5	6.5	12.0	10.1	15.6	10.0	11.3	18.4	6.6	9.2	6.8	9.3	26.5	14.1	10.3	13.2
2004	9.2	19.3	23.3	40.6	22.8	12.1	14.1	6.6	11.1	10.9	16.1	9.8	10.5	18.2	5.9	8.8	5.2	9.0	26.8	14.4	10.2	12.9
2005	8.6	18.0	23.0	42.1	23.4	12.9	14.2	6.8	11.1	10.7	16.7	10.3	11.3	17.2	6.6	9.1	5.0	9.5	27.4	15.1	11.7	13.4
2006	7.9	17.9	21.6	39.5	22.8	12.8	14.8	6.8	11.2	11.1	18.0	10.2	12.5	16.4	7.1	9.5	4.6	10.3	27.0	15.5	12.4	13.7
2007	7.6	18.5	21.2	39.6	22.5	12.4	15.5	-	12.5	11.0	19.2	10.2	13.7	17.0	-	10.0	4.7	11.7	25.7	15.5	12.9	

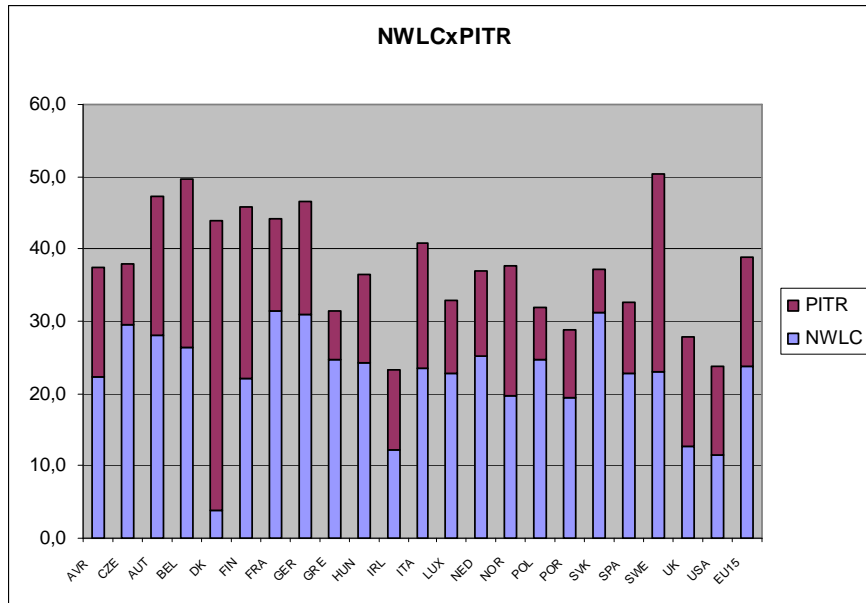
Table 17: The personal income effective tax rate, source: own computations using the OECD and AMECO data



Graph 6: PITR Average (2000-2007), source: own computations using the OECD and AMECO data

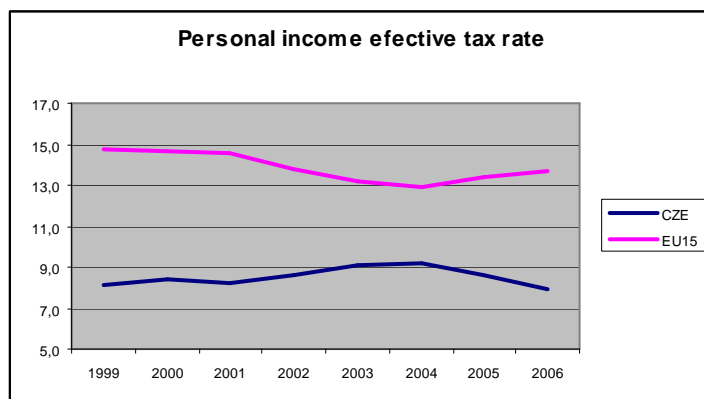
Countries with higher personal income effective tax rates usually have very low social security contributions and vice versa. For example Denmark compensates more than 40% average personal income effective tax rate with less than 4 % average non-wage labour costs effective tax rate. The Czech Republic, where the personal income effective tax rate is one of the lowest (less than 9%), has higher non-wage labour costs than most of other European countries (almost 30%). The relationship between NWLC and PITR in each country is shown in graph 7. The personal income effective tax rates only say how the income is taxed. To see the real burden that is imposed on individual tax payers we also have to compute non-wage labour costs that include social security contributions paid by

both employers and employees and taxes on payroll and workforce. That is why the computation of non-wage labour costs is so important. Better indicator of the final tax burden imposed on workforce is offered by the effective tax rate on labour that includes both non-wage labour costs and personal income tax rate.



Graph 7: Comparison of non-wage labour costs and personal income effective tax rate, source: own computations using the OECD and AMECO data

When we compare the development of personal income effective tax rate in the Czech Republic with the development of EU-15 personal income effective tax rate we can see that the trend of both rates was inverse. While the Czech personal income effective tax rate was increasing until 2004 and then decreasing the personal income effective tax rate in EU-15 was decreasing until 2004 and then increasing.



Graph 8: Comparison of PITR in the Czech Republic and EU-15¹⁶, source: own computations using the OECD and AMECO data

¹⁶ The value of 2000 was substituted with the average of 1999 and 2001

6. 2. 2. Effective vs. statutory tax rate in the Czech Republic

The computation of personal income effective tax rate is interesting because it offers direct comparison with statutory personal income tax rate that was often changing during recent years, at least in the Czech Republic. The development of personal income tax rate in the Czech Republic can be seen from table 18.

Period	tax base (in CZK) ¹⁷	tax	Average annual salary
2009		15% (21.75% ¹⁸)	
2008		15% (22.1% ¹⁹)	282,504 (2008)
2006 - 2007	0 -121200	12%	260,328 (2007)
	121200 - 218400	14544 + 19%	242,628 (2006)
	218400 - 331200	33012 + 25%	
	331200 - and more	61212 + 32%	
2001 - 2005	0 -121200	15%	227,904 (2005)
	121200 - 218400	16380 + 20%	216,492 (2004)
	218400 - 331200	38220 + 25%	203,004 (2003)
	331200 - and more	66420 + 32%	190,392 (2002) 177,516 (2001)
2000	0 -102000	15%	163,368 (2000)
	102000 - 204000	15300 + 20%	
	204000 - 312000	35700 + 25%	
	312000 - and more	62700 + 32%	
1999	0 -102000	15%	153,564 (1999)
	102000 - 204000	15300 + 20%	
	204000 - 312000	35700 + 25%	
	312000 - 110400	62700 + 32%	
	110400 - and more	316140 + 40%	

Table 18: The development of the statutory personal income tax rates in the Czech Republic, source: Income Tax Act in recent version for each year and Czech Statistical Office

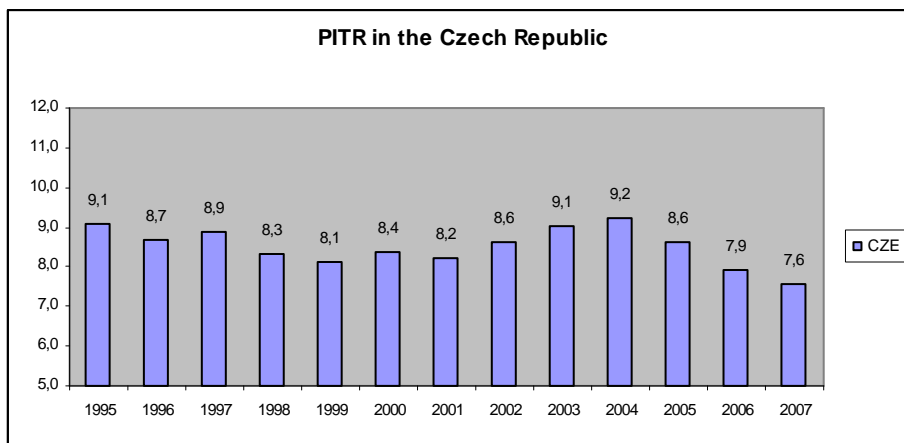
Before I start the comparison of the statutory personal income tax rates with the effective ones it is necessary to make little arrangements to the statutory rates. According to the Czech law until 2007 the taxable income or the “partial tax base” used for the computation of the final personal income tax liability consisted of the salary before taxes and after social security contributions paid by both employees and employers and after claiming of allowances and items deductible from the tax base. Since 2008 the statutory tax rate is implied on the super-gross salary including social security contributions paid by both employees and employers after claiming of allowances and deductible items. As shown in

¹⁷ From 1999 to 2007 the tax base was gross salary, excluding the social security contributions, lowered by tax-deductible items and tax allowances, since 2008 it is super-gross salary (including the social security contributions paid by both employee and employer) lowered by tax-deductible items and tax allowances.

¹⁸ The real statutory tax rate. Computed from the super-gross salary as 145 % of income before taxes (45 % = 34 % of social security contributions paid by employer + 11 % of social security contributions paid by employee).

¹⁹ The real statutory tax rate. Computed from the super-gross salary as 147.5 % of income before taxes (47.5 % = 35 % of social security contributions paid by employer + 12.5 % of social security contributions paid by employee).

table 18 if the partial tax base had remained the same the statutory personal income tax rate would be higher (approximately 22.1% instead of 15%).



Graph 9: Development of personal income effective tax rate in the Czech Republic, source: own computations using the OECD and AMECO data

Graph 9 shows the development of personal income effective tax rates in the Czech Republic. If we compare these effective tax rates with the statutory personal income tax rates we can see that the effective tax rates are lower than the statutory ones. The average personal income effective tax rate in the Czech Republic was in the period from 2000 to 2007 around 8% with decreasing trend in last three years (as we can see the PITR in the Czech Republic decreased from 9.2 in 2004 to 7.6 in 2007) while the statutory tax rates for employees with the lowest income was 15% in the period from 1999 to 2005 and 12% in the period from 2006 to 2007. In 2008 and 2009 the statutory personal income tax rate was 15% but because the tax liability was computed not from the gross salary excluding social security contributions but from the super-gross salary real statutory personal income tax rate that was 22.1%, respectively 21.75%.

The difference between the statutory personal income tax rate and personal income effective tax rate is caused by several things. First of all there are tax reliefs that make the tax rate lower (see table 19) and allowances that are deductible from the tax base (see table 19 and 20). Items written in table 19 used to be deductible from the tax base before 2006, from 2006 these items are deductible from the tax liability (and called tax reliefs). Each taxpayer claims a tax relief “for a taxpayer” and other tax reliefs if he or she meets criteria given by the law. Other possible tax reliefs are for wife/husband if her or his salary is lower than CZK 38,040 (effective from 2006) or if she or he is a holder of ZTP/P (disability) card, for partial disability pension, for whole disability pension, for a holder of ZTP/P card and for a student.

Period	Tax relief per year (2006-2009)/ Tax allowances (2005 and earlier)						
	For a tax payer	For wife/husband	For wife/husband ZTP/P	Partial disability pension	Whole disability pension	ZTP/P	Student
2008-2009	24840	24840	48680	2520	5040	16140	4020
2006-2007	7200	4200	8400	1500	3000	9600	2400
2005	38040	21720	43440	7140	14280	50040	11400

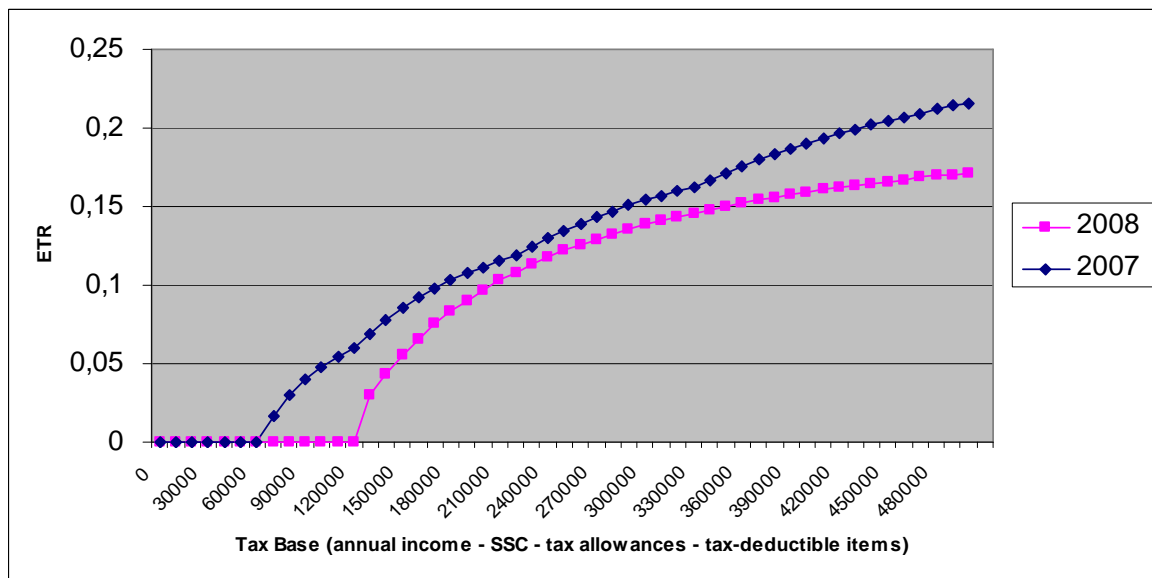
Table 19: Tax relief, source: Income Tax Act in recent version for each year

Except of the tax reliefs and allowances shown in tables 19 and 20 there are also tax-deductible items as expenses for research and development or deductions pursuant to Section 34, Subsection 9.10 of the Income Tax Act.

Tax allowances according to Sec. 15 of the Income Tax Act
Donations that exceed 2% of the tax base or at least in the amount of CZK 1,000 (no more than a total of 10% of the tax base)
Mortgage interests and interests from building savings (the total amount of deducted interests must not exceed CZK 300,000)
Payments paid towards the retirement insurance reduced by CZK 6,000 (the total amount must not exceed CZK 12,000)
Payments towards the private life insurance (the total amount must not exceed CZK 12,000)
Trade union contributions up to 1.5% of taxable income (the total amount must not exceed CZK 3,000)
Payments for exams verifying results of further education up to CZK 10,000 for the taxable period

Table 20: Tax allowances, source: Income Tax Act in recent version for each year

Unfortunately we do not have data for the year 2008 when important change in the tax law took place, the comparison of the 2007 personal income effective tax rate and the 2008 personal income effective tax rate could be interesting. Is the tax burden imposed on individual taxpayer higher now when the statutory tax rate is the same for everyone – 15%, but is computed from the super-gross salary and when the tax reliefs are significantly higher than in 2007? Or was it higher in the 2006-2007 period when the statutory tax rate was progressive with lower rate for lower income groups but also when the tax reliefs were lower? As we have no data for 2008 we cannot compute the effective tax rate but we can get the conclusion by simple thought experiment illustrated in graph 10.



Graph 10: Comparison of personal income effective tax rate in 2007 and 2008 after basic allowance for taxpayer, source: Income Tax Act in recent version for each year, own computations

Graph 10 illustrates the difference between the personal income effective tax rate in 2007 and 2008. The effective tax rate was in this case computed as a ratio of tax liability after basic tax relief for taxpayer²⁰ (tax base multiplied by statutory tax rate²¹) over the tax base. For simplification I assumed the same rules for creation of the tax bases in 2007 and 2008. We can see that in 2008 the effective tax rate (assuming that taxpayers are only allowed to claim the basic tax relief) is lower for taxpayers in all groups of tax bases than in 2007.

However, substantial decrease in the final tax liability would affect only employees with lower than average income and groups of employees with high income. We can also see that, because of the relief, the statutory tax rate is progressive even in 2008. As I already mentioned I assumed the same tax base for both periods. As the tax allowances did not significantly change within those two years and assuming that each tax payer claim only the basic tax relief the tax base would indeed be almost the same. The only difference is caused by inflation and following increase in nominal salaries in 2008. The annual average salary was CZK 260,328 in 2007 and CZK 282,504 in 2008. Because of this fact the curve of 2008 would move slightly left and up.

We can see that for the groups of employees with tax base of CZK 200,000 and CZK 300,000 would the final tax liability be then almost the same in both periods.

²⁰ CZK 7200 in 2007, CZK 24840 in 2008.

²¹ For statutory tax rates see table 18, For 2008 I used the real tax rate (22.1%) instead of the statutory tax rate.

Let me now compare graph 10 to numbers shown on graph 6 and table 17. The average personal income effective tax rate (in the period from 2000 to 2007) in the Czech Republic was according to graph 5 around 8.4%. In 2007 it was 7.6. This may seem in contradiction with the effective tax rate illustrated by graph 10. For the gross average salary that in 2007 was CZK 268,584 the effective tax rate after basic relief would be according to graph 10 14%. But as there are more people with lower than average gross salary than people with higher than average gross salary the aggregate effective tax rate is lower than 14%. Moreover the effective tax rate is affected by the zero tax liabilities applicable to tax payers with low salaries (assuming only basic tax relief it is a salary of CZK 60,000). Finally there are other tax reliefs that are deducted from the tax liability that make it and therefore also the effective tax rate lower.

6. 2. 3. The proposal of 2010 statutory personal income tax rate prepared by the Czech Social Democratic Party (ČSSD)

In the last section of this subchapter I would like to talk about the proposals of personal income tax rate prepared by Social Democrats. This proposals that should work as a tool for solving the financial crisis suggest high taxation of rich people. First version (released in spring of 2009) of proposed tax rates for different annual incomes (tax bases) after deducting social security contributions, tax allowances and tax-deductible items is shown in table 21a. The second version of the proposal that was released in autumn 2009 is shown in table 21b.

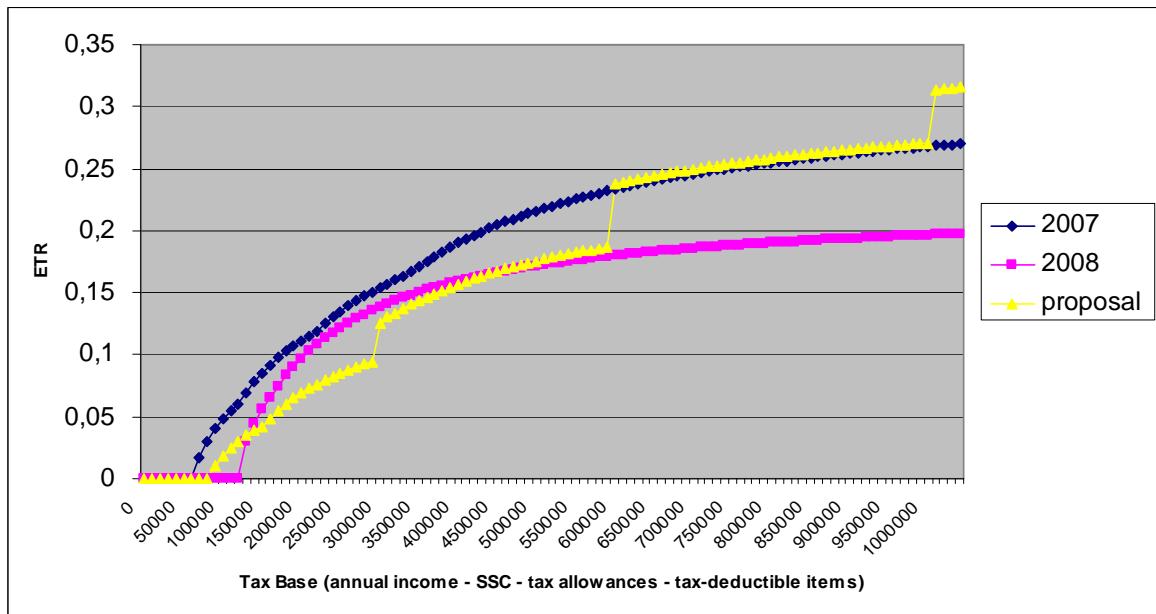
The first version of the proposal:

Tax Base from CZK - to CZK	Statutory tax rate	From the tax base over
0 - 150,000	9 %	
150,000 - 300,000	CZK 13,500 + 15 %	CZK 150,000
300,000 - 600,000	CZK 45,000 + 25 %	CZK 300,000
600,000 - 1,002,000	CZK 150,000 + 32 %	CZK 600,000
1,002,000 - and more	CZK 320,600 + 40 %	CZK 1,002,000

Table 21a: The first proposal of personal income tax rate given by the ČSSD, source: Parliament of the Czech Republic (2009)

Graph 11a compares the proposed effective tax rate with effective tax rates in 2007 and 2008. The proposal describes the tax rate but forgets the tax reliefs that are very important for specifying the final tax liability. Therefore I supposed the same basic tax relief as in

2007 where the taxation had similar character. That means for 2007 and for the proposed effective tax rate I supposed basic tax relief CZK 7,200 while for 2008 I supposed basic tax relief CZK 24,840.



Graph 11a: Comparison of the proposed personal income (first version) effective tax rate with personal income effective tax rates in 2007 and 2008 after basic allowance for taxpayer, source: Income Tax Act in recent version for each year, Parliament of the Czech Republic (2009), own computations

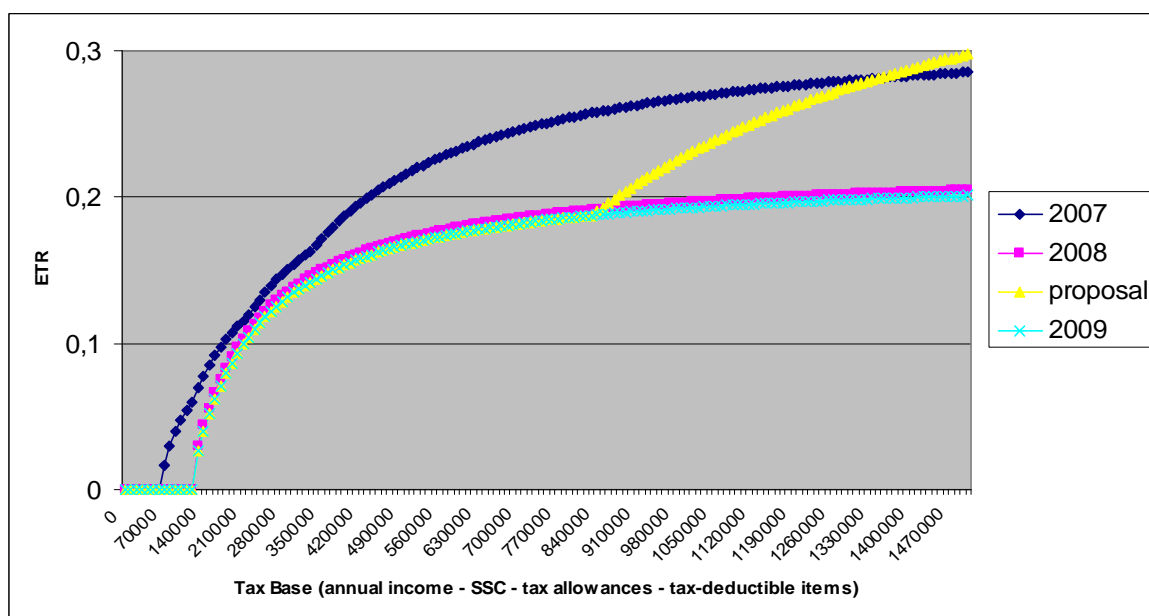
As shown on graph 11a the proposed effective tax rate is lower than the effective tax rates in 2007 or 2008 for the tax bases below CZK 420,000 (except for tax bases below CZK 150,000 where the 2008 effective tax rates was zero). From CZK 420,000 until CZK 600,000 it is higher than in 2008 but lower than in 2007. Until CZK 1,000,000 the proposed effective tax rate more or less copies the effective tax rate in 2007 but then it is much higher. The curve of the proposed effective tax rate differs from the curves in 2007 and 2008. As we can see on graph 11a it is not continuous but it includes “jumps” at the border tax bases. In my opinion this is kind of weird. Why should people whose tax base differs by CZK 1,000 pay much higher or lower tax? Continuous curve of effective tax rate is in my opinion much more fair than this one.

The second version of the proposal:

Tax base	Statutory tax rate
below CZK 1,200,000	15 %
over CZK 1,200,000	CZK 180,000 + 30 % from the income exceeding CZK 1,200,000

Table 21b: The second proposal of personal income tax rate given by the ČSSD, source: Parliament of the Czech Republic (2009)

We can see that the statutory tax rate according to the second proposal is exactly the same as the 2008 one for people with annual income below CZK 1,200,000. Those whose annual income is higher than 1,200,000 will pay fixed fee of CZK 180,000 plus additional 30 % from the amount of their annual income that is exceeding CZK 1,200,000. Graph 11b compares this effective tax rates that comes from this proposal with effective tax rates in 2007 and 2008 after basic tax relief, supposing that the system of tax reliefs and allowances is the same as in 2008.



Graph 11b: Comparison of the proposed personal income (second version) effective tax rate with personal income effective tax rates in 2007 and 2008 after basic allowance for taxpayer, source: Income Tax Act in recent version for each year, Parliament of the Czech Republic (2009), own computations

6. 2. 4. Comparison to the MRT approach

Table 22 shows the values of effective tax rate on labour calculated following the MRT approach as described in subchapter 5.3.1. Graph 12 then compares the 2000-2007 average of these values with average values calculated following the ECFIN approach. The difference between the MRT and the ECFIN rates is not significant. The 2000 - 2007 average of all samples differs about 2,5 percent. Moreover, we can see that MRT rates points similar differences between countries as the ECFIN rates. Again Scandinavian countries are the most taxed, on the other hand the Czech Republic belongs to low-taxed countries.

This difference is caused mostly by different calculations of personal income tax rate. The MRT approach looks at personal income tax rate as on representative agent's total income tax rate that is computed as a ratio of individual income tax revenue - which represents the difference between post-tax and pre-tax individual income - to pre-tax household income. The latter is then defined as the sum of wage and nonwage individual income that consists of the sum of wages and salaries²², property and entrepreneurial income²³ and the operating surplus of private unincorporated enterprises²⁴ (Mendoza, Razin, Tesar, 1994: 305).

On the contrary the ECFIN approach apply a rather broad definition of personal income from capital. Instead of using property and entrepreneurial income plus the operating surplus of private unincorporated enterprises, it defines the household income from capital as the net operating surplus of the economy, which is available in AMECO minus the imputed labour income of the self-employed minus other direct taxes on capital, namely the corporate income tax and taxes on property and wealth (Martinez – Mongay, 2000: 22).

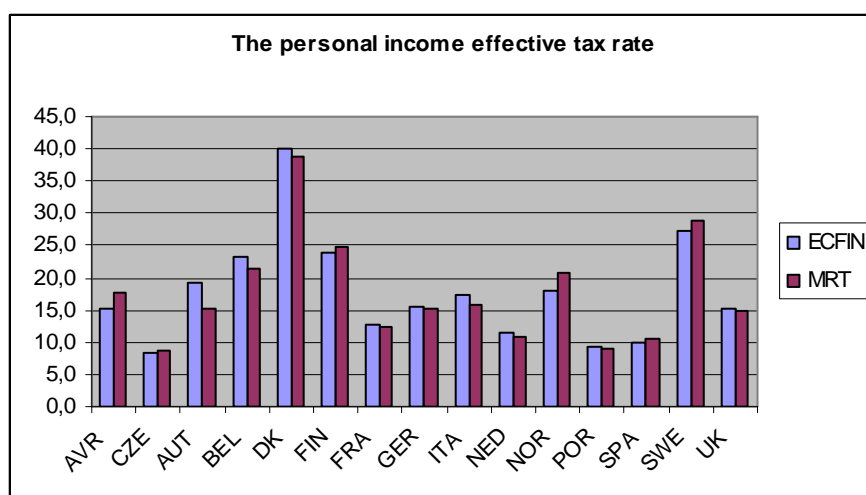
²² OECD code: NFD11R: Wages and salaries (of households and non-profit institutions serving households)

²³ OECD code: NFD4R: Property income (of households and non-profit institutions serving households)

²⁴ OECD code: NFB2G_B3GR: Operating surplus and mixed income, gross (of households and non-profit institutions serving households)

	CZE	AUT	BEL	DK	FIN	FRA	GER	ITA	NED	NOR	POR	SPA	SWE	UK
1990					24,2	7,2		13,1	15,0					
1991					23,1	8,4		13,2	16,6					
1992					22,2	7,7		14,1	15,4	17,3				
1993					23,9	7,9		15,1	16,1	17,2				
1994					27,8	8,2		13,8	12,6	18,8				
1995	8,3	13,7	20,5	37,6	25,4	7,9	17,4	14,2	11,4	18,8	8,1		28,8	13,8
1996	8,5	14,5	20,4	38,1	27,8	8,4	15,6	14,2	10,5	19,5	8,6		30,0	13,2
1997	8,4	15,4	21,2	38,5	26,3	9,0	15,1	15,2	9,4	20,3	8,4		31,1	12,5
1998	8,5	15,5	21,2	37,8	26,0	12,6	15,8	15,1	9,2	20,5	8,5		31,4	13,9
1999	8,2	15,6	21,0	38,7	25,0	13,1	15,9	16,4	9,4	20,7	8,7		33,2	14,5
2000	8,6	15,0	21,1	38,8	26,4	13,2	15,9	15,4	9,2	21,0	9,0	10,0	31,0	14,9
2001	8,6	16,1	21,1	38,6	25,6	12,7	16,4	15,7	9,6	21,4	9,1	10,3	28,7	15,0
2002	8,9	16,1	21,7	38,8	25,6	12,2	15,3	15,5	10,9	19,9	8,9	10,5	27,0	14,8
2003	9,1	16,0	22,0	39,0	24,6	12,3	14,5	15,7	10,8	19,9	8,9	10,2	28,5	14,4
2004	9,3	15,5	22,3	38,6	23,9	12,1	13,8	15,7	10,2	20,7	8,6	9,9	29,6	14,5
2005	8,9	14,7	22,2	38,9	24,3	13,0	14,1	15,6	11,6	20,0	8,7	10,3	29,8	15,0
2006	8,3	14,6	21,1	38,1	23,9	12,6	15,1	15,9	12,2	21,4	8,9	10,8	29,5	15,5
2007	7,7	14,8	20,6	39,0	23,5	12,2	16,1	16,5	12,4	21,5		11,6	27,3	15,7

Table 22: MRT personal income effective tax rate, source: own computations using the OECD data



Graph 12: Comparison of MRT and ECFIN personal income effective tax rates, source: own computations using the OECD and AMECO data

6. 3. The effective tax rate on labour

6. 3. 1. Across-country comparison

The effective tax rate on labour expresses in fact the effective tax burden on labour. As it includes both social security contributions and personal income tax rate it is a better indicator of the burden imposed on employees that are receiving wage than personal income effective tax rate. If the effective tax rate on labour was the same for all countries we could say that labour income is taxed in the same way. Regardless of whether the final taxation is more carried by the social security contributions as it is in the Czech Republic

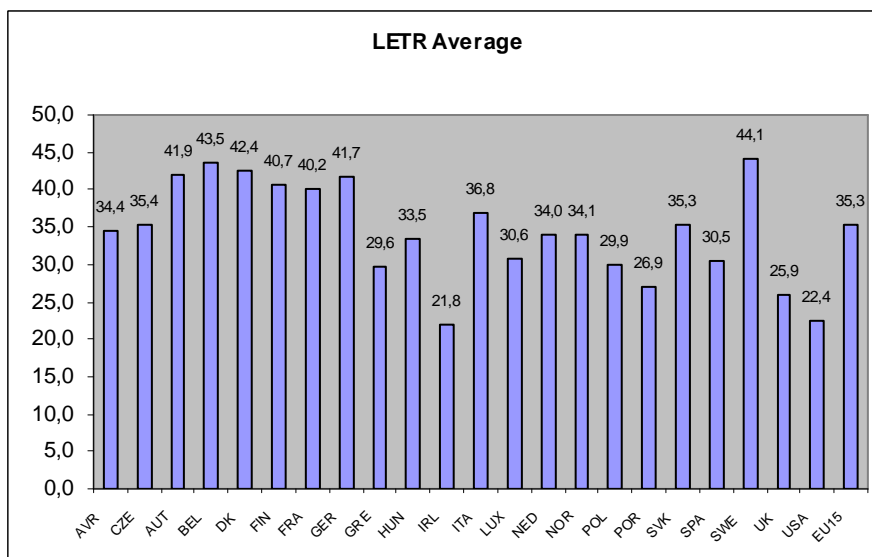
or Slovakia or whether it is more carried by personal income tax rate as it is in Denmark (for more examples see graph 13).

Looking at table 23 or graph 13 we can see that the differences among the effective tax rates on labour are much lower than the differences among the non-wage labour costs or the personal effective tax rates. That means that there are not such big differences between taxes imposed on labour.

	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	IRL	ITA	LUX	NED	NOR	POL	POR	SVK	SPA	SWE	UK	USA	EU15
1990	-	35.5	41.3	39.9	41.2	38.8	-	20.5	-	24.3	35.1	30.9	40.4	35.5	-	20.8	-	-	-	26.1	21.7	
1991	-	36.1	41.4	39.9	42.2	39.4	38.8	21.8	-	25.2	35.9	29.7	43.0	34.5	-	21.5	-	-	-	26.2	21.2	
1992	-	37.3	41.6	40.1	43.1	39.2	39.8	21.2	-	25.6	36.4	30.0	42.5	35.1	-	23.5	-	-	-	26.0	21.1	
1993	-	38.4	42.9	41.6	44.8	39.9	40.6	23.2	-	25.9	38.5	30.6	43.2	33.8	-	23.4	-	-	43.1	24.4	21.3	
1994	-	38.2	42.9	43.3	48.5	40.3	41.5	24.5	-	26.1	37.6	30.5	41.2	34.7	-	23.8	-	-	43.7	24.5	21.6	
1995	35.3	39.5	43.4	43.1	45.0	40.2	41.8	25.0	-	24.1	38.0	31.2	38.4	34.7	31.2	24.8	-	29.7	43.0	24.9	22.0	
1996	34.1	41.1	43.5	43.3	45.9	41.0	42.9	23.6	-	23.6	38.8	31.2	37.0	34.9	30.8	24.9	-	29.9	45.3	24.1	22.7	
1997	34.6	42.4	44.0	42.8	43.7	40.9	43.4	26.4	-	23.2	40.1	31.4	35.8	34.3	30.3	24.7	-	29.6	45.5	23.8	23.3	
1998	34.1	42.4	44.4	42.4	42.8	40.2	43.5	27.7	-	22.0	37.0	30.9	35.0	34.7	30.2	24.7	39.0	29.2	46.3	25.0	23.9	
1999	33.8	42.5	43.9	44.1	42.3	40.7	43.5	27.9	-	22.2	37.5	30.6	36.1	35.2	31.2	24.7	38.1	29.1	45.6	25.5	24.0	35.3
2000	34.1	41.8	43.9	43.4	43.0	40.5	43.3	28.5	35.0	22.4	37.1	30.3	35.9	33.8	29.6	25.5	37.0	29.2	47.0	25.8	24.7	41.5
2001	33.8	43.2	44.3	42.6	41.6	40.3	42.7	29.0	34.7	21.9	36.8	30.8	33.2	34.4	29.7	25.8	38.0	29.7	45.4	26.1	24.3	34.7
2002	34.4	42.4	44.6	41.4	41.1	39.7	42.1	29.5	34.4	21.0	36.2	30.0	32.9	35.1	29.9	26.2	38.4	30.0	43.1	24.9	21.5	34.1
2003	34.4	42.2	44.1	41.9	40.2	40.0	41.9	30.3	32.9	21.1	35.4	30.7	33.3	34.6	29.3	26.8	36.9	30.0	43.6	24.9	20.5	34.1
2004	37.0	42.1	43.8	42.8	39.5	39.7	40.8	29.5	31.6	22.1	35.9	30.4	33.0	34.5	29.4	26.8	35.2	30.0	43.7	25.5	20.6	33.8
2005	36.7	41.2	43.4	44.2	40.1	40.5	40.9	29.7	31.9	21.8	36.5	31.0	32.8	33.7	30.4	27.3	33.5	30.6	44.2	26.4	22.0	34.2
2006	36.4	41.1	42.2	41.6	40.1	40.7	41.1	30.7	32.4	22.3	37.3	30.9	35.3	33.0	31.2	27.8	31.5	31.4	43.4	26.7	22.5	34.4
2007	36.4	41.4	41.9	41.5	39.8	40.3	40.8	-	35.3	22.1	39.1	31.1	35.2	33.4	-	28.9	31.6	32.6	42.2	26.9	22.9	

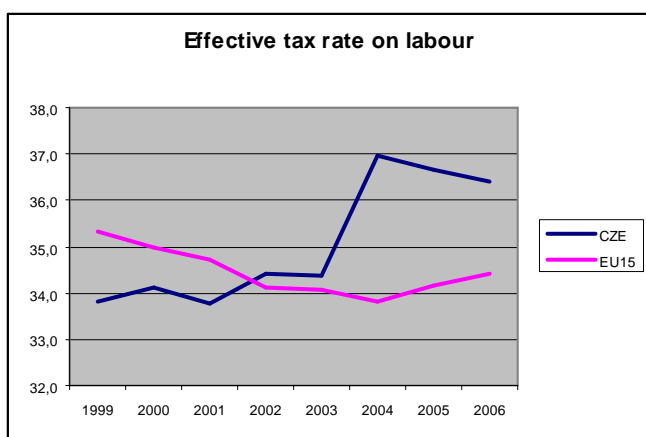
Table 23: The effective tax rate on labour, source: own computations using the OECD and AMECO data

According to the results in table 23 or graph 13 the average effective tax rate on labour in the Czech Republic is only one percent higher than the average of all covered countries (expressed as AVR) and is more or less equal to the effective tax rate on labour of EU-15 countries. Countries where the employees are taxed more than in the Czech Republic are for example Austria, Belgium, Germany, Scandinavian countries except of Norway, and France. In the same group as the Czech Republic are Hungary, the Netherlands, Norway and Slovakia. Countries with lower taxation are Greece, Ireland, Poland, Portugal or the United Kingdom. For example employees in the United States pay in average less taxes than employees in Europe.



Graph 13: LETR Average (2000-2007), source: own computations using the OECD and AMECO data

Graph 14 not only shows the difference between the effective tax rates on labour in the Czech Republic and EU-15 but also shows the trend of both rates. We can see that from 2003 to 2004 the effective tax rate on labour in the Czech Republic significantly increased. From 2004 it started to decrease. What happened on 2004 that the LETR increased by 2.5%? According to graph 3 this change was caused by the increase of non-wage labour costs effective tax rate. Explanation of this fact was given earlier in subchapter 6.1.



Graph 14: Comparison of LETR in the Czech Republic and EU-15, source: own computations using the OECD and AMECO data

6. 3. 2. Comparison to the MRT approach

Table 24 shows the values of effective tax rate on labour calculated following the MRT approach as described in subchapter 5.3.1. Graph 15 again compares the 2000 - 2007 average of these values with average values calculated following the ECFIN approach. We can see that the difference between the MRT and the ECFIN rates is quite high. The 2000 - 2007 average of all samples is 41,8 for the MRT rates and 34,4 for the ECFIN rates. This

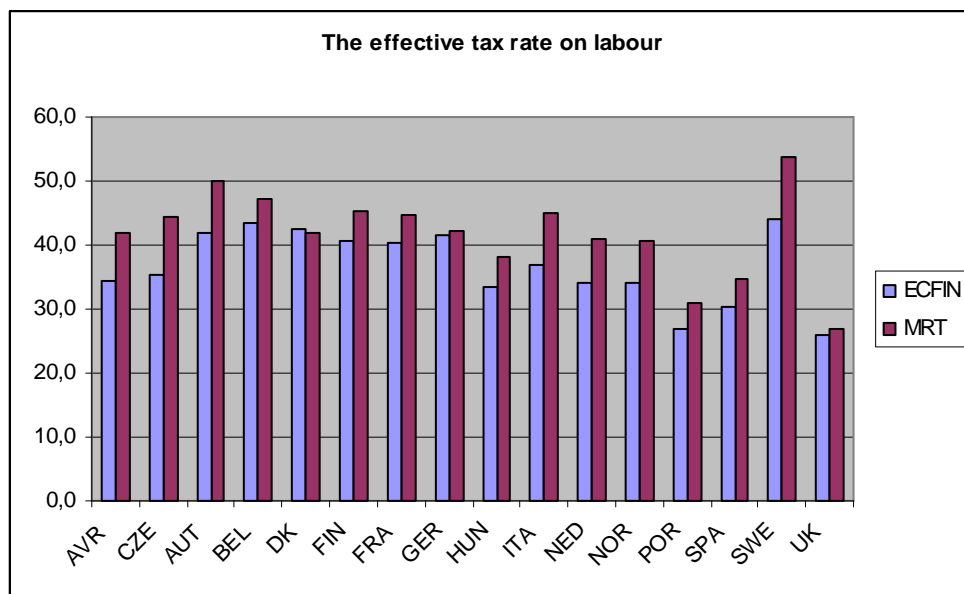
difference was caused by different approach and different data that was used for computation of both rates.

The effective tax rate on labour according to the ECFIN approach is the ratio of the sum of non-wage labour costs (social security contributions) plus the personal income tax revenues attributable to labour income to the pre-tax labour income and is calculated using both OECD and AMECO data. On the other hand the MRT approach calculates the effective tax rate on labour as a multiple of representative agent's total income tax rate (τ_h – for details see subchapter 3.5.1.) and wages plus total security contributions and taxes on payroll and workforce and this all divided by wages plus employer's contributions to social security. The difference between τ_h and PITR (according to the ECFIN methodology) was already explained in subchapter 6.2.4. so in this subchapter I focus only on the difference of other components in calculations of both rates.

The ECFIN approach, contrary to the MRT methodology, introduces total labour costs as the total compensation of employees multiplied by the ratio of occupied population to wage and salary earners or the opportunity costs of self-employed. Total labour costs creates the effective labour tax base (Martinez – Mongay, 2000: 16). On the other hand the MRT approach only uses wages and salaries. The ECFIN approach assume that imputed wage income of the self-employed is not a capital income (but a labour income) and that a part of it is a subject of effective tax rate on labour because self-employed pay social security contributions but the MRT approach assume that the whole income of the self-employed is capital income and therefore is only a subject of effective tax rate on capital income. Also the MRT approach incorporates taxes on payroll and workforce that are not included in the ECFIN calculation. We can see that the difference between both rates are lower when countries have taxes on payroll and workforce zero (i.e. Czech Republic, Belgium, Finland, Germany, the Netherlands, Norway, Spain and the United Kingdom). Also the fact that the ECFIN approach takes some items from the AMECO database and the MRT approach uses only OECD databases makes a difference between final values.

	CZE	AUT	BEL	DK	FIN	FRA	GER	HUN	ITA	NED	NOR	POR	SPA	SWE	UK
1990					41,2	45,0			41,1	47,4					
1991					41,2	45,6			41,5	50,2					
1992					42,7	45,4			42,9	50,0	38,0				
1993					46,8	45,8			45,2	50,4	36,8				
1994					52,2	46,2			43,8	49,1	38,1				
1995	42,2	46,9	46,7	40,2	49,3	45,9	43,5	40,2	45,3	48,1	37,9	28,9		50,6	25,2
1996	42,0	48,3	46,6	40,7	50,1	46,5	42,4	39,1	47,6	45,2	38,5	29,1		52,7	24,6
1997	42,7	49,5	47,2	41,2	48,2	46,2	42,8	40,0	48,5	45,8	39,0	29,3		54,6	24,2
1998	43,6	49,6	47,5	40,6	47,7	44,9	43,3	39,9	44,9	41,2	39,0	29,3		56,4	25,2
1999	43,9	49,7	46,9	42,6	46,8	45,3	43,0	40,1	45,3	42,5	39,9	29,4		59,0	25,8
2000	44,1	48,9	46,7	42,7	47,1	44,9	42,6	39,5	44,7	42,4	40,3	30,0	33,6	55,4	26,0
2001	43,9	50,3	46,5	42,6	46,3	44,3	42,9	39,0	44,4	39,2	40,9	30,4	34,2	53,6	26,0
2002	44,5	50,3	47,3	41,7	45,9	43,9	42,0	39,3	44,5	39,3	39,7	30,6	34,5	52,1	25,5
2003	44,5	50,3	47,5	41,7	44,7	44,4	41,8	37,5	44,9	39,7	39,9	31,3	34,5	53,6	26,0
2004	45,1	50,4	47,9	41,3	44,0	44,3	41,2	36,3	45,1	40,6	40,6	31,2	34,5	54,4	26,8
2005	44,7	49,7	47,5	41,5	44,6	45,3	41,4	36,6	44,9	41,1	40,0	31,7	34,9	54,5	27,6
2006	44,1	49,5	46,3	40,6	44,9	45,1	42,4	36,9	44,8	43,8	41,2	32,0	35,4	54,5	28,3
2007	44,0	49,5		41,5	44,4	44,7	42,8	40,0	46,2	42,5	41,3		36,0	52,5	28,1

Table 24: MRT effective tax rates on labour, source: own computations using the OECD data



Graph 15: Comparison of MRT and ECFIN effective tax rates on labour, source: own computations using the OECD and AMECO data

6. 4. The effective tax rate on consumption

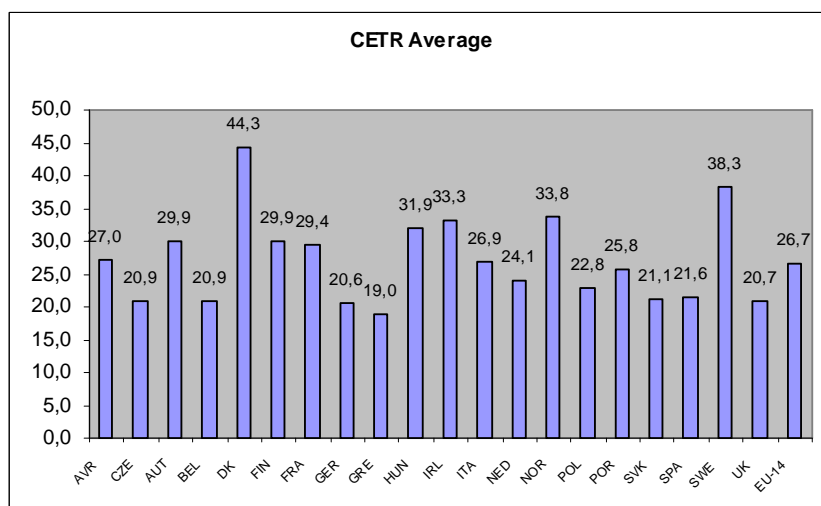
6. 4. 1. Across-country comparison

The effective tax burden on consumption in the Czech Republic is slightly above 21%. This rate is again below the European average since the Nordic countries have CITR close to 40% and Austria, France or Italy close to 30%. The average of all computed samples is 27.1%. If we look at graph 16 we can see that with average effective tax rate on consumption around 21% the Czech Republic is actual one of the lowest-taxed countries.

Comparable effective tax rates on consumption can be found in Germany, Belgium, Slovakia or United Kingdom. As the data for Luxembourg were not available the EU-15 average was this time substituted with the EU-14 (without Luxembourg) average.

	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	IRL	ITA	NED	NOR	POL	POR	SVK	SPA	SWE	UK	EU-14
1990				39.3	34.9	27.7					18.9	20.0	35.9	-					19.8	11.5
1991			18.0	37.7	32.3	27.0	19.2				19.7	19.9	36.6	29.8					21.3	13.9
1992			18.1	37.4	30.8	26.5	19.1				19.8	19.8	35.8	24.6					20.9	13.7
1993			18.8	38.3	30.1	27.2	19.5				21.5	21.3	36.9	28.9				35.8	20.0	16.6
1994			19.5	39.1	31.2	28.7	20.3				21.0	20.4	38.7	31.2				34.9	20.8	16.8
1995	23.5	28.4	18.6	39.5	29.3	29.6	19.3	21.3			22.0	20.5	38.5	26.2	22.7	29.3	18.0	34.3	20.8	23.2
1996	23.0	29.1	19.5	41.2	29.3	31.0	19.2	22.0			21.7	21.4	39.1	25.9	23.4	25.9	18.2	35.6	21.1	23.8
1997	20.7	30.4	20.4	42.2	32.0	31.6	19.3	23.1			22.9	21.9	40.1	24.7	23.3	24.7	18.9	36.3	21.7	24.6
1998	19.9	30.9	20.5	44.5	32.0	32.0	19.9	23.5			29.2	22.1	38.5	23.1	24.9	23.4	20.3	38.4	21.3	25.7
1999	20.9	31.5	21.7	45.7	32.1	32.2	21.0	25.2			28.2	23.1	38.1	23.9	25.5	22.6	20.9	42.1	21.8	26.5
2000	20.5	30.4	21.1	44.0	31.1	30.4	20.5	20.5	34.5		27.6	22.9	37.3	21.4	24.3	22.6	20.6	36.3	21.7	25.1
2001	20.1	29.9	20.0	44.8	29.6	29.2	19.9	20.1	32.0		26.6	24.0	35.6	20.9	24.5	19.5	20.0	36.7	20.9	24.7
2002	19.7	30.8	20.3	44.9	30.0	29.3	19.9	19.3	30.3	30.0	27.0	23.3	33.2	21.7	26.2	20.1	20.6	37.3	20.7	27.1
2003	19.9	30.3	20.3	44.3	30.5	28.9	20.0	18.5	31.3	30.9	25.9	23.3	31.0	22.0	27.0	21.6	21.5	37.8	20.7	27.1
2004	21.8	30.2	21.2	44.0	30.0	29.6	20.2	18.1	33.3	33.5	26.2	24.2	31.6	21.8	25.1	22.0	22.1	38.2	20.9	27.4
2005	22.2	29.5	21.3	44.3	29.9	29.6	20.3	17.7	31.3	35.2	26.2	24.7	32.5	23.7	26.4	22.5	22.8	39.0	20.2	27.7
2006	21.3	28.7	21.8	44.5	29.3	29.4	21.0	18.6	30.4	36.7	27.9	25.0	34.2	25.2	27.0	19.8	23.3	40.2	20.4	28.1
2007	21.9	29.3	21.3	43.3	28.4	29.0	22.9			33.3	27.6	25.1	34.9	25.9	26.2	20.6	21.7	41.2	20.4	26.4

Table 25: The effective tax rate on consumption, source: own computations using the OECD and AMECO data



Graph 16: CETR Average (2000-2007), source: own computations using the OECD and AMECO data

Tax burden on consumption includes indirect taxes in terms of the value of final consumption. Valuable is then the comparison with the statutory rates of VAT, energy and environmental taxes.

	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN
1991		20 (10)	19 (6.1)	22		18.6 (5.5.2.1)	14 (7)	18 (8.4)	25 (15.0)
1992		20 (10)	19.5 (12.6.1)	25		18.6 (5.5.2.1)	14 (7)	18 (8.4)	25 (15.0)
1993	23 (5)	20 (10)	19.5 (12.6.1)	25		18.6 (5.5.2.1)	15 (7)	18 (8.4)	25 (10)
1994	23 (5)	20 (10)	20.5 (12.6.1)	25	22 (12.5)	18.6 (5.5.2.1)	15 (7)	18 (8.4)	25 (10)
1995	22 (5)	20 (10)	20.5 (12.6.1)	25	22 (17.12.6)	20.6 (5.5.2.1)	15 (7)	18 (8.4)	25 (12.0)
1996	22 (5)	20 (10)	21 (12.6.1)	25	22 (17.12.6)	20.6 (5.5.2.1)	15 (7)	18 (8.4)	25 (12.0)
1997	22 (5)	20 (10)	21 (12.6.1)	25	22 (17.12.6)	20.6 (5.5.2.1)	15 (7)	18 (8.4)	25 (12.0)
1998	22 (5)	20 (10)	21 (12.6.1)	25	22 (17.8)	20.6 (5.5.2.1)	16 (7)	18 (8.4)	25 (12.0)
1999	22 (5)	20 (10)	21 (12.6.1)	25	22 (17.8)	20.6 (5.5.2.1)	16 (7)	18 (8.4)	25 (12.0)
2000	22 (5)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	16 (7)	18 (8.4)	25 (12.0)
2001	22 (5)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	16 (7)	18 (8.4)	25 (12.0)
2002	22 (5)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	16 (7)	18 (8.4)	25 (12.0)
2003	22 (5)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	16 (7)	18 (8.4)	25 (12.0)
2004	19 (5)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	16 (7)	18 (8.4)	25 (15.5)
2005	19 (5)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	16 (7)	19 (9.4.5)	25 (15.5)
2006	19 (5)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	16 (7)	19 (9.4.5)	20 (5)
2007	19 (5)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	19 (7)	19 (9.4.5)	20 (5)
2008	19 (9)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	19 (7)	19 (9.4.5)	20 (5)
2009	19 (9)	20 (10)	21 (12.6)	25	22 (17.8)	19.6 (5.5.2.1)	19 (7)	19 (9.4.5)	20 (5)

Table 26a: The Development of VAT rates in the European Union. Source: European Commission

	IRL	ITA	NED	POL	POR	SVK	SPA	SWE	UK
1991	21 (12.5.10.2.3)	19 (12.9.4)	18.5 (6)		17 (8)		12 (6)	25 (13.64.4.17)	17.5
1992	21 (12.5.10.2.7)	19 (12.9.4)	17.5 (6)		16 (5)		15 (6.3)	25 (18)	17.5
1993	21 (12.5.2.5)	19 (9.4)	17.5 (6)	22 (7.3)	16 (5)	25 (6)	15 (6.3)	25 (21.12)	17.5
1994	21 (12.5.2.5)	19 (9.4)	17.5 (6)	22 (7.3)	16 (5)	25 (6)	15 (6.3)	25 (21.12)	17.5
1995	21 (12.5.2.5)	19 (10.4)	17.5 (6)	22 (7.3)	17 (5)	25 (6)	16 (7.4)	25 (21.12)	17.5 (8)
1996	21 (12.5.2.8)	19 (10.4)	17.5 (6)	22 (7.3)	17 (12.5)	23 (6)	16 (7.4)	25 (12.6)	17.5 (8)
1997	21 (12.5.3.3)	20 (10.4)	17.5 (6)	22 (7.3)	17 (12.5)	23 (6)	16 (7.4)	25 (12.6)	17.5 (5)
1998	21 (12.5.3.6)	20 (10.4)	17.5 (6)	22 (7.3)	17 (12.5)	23 (6)	16 (7.4)	25 (12.6)	17.5 (5)
1999	21 (12.5.4)	20 (10.4)	17.5 (6)	22 (7.3)	17 (12.5)	23 (10)	16 (7.4)	25 (12.6)	17.5 (5)
2000	21 (12.5.4.2)	20 (10.4)	17.5 (6)	22 (7.3)	17 (12.5)	23 (10)	16 (7.4)	25 (12.6)	17.5 (5)
2001	20 (12.5.4.3)	20 (10.4)	19 (6)	22 (7.3)	17 (12.5)	23 (10)	16 (7.4)	25 (12.6)	17.5 (5)
2002	21 (12.5.4.3)	20 (10.4)	19 (6)	22 (7.3)	21 (12.5)	23 (10)	16 (7.4)	25 (12.6)	17.5 (5)
2003	21 (13.5.4.3)	20 (10.4)	19 (6)	22 (7.3)	21 (12.5)	20 (14)	16 (7.4)	25 (12.6)	17.5 (5)
2004	21 (13.5.4.4)	20 (10.4)	19 (6)	22 (7.3)	21 (12.5)	19	16 (7.4)	25 (12.6)	17.5 (5)
2005	21 (13.5.4.8)	20 (10.4)	19 (6)	22 (7.3)	21 (12.5)	19	16 (7.4)	25 (12.6)	17.5 (5)
2006	21 (13.5.4.8)	20 (10.4)	19 (6)	22 (7.3)	21 (12.5)	19	16 (7.4)	25 (12.6)	17.5 (5)
2007	21 (13.5.4.8)	20 (10.4)	19 (6)	22 (7.3)	21 (12.5)	19 (10)	16 (7.4)	25 (12.6)	17.5 (5)
2008	21.5 (13.5.4.8)	20 (10.4)	19 (6)	22 (7.3)	20 (12.5)	19 (10)	16 (7.4)	25 (12.6)	15 (5)
2009	21.5 (13.5.4.8)	20 (10.4)	19 (6)	22 (7.3)	20 (12.5)	19 (10)	16 (7.4)	25 (12.6)	15 (5)

Table 26b: The Development of VAT rates in the European Union. Source: European Commission (2009)

Tables 26a and 26b show the development of VAT in European Union Countries. The numbers in the brackets refer to reduced VAT rate. We can see that standard VAT rates in

European Union are somewhere between 16% in Spain to 25% in Denmark. Statutory VAT rates are lower than effective tax rates on consumption because the latter consist additionally from energy and environmental taxes. However we can see that Denmark which has the highest statutory VAT rate has also the highest effective tax rate on consumption. Greece that has the lowest average statutory VAT rate has also the lowest effective tax rate on consumption.

6. 4. 2. Effective vs. statutory tax rate in the Czech Republic

In the case of the Czech Republic the average effective tax rate on consumption is more or less equal to the average statutory standard VAT rate. That means that only a small part of effective tax rate on consumption belongs to energy and environmental taxes. This could be caused by two different facts: 1) the statutory energy and environmental tax rates are altogether lower than statutory VAT rates, 2) the consumption of goods that are a subject of energy and environmental taxes is much more lower than the consumption of goods that are a subject of VAT. It is impossible to measure energy taxes in per cents because these tax rates are usually expressed in ratio of tax liability (in CZK) to amount of good. The same applies for environmental taxes that were in the Czech Republic introduced in 2008. That is why the minority of energy and environmental tax rates in the effective tax rate on consumption is demonstrably caused only by the second argument.

6. 4. 3. Comparison to the MRT approach

Again, table 27 shows the values for effective tax rate on consumption calculated according to the MRT approach and graph 17 shows the comparison between the average ECFIN and MRT effective tax rate on consumption. We can see that ECFIN rates are on average about 5 percent higher than MRT rates. This is probably caused by different data usage. ECFIN approach follows the MRT methodology. The idea of the pre-tax value of consumption calculation is similar: it is computed as private final consumption, plus government final consumption, minus the compensation of employees of general government, minus consumption tax revenues. The data for the government final consumption²⁵ and the compensation of employees of general government²⁶ are the same, even if the MRT method takes them from OECD source and ECFIN method takes them from the Ameco database. There is a slight difference between the data of private final

²⁵ OECD code: GP3P: Final consumption expenditure

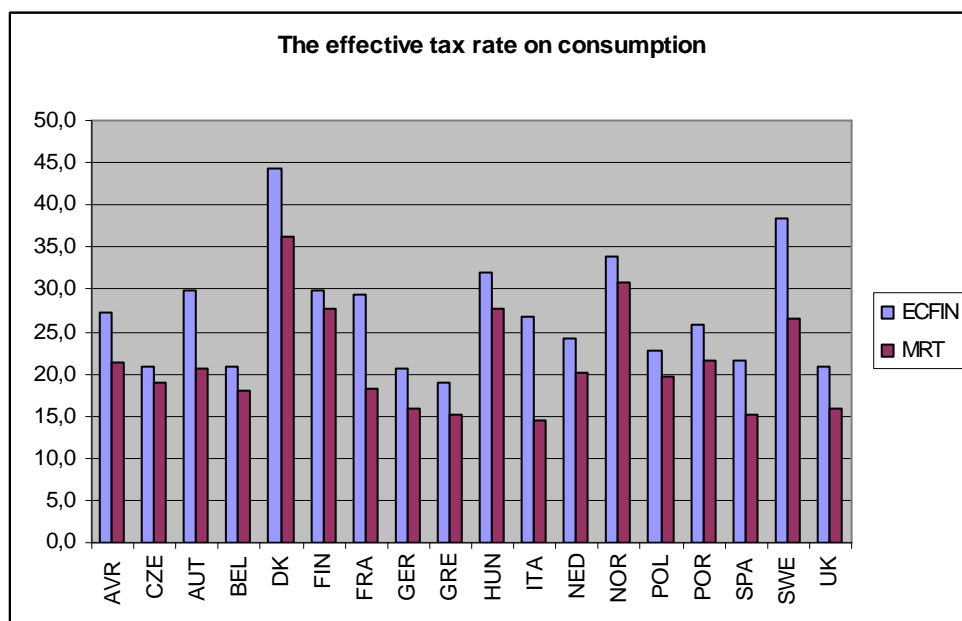
²⁶ OECD code: GD1P: Compensation of employees, payable

consumption²⁷ but the main difference between MRT and ECFIN rates is caused by different numbers for consumption tax revenues. While MRT approach uses the combination of OECD items 5110 and 5121 that stand for general taxes and excises (including taxes on mineral oil, alcohol, beer, wine, tobacco, electricity, natural gas, solid fuels, duties and levies, depending on the tax system of each country), the ECFIN approach uses INRV item from Ameco database which means taxes linked to imports and production (indirect taxes). As INRV values are higher than the sum of 5110 and 5121, also ECFIN effective tax rates on consumption are higher.

	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	ITA	NED	NOR	POL	POR	SPA	SWE	UK
1990				32,9	29,3					15,0							16,0
1991				31,8	27,1		14,9			15,1							16,5
1992				31,2	25,9		15,2			15,0							16,9
1993				31,1	25,8		15,7			14,9							16,6
1994				32,3	27,2		16,5			16,1							17,0
1995	18,4	19,8	16,7	33,3	27,8	19,1	15,8			15,4	18,1			20,5	12,9	27,5	17,3
1996	18,2	20,5	17,0	34,7	27,7	20,0	15,6			14,5	18,6	33,4		21,2	13,2	26,0	17,5
1997	17,0	21,6	17,3	35,0	30,3	20,1	15,4			14,3	18,7	34,2		20,9	13,7	25,9	17,5
1998	16,7	21,6	17,3	36,2	30,1	20,1	15,6			15,2	18,9	33,2		22,1	14,4	26,2	17,4
1999	17,9	22,2	18,3	37,3	30,4	20,3	16,4			14,8	19,8	34,5		22,1	15,2	25,7	17,4
2000	17,3	21,1	18,2	36,5	29,5	19,3	16,4	15,4		15,6	19,6	33,5		21,0	15,3	25,6	16,9
2001	17,4	20,7	17,1	36,6	28,1	18,7	15,9	16,0	27,5	15,0	20,2	31,9		21,1	14,7	26,1	16,3
2002	17,1	21,3	17,6	36,5	28,1	18,5	15,9	15,8	26,1	14,7	19,4	30,2	18,0	21,9	14,8	26,0	16,1
2003	17,3	20,8	17,4	35,8	28,6	18,0	16,0	15,1	26,7	14,1	19,5	28,4	18,4	21,6	15,2	26,2	16,3
2004	20,3	20,8	18,1	35,5	27,6	18,0	15,6	14,7	30,0	13,8	20,1	29,1	18,6	21,2	15,1	26,4	16,2
2005	21,2	20,5	18,6	36,4	27,4	18,0	15,4	14,5	28,6	13,8	21,1	30,0	20,0	22,1	15,3	26,8	15,6
2006	20,3	19,6	18,7	36,8	27,0	17,4	15,6	15,2	27,6	14,3	20,5	31,5	20,7	22,3	15,4	27,1	15,4
2007	20,9	20,1	18,2	36,0	26,0	17,4	17,1	15,2		14,1	20,6	32,1	22,2	21,5	14,8	27,7	15,3

Table 27: MRT effective tax rates on consumption, source: own computations using the OECD data

²⁷ OECD code: P31NC: Final consumption expend. of res. households on the territory and abroad



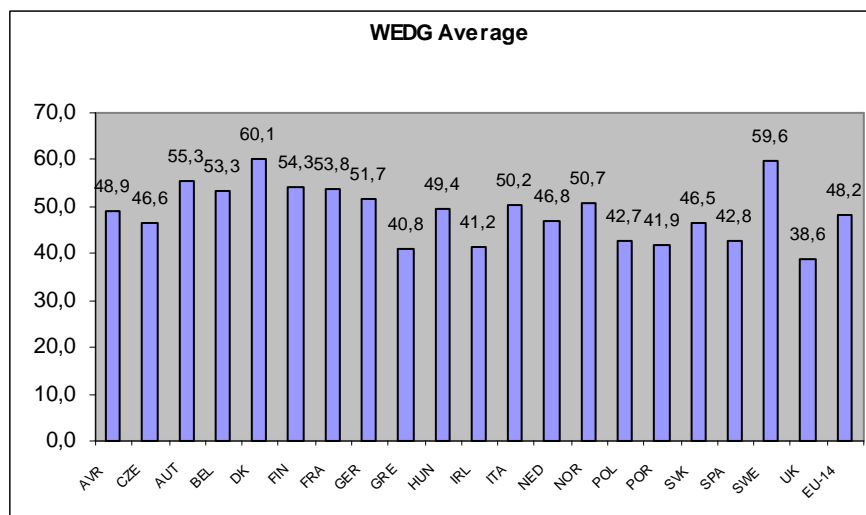
Graph 17: Comparison of MRT and ECFIN effective tax rates on consumption, source: own computations using the OECD and AMECO data

6. 5. The effective labour tax wedge

The effective labour tax wedge describes the gap between the real labour costs of the firm, on the one hand, and the real, post-tax consumption wage of worker, on the other. In the Czech Republic it represents the difference between the super-gross salary and final amount of money that employees have left for final consumption after deducting indirect taxes. The effective labour tax wedge in the Czech Republic corresponds to the European average. From table 28 and graph 18 we can see that the highest effective labour tax wedge is in Scandinavian countries, namely Denmark and Sweden where it reaches the value of 60%. On the other hand the lowest effective labour tax wedge is in the United Kingdom and Greece where it corresponds to 40%. The effective labour tax wedge in the Czech Republic is somewhere in the middle. Similarly as in the previous subchapter as the data for Luxembourg were not available the EU-15 average was this time substituted with the EU-14 (without Luxembourg) average.

	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	IRL	ITA	NED	NOR	POL	POR	SVK	SPA	SWE	UK	EU-14	
1990				56.8	56.4	52.1					45.5	50.3	52.5						38.3	21.4	
1991			50.4	56.4	56.3	52.3	48.7				46.5	52.5	52.0						39.2	28.7	
1992			50.5	56.4	56.5	51.9	49.4				46.9	52.0	52.2						38.8	28.7	
1993			51.9	57.8	57.6	52.7	50.3				49.4	53.2	51.7						58.1	37.0	33.4
1994			52.2	59.2	60.7	53.6	51.3				48.4	51.1	52.9						58.3	37.5	33.7
1995	47.6	52.9	52.3	59.2	57.5	53.9	51.2	38.2			49.1	48.9	52.8	45.4	38.7		40.4	57.5	37.9	45.6	
1996	46.4	54.3	52.7	59.8	58.2	55.0	52.1	37.4			49.7	48.1	53.2	45.0	39.1		40.7	59.6	37.4	46.0	
1997	45.8	55.8	53.5	59.8	57.3	55.1	52.5	40.2			51.3	47.3	53.1	44.1	38.9		40.8	60.0	37.4	46.4	
1998	45.1	56.0	53.8	60.1	56.7	54.7	52.9	41.4			51.2	46.8	52.8	43.2	39.7	50.6	41.1	61.2	38.2	46.7	
1999	45.2	56.3	53.9	61.6	56.3	55.2	53.3	42.4			51.3	48.1	53.1	44.5	40.0	49.5	41.3	61.7	38.8	47.2	
2000	45.3	55.4	53.7	60.7	56.5	54.4	53.0	40.7	51.7		50.7	47.8	51.8	42.1	40.1	48.6	41.3	61.1	39.1	46.7	
2001	44.8	56.3	53.6	60.3	54.9	53.8	52.2	40.9	50.5		50.1	46.1	51.6	41.8	40.4	48.1	41.4	60.0	38.9	46.4	
2002	45.2	56.0	54.0	59.6	54.7	53.3	51.8	41.0	49.7	39.2	49.8	45.6	51.3	42.4	41.6	48.7	42.0	58.6	37.8	48.9	
2003	45.3	55.6	53.6	59.7	54.2	53.4	51.6	41.2	48.9	39.8	48.7	45.9	50.1	42.1	42.4	48.1	42.4	59.1	37.8	48.9	
2004	48.3	55.5	53.6	60.3	53.5	53.5	50.7	40.3	48.7	41.6	49.2	46.1	50.3	42.0	41.5	46.9	42.7	59.2	38.4	49.0	
2005	48.2	54.6	53.3	61.3	53.9	54.1	50.9	40.3	48.1	42.1	49.7	46.1	50.0	43.7	42.5	45.7	43.5	59.9	38.8	49.4	
2006	47.6	54.3	52.6	59.5	53.7	54.1	51.3	41.6	48.2	43.1	51.0	48.3	50.1	45.1	43.2	42.8	44.4	59.6	39.2	49.7	
2007	47.8	54.7	52.1	59.2	53.1	53.7	51.9			41.6	52.3	48.2	50.6		43.7	43.3	44.7	59.1	39.3	46.7	

Table 28: The effective labour tax wedge, source: own computations using the OECD and AMECO data



Graph 18: WEDG Average (2000-2007), source: own computations using the OECD and AMECO data

Graph 18 shows that the across-country differences among the effective labour tax wedges are smaller than in previous cases of effective tax rates. That means that the distribution of taxes is different across countries. Scandinavian countries, in which the taxes are the highest, lay stress on personal income taxes and taxes on consumption while having low non-wage labour costs. Germany, for example, has high non-wage labour costs, average personal income tax rate and low taxes on consumption. The Czech Republic has non-wage labour costs above average but low personal income tax rate and consumption taxes. However as the effective labour tax wedge shows small differences and, according to graph 18, we can see that workers in countries with the highest average salary (except of

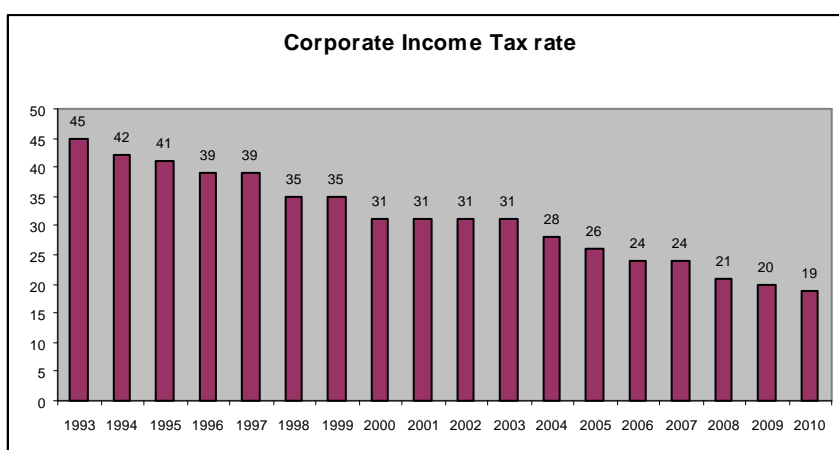
the UK) are taxed more than workers in countries with the lowest average salary, the tax burden imposed on worker is quite similar.

Table 28 shows us another attribute of across-country taxation: effective labour tax wedge registered only slight changes during the years. That means the increase in one tax causes the decrease in another tax and vice versa. To conclude this subchapter, the effective labour tax wedge shows that it is not important how the taxes are distributed because the final tax burden will always be the same. Finally I would like to say that contrary to tax incidence the effective tax rates do not care about who carries the tax burden but about who pays it. For the tax incidence theory (see Fullerton: 2002) the effective tax rates have the same predicative value as statutory tax rates.

6. 6. The effective tax rate on capital income

6. 6. 1. Across-country comparison

The effective tax rate on capital income is another effective tax rate that can be compared to the statutory tax rate, in this case to the corporate income tax rate. graph 19 shows the development of the statutory corporate income tax rate in the Czech Republic. We can see that the decrease of the corporate income tax rate from 45% in 1993 to planned 19% in 2010. This decreasing trend of statutory corporate income tax rates does not occur only in the Czech Republic but in whole Europe. However only the effective tax rates can say whether the tax burden imposed on companies is really lower or not. It is not just the statutory tax rate but also the definition of the tax base (including non tax-deductible expenses and non-taxable incomes) as well as the system of allowances and tax reliefs that influence the final tax liability.



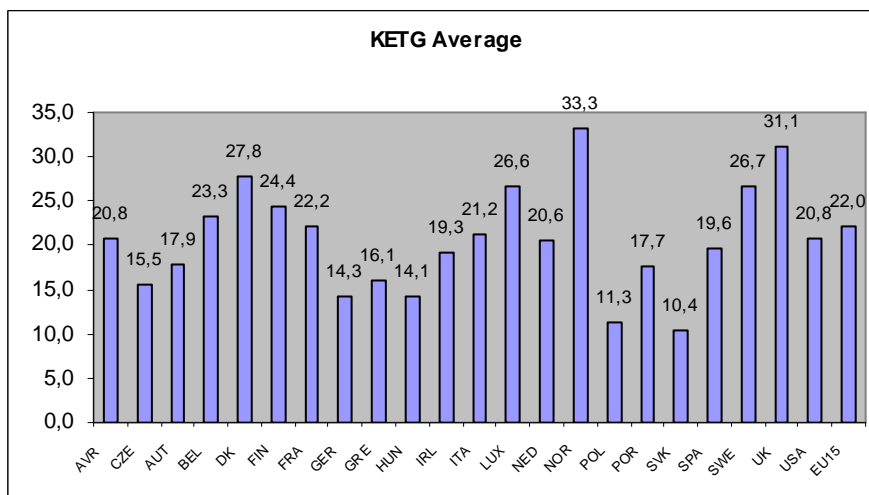
Graph 19: The development of the statutory corporate income tax rate in the Czech Republic, source: Income Tax Act in recent version for each year

We can see in table 29 that the effective tax rate on capital income was increasing in the Czech Republic (graph 20 shows recent development of the effective tax rate curve). Similar increase shows the effective tax rate in other European countries except of Slovakia or Poland where the effective tax rate on capital income decreased. This means that countries attempt to lower statutory tax rate but on the other hand also to expand the tax base. Why? The statutory tax rate is the most highly visible part of the taxation that is why its lowering would make people think that they pay less. Expanding of the tax base protects revenue as it is decreasing the difference between financial accounting and taxable income.

	CZE	AUT	BEL	DK	FIN	FRA	GER	GRE	HUN	IRL	ITA	LUX	NED	NOR	POL	POR	SVK	SPA	SWE	UK	USA	EU15
1990	-	15.8	20.1	25.5	15.7	17.8	-	9.6	-	18.4	21.0	24.4	22.0	21.2	-	13.0	-	-	-	30.4	20.9	
1991	-	16.3	19.6	24.4	12.7	16.9	14.7	9.0	-	19.5	21.2	22.1	23.1	20.9	-	15.1	-	-	-	27.6	20.2	
1992	-	17.5	18.1	25.7	12.3	17.4	14.7	8.7	-	20.9	22.5	21.1	21.7	19.4	-	15.9	-	-	-	24.6	20.1	
1993	-	16.7	19.7	26.2	12.0	17.3	14.1	9.4	-	22.0	24.5	25.1	23.1	20.0	-	13.7	-	-	23.4	24.6	20.7	
1994	-	14.2	20.6	27.5	15.0	17.6	13.5	11.1	-	23.1	22.9	25.2	21.6	21.0	-	13.3	-	-	25.8	25.6	21.0	
1995	15.6	14.8	20.8	27.9	19.4	17.8	13.4	12.3	-	20.3	22.4	26.6	20.8	22.2	17.9	14.1	-	15.3	26.1	27.2	21.6	
1996	13.2	16.9	21.5	27.8	21.4	19.2	15.1	15.1	-	21.0	23.6	27.5	23.4	24.0	17.8	15.7	-	15.9	27.9	27.4	21.9	
1997	14.1	17.5	22.4	27.8	23.1	20.4	14.9	13.2	-	20.7	24.8	30.0	23.6	24.7	17.8	17.2	-	17.4	29.0	29.8	22.2	
1998	12.7	17.9	24.1	27.4	25.2	22.2	15.1	16.5	-	20.1	21.5	30.3	23.7	22.1	17.1	17.3	13.8	17.1	28.4	31.4	22.6	
1999	13.4	16.6	23.5	26.1	25.1	23.6	16.0	18.0	-	20.9	22.1	27.4	23.4	24.1	12.4	18.9	13.4	17.9	28.9	30.9	22.6	24.9
2000	12.8	17.1	23.5	28.6	29.4	23.2	16.4	19.6	13.2	19.8	21.3	28.5	22.9	31.5	11.3	20.1	11.4	18.6	30.5	32.3	23.0	12.3
2001	14.2	20.8	22.9	26.3	24.9	23.7	12.5	16.5	14.0	18.9	22.1	30.3	22.2	31.7	10.1	18.2	11.2	17.7	25.7	32.4	20.6	24.2
2002	15.1	17.9	22.6	25.8	25.1	21.9	13.2	17.1	14.3	17.7	20.8	31.2	20.7	31.1	10.8	18.4	10.8	18.7	23.0	29.4	18.5	23.2
2003	16.2	17.5	22.0	25.8	23.2	20.8	13.7	14.9	14.0	18.4	20.9	27.9	18.9	30.3	11.5	16.3	11.1	18.1	24.2	28.7	18.7	22.8
2004	16.4	17.7	23.2	27.6	23.3	21.8	13.8	14.8	13.8	19.3	20.1	24.3	19.5	33.5	10.8	16.1	9.6	18.8	26.4	29.3	19.4	23.1
2005	15.9	17.0	23.9	30.4	23.0	21.4	14.1	15.6	13.8	19.2	19.5	24.7	20.8	35.8	11.8	16.0	9.7	20.4	28.3	31.4	21.2	23.7
2006	16.4	17.1	24.4	30.3	22.7	22.8	15.2	13.9	14.1	21.0	21.8	22.2	20.1	37.3	12.6	16.9	9.7	21.7	28.1	33.7	22.5	25.0
2007	17.0	18.1	24.0	27.2	23.6	22.2	15.6	-	15.7	20.0	22.9	23.7	19.7	35.2	-	19.4	9.8	23.1	27.5	31.5	22.4	

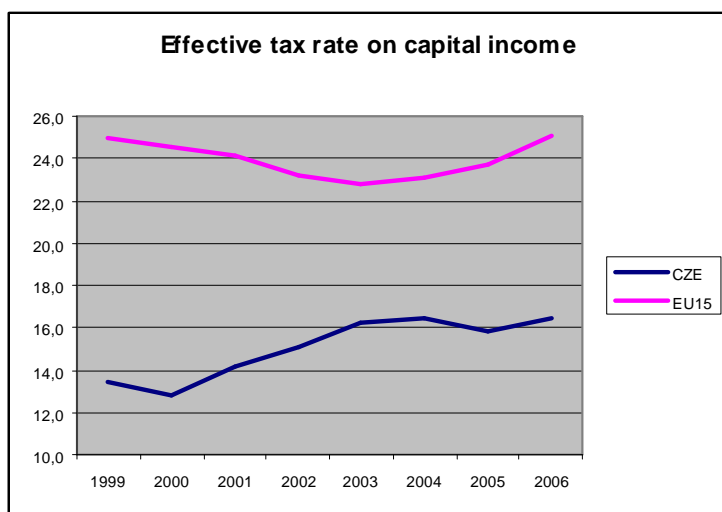
Table 29: The effective tax rate on capital income, source: own computations using the OECD and AMECO data

Graph 20 shows the comparison of average effective tax rates on capital income. In comparison with other EU states the effective tax rate on capital income is in the Czech Republic lower than in other countries except of Germany, Ireland, Poland and Slovakia. The highest taxed countries are in this case again Scandinavian countries, the United Kingdom and Luxembourg.



Graph 20: KETG Average (2000-2007), source: own computations using the OECD and AMECO data

Graph 21 shows comparison of the effective tax rate on capital income for the Czech Republic and EU-15. We can again see that the effective tax rate on capital income is much lower in the Czech Republic. During 2000 and 2003 both curves had opposite trend, the same (increasing) trend can be seen in recent year. As I already mentioned, this is contrary to the decreasing trend of statutory corporate income tax rates and refers to the extension of the tax base.



Graph 21: Comparison of KETG in the Czech Republic and EU-15²⁸, source: own computations using the OECD and AMECO data

We can see that from 2000 to 2004 the effective tax rate on capital income was increasing in the Czech Republic. After the Czech Republic became a part of the European Union, it became more or less flat. On the other hand effective tax rate on capital income in EU 15- was decreasing until 2004 when new states joined the EU and then became increasing. This is contrary to theories on how globalization affect tax rates. Hines and Summers

²⁸ The value of 2000 was substituted with the average of 1999 and 2001

(2009: 3) for example say: “Globalization means that in some sense all countries are becoming smaller. In order to explore the likely consequences for large countries of globalizing trends, it is therefore useful to consider tax policies that small countries use, and in particular the way that their tax policies have differed from those in larger countries. Small countries rely much less than other countries do on income taxes imposed on individuals and corporations. Their governments rely much less on these taxes than they do on expenditure-type taxes such as excise, sales and value-added taxes as well as tariffs on imported goods. ” That means that globalization is causing the decrease in income taxes and increase in taxes on consumption. However, effective tax rates say something else. In 2004 the effective tax rate on labour (see graph 14) decreased in the Czech Republic but increased in EU-15. The trend in the effective tax rate on consumption is also not clear-cut.

6. 6. 2. Effective vs. statutory tax rate in the Czech Republic

As well as in the case of personal income effective tax rate, the difference between statutory and effective tax rates is caused mostly by tax deductible and tax non-deductible items, allowances as well as tax reliefs. In corporate taxation this system is much more complicated than for personal income taxation and is not always unambiguous.

Table 30, that illustrates all adjustment to the financial accounting income that need to be done to get the tax base (or taxable income) and then the final tax liability (all Section references refer to the Income Tax Act).

Financial accounting income

+ Non tax-deductible items

- (Unjustified items reducing revenues not included in accounting)
- (Items increasing tax base according to Section 23 (3) (a) point 3 – 6)
- (Total of tax non-deductible expenses)
- (Difference between accounting and tax depreciation)

- Non-taxable incomes

- (Items decreasing tax base according to Section 19 - not subject to taxation)
- (Items decreasing tax base according to Section 23 (3) (b) + rows 100 and 101)
- (Items decreasing tax base according to Section 23 (3) (c))
- (Items not included in tax base according to Section 23 (4) (a))
- (Items not included in tax base according to Section 23 (4) (b))
- (Items not included in tax base according to Section 23 (4) not (a) and (b))
- (Difference between tax and accounting depreciation)
- (Difference between tax deductible and accounting expenses)

= Tax Base

- Tax allowances

- (Loss according to Section 34 (1))
- (Investment relief according to Section 34 (3))
- (Relief according to Section 34 (4) + row 210 (exempted income))
- (Provided gifts fulfilling Section 20 (8))

= Adjusted Tax Base (rounded down to CZK '000)

*** Tax Rate (in%)**

- Tax Reliefs

- (Tax relief according to Section 35 (1), Section 35a or 35b, Section 35 (6 to 8))
- (Foreign tax credit)

= Final tax liability

Table 30: Adjustments to the financial accounting income, source: Income Tax Act

Items increasing the accounting result are non tax-deductible expenses, the difference between accounting and tax depreciation (if the accounting is higher), taxable non-monetary incomes or revenues that lawlessly decrease incomes or income that were not booked in the previous taxable period.

Items decreasing the accounting result are non-taxable incomes. Besides the difference between accounting and tax depreciation (if the tax is higher), there are incomes that:

- are not a subject of taxation,
- are exempted from taxes,
- are taxed by the withholding tax,
- are taxed with the payment,
- were already taxed,
- are taxed in the separate tax base,
- are connected to the non tax-deductible expenses from previous taxable periods.

Above mentioned adjustments to the accounting results beside the statutory tax rate are the items that influence the effective tax rate and create the differences between the effective

and statutory rates. The rules that drive those items as well as the changes to those rules during past years are very broad and it would be out of the scope of this thesis to mention all of them. Instead I will point out some changes to those rules that apply for the 2008 taxable period and that determinate the effective tax rates.

Let me start with the changes that increased the effective tax rate:

- Thin capitalization rules²⁹ were toughen up – the allowed ratio of credits and loans from related parties to own equity was lowered (from 4 to 2 if the recipient of such credit or loan is a bank or an insurance company and from 6 to 3 for other recipients) The thin capitalization rules apply also to credits from non-related parties.
- Interests paid from the so-called subordinate credits and interests derived from the financial accounting income no longer decrease the tax base.
- 1a depreciation group was cancelled. The time of depreciation of cars was extended from 4 to 5 years.
- The depreciation of assets acquired as a gift was cancelled.
- The tax base increased also by the amount of unpaid liability after its maturity.

Change that decreased the effective tax rate was then:

- The tax base can be reduced by liquidated inventories.

6. 6. 3. Comparison to the MRT and Nicodeme's approach

Below posted table shows again the values of effective tax rates on capital income calculated following the MRT approach. Graph 22 shows that there is huge difference between MRT values and between values of effective tax rates calculated according to the ECFIN approach. The main difference between the values can be easily explained. The MRT approach computes the effective tax rate on capital income as the difference between the post-tax and pre-tax capital income divided by the total operating surplus of the economy.³⁰The MRT approach assume that the whole income of the self-employed is capital income and that no capital taxes are levied on depreciation of fixed assets, so that the capital tax base should be calculated in net terms (excluding depreciation). On the other

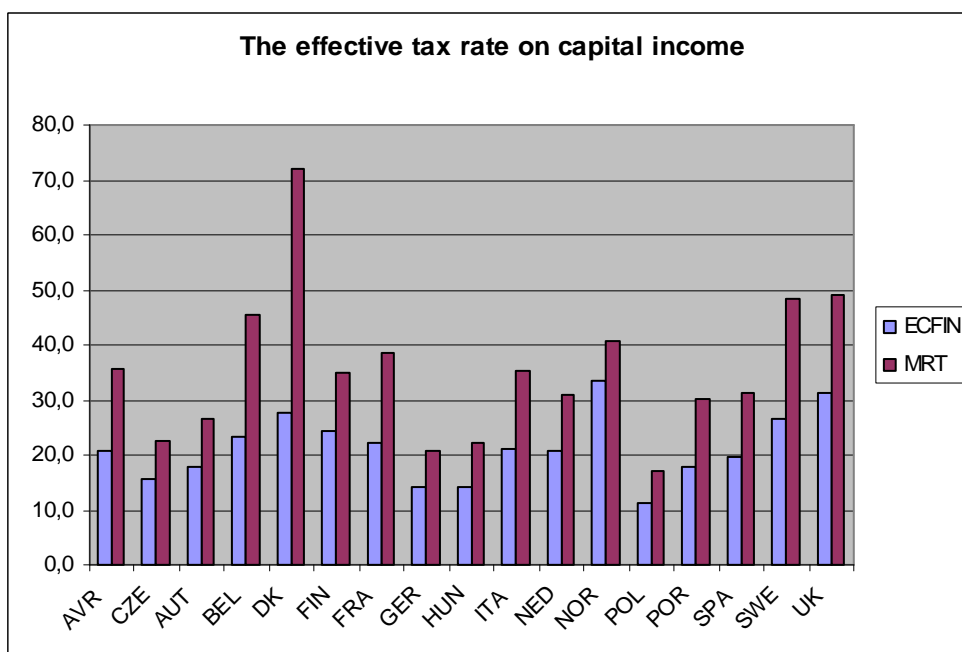
²⁹ “Thin capitalization rules are an anti-tax avoidance measure, commonly adopted by many tax jurisdictions to counter the abusive use of loan-finance in order to jet up the interest deduction and hence reduce taxable income of the borrowing enterprise. Prescribed debt/equity ratios form an important part of the thin capitalization rules,” (PricewaterhouseCooper: 2008).

³⁰ For total operating surplus of the economy I used the NOS (net operating surplus) item from Ameco database

hand the calculation of the ECFIN's effective tax rates on capital income that I followed in my thesis assume that imputed wage income of the self-employed is not a capital income but it includes the gross operating surplus in the tax base.

	CZE	AUT	BEL	DK	FIN	FRA	GER	HUN	ITA	NED	NOR	POL	POR	SPA	SWE	UK
1990					49,0	25,8			31,8	33,6						
1991					64,7	26,5			32,7	36,4						
1992					54,3	27,0			36,5	35,4	28,0					
1993					35,7	28,7			40,2	38,5	28,1					
1994					33,0	29,1			35,0	31,9	29,0					
1995	26,0	22,3	40,6	60,2	33,8	29,2	19,4		34,3	30,0	29,7	24,4	23,6		34,8	42,1
1996	21,3	25,9	43,0	61,9	37,7	31,7	19,5		35,3	32,4	29,4	24,4	25,5		41,0	40,7
1997	23,6	28,1	44,5	62,4	36,9	33,5	19,7		37,8	32,1	31,8	23,7	26,6		43,1	43,3
1998	19,8	28,2	47,6	72,1	37,5	36,7	21,0		33,8	32,8	35,0	23,0	26,5		44,2	47,4
1999	21,1	27,2	47,7	68,1	37,2	39,1	22,9		36,3	33,6	34,5	22,2	29,2		45,8	48,3
2000	20,1	26,6	47,1	63,8	43,3	38,7	24,2	23,2	33,3	32,5	38,3	20,8	32,2	27,3	54,9	53,3
2001	21,9	32,4	49,8	68,9	35,4	39,8	18,9	23,9	34,8	33,6	39,3	20,6	29,4	26,2	52,7	53,4
2002	23,2	27,1	48,3	70,3	34,8	37,6	18,7	23,1	34,1	32,1	41,3	21,1	30,5	28,0	45,7	47,0
2003	24,8	26,9	45,8	72,3	33,0	36,1	19,4	22,1	32,9	29,4	38,9	14,7	28,5	28,4	45,5	43,6
2004	24,2	26,3	44,3	69,9	32,8	38,1	19,2	21,5	33,0	29,8	41,1	13,3	28,0	30,4	45,1	45,3
2005	22,8	24,8	43,9	73,4	34,1	38,1	19,9	20,8	34,2	32,5	42,9	14,3	30,0	34,4	48,2	49,0
2006	22,6	24,4	43,2	75,5	32,6	40,7	22,2	20,7	39,1	30,1	42,8	15,2	32,0	37,5	46,1	52,2
2007	21,8	25,3	42,7	81,1	34,0	39,7	23,0	23,3	41,0	28,4	41,4			38,7	49,0	48,5

Table 31: MRT effective tax rates on capital income, source: own computations using the OECD and AMECO data



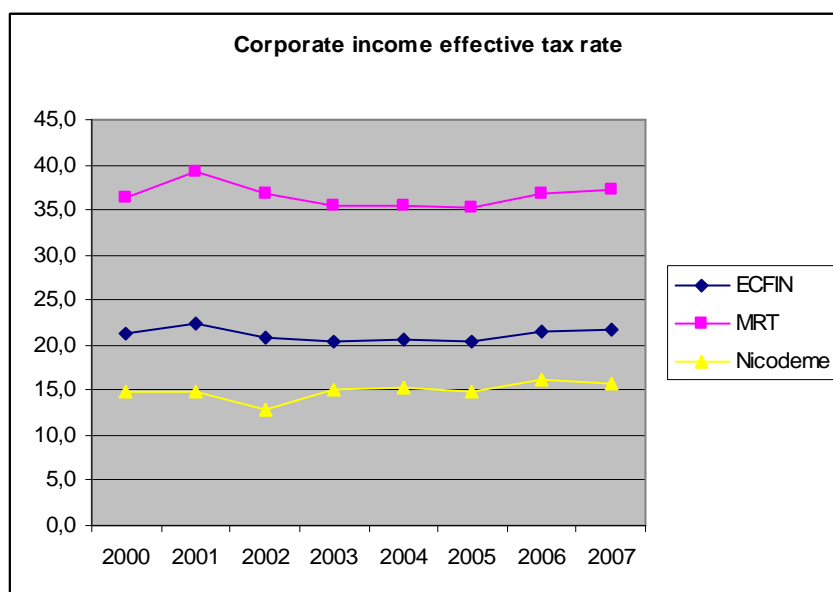
Graph 22: Comparison of MRT and ECFIN effective tax rates on capital income, source: own computations using the OECD and AMECO data

To make the comparison of effective tax rates on capital income more interesting I decided to calculate for four countries also effective tax rates based on Nicodeme's approach using

the BACH database. In fact these rates are corporate effective tax rates and not effective tax rates on capital income, because they only take into account taxes paid by companies as corporate income taxes, wealth taxes or taxes on property. On the other hand the MRT and the ECFIN rates take into account also other taxes as withholding taxes paid by individuals on dividends, taxes paid by self-employed, or taxes on capital gains. As mentioned above, the MRT approach includes the whole income of self-employed into the calculation of effective tax rates on capital income and the ECFIN approach lets a part of this income away for personal income tax rates. But the Nicodeme's corporate effective tax rates do not include the income of self-employed at all. That's why, as confirmed by table 32 and graph 23 that compares yearly average values for chosen four states, the values of the Nicodeme's rates are much lower then those of the MRT of the ECFIN rates.

	AUT	BEL	FRA	ITA
2000	9,2	13,3	12,0	25,4
2001	8,9	11,4	15,8	22,9
2002	10,7	12,0	11,0	17,6
2003	11,6	14,0	13,7	20,7
2004	10,7	12,9	12,7	25,1
2005	9,9	13,8	13,7	22,4
2006	11,4	12,3	15,9	25,3
2007	11,4	13,0	16,4	22,4
2008	9,7	11,6	12,8	17,9

Table 32: Nicodeme's corporate income effective tax rate, source: own computations using the BACH database



Graph 23: Comparison of Nicodeme, MRT and ECFIN average effective tax rates on capital income (corporate income effective tax rates), source: own computations using the OECD, AMECO and BACH databases

6. 6. 4. The 2009 tax reform and its influence on the corporate income effective tax rate

Similarly we can deduct the influence of the incoming 2009³¹ income tax reform³² prepared by the former government on the effective tax rates. I am not able to say if the 2010 effective tax rate on capital income will be higher or lower than the one in 2008 taxable period. There are other factors (mentioned in chapter 7) beside the tax reform that influence the effective tax rate. For example the financial crisis causes that many previously profitable companies incur sudden losses. If there are more companies with zero tax liability the effective tax rate will significantly decrease. My interest concerning the 2009 tax reform will therefore be only in the change of the effective tax rate caused by the new tax reform.

Some planned changes to the Income Tax Act (ITA) relate to the financial crisis. The main concern of these changes is to help the companies to deal with the financial crisis and support the economy. These arrangements refer mostly to shortening of the length of tax depreciation and imply the so-called “extraordinary depreciations” that should encourage taxpayer to promptly acquire tangible assets. The new Section 30a that follows Section 30 of the ITA says:

- 1) Tangible assets in the first depreciation category pursuant to amendment 1 of the ITA acquired in the period from 1 January 2009 to 30 June 2010, can be depreciated by a taxpayer that is its first owner (Sec. 31/6) uniformly without a break until 100% of its input price within 12 months.*
- 2) Tangible assets in the second depreciation category pursuant to amendment 1 of the ITA acquired in the period from 1 January 2009 to 30 June 2010, can be depreciated by a taxpayer that is its first owner (Sec. 31(6)) uniformly without a break until 100% of its input price within 24 months. Here at, within first 12 months, the taxpayer claims depreciation until 60% of input price and in next subsequently following 12 months he claims depreciation until 40% of input price.*
- 3) Depreciations according to 1) and 2) are to be specified with the accuracy on whole months, starting with the following month after the*

³¹ Effective for the 2009 taxable period

³² The text of the tax reform is available at the webpage of Ministry of Finance

day when the conditions for depreciations have been met. At the beginning (at the end) of the depreciations during the taxable period the depreciation can be claimed only in the amount fallen in this taxable period.

- 4) These extraordinary depreciation cannot be claimed for the tangible assets depreciated pursuant to Sec. 30(4)³³ and Sec. 30 (5).³⁴*
- 5) Technical improvement of tangible assets depreciated according to 1) and 2) does not increase its input price. The depreciation of such finished technical improvement shall be subject to the depreciation category pursuant to Sec. 26 to Sec. 33 relating to the tangible asset on which technical improvement was made.*

Pursuant to Sec. 30 the depreciation of tangible assets in the first depreciation category is 3 year and the depreciation of the tangible assets in the second depreciation category is 5 years. That is why this amendment to the ITA would allow the taxpayer to claim higher amount of depreciation than in previous years. Tax depreciations of these assets would be considerably higher than accounting depreciations (if the tax payer would not claim all accounting depreciations of these assets within one year) and the difference of the tax and accounting depreciation would decrease the tax base. This decrease would be higher than it would have eventually been using the old depreciation rules. Therefore the effective tax rate will decrease.

However, this decrease will relate only to the periods when the taxpayers can claim the tax depreciation of these assets. In the subsequent periods the taxpayer will no longer be allowed to claim tax depreciations as the assets will be already fully depreciated. Therefore the amount of accounting depreciations of these assets will increase the tax base and the effective tax rate will increase.

The change related to the technical improvement of these assets is not significant.

Similar arrangement were also made to financial leasing. New Section 24c says that:

³³ Sec. 30(4) refers to newly opened quarries, sand pits, clay pits, technical recultivation, temporary constructions and mineworkings, which annual depreciation rate, unless is included in the input price of the relevant tangible assets, shall be computed when the input price is divided by the predetermined operation period of the site or construction concerned.

³⁴ Sec. 30(5) refers to matrices, dies, moulds, patterns and moulding templates, which annual depreciation rate shall be computed when the input price by the predetermined useful lifespan of the assets, or by the predetermined number of manufactured castings or pressings.

Lease payments for financial leasing with subsequent purchase of a leased tangible assets if depreciation of this asset may be written off pursuant to Sec. 30a shall be recognised as an expense (cost) on condition that:

- a) the term of the lease at tangible assets depreciated by the owner (lessor) is pursuant to Sec. 30a (1) at least 12 months . The term of the lease at tangible assets depreciated pursuant to Sec. 30a (a) is at least 24 months. The period of lease runs from the day when the assets (or object) is let to lease in a condition fit for its ordinary use; and*
- b) on termination of the lease pursuant to letter a), ownership title to the object of the lease is immediately transferred from the owner (lessor) to the lessee; and*
- c) on termination of financial leasing with subsequent purchase of the leased tangible asset, the taxpayer pursuant to Sec. 2 shall include the subsequently purchased asset in his business assets.*

Financial lease used to be depreciated similarly as the tangible assets in the first and second depreciation category. That means at least 3 and 5 years. Section 24c shortens the term of lease in the same way as Sec. 30a shortened the time of depreciation of tangible assets in the first and second depreciation category. What does this change cause? First of all tangible assets that are subject of financial leasing can be depreciated by the owner (lessor) in one or two years instead of three or five years. This change would decrease the tax base of the owner and therefore decrease his effective tax rate.

Moreover the term of lease is at least one or two years instead of three or five. As lease payments are counted directly as tax deductible expenses shorter term of lease would cause increase of expenses and therefore lower financial accounting income. That is why this arrangement would also cause decrease of the effective tax rate.

Arrangements were made also to the thin capitalization rules. The change proposed in 2008 was taken back and the Sec. 25(1)(w) says:

interest paid on credits and loans whose creditor is a related party (person, entity) to a debtor (Sec.23(7)), and this shall concern interest payments on the amount by which the sum of credits and loans from related parties in the course of taxable period, or a period for which a tax return is filed, six times exceeds

own equity if the recipient of such credit or loan is a bank or an insurance company, or four times exceeds own equity in respect of other recipients of credits and loans.

Moreover Sec. 25(3) that had been cancelled was recreated and says that:

For the purpose of Sec. 25(1)(w) such credits and loans shall not include those credits and loans, or their proportions, interest on which forms a part of the input price of assets, and further interest-free credits and loans if it is documented that they are really granted as interest-free. The provision of subsection 1(w) and (zm) shall not apply to otherwise related parties (entities, persons) referred to in section 18(3)³⁵, the stock exchange (Note 18) and tax payers referred to in section 2³⁶.

This change of thin capitalisation rules that can be applied also retrospectively causes that the limit for claiming of interests from loans and credits from related parties as tax deductible expenses would increase. Higher amount of financial expenses connected to interests can be claimed, tax base will therefore be lower. That is why the effective tax rate will decrease.

The last change to the Income Tax Act that I would like to mention here is the plan to cancel eight incomes that are exempted from taxes (pursuant to Sec. 17 and Sec. 19) and two tax reliefs (pursuant to Sec. 35, Sec. 35a and Sec. 35b). Incomes that may no longer be exempted from taxes are:

- *Incomes in the form of payments for services provided by churches (Sec.19(1)(b))*
- *Incomes from regulated rents in the case of gain calculation (Sec.19(1)(c))*
- *Incomes from ecological energetic facilities (Sec.19(1)(d))*
- *Incomes of the Children's and Youth Fund (Sec.19(1)(f))*
- *Incomes of savings and credit co-operatives in the form of interests and other yields on deposits held with banks (Sec.19(1)(m))*
- *Income of the Czech Consolidation Agency (Sec.19(1)(z))*
- *Appraisements in the field of culture (Sec.19(1)(zd))*
- *Exemption of all public non-profit institutional health facilities (Sec.17(5))*

³⁵ Sec. 18(3) refers to taxpayers not having been formed or established for the purpose of carrying on business activity.

³⁶ Sec.2 refers to the taxpayers liable to personal income tax.

Tax reliefs that may be cancelled are:

- *tax relief for disabled employees (Sec.35)* (this tax relief should be solved with different instruments)
- *investment incentives (Sec.35a, Sec.35b)*

When more incomes would be liable to corporate income taxes and when there would be less tax reliefs the effective tax rate would increase.

6. 7. Summary

To summarize the comparison of effective tax rates in the Czech Republic with the effective tax rates in other European countries and in the USA table 33 compiles average effective tax rates since 2000.

	Czech Republic	Average sample	EU-15
NWLC	29.4	22.4	23.5
PITR	8.4	15.2	15.0
LETR	35.4	34.4	35.3
CETR	20.9	27.1	26.7 ³⁷
WEDG	46.6	49.0	48.2 ³⁸
KETG	15.5	22.0	20.8

Table 33: Summary of effective tax rates, source: own computations using the OECD and AMECO data

We can see that non-wage labour cost effective tax rate is higher in the Czech Republic than the average of all samples and higher than EU-15 average. Personal income effective tax rate is on the other hand much lower. Effective tax rate on labour that is a best measure of personal taxation because it includes not only personal income tax rates but also social security contributions is in the Czech Republic almost equal to the EU-15 average and is comparable also to the average of all samples. Therefore we can not say that the tax burden imposed on the tax payers' salary would be much higher or lower than in other European states.

^{37, 30} EU-14

Effective tax rate on consumption is lower in the Czech Republic than in the case of average sample and EU-14 average and therefore is also the effective labour tax wedge that represents the gap between the salary and the final amount of money that employees have left for final consumption. That means that workers in the Czech Republic are left with higher percentage of their salary for final consumption.

Effective tax rate on capital income is in the Czech Republic lower than in EU-15 and than in the average sample. That is why altogether we can say that the overall tax burden in the Czech Republic is lower than European average.

The comparison of effective and statutory tax rates in the Czech Republic shows that, except of consumption tax rate, the statutory tax rates are higher than effective tax rates. This is caused by the system of tax-deductible and non tax-deductible items, non-taxable incomes, allowances, tax reliefs and other features of Czech tax system.

Study of the impacts of the proposed corporate income tax reform including the shortening of the time of tax depreciation of assets in the first and second depreciation category, shortening of the time of financial lease or change of the thin capitalisation rules shows that these arrangements will lower the effective tax rate. On the other hand withdrawal of some non-taxable incomes will increase the effective tax rate. However, we cannot say that the effective tax rate on capital income will be higher or lower in 2010 compared to 2009.

7. Factors influencing effective tax rates

Besides the financial crisis, there are also other factors influencing the effective tax rates that need to be mentioned. I divided these factors into external and internal depending on whether the change in effective tax rate is influenced by the environment or economic situation in the country or whether it is influenced by the internal decision of the taxpayer who is keeping the tax legislative.

7.1. External factors (financial crisis, unemployment)

I already mentioned that the financial crisis causing that many companies profitable in previous years incur losses can significantly influence the effective tax rate. If there are more companies with zero tax liability the effective tax rate will be significantly lower. However, different effects to the effective tax rate can occur depending on the three different situations in which the company can be. For complexity let us assume that due to the financial crisis the financial accounting income of the company decreased and therefore also the final tax liability decreased (in comparison to period with no crisis).

- 1) The financial accounting income of the company is negative or zero but its tax base is positive (in period with no crisis the tax base was higher than financial accounting income) and therefore it has to pay taxes. We cannot set the corporate income effective tax rate for this company³⁹. However, if the aggregate effective tax rate is computed as the ratio of the sum of all taxes paid by all companies to the sum of all financial accounting incomes of all companies, we can assess the effect to the aggregate effective tax rate. The final effect to the aggregate effective tax rate (assuming that only the data for this one company changed) would depend mostly on the difference between the financial accounting income and the tax base. The aggregate effective tax rate can both decrease and increase.
- 2) The financial accounting income of the company is positive but its tax base is negative or zero (in period with no crisis the tax base was lower than financial accounting income) and therefore it does not have to pay any taxes. The corporate income effective tax rate of the company is zero. The aggregate effective tax rate would decrease.

³⁹ In denominator would be zero or negative number.

- 3) The financial accounting income of the company is negative or zero and its tax base is negative or zero, therefore it does not have to pay taxes. We cannot set the corporate income effective tax rate for this company. However, if the aggregate effective tax rate is computed as the ratio of the sum all taxed paid by all companies to sum of all financial accounting incomes of all companies, we can assess the effect to the aggregate effective tax rate. The final effect to the aggregate effective tax rate (assuming that only the data for this one company changed) would depend on mostly on the difference between the financial accounting income and the tax base. The aggregate effective tax rate can both decrease and increase.

As the financial crisis is causing the decrease in profit that can even take the company into the tax loss position, there are arrangements that those companies have to use to survive. Companies in financial crisis try to cut expenses. This arrangement is usually connected to firing of employees which causes increase in unemployment. Unemployed people are not liable to tax. The final effect to the personal income effective tax rate depends on the tax system.

Similar effect arises when the employees are not fired but their salaries are cut. With lower salaries and because of the statutory tax rate that is usually progressive their personal income effective tax rates will decrease causing that the aggregate personal income effective tax rates will decrease as well. This will happen due to the system of allowances and tax deductible items that make the personal effective income tax rate progressive even if the statutory tax rate is flat. Due to this kind of tax systems employees with the lowest incomes are not liable to pay any taxes. Therefore, the decrease in salaries can cause that employees that were paying taxes before will not have to pay any taxes after their salary is cut. Their personal income effective tax rate will therefore be zero even if they are earning some money. The effect on the aggregate personal income effective tax rate will be similar as in the case of companies with positive financial accounting income but zero tax liability – the effective tax rate will decrease.

7. 2. Internal factors (handling the legislative)

Internal factors influencing the effective tax rates come from the explanation and understanding of tax acts that have to be followed when the tax liability is determined. Especially companies often pay higher taxes than they have to, because they do not fully utilise tax deductible items or allowances. Tax acts are difficult and their limits are not

usually known by managers of the companies. Therefore companies use the services of tax advisors and consulting companies so that they can fully utilise the limits of tax acts. On the other hand even the usage of tax advisory services is influencing the effective tax rate in the country as the profit of those companies is rising. In this subchapter I want to describe some examples, when the difficulty and unfamiliarity of the legislative cause that the companies are paying higher taxes than they have to. And thus the effective tax rate is higher than it would be if the companies are well informed.

7. 2. 1. Customs classification

If the company is exporting goods it has to pay duties. Crucial and often difficult is in this case correct classification of goods from the customs perspective. It can happen that the Company classifies its goods incorrectly and then pays higher taxes than it has to. Therefore, the effective tax rate increases in this case.

7. 2. 2. Research and development costs

If the company is developing new materials or technologies or is doing other activities that have status of research and development then if it meets the conditions stated by the Income Tax Act it can utilise these costs as an item decreasing the tax base (or tax allowance). Doing this the company can spare 20% of these costs on final tax liability (if the statutory tax rate is 20%). That means that these expenses can de facto be deducted twice (first as an expense decreasing the financial accounting income, second as an item decreasing the tax base on a special row of a tax return). Even though it is not difficult to meet the conditions given by the ITA⁴⁰ the companies are not often familiar with this possibility or have a prejudices against it and do not use it. Sometimes CFO's are not interested in application of research and development costs as they are not usually evaluated for tax savings but for the profit the Company makes.

7. 2. 3. Cost plus method (application of Sec. 24/2 zc of the ITA)

The cost-plus method is a pricing method that is often used by companies to determine the price of services the company is providing to its parent company. The price for these services is often set up as costs the company spent during providing of the services plus some mark-up (e.g. 5%). The company then re-invoices spent costs from expenses to incomes with the set mark-up. That means in the P&L account of the company the costs

⁴⁰ The company has to prepare a project of its research, research and development expenses have to be tax-deductible and some of them (as administrative costs) cannot be claimed as item decreasing the tax base.

for the provided services is recorded on the expense accounts and the income from the services paid by the parent company plus mark-up is recorded on the income accounts.

Pursuant to Sec. 24/2 zc of the Income Taxes Act the company is allowed to treat all re-invoiced expenses (except of an accrual on social and health insurance of wage bonuses, unpaid social and health insurance, some kinds of penalties etc.) as tax-deductible even if they are basically non tax-deductible. That means that even representation expenses or gifts can be treated as tax-deductible. Sometimes the company re-invoices all of its non tax-deductible costs and therefore treats them all as tax-deductible. Tax savings are in this case up to the amount of tax on non tax-deductible expenses depending on how much of their expenses the company re-invoices. Because the cost plus method can bring significant tax savings it influences the effective tax rate that, when the cost-plus method is used, decreases.

7. 2. 4. Other

Other significant tax savings that influence the effective tax rate can be achieved if for example a group of companies will set-up a holding structure or if it will set up proxy or split remuneration structure. The latter works since the Czech social security legislation does not define proxy as an employee, no social security is paid from the remuneration of a proxy.

8. Conclusions

The theoretical part of this thesis describes and compares various methods for the computation of effective tax rates. It follows the application of methodologies according to the data used for the computations. It distinguishes between three methodologies: micro forward-looking studies; micro backward-looking studies; and macro backward-looking studies. Macro studies compute tax rates from aggregate macroeconomic data such as national accounts. Using this data one can compute range of possible direct and indirect effective tax rates. Micro studies use in their calculation elements of financial statements and usually deal only with corporate effective tax rates or effective tax rates on capital income. The distinction between the backward-looking and forward-looking approaches is based on the type of information used. Backward-looking approaches use ex-post real-life data to estimate the tax burden that companies bear. Forward-looking approaches use statutory features of the tax system to assess the tax aspects of specific but hypothetical decisions.

Each methodology has its strengths and weaknesses. We cannot say that one methodology is better than another. It always depends on the interest of the researcher. For the practical part of my thesis I have chosen the macro backward-looking approach because of the availability of data which is sufficient for the comparison of tax burdens in EU countries. I have not chosen the micro forward-looking approach because the complexity of the tax systems makes the computation of these effective tax rates extremely difficult since there is no simple databank that can be used as in the case of backward studies. I have not chosen the micro backward-looking approach because the available database with financial statements does not include data for the Czech Republic. Moreover I saw the macro backward-looking approach as the best for the purpose of my research because it describes the computation of all of the taxes which are a part of the Czech tax system. I wanted to use one method for the computation of all of the taxes because some computations can complement each other in the detection of the final tax burden imposed on the taxpayer. From all macro-backward looking approaches I have chosen the ECFIN approach as the fundamental approach for my own calculations because although it gives us comparable results to those we would get from other macro-backward looking approaches, it also combines the data of OECD Revenue Statistics with the AMECO database and offers a better comparison of tax burdens. In four cases I also offered the comparison to another

macro-backward looking approach - the MRT approach and in one case also the comparison to micro-backward looking approach described by Nicodeme.

I have compared six classes of effective tax rates in the Czech Republic with those in Europe and in the USA. I started with non-wage labour costs effective tax rates and followed with personal income effective tax rates, effective tax rates on labour, effective tax rates on consumption, effective labour tax wedge and effective tax rates on capital income. I found out that the non-wage labour cost effective tax rate higher in the Czech Republic than the average of all used samples and higher than the EU-15 average. The personal income effective tax rate is on the other hand much lower. The effective tax rate on labour is the best measure of overall personal taxation as it includes not only personal income tax rates but also social security contributions. Also, in the Czech Republic it is almost equal to the EU-15 average and is comparable to the average of all samples. The effective tax rate on consumption is lower than in the case of the EU-14 average and the average of all samples and so is the effective labour tax wedge and effective tax rate on capital income. Therefore we can say that the final tax burden in the Czech Republic is lower than the European average.

The comparison of effective and statutory tax rates in the Czech Republic shows that, except for the consumption tax rate, the statutory tax rates are higher than effective tax rates. This is caused by the system of tax-deductible and non tax-deductible items, non-taxable incomes, allowances, tax reliefs and other features of the Czech tax system.

The comparison to the MRT and Nicodeme's approach showed that calculations based on different methods lead to different results and different effective tax rates. Effective tax rates on consumption are lower when calculated following the MRT approach. On the other hand personal income effective tax rates, effective tax rates on labour and effective tax rates on capital income are higher when they are based on the MRT approach. Nicodeme's approach then offered much lower corporate effective tax rates than were those calculated using the macro-backward looking methods.

Study of the impacts of the proposed corporate income tax reform know as Reform 2010 including the shortening of the time of the tax depreciation of assets in the first and second depreciation category, the shortening of the time of financial lease or the changing of the thin capitalisation rules says that these arrangements will most likely lower the corporate

effective tax rate. On the other hand withdrawal of some non-taxable incomes will increase the effective tax rate. Overall, we cannot say whether the effective tax rate on capital income in 2001 will be higher or lower than in 2009. With financial crisis turning many previously profitable companies into loss making ones, there will be more companies with zero tax liability and hence the corporate effective tax rate will significantly decrease.

Last chapter follows the financial crisis topic and describes other factors that can influence the effective tax rates. These factors were divided into external and internal depending on whether the change in effective tax rate is influenced by the environment or economic situation in the country or whether it is influenced by the internal decision of the taxpayer who is keeps the tax legislative. If the external factors usually cause that the effective tax rates are decreasing, internal factors have reverse influence.

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