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TAX BURDEN IN EU COUNTRIES – A COMPARATIVE STUDY

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Abstract: *The paper is focused on the overall tax burden and tax policy of European countries. The theoretical part of the paper explains the term of tax burden and summarizes its measuring possibilities. It especially deals with the tax quota as the most generally applied indicator but some alternative indicators, such as the tax freedom day or tax misery index, are also mentioned. The empirical part of the paper is aimed on the comparison of tax burden of "old" and "new" EU member states following mentioned indicators. Certain tax policy recommendations are formulated on the basis of performed comparison.*

Key words: *tax burden, tax quota, tax policy.*

1. Introduction

Tax is compulsory payment paid to public budget. Tax theory analyses not only the effects of discrete tax types on different types of economic activity and economic entities, it also analyses total taxation and its effects from the point of macroeconomic view.

Supply side economists, represented mainly by Arthur Laffer, agree with strong relation between public budget revenue and taxation rate [12]. Positive relation between taxation rate and budget revenues turns into the negative relation as the tax burden exceed tolerable amount. In fact there are two effects: arithmetic and economic one. [8] Thus the optimal tax burden in view of fiscal policy is the one which yields the maximal revenue.

Concept mentioned above, known as Laffer curve, is widely accepted in theoretical world, but evokes plenty of disputes on its empirical evaluation. Aim of this paper is neither to certify nor to falsify empirical findings of Laffer curve; this paper summarizes approaches to the tax burden measurement and evaluates tax policy of European countries.

2. Tax Burden Indicators

As we tried to find out how tax burden is measured, we traced up criteria which helps us to break indicators into several groups [7].

These criteria are as follows:
1) type of data,
2) measured area,
3) type of rate,
4) form of indicator.

Ad 1) Indicators use hard data, soft data or combination of both. Hard data are those which are not subject to subjective errors e.g. value of GDP or nominal tax rate set by law. Soft data capture individual point of view and transform it into a single number. The question sounds whether it is good or not to use soft data to determine tax burden. Those who agree to use soft data claims that tax burden influences economic activity of respondents, that´s why they should be able to evaluate it.

Ad 2) Tax burden indicators can be fractionated to those which determines total tax burden of all economic activities

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in a country and those which determines tax burden for discrete type of economic activity / economic entity.

Ad 3) Various indicators use nominal rates (set by law) or effective rates. It can be further separated to marginal rate, average rate or its combination.

Ad 4) The form of indicator is important for easy interpretation. We can see percentage value, scale of values and rank among others quite often. Sometimes the indicator is expressed as a day during the year which helps to popularize it, sometimes the situation in one country is described as its rank among the other investigated countries.

Criteria mentioned above can be identified for every tax burden indicator. There is a wide range of methods to determine tax burden, each method has its pros and cons. Following subchapter turns to the most used indicator of tax burden – tax quota. It explains why it is used so often but foremost shows its negatives. Chapter 2.2 is related to alternative indicators.

2.1 Tax Quota

Tax quota is constructed as a ratio of total tax revenue to nominal GDP of the economy. The indicator itself includes direct and indirect taxes. Furthermore, it is necessary to distinguish between tax quota and so called compound tax quota which, besides direct and indirect taxes, also includes compulsory social security contributions which predicates the tax burden more precisely.

However, applying tax quota can't get along without certain limitations. [7, 10] The construction of the indicator is problematic itself when the changes of GDP cause the changes of tax quota ceteris paribus. Nevertheless, it is possible to suppose that the tax revenue rises with the increase in GDP, and therefore the tax quota remains on the same level. Not only the GDP level is worth mentioning; its structure (direct - indirect taxes ratio, type of tax rates, extent of levied social contributions) or extent of shadow economy can overvalue or undervalue the tax quota as well.

The indicator neither considers the fact that increase of tax quota doesn't mean increase of tax burden in the case of increase of efficiency of tax levy. On the contrary, it is possible that the tax burden declines in fact despite the increase of tax quota in the case. The tax quota neither reflects administrative costs of taxation.

Concerning the tax revenue, some problems can occur by defining the terms tax, duty, fee etc. If there is a lack of explicit legislative definition of the terms, it can be quite difficult to express the value of tax revenue exactly. Other problems may be connected with the assessment of tax base, with the system of deductions and tax credits, depreciation etc. The system of tax incentives applied in economy may influence the credibility of tax quota as the indicator of tax burden relatively strongly as it undervalues the quota while being selective. There is also the taxation of social contribution applied in some European economies which can result in significant distortions. Double taxation appears questionable in the field of corporate income tax revenue and its incorporation into tax quota. Last but not least, it is necessary to mention that the tax revenue needn't to be in correlation with marginal taxation rate.

In spite of all the limitations mentioned above, tax quota remains the most applied indicator measuring and comparing overall tax burden of economies. Above all, it is for the ease of its construction, availability of comparable and reliable data from the National Accountancy System and readability of the indicator.

Tax Quota - Comparison

Table 1 summarises the tax quota and compound tax quota values of EU member countries in 2007. [16] The data are ranked descending according to the compound tax quota.

Tax Quota and Compound Tax Quota of EU countries Table 1

Country	**2007**	
	Tax Quota [%]	**Compound Tax Quota [%]**
Denmark	47,7	48,7
Sweden	36,1	48,3
Belgium	30,4	44,0
Italy	30,2	43,3
France	27,0	43,3
Finland	31,1	43,0
Austria	27,9	42,1
Cyprus	34,0	41,6
Hungary	26,2	39,8
Germany	24,3	39,5
Netherlands	25,4	38,9
Slovenia	24,5	38,2
Spain	24,9	37,1
Czech Republic	20,6	36,9
Portugal	25,1	36,8
Luxembourg	26,5	36,7
United Kingdom	29,7	36,3
Poland	22,8	34,8
Malta	28,8	34,7
Bulgaria	25,6	34,2
Estonia	22,0	33,1
Greece	20,4	32,1
Ireland	26,3	31,2
Latvia	21,8	30,5
Lithuania	21,3	29,9
Romania	19,5	29,4
Slovakia	17,7	29,4

Data source: Taxation trends in the European Union, 2009

Average compound tax quota (CTQ) of EU member countries makes 37,5 % for 2007, while it has just slightly risen from 37,1 % in 2000 and so has been relatively stable. [17] But the situation of individual member states varies. In general, it is evident that so called old member states (EU15) [18] achieve higher tax quota and CTQ on average than new member states (EU12). [19] Countries with the highest values of the CTQ are Denmark, Sweden, Belgium, Italy or France, while the lowest tax burden according to CTQ is achieved in the countries like Slovakia, Romania, Lithuania or Latvia. Concerning the change in tax burden between the years 2000 and 2007, the highest decreases may be seen in Slovakia, Finland, Sweden or Greece, while the highest increases in Malta, Spain or Czech Republic. The most stable countries according to CTQ are Slovenia, Lithuania, Ireland and United Kingdom.

Among the old member countries, the highest CTQ is recorded in Denmark. The country is characterized by high tax rates and high ratio of direct taxes to total taxation, but economic entities have to pay just minimal social contributions. Therefore there almost doesn't exist any difference between tax quota and CTQ which is unique in the whole EU. On the other hand, Denmark is the country where social transfers are taxed which can overvalue the quota in fact. [10] The lowest CTQ is recorded in Ireland. This is due to low income tax rates and also very low rate of levied social contributions [3], [4].

Though the CTQ in Slovakia or Romania is the lowest not only in EU12 but also in EU27, there is an evident difference between the tax quota and CTQ. That indicates high rate of social contributions levied by economic entities in these countries. Nevertheless, the tax rates in these countries are ones of the lowest in EU [3], [4]. Slovakia is also one of two EU countries (together with Latvia) where the double taxation of corporation profits was completely eliminated and there exists no taxation of distributed profits. (But in general, it is not possible to say that the double taxation is reduced more in new member countries.) [9] Among the new member countries, Cyprus is the one with the highest tax burden, where the tax quota and CTQ rose significantly during last years. This is due to its high reliance on indirect taxes and the high share of consumption in the economy [15].

Regarding the structure of CTQ indicator, [15] the direct taxes, indirect taxes and social contributions to total taxation ratios are important. There is not a significant difference between old and new member states considering the social contribution, though in new member countries the social contributions – total taxation ratio is little bit higher on average. [20] But the situation is different with direct and indirect taxes. While the ratio of direct taxes to total taxation in old member countries makes 36,5 %, in the new ones it is just 26,9 %.

For completion, we can say that unlike the old member countries that use the progressive personal income tax rates in most, there are many countries among new members that have applied the flat tax rates on personal income. [4, 11]

Another significant difference between old and new member states can be seen in their approach to tax incentives which influences the tax quota in the way as mentioned above. Although old member countries don't use the incentives in the extent that the new ones do and so it doesn't undervalue the tax burden as much, they are mostly focused on the subvention of selected kinds of entrepreneurship, regional development, R&D, innovations and new technologies development. On the other hand, new member countries use the incentives more and mostly to strengthen their comparative advantage in cheap labour force or geographic location. They focus on creation of economic zones and granting of tax holiday with the aim of job creation above all. [9]

2.2 Alternative Indicators

Not only tax quota is used to describe total tax burden in a country. Several indicators are developed - some of them use data from national accounts (e.g. Tax Freedom Day) and modify them to obtain value; other indicators are constructed analysing legislative terms (e.g. Tax Misery Index) or questioning opinions of economic subjects in investigated country and combining results with other data. We have selected (from the range of indicators described in [7]) the mostly used ones, thus Tax Freedom Day, Tax Misery Index and Ease of Paying Taxes are introduced in following lines.

Tax Freedom Day

The historical background of Tax Freedom Day (TFD) is illustrated by Scott A. Hodge – president of Tax Foundation in USA, he states: "*The concept of Tax Freedom Day was originated by Florida businessman Dallas Hostetler in 1948*." [6]

The catchy title evoked expansion of this indicator; hence TFD is published in most of advanced economies nowadays, e.g. Canada – Fraser Institute; United Kingdom – Adam Smith Institute; Germany – Bund der Steuerzahler; Bulgaria – Institut for Market Economics; Czech Republic – Liberální institute; and the like.

A worldwide application of TFD as a tax burden indicator has a negative consequences – the methodology is not uniformed. We can say that two main methods exist.

First method – based on the idea of Mr. Hostetler – calculates TFD as the total sum of taxes and payments paid by economic entities in a country divided by the net national income and multiplied by 365. Rounded up value is used with calendar to set the date of TFD. [14]

Second method calculates TFD as the share of public expenditures to gross domestic product (also multiplied by 365 and transformed to a date).

Both values (dates) are commonly named as an Tax Freedom Day, although first method calculates how many days has individual to work and give up all his income to pay all taxes and the second method indicates how many days has an individual to work and give up all his income to pay for Government spending (metaphorically speaking). Increasing budget deficits raise gap between TFD calculated by the first and second method. The later the date is, the higher tax burden is imposed. In this paper the TFD is calculated on the basis of compound tax quota introduced in chapter 2.1.

Tax Misery Index

Compare to Tax Freedom Day, Tax Misery Index is much younger. Forbes magazine keeps track on “tax misery” in 18 countries since 2000 [2]. Tax Misery Index is published by Forbes for 66 countries nowadays.

TMI is calculated as a sum of top marginal tax rates of all important taxes (corporate income tax, personal income tax, wealth tax, employer social security, employee social security, VAT/Sales tax).

The main idea is that economic entities who are subject to top marginal tax rates are globally mobile, and one of factors determining where to live is the tax burden [1].

The lower the TMI the more attractive the country is. This index does not take into account tax brackets amounts or legal incentives which lower taxes. Contrary to TFD (which is focused on average), TMI is focused on high income economic entities.

Ease of Paying Taxes

One of the World Bank projects called Doing Business tries to evaluate how easy/difficult is to run a business in a country. Competitiveness of countries is founded on ten pillars – and one of those is Ease of Paying Taxes (EPT).

This indicator combines soft and hard data to describe situation in a country. The aim is to simulate a sample company in each country. Several criteria are evaluated, main areas are: total amount of taxes and payments, methods of payment and its frequency, time consumption, effective tax rates. [5]

EPT contributes to tax burden measurement with wider approach; it tries to express additional tax costs by evaluating activities linked to tax payment. The value used in this paper is rank of discrete country among 178 examined countries. The lower the EPT score is, the better is the situation in a country. [13]

Alternative indicators - comparison

Table 2 shows tax burden in EU member countries evaluated by the alternative indicators mentioned above. All indicators are related to 2007 (due to the tax quota data) and ranked descending according to TMI.

The main resume of table 2 is, that old EU member states are (on average) facing higher tax burden measured by TFD and TMI than new EU member states which is in conformity with the tax quota and CTQ measuring, but the institutional quality of tax system measured by the EPT is better (and the burden is lower) in old EU member states.

Alternative tax indicators Table 2

Country	**2007**		
	TFD	**TMI**	**EPT**
France	8.6.	166,8	82
Belgium	10.6.	156,4	65
Sweden	26.6.	150,4	42
Italy	8.6.	148,0	122
Austria	3.6.	144,4	80
Finland	6.6.	131,0	83
Greece	28.4.	128,9	86
Spain	16.5.	127,5	93
Portugal	15.5.	124,3	66
Netherlands	22.5.	121,2	36
Denmark	27.6.	118,0	13
United Kingdom	13.5.	109,3	12
Luxembourg	14.5.	107,2	17
Germany	25.5.	106,3	67
Ireland	24.4.	91,0	6
"old" EU average	**27.5.**	**128,7**	**58,0**
Hungary	26.5.	130,5	127
Poland	8.5.	128,0	125
Slovenia	20.5.	122,2	63
Romania	18.4.	111,0	134
Slovakia	18.4.	106,9	122
Czech Republic	15.5.	103,5	113
Estonia	1.5.	95,9	31
Latvia	22.4.	91,1	20
Lithuania	20.4.	91,0	71
Bulgaria	5.5.	90,5	88
Cyprus	1.6.	73,3	N/A
Malta	7.5.	73,0	N/A
"new" EU average	**6.5.**	**101,4**	**89,4**

N/A - Data not available.
Data Source: World Bank; Forbes; Eurostat.

3. Conclusion

The paper focused on the measuring and comparison of the tax burden of EU countries. Tax burden measuring possibilities are limited by the impossibility of applied indicators to affect all the aspects that are included in particular tax systems. That may be the reason for the differences between the theoretical conceptions and empirical results in the field of taxation. The fact implies that there is nothing like an ideal indicator of tax burden.

Thus the paper especially deals with tax quota as the most applied indicator. As this indicator can’t get along without certain limitations, we also mention some alternative indicators of tax burden, such as tax freedom day, tax misery index and ease of paying taxes.

Comparing the values of tax burden indicators of EU countries we have found out that there are some significant differences between the old and the new member countries.

1. Tax quota and compound tax quota (quota including social security contributions) achieve markedly higher levels in old EU member countries with the highest level in Denmark, while in new member countries, the (compound) tax quota is relatively low with the lowest level in Slovakia.

2. With respect to the structure of tax quota, there is a significant difference in direct and indirect taxes to total taxation ratios. There is a stronger reliance on the direct taxes in old member states as compared to the new ones and unlike many of the new ones the progressivity of income taxation is still retained there.

3. Comparing the tax burden, it is necessary to consider that there are many differences among the economies that can overvalue or undervalue the tax quota, such as system of tax incentives, taxation of social contributions, double taxation, administrative costs, construction of tax bases, deductions and tax credits etc.

4. Tax freedom day indicator is considered to be the most popular among the alternative ones and is the most promoted in the media. Nevertheless there are at least two methods for its calculation which leads to different results. We show the method which is in conformity with the tax quota calculation, a complete the tax freedom day with other alternative indicators.

5. Tax misery index is focused on high mobile labour force and entrepreneurs. Its value is one of the most important factors that determine the high income entities' decision of the place to live. Though this index seems to be aimed just on the marginal part of economy, these are the entities that create jobs and support economic activity. Also, according to the values of tax misery index, the tax burden is higher in old member countries, while the new ones seem to be more friendly which may be caused by the fact that some member countries have applied the flat income tax rate.

6. Ease of paying taxes is the only one indicator that brings different results. It doesn't include just the amounts paid in taxes but also the costs connected with the act of paying taxes, such as time, frequency of payments, number of forms to fill etc. According to this indicator, the tax burden is higher in the new member countries.

Despite the effort of tax harmonization in the EU, there still are significant differences between the old and the new EU member countries. The most of applied indicators of tax burden shows, that it is higher in the old member countries, while the new ones try to compete with them by applying lower tax rates, flat tax rates, tax incentives aimed on tax holiday granting etc. This tax competition that is supposed to stimulate old member countries to decrease their tax burden could, in fact, lead into natural harmonization without any strict interventions. On the other hand the indicator of ease of paying taxes shows, that the administrative costs of paying taxes are markedly lower in the old member countries which decreases the real tax burden remarkably.

New EU member states are relatively able to compete in the field of tax rates and direct and indirect taxes to total taxation ratios but it is not possible to suppose that further decrease of the statutory tax rates could lead into the increase of economic activity. New member countries should aim their tax policies on the emphatic increase of ease of paying taxes which could return decisive competition advantage, further stimulation of the old EU member countries and intensification of tax harmonisation in the way to lower tax burden and higher ease of doing business.

Nevertheless, the recommendations written above shouldn't be interpreted rigidly Analysis of tax burden can't get along without analysis of social benefits of imposed taxes. That should be an additional subject for further research.

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