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Sub-national governments' tax structure in the EU countries

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Sub-national governments' tax structure in the European Union countries

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Introduction

Tax composition has attained considerable attention during the recent years, particularly in the course of recent global financial and economic crisis. In many European Union countries, the economic crisis and disastrous public debts have forced governments to rethink their public finance and taxation systems. Meanwhile, the EU institutions are calling for the implementation of tax reforms “supporting economic growth and fiscal sustainability” (European Commission Growth Friendly Tax policies in the Member States and better Tax Coordination in the EU, 2011). One of the main reform issues is related to potentially “more growth-friendly tax structure” which means shifting tax burden away from labor (income and social security taxes) and increase burden on consumption. Besides the characteristics of individual taxes, the distribution of tax burden among different tax bases is another important aspect of efficient tax system.

Changes in tax structure are related with changes in overall taxation structure across the general public sector. In the general government level the taxation efficiency is grasped by looking at the relationship between taxes and GDP growth. However, the general public sector is split between different sub-national government levels. Tax mix optimality on these different sectors can be evaluated differently, and two aspects should be mentioned here.

First, at the local government level GDP growth cannot be a measure for taxation efficiency as in the general public sector level. The measures of efficiency of tax mix in local level are different – perhaps the goodness of tax mix could be measured by budget stability (deficit and debt situation), or an increase of supply of public goods. Second aspect is related with tax bases. In general, some taxes are suitable for use both in central and local levels (e.g. personal income or consumption taxes). On the other hand, certain taxes are suitable only for certain government sector (*e.g.* immobile property taxes on local level or company profit taxes on state or central government level).

Considering these implications, the paper looks at the tax mix in the sub-national government level across the European Union countries and analyzes the tax structure dynamics during the last decades. In the first part of the paper, a theoretical overview of the tax structure design will be given. There is a solid amount of literature over the tax mix impact on the economy. The second part of the paper provides an overview of the EU sub-national governments' taxation structure and changes which have taken place during the last decades. In broad scale, the main interest is related with income and consumption tax ratios. The principal aim is to show light on tax structure changes by tax types (*e.g.* direct and indirect taxes) and tax distribution over different levels of the government sector.

Tax types and functions

There are several internationally recognized classifications of the structure of taxes. This paper will use the European System of National and Regional Accounts (ESA95) for its classification of various taxes (European Commission 2011b). According to the ESA95 classification, all taxes are structured on the basis of their characteristics into different groups. Every tax group has a certain identification code, which simplifies tax comparisons across countries (*ibid.*).

In accordance with the ESA95, taxes are generally classified according to three criteria:

- tax type;
- economic function or tax base;
- level of government;

In general, there are three tax types – direct taxes (D.5), indirect taxes (D.2) and actual social security contributions (D.61). The term *direct tax* generally means that the tax obligation is imposed on a person or business entity, which ultimately bears the tax burden. The most common direct taxes are personal income tax (PIT) and tax on corporate profits (CIT).

In the case of *indirect taxes*, the payment of taxes is the obligation of a certain individual or business entity, but the actual tax duty can be transferred to somebody else. For example, businesses can shift the tax burden onto their customers via price mark-ups on goods or services. The shifting of the tax burden from one entity to another is also called changing the “tax incidence.” Indirect taxes are mostly production and import taxes, consumption taxes (*e.g.* value added tax (VAT) and excise duties) and taxes related to importing goods or services. They are imposed on the basis of the market value of goods or services.

The last type of taxes is compulsory social security contributions (SSC) from employers and employees (D.611). These taxes are primarily related to labor incomes. In addition, the use of SSC revenues is often specific – the collected funds are often allocated for defined purposes only (e.g. pension or healthcare expenditures). Taxes can also be structured on the basis of their *economic function* or *tax base*. This principle makes it possible to expose the particular source or base of taxation. Specifically, there are four principal bases of taxation – consumption, labor, capital and the use of the environment.

Finally, taxes can be classified according to *level of government*. Usually, tax collection and use is allocated over different levels of the government sector – central and sub-central tiers of the general government sector. The share of taxes collected and used by each level of government also demonstrates the distribution of fiscal responsibilities over various levels of the public administration system. This paper considers the taxation issues over all sectors' of government.

Structuring taxes in different ways is essential in many respects. First, it provides a comprehensive overview of the distribution of the tax burden across taxpayers – both individual and business. The distribution of the tax burden characterizes a country's political, economic and social preferences. The tax mix also depicts society's social values and public choices. Second, structuring tax according to various characteristics demonstrates which kinds of activities are burdened by taxes (e.g. consumption or production).

Third, classifying taxes in various ways provides valuable information, which facilitates macroeconomic decision-making. An efficient tax mix secures public sector revenues and supports economic stability and growth. In recent years, the European Commission has paid increasing attention to tax structures and their efficiency in supporting the growth and stability of its member countries (European Commission 2011c).

Tax composition: the theoretical foundations

Taxes perform various roles in a society – they provide funds for public programs, as well as fulfill regulatory and stabilizing functions. Tax system can be characterized in two principal ways. First, taxes have an impact on people's economic motivations, consumption patterns, allocations of resources and investment decisions. Taxes may distort economic subject's behavior and individual's motivation to work. For example, heavy profit taxation may result in businesses allocating investments unproductively.

Second, in addition to the individual characteristics of particular taxes, it is important for a society to combine the use of various taxes in the best possible way. Such an efficient combination results in an optimal tax structure or tax mix. Various taxes carry out different functions, which are often controversial for each other. Even so, an optimal tax structure makes it possible to use certain taxes for certain purposes; for example, to collect the necessary public revenues or for correcting externalities.

However, this paper is not focusing on the characteristics of specific taxes. There is extensive amount of literature focusing on the efficient mix of taxes for the sub-national government sector (e.g Bahl, 2011). Our focus is to give an overview of tax mix, used by European local governments'. An optimal tax structure is essential for maintaining local governments' functionality and achieving social and economic goals.

The theoretical foundations for the optimal tax mix were first given by Atkinson and Stiglitz (1976). Issues of tax structure optimality have attracted considerable interest in recent years, particularly in the course of the recent global financial and economic crisis. The most important aspect of the current improvement of taxation structures is related to economic growth issues. The sovereign debt crisis in some EU countries, deteriorating economic growth prospects and the decline in the level of global competitiveness in certain European countries have all forced EU officials and Member States to pay more attention to the efficiency or "quality" of taxation systems in each country (European Commission 2011c). The Commission invites Member States to "enhance economic growth by shifting their tax structure away from labor" and instead, to increase consumption, environment and/or housing based taxation (European Commission 2011a, pp. 4-5). The Commission argues that "theoretical reasoning suggests that environmental taxes, property taxes on immovable property and consumption taxes introduce fewer distortions than income taxation does" (European Commission 2011c, p. 52).

As OECD experts are pointing out, despite the fact that distorting taxes affect growth, "practical tax reform(s) require(s) a balance between the aims of efficiency, equity, simplicity and revenue raising" (Johansson 2008, p.2). Therefore, most authors also point out certain precautions about changing the tax mix towards a higher share of consumption taxes (Martinez-Vazquez et al. 2010; Johansson 2008).

Considering the tax burden shift from income to consumption, various aspects that limit the scope of such a tax shift should also be mentioned. First, one of the main important

characteristics of income taxes is their revenue generating capacity. Despite the theoretical virtues of indirect taxes over direct taxes, income taxes are a capable and relatively stable source of public revenue and cannot be replaced by consumption taxes. In the EU, the urgent need for fiscal consolidation during the recent crisis periods has resulted in the overturning of a decade-long trend towards consumption taxation, and has forced many countries to increase income-based taxation (European Commission 2012, p.30). The IMF also points out that since the economic and financial crisis hit the global economy in 2009, most advanced countries have increased the tax burden on personal and corporate income (IMF 2012, p.18).

Second, too heavy reliance on indirect taxes would decrease the efficiency of automatic stabilizers. As usual, direct taxes are more progressive over income and their stabilizing effect is clearly more powerful than consumption taxes. Third, a high proportion of indirect taxation also reduces the scope and ability for income redistribution (Martinez-Vazquez 2010, p.47).

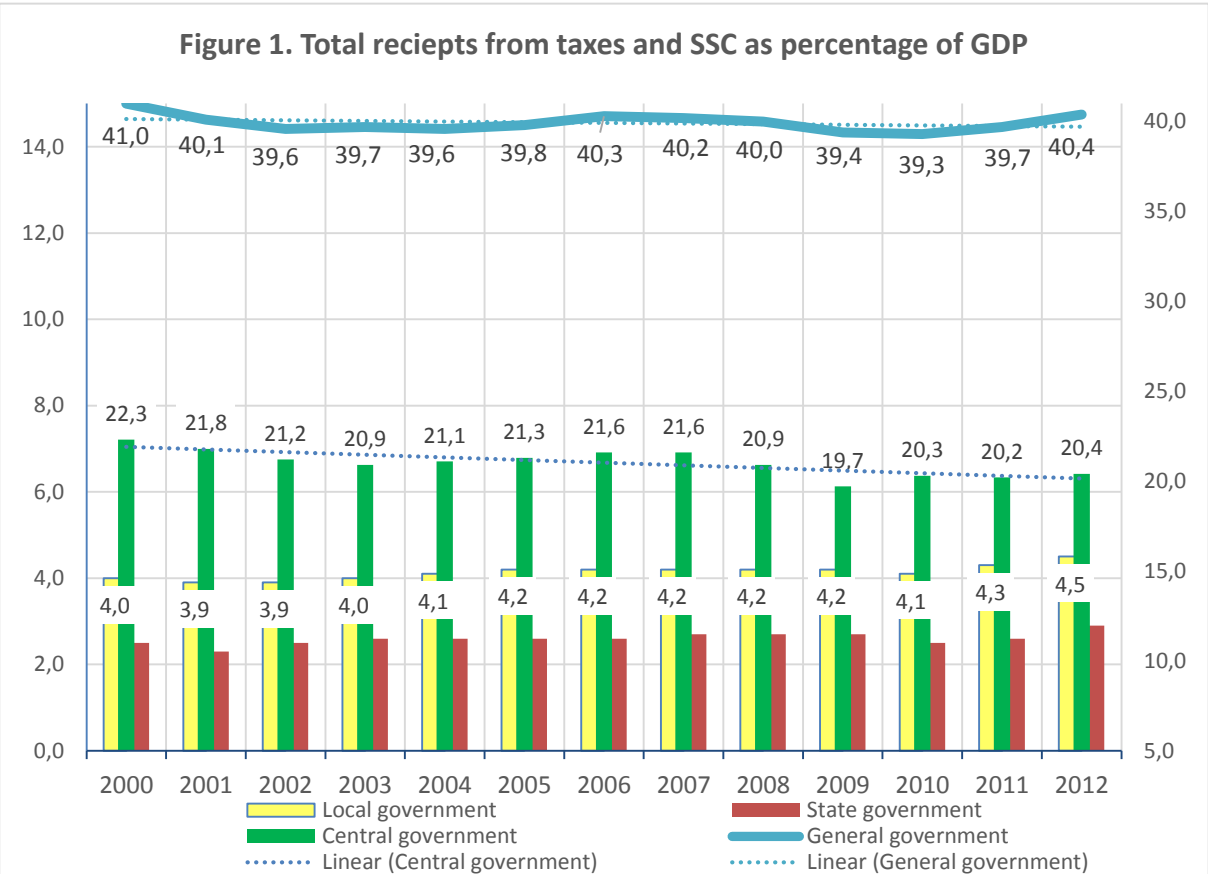
To summarize the theoretical overview, it becomes clear that no “golden rule” exists about how the optimal tax structure should look like. As noted by Martinez-Vazquez (2010, p.43) “the optimal tax literature never provided exact recipes to be followed in the design of tax structures... leaving open what the optimal tax mix should be.” Therefore, the tax mix is a rather country-specific issue.

Taxation structures across the levels of government

This section considers the distribution of tax burden in the EU countries in different levels of governments. That provides a general overview of the situation across European countries, despite it hiding variety and significant differences among individual member states. In most countries, the government sector is divided into several sub-national levels – e.g. central, regional (state) and local level of government. However, the most EU countries are unitary states. There are 5 countries among European countries, which have a federal (state) level government tier (Germany; Belgium; Austria; Spain; Switzerland). The social security funds are separate financial institution and in the analysis are brought out separately. Actually, those funds are often part of central or state level governments’ budgets.

What happened with taxes in Europe during the last decade? During the period 2000-2012, general tax burden across the EU has been relatively stable – taxation proportion fluctuated around 40 % of the GDP (Figure 1). During the global recession the general government tax burden (blue line) declined to the lowest point in the period (39.3 %). During the recovery,

the tax burden increased again and reached the level of 40.4 % of the GDP at the end of the period.



Source: Eurostat and author’s calculations

Notes:

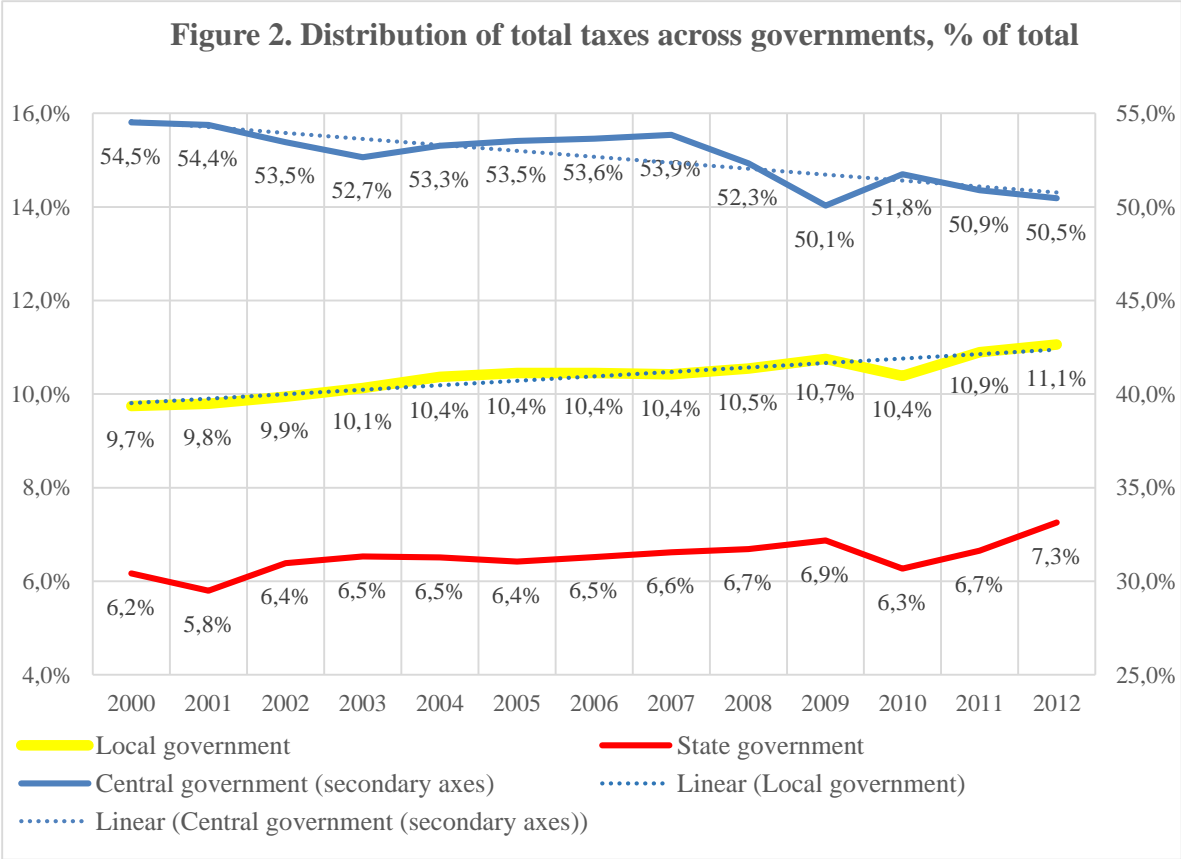
1. Total receipts from taxes and SSC are measured by in secondary axis
2. Central government indicators are measured by secondary axis
3. Social security contributions (SSC) are included on general government graph

The central governments in the EU (green column in the Figure 1) are collecting about 20% of GDP of taxes. That general government sector is in decline as demonstrated by trend line and has decreased their tax collection about 2 percentage points during the period. As seen, the global recession hit the central governments’ tax revenues more than other governmental sectors. Central governments are depending more on cycle-sensitive tax revenues (*e.g.* profit taxes and personal income taxes) than state or local governments.

The local governments in Europe are collecting tax revenues around 4.5% of the GDP. This ratio has gained a half of percentage point during the period. Similar trend is visible in the

state government tax revenues (2.9 % of the GDP the end of period) and social security contributions (12.6% of the GDP).

Figure 2 depicts the tax distribution over different general government sub-sectors.



Source: Eurostat and author’s calculations

About half of all taxes and SSC is collected by the central governments. However, the trend is declining – during the period central governments share declined by 4 percentage points. All other government sectors have increased their share. Local government’s share in total taxes has increased from 9.7% to 11.1%, which is an indicator of decentralization and assigning more share of taxes to sub-national government level.

Tax structure

The following section will consider government sector tax composition in European countries. The focus is on distribution of direct (or income taxes) and indirect (or production) taxes in different levels of governments.

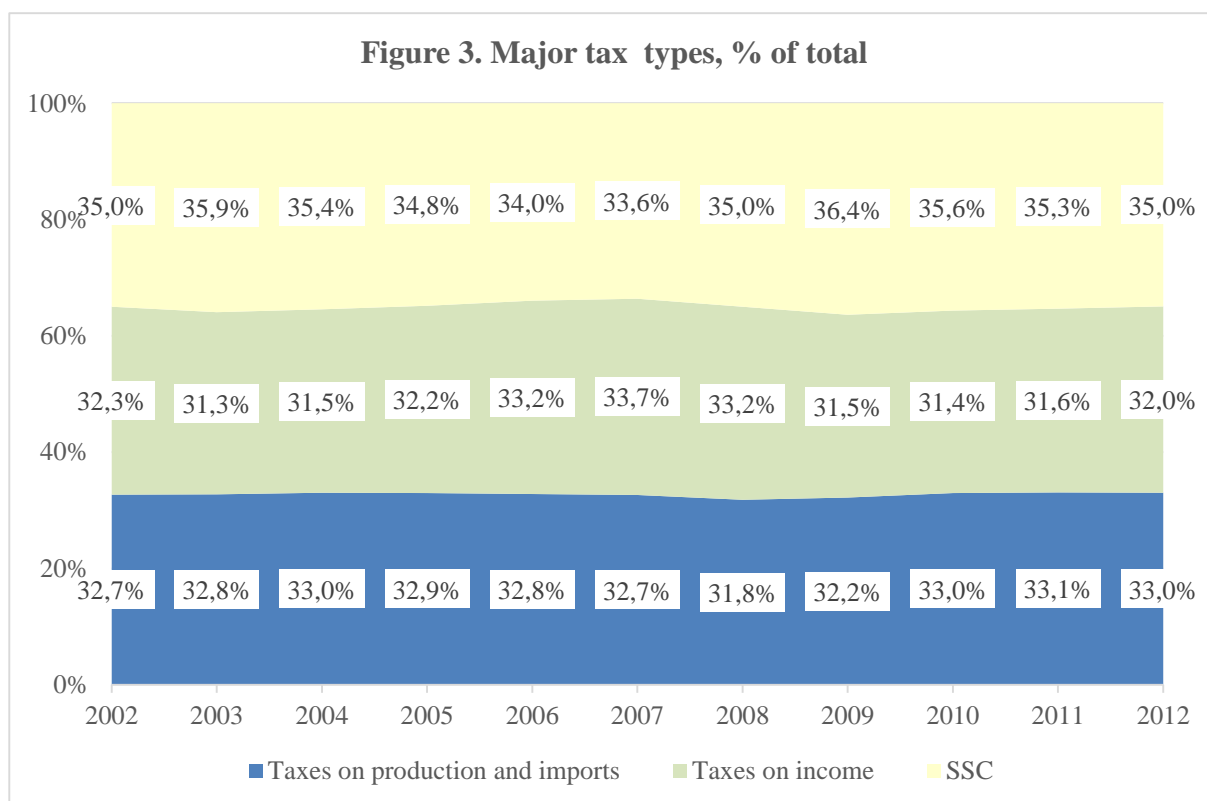
As explained above, the direct taxes include taxes on personal income (PIT) and companies' profits (CIT). Also, those taxes are classified as income and wealth taxes. The consumption taxes (or classified as production taxes) are indirect taxes, which are mainly taxes related with various consumption activities. Those include value added taxes (VAT) and various excise duties (e.g. on tobacco and alcohol). A separate group of taxes are social security contributions (SSC). However, as the SSC are assigned to specific funds, they are not related with particular sub-national government sector.

The taxes, collected by different levels of European governments are structured by four indicators:

- taxes, assigned on different levels governments;
- sub-national governments share of collected total taxes;
- direct and indirect taxes in governments budgets;
- ratio (index) of direct and indirect taxes collected by various sectors of governments;

Taxes and GDP

What are the major tax types that different European government sectors are using? In general, three major tax types – direct (income), indirect (consumption) and social security contributions (SSC) are collected. Each of those taxes cover about one third of total taxes (Figure 3). Surprisingly, in the long run the tax structure across the EU countries has been relatively steady. During the global recession in 2009-2010, the share of income taxes fell the most, and consumption taxes and SSC gained proportionally. In later years, initial tax proportions were restored.

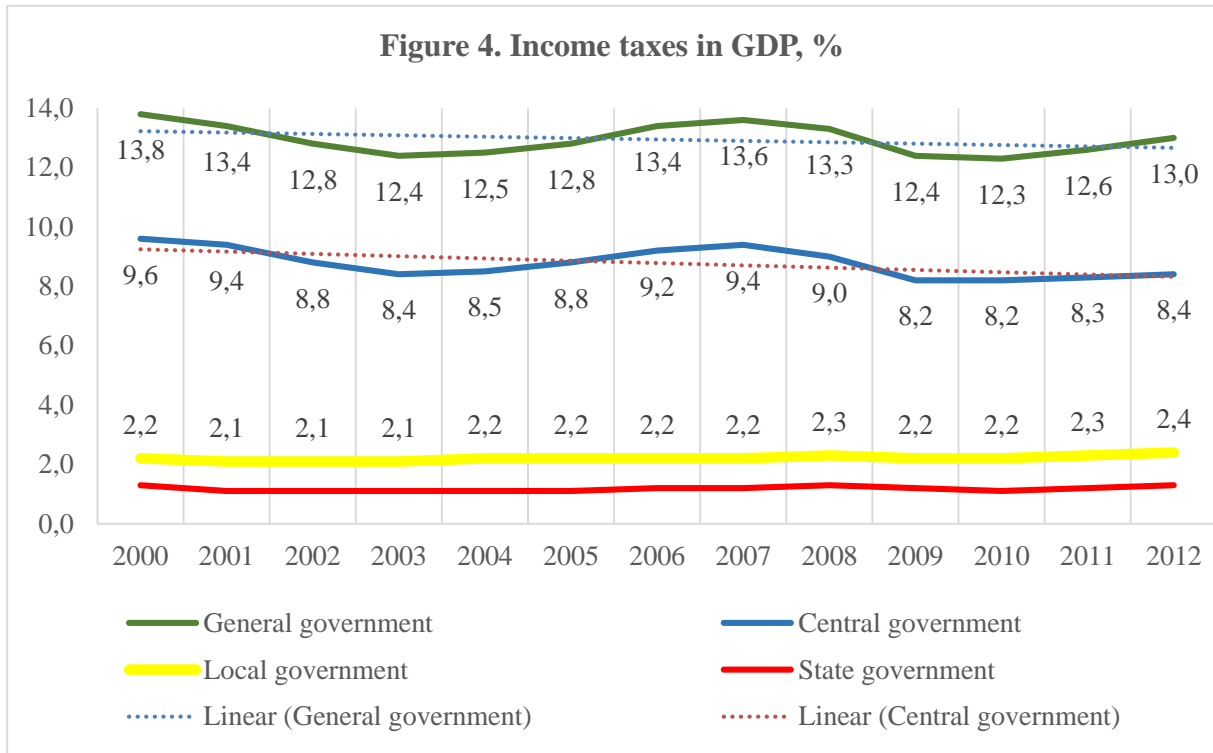


Source: Eurostat and author's calculations

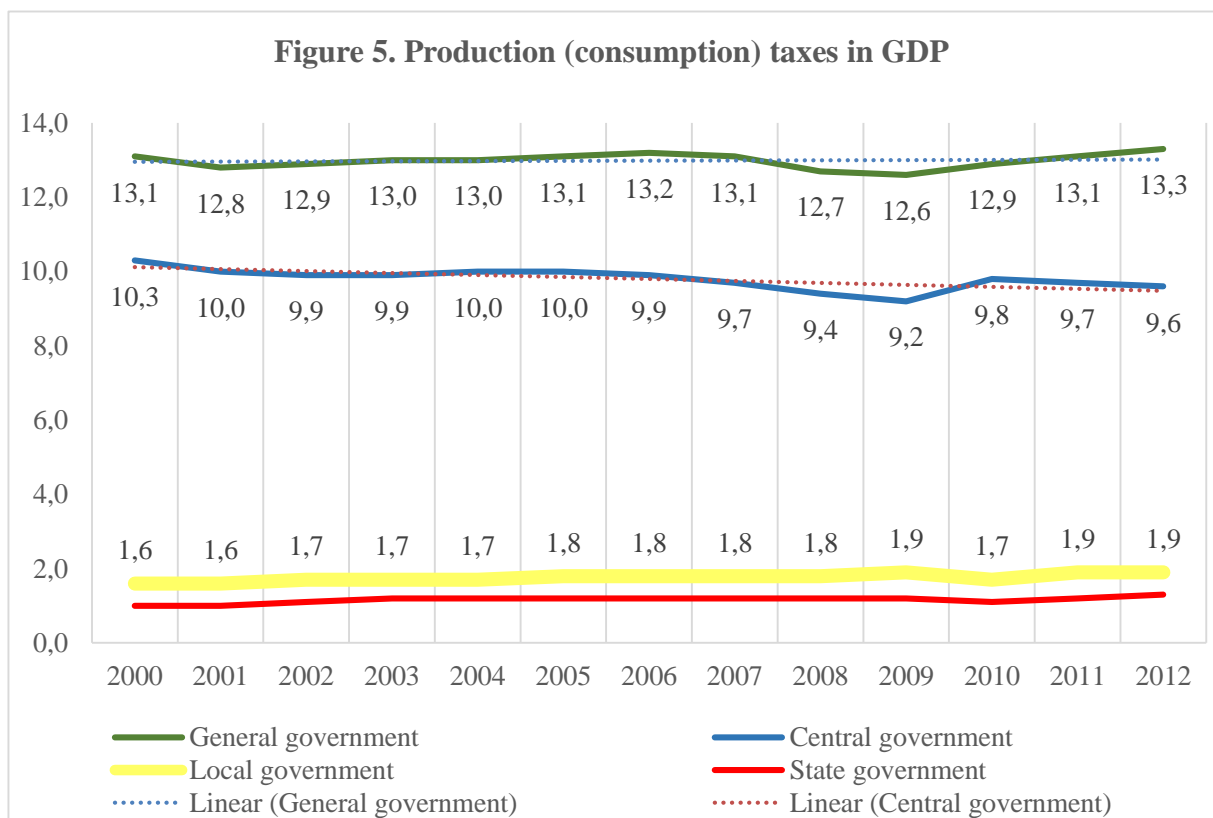
Figure 4 depicts income taxes, collected by various levels of government. As seen, central governments collect over 8% of income taxes as compared with GDP level; local governments receiving over 2% compared with gross output. In both general government and central government level, during the recession period the income tax revenues declined. Income and profit taxes are more sensitive from the business cycle. At the same time, the local government income tax revenue has been stable.

Despite that central government's income tax collection at the end of the period is slightly less than at the beginning, the trend line is perfectly flat. Similar trend characterizes also other sectors income revenues as well.

Figure 5 graphs indirect tax revenues by sectors of government. As seen, the central governments collect more consumption taxes than income taxes. The local governments are collecting less than 2% of consumption taxes of the GDP comparison, as the total value of central governments indirect tax is about 10% of GDP.



Source: Eurostat and authors calculations



Source: Eurostat and author's calculations

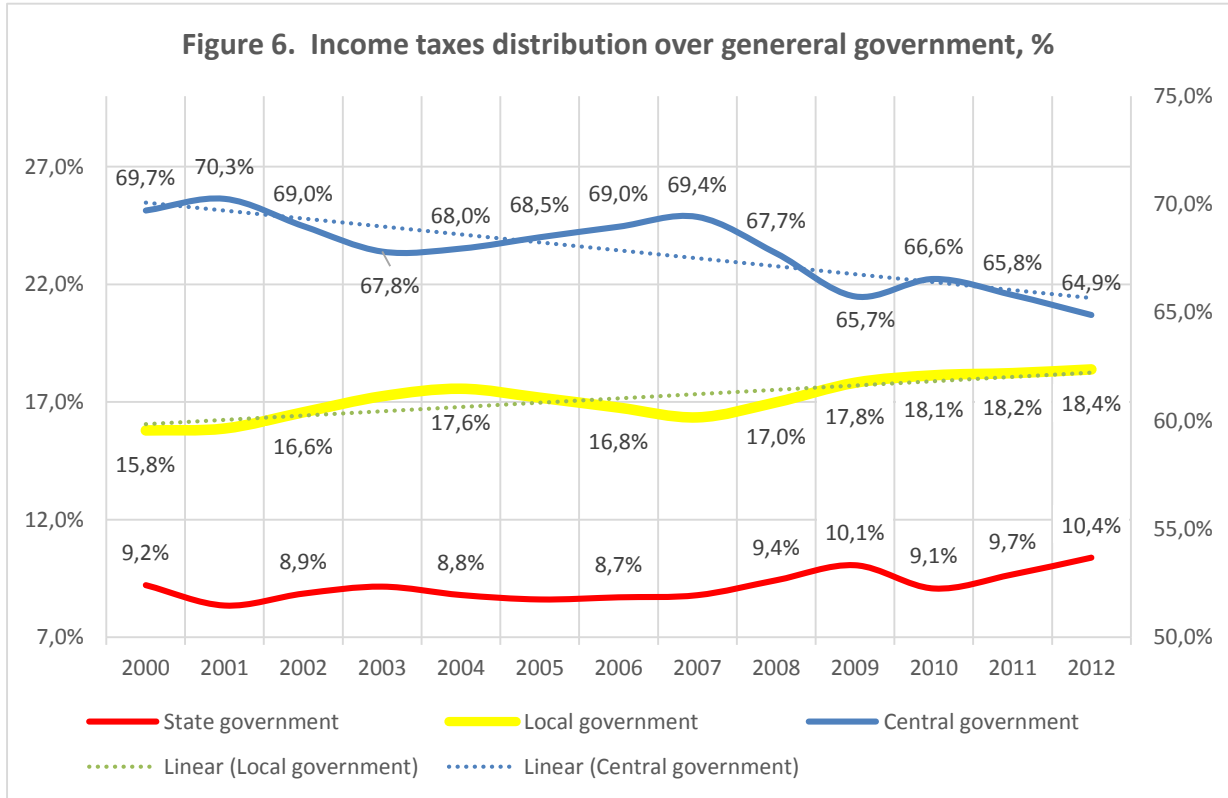
How are the collected taxes distributed over different levels government? Most of income taxes are collected by the EU central governments – about two thirds of received total PIT and CIT revenues (Figure 6). However, the overall relative share of income tax revenues has declined 5 percentage points – from 70% to 65% of total revenues. Long-term trend is also declining. Decline of central government's share of income taxes is due to various reasons.

First, the ongoing process of public sector decentralization shifts PIT revenue more on lower level of sub-national governments. Therefore, local and state governments' budgets are receiving bigger share of income tax revenues. As seen, local governments' have gained about 4 percentage points and receiving one fifth of the PIT revenues and the long-term trend shows also increase.

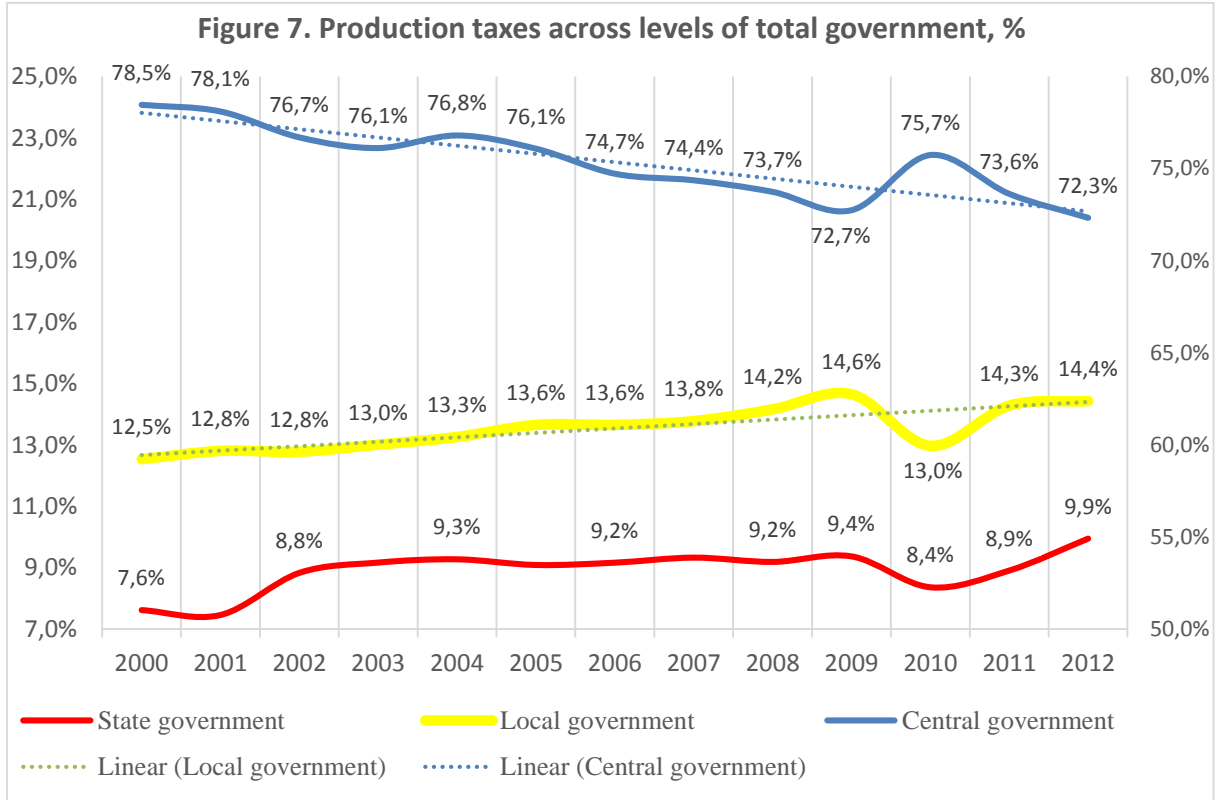
Another reason for diminishing income taxes revenues is the decline of corporate income tax rates. As CIT revenues are mostly assigned on central governments' budgets, the rate decline has impact mainly on central government incomes. The third reason is cyclical fluctuations. Central governments income revenues have fluctuated significantly on boom and recession.

Similarly to income and wealth tax collection, most of indirect tax revenue is collected by the central governments (Figure 7). Central government revenue from indirect taxes as compared with GDP is higher than from income taxes – currently around 72% of all consumption taxes. However, central governments' proportion in consumption tax collection has significantly declined – more than 6 percentage points. Accordingly, the local governments' share of consumption tax collection has increased – it is currently close to one fifth of all consumption taxes.

During the recession in 2010 the central governments sharply increased their share in consumption taxes; at the same time sub-national governments' share declined. Urgent need to stabilize budget position urged central governments to increase consumption taxes and those revenues mainly went to central budgets. As Figure 5 depicts, the consumption taxes on general government level have steadily increased in GDP comparison.



Source: Eurostat and author's calculations



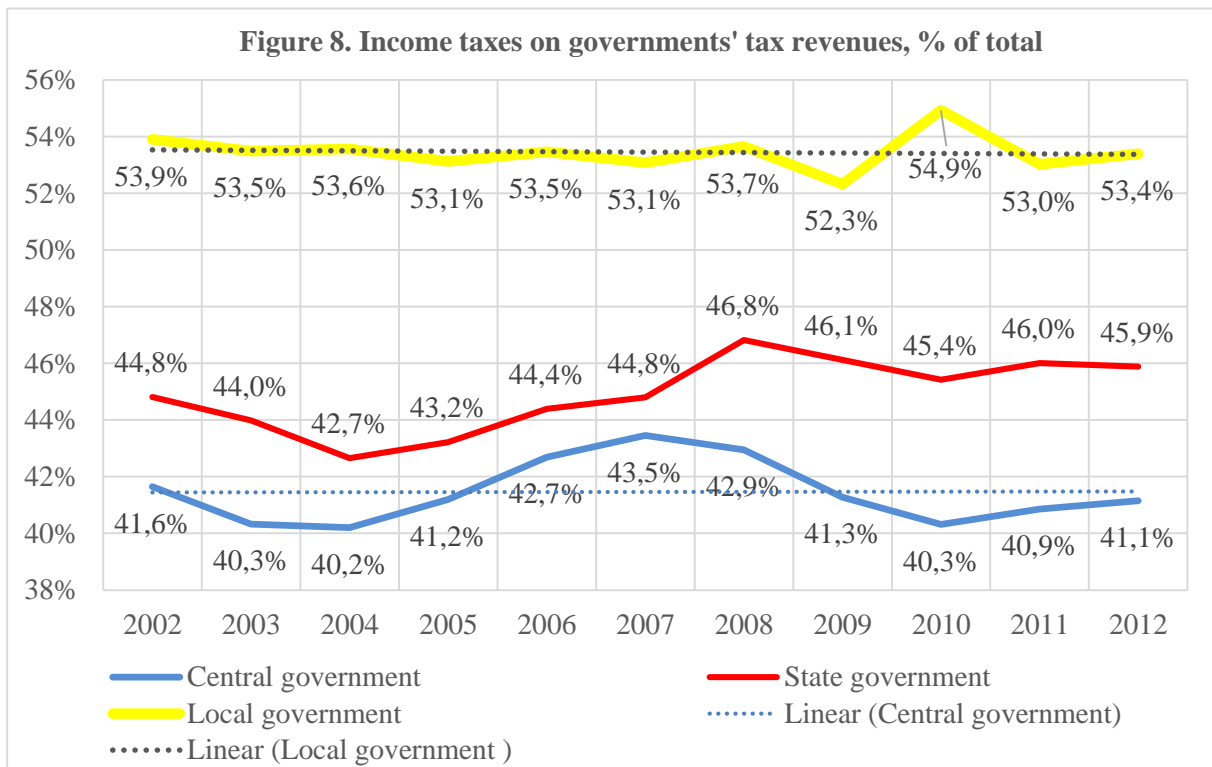
Source: Eurostat and author's calculations

Tax revenue structure

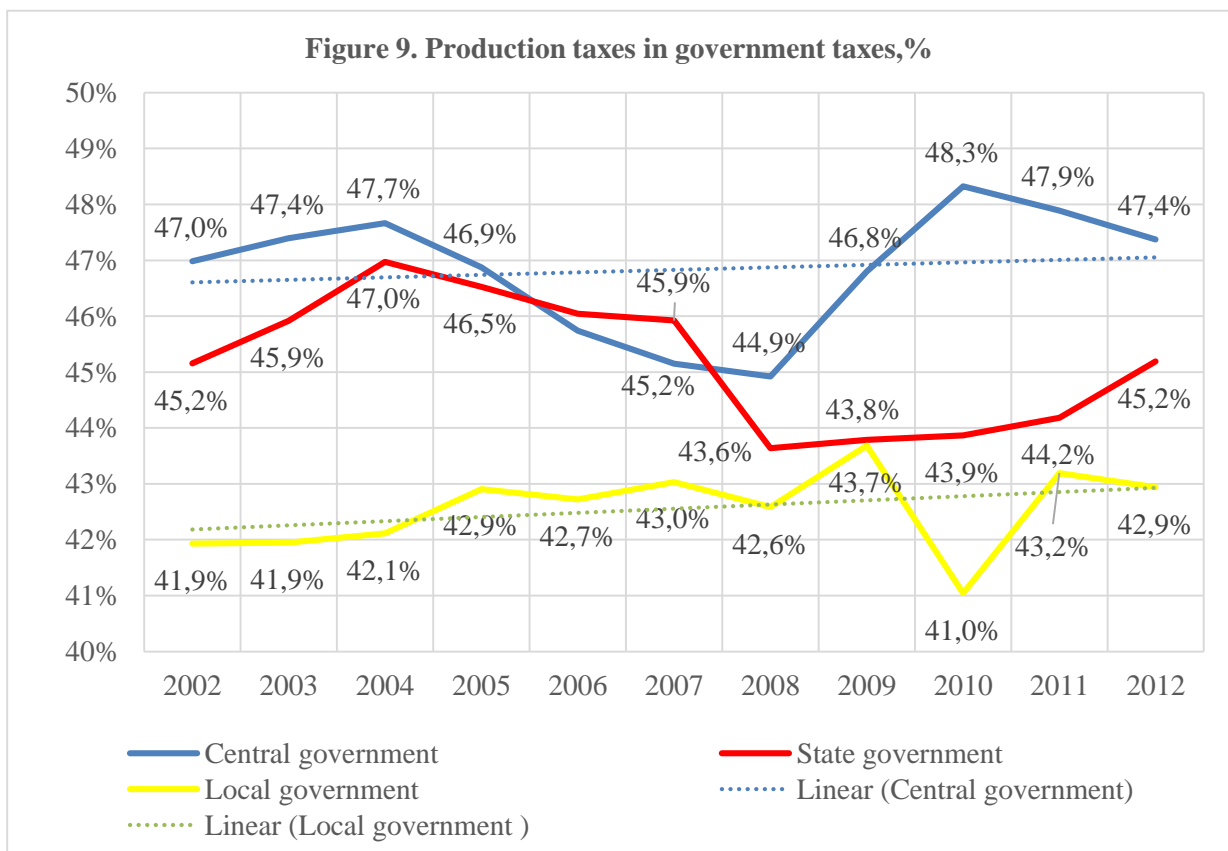
Which are the proportions of different taxes in governments' budgets? The central government budgets are depending from income tax revenues less than other sub-national government sectors (Figure 8). However, the income taxes share in central budgets is more volatile than in local budgets. During the pre-crisis period, European central governments increased their income taxation revenues; however, global recession decreased proportion of those revenues' significantly.

The share of income taxes in European local governments' budgets is about 53%. That is - majority of tax revenue is coming from taxing personal incomes and profits. In the first half of considered period (2000-2007) income tax revenue was rather stable. In the recession period (2009-2011) the income tax revenue for local governments' budgets has been rather volatile – fell and rose sharply. The only government sector which has in the long-run increased its income taxation revenues is state government level.

The production taxes play a larger role in the central government budgets than in sub-national ones (Figure 9). Interesting is the opposite move in the share of indirect tax in total tax revenues during the recession in different government sectors. In 2010 the consumption tax share fell sharply in the local governments' tax revenues; at the same time, the central governments gained more than 4 percentage points on consumption taxes. Later on, both central and local governments' consumption tax revenues have moved closer to the long-term average levels.



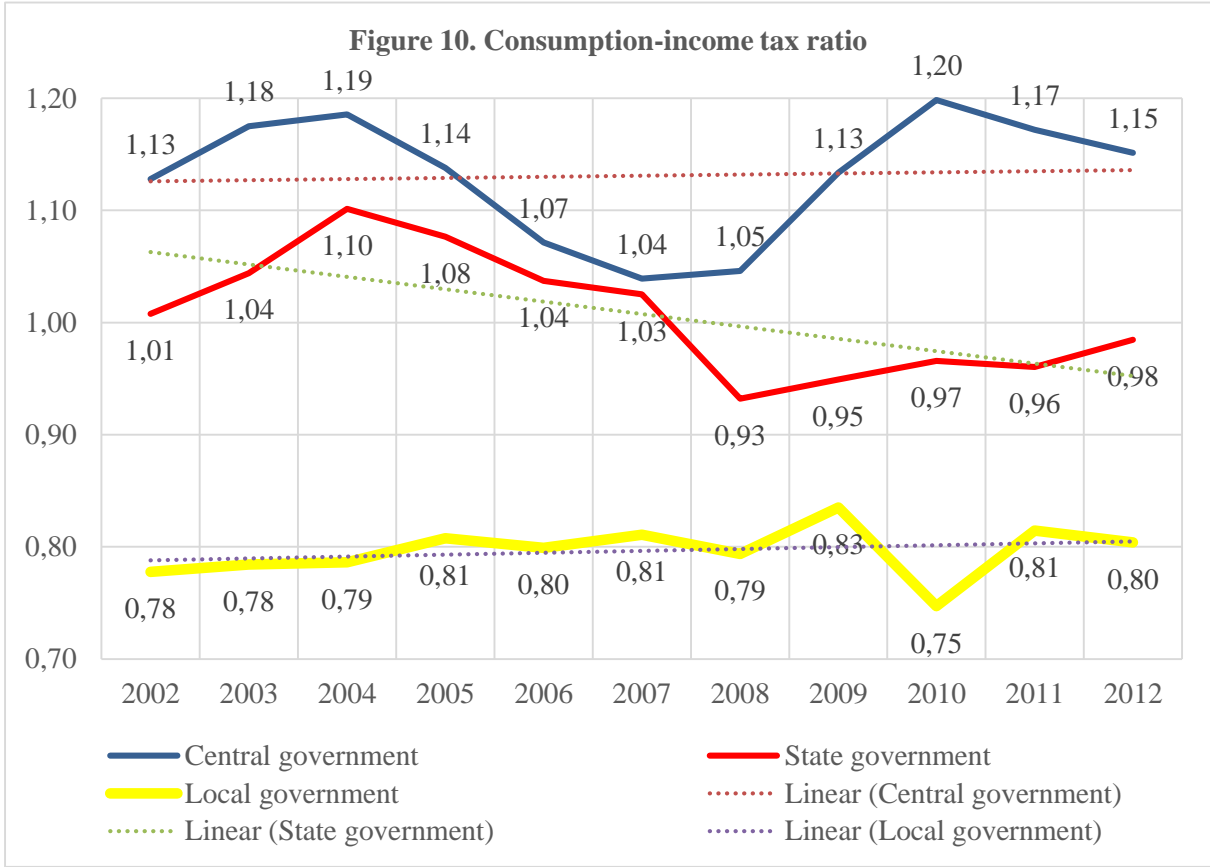
Source: Eurostat and author's calculations



Source: Eurostat and author's calculations

Income-consumption tax ratio

The following looks at the ratio of consumption-income taxes over different sectors of government. Such a ratio is constructed by dividing the total production taxes (D.2) by the amount of income taxes (D.5) in all government sectors. The dynamics of such a ratio over different sectors of government is given in Figure 10.



Source: Eurostat and author’s calculations

European central governments are collecting more consumption taxes than income tax revenues. The consumption-income tax ratio shows a wave-like trend; nevertheless, the beginning and end-levels of the ratio is about the same level. During the considered period the ratio has increased only slightly – the linear trend of the graph is rather flat.

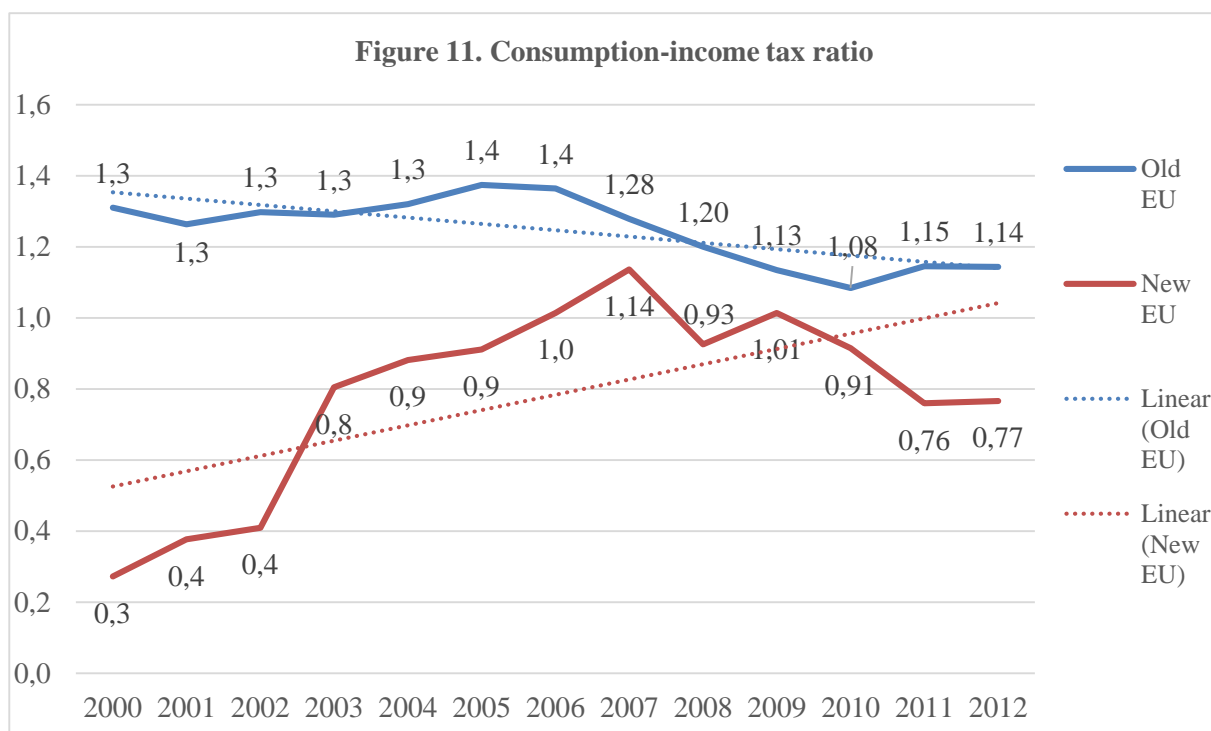
In the local governments the income taxes are prevailing. During the period, the trend is slightly increasing. This means that the local governments have moved slightly towards in favor of consumption taxation. The recession years 2009-2010 “shook” the line, but in a period of recovery the graph became flat again. The state governments are demonstrating a

certain volatility on consumption-income tax ratio; however, over the long-term their taxes ratio remains in a rather close level.

What is the dynamics of consumption-income tax ratio in various European local governments? The European countries are divided into 2 groups – “old” and “new” European Union member states. The “old” EU member states are the set of countries with long term experiences of market economy and democratic government. That list of countries also includes Malta and Cyprus and EEA countries – Norway, Iceland and Switzerland. The “new” member countries in this context include post-socialist countries from Central and Eastern Europe, where market economy and democratic governance was established few decades ago.

The old European states are richer, as measured by the GDP *per capita* level than former communist-bloc countries. The level of society’s income is important in the tax structure analyses context, because wealthier and poorer societies use different set of taxes. In general, higher income countries use more income taxation; poorer societies have relatively higher consumption tax burden (Sanford, 2000).

Figure 11 demonstrates the consumption and income tax use in different country groups in Europe. As the Figure 11 depicts, the consumption-income taxes ratio is different in two groups. Over the period, the new EU countries use relatively less consumption taxes and more income taxes. Actually, such a situation goes into controversy with the tax ratio in general government level. In most of new EU countries such ratio is just reverse at the general government level – more consumption than income taxes are used. However, the proportion of using consumption and income taxes has significantly equalized. As the Figures 6 and 7 demonstrate, the local governments’ share in total income taxes have increased slightly faster than consumption taxes. Despite long term trend shows continuing increase of consumption-income tax proportion, during the recent years the ratio have been falling.



Source: Eurostat and author's calculations

Note:

1. Following countries are excluded as outliers: Malta – does not have local government sector; Finland, Ireland, Hungary - do not collect certain type of taxes
2. 'New EU' member states are the countries, which entered EU since 2004 (except Cyprus)
3. 'Old EU' member states are EU countries before 2004 + Norway, Iceland, Switzerland, and Cyprus)

Another group – the old EU members – has a more stable tax ratio during the period. The figures demonstrate slight dominance of consumption taxes over the income taxes. Similarly, in general government level the situation is opposite – the countries in average use more income taxes than consumption taxes.

Correlations between taxes and countries economic indicators

As one can see, the proportion of tax structure in different European government sectors has been relatively stable (see Figures 8-10). The local governments' share of various taxes collected has somewhat increased; however, the tax structure has remained over the decade rather similar. The global economic crisis has caused short term fluctuations, but in the following years the situation stabilized on the previous, long run trend line level.

However, the summation of all European countries' government sector taxation indicators hides the individual country level developments. Certain countries have dramatically changed

their local government taxation structure (e.g. Hungary or Bulgaria). However, the more specific analysis of the country-level local government tax structure dynamics goes over extent this paper.

To show light on broad relationship between countries economic characteristics and local taxation structure, the correlations between certain economic indicators are presented (Table 1). The characteristics of individual countries are found in Appendix 1.

Table 1. Correlations between European local government tax structure, EU membership and GDP level

		D.2. / D.5. ratio ¹	EU membership ²	GDP level <i>per capita</i> , EUR
D.2. / D.5. ratio		1		
EU membership	Correlation coefficient	-0,010	1	
	Sig. (2-tailed)	0,842		
	N	367		
GDP level <i>per capita</i>	Correlation coefficient	-0,207**	-0,703**	1
	Sig. (2-tailed)	0,000	0,000	
	N	367	403	
**. Correlation is significant at the 0.01 level (2-tailed). Notes: 1. Taxes on production (D.2) divided on taxes on income (D.5) 2. Old EU countries (17) + Norway, Iceland and Switzerland and new EU (11)				

As the Table 1 presents, there is no statistically significant correlative relationship between countries EU membership status and the tax structure their local governments use. The new EU member countries’ local government tax structure is not different from “old” member states. At the same time, on the general government level, the new EU member states are using more consumption taxes than the old EU countries (EU Taxation Trends).

However, the country’s GDP level is statistically significantly and negatively related with local governments’ tax structure. That is, higher the country’s GDP level *per capita*, more it uses income taxes to finance local government activities. This situation in local government sector level fits with common understanding – more affluent societies rely more on income instead of consumption taxes in financing their activities. Differently, in relatively lower income societies is prevailing more use of consumption taxes.

Appendix Table 1 provides descriptive overview of the different EU countries groups local governments’ tax structure and their corresponding GDP levels. As the table presents, mean of

consumption-income tax ratio is rather close in different countries groups, despite that the income level differs significantly. That is, on average the new EU member state are not using different tax structure than their older EU counterparts.

Conclusion

Mix of various taxes, used by governments, became an important policy issue in the European Union context. Efficient combination of various taxes satisfies government needs for fiscal resources and support growth and development.

The paper analyses tax changes over the year 2000-2012. Tax burden of the EU countries has been relatively stable during the last decades – about 40% as compared with GDP level.

Central governments are collecting about half of all taxes and Social security contributions, local governments receive 11% and state governments about 7%. During the period the central government share has decreased, while other sectors have increased their share.

Major types of taxes are direct (income), indirect (consumption) taxes and social security contributions. The relative share of these tax groups is about equal (one third of total taxes) over the analyzed period. The central governments' share in income tax collection has declined from 70% to 65%; other sectors of government have gained accordingly. Similar trend is visible with the consumption taxation, there central government share is declined from 79% to 72%

The local governments receive majority of their revenues form income taxes (53%); central government's revenue from income taxation is 41%. The revenue levels from income taxes have been rather stable during the period. The production tax share been stable on central governments budgets (47%); the local governments have increased consumption taxation share by 1% point – 43% currently come from production taxes.

The consumption-income tax ratio varies by different government sectors. Central governments collect more production taxes than income taxes; on local level the situation is just opposite. All levels of governments have kept their consumption-income tax ratio relatively stable. Therefore, in the long run there is no change in the tax structure in the central or in the local government level.

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Appendix Table 1. Descriptive statistics of European local governments tax structure and GDP level *per capita* (EUR)

EU member country		D.2. / D.5.	GDP <i>per capita</i>
Old EU member States (17) + Iceland, Norway, Switzerland	Mean	1,219	31 612
	N	226	260
	Std. Deviation	1,369	13 839
	Range	5,481	69 500
	Min	0,000	11 200
	Max	5,48	80 700
New EU member states (11)	Mean	1,181	8 222
	N	141	143
	Std. Deviation	2,328	3 820
	Range	12,928	16 700
	Min	0,058	1 700
	Max	12,985	18 400
Total	Mean	1,205	23 312
	N	367	403
	Std. Deviation	1,80	15 941
	Range	12,99	79 000
	Min	0,00	1 700
	Max	12,99	80 700