

TAX SHIFT BY ECONOMIC FUNCTIONS AND ITS EFFECT ON ECONOMIC GROWTH IN THE EUROPEAN UNION

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Abstract

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The aim of the paper is to examine effects of tax shift on economic growth and provide a direct empirical evidence in the European Union (EU). It is used the Eurostat's definition to categorize tax burden by economic functions and implicit tax rates of consumption, labour and capital are investigated. First, paper summarizes main development of tax shift in a whole EU till 2014 and followed empirical analysis is based on annual panel data of 22 EU Member States in years 1995–2012 (time span is divided into a pre-crisis and a post-crisis period). Explanatory variables are not examined in individual regressions, but the study uses Generalized Method of Moments applied on dynamic panel data and estimations are based on Arellan-Bond estimator (1991). Results confirm positive and statistically significant impact of consumption taxes and weaker but negative effect of labour taxation on economic growth. In a post-crisis period, findings report raising labour taxes as the strongest and the only significant variable. It suggests that harmful effect of labour taxation is enlarging in a time of unfavorable economic conditions. A tax shift on capital taxation has negative but often statistically insignificant impact on economic growth.

Keywords: tax, tax burden, tax shift, implicit tax rates, growth conducive system, economic growth

INTRODUCTION

Formerly, tax policy was largely viewed as an instrument to achieve broader policy goals, above all, sufficient public revenue and redistribution of income. Over the last two decades the environment, in which tax systems operate, changed dramatically. Although only governments are responsible for a tax policy, there are many subjects and factors influencing their decision making. The Organization for Economic Cooperation and Development (OECD), the World Bank, the United Nations, the EU, the International Monetary Fund and the World Trade Organization are the main organizations affecting recent tax policy (for details about their impact look at Palmitessa, 2014). The globalization and digitalization of the economy have also substantially increased the geographic mobility of the tax base and multinational enterprises play an increasingly important role

in international trade. The global financial and economic crisis stresses the need for structural reforms and policymakers have to look for a balance between taxation, economic growth and equity. A way for achieving this goal is a shift of tax burden on less harmful taxes for economic growth. As it is known, different types of taxes have dissimilar effect on economic growth. It increases importance of identifying and understanding key factors affecting economic growth.

The aim of the paper is to examine effects of tax shift by economic functions on economic growth and to provide direct empirical evidence in the EU. The author uses the Eurostat's definition to categorize tax burden by economic functions and implicit tax rates of consumption, labour and capital are investigated. The paper explores and summarizes main development of a tax shift in a whole EU and followed empirical analysis is based on annual dynamic panel data of 22 EU Member

States in a period 1995–2012. Standard descriptive and analytical scientific method and Generalized Method of Moments are used as the main methods of research.

Theoretical Background

The theoretical effect of taxation on economic performance is not apparent matter. There is voluminous literature on the effects of taxes on the economy and its rate of growth (Barro, 1991; Mendoza *et al.*, 1994; Leibfritz, Thornton and Bibbee, 1997). Myles (2009) reviewed different production functions and effects of taxation on GDP and economic growth. However, using statistical data for comparing levels of taxation and economic performance does not provide unequivocal conclusions (Zipfel and Heinrichs, 2012). Many studies present negative relationships between taxes and economic growth and recommend lowering tax rates. Plosser (1992) found a significant negative correlation between the level of taxes on income and profits (as a share of GDP) and growth of real per capita GDP. King and Rebelo (1990) simulated changes in the income tax by applying an endogenous growth model and find that an increase from 20% to 30% reduces the rate of growth by 2 p.p. Also Romero-Ávila and Strauch (2008) stated that government consumption and direct taxation negatively affect growth rates of GDP per capita in the EU-15 in the last 40 years. Johansson *et al.* (2008) investigated the design of tax structures to promote economic growth. Corporate taxes were found to be most harmful for growth, followed by personal income taxes, and then consumption taxes. Recurrent taxes on immovable property appear to have the least impact.

Lee and Gordon (2005) explored how tax policies in fact affect a country's growth rate, using cross-country data during 1970–1997. They found that statutory corporate tax rates are significantly negatively correlated with cross-sectional differences in average economic growth rates. Karras and Furceri (2009) examined the effects of changes in taxes on economic growth. Using annual data from 1965 to 2003 for a panel of 19 European economies, the results show that the effect of an increase in taxes on real GDP per capita is negative and persistent. The findings also imply that increases in social security contributions or taxes on goods and services have larger negative effects on per capita output than increases in income tax.

Prammer (2011) summarized indications on how taxation might influence growth relevant decisions. Taxes on labour can affect decisions in three major ways by altering: i) the allocation of time between labour and leisure ii) human capital accumulation iii) occupational and entrepreneurial behaviour and choices. Labour taxes can also affect labour supply decisions, both concerning the decision to participate in the labour market and the amount of hours worked (García *et al.*, 2011; Szarowska, 2013a; Johansson *et al.*, 2008).

Taxes on capital can influence the rate of capital accumulation. By changing the return on capital, they might discourage saving and investment by economic agents (firms or individuals); hence capital taxes alter the intertemporal allocation of resources. Lower levels of investment eventually lower the capital stock which in turn impacts on growth. Thus, due to the intertemporal structure capital taxation accumulates the distortions over time (Vermeend *et al.*, 2008).

Consumption taxes are often regarded as less distortionary than income taxes, as they do not distort intertemporal decisions the way income taxes do. Consumption taxes fall partly on accumulated assets, which are an inelastic tax base. Moreover, as Carey and Tchilinguirian (2000) present, consumption taxes do not impact on the returns to saving and, usually, do not have a progressive tax structure.

As Szarowska (2013b) notices and with respect to literature above, it is possible to summarize that some taxes are more conducive to growth than others. Capital taxes cause very negative on growth. Labour taxes are less growth conducive; strong progressivity of income tax rates is regarded as particularly negative in this context. Consumption taxes are compatible with growth as they have small effect on decisions by economic agents regarding growth factors. Due to the negative growth effect of labour and capital taxes, it can be expected that in a growth-conducive system the tax burden of taxes on these factors should be kept lower in relation to consumption taxes.

Finally, it is worth mentioning a fiscal devaluation as a particular form of tax shift towards consumption, which – in the standard case – specifically targets a reduction in employers' SSC combined with an increase in the VAT rate. The basic idea is to lower the price of exports and to raise the consumer price of imports, thereby improving net exports in the short-run as well as employment and GDP in the long-run. While the aim of a tax shift is to make the tax system less distortionary and to promote economic growth in the long-term, fiscal devaluation is a tax policy instrument to improve competitiveness in the short-term. Garnier *et al.* (2014) summarizes results of empirical and model based estimations and suggests that a tax shift in the form of a fiscal devaluation is likely to increase net exports in the short-run and to permanently improve employment and GDP. Improvements are, however, small in magnitude.

The potential scope for a tax shift depends on the existing tax structure. High labour taxation together with a relatively low tax burden in one of the three areas: consumption taxes, recurrent property taxes or environmental taxes indicate area to shift taxes away from labour (European Commission, 2014b). Given the size of the tax base, which is relatively large for consumption taxes, but more limited for property taxation and environmental taxation, consumption taxes are

largest in revenue terms. As a tax shift might also effect tax compliance, measures can include the area of VAT.

MATERIALS AND METHODS

Tax burden is possible to analyze using many approaches and criteria. The goal of the article is to examine effects of a tax shift by economic functions on economic growth and to provide direct empirical evidence in the EU. Hence, it is used the Eurostat's definition to categorize tax burden by economic functions and implicit tax rates of consumption, labour and capital are investigated. A basic descriptive analysis of a tax shift development is performed for all EU Member States except Croatia. Following empirical analysis is based on annual panel data of the EU Member States in a period 1995–2012 (the newest available data are from 2012). The sample selection is limited by the availability of data. That's why, the empirical examination is performed for 22 EU countries, namely Austria (AT), Belgium (BE), Czech Republic (CZ), Cyprus (CY), Denmark (DK), Germany (DE), Estonia (EE), Ireland (IE), Spain (ES), Finland (FI), France (FR), Hungary (HU), Italy (IT), Latvia (LV), Lithuania (LT), Netherlands (NL), Poland (PO), Portugal (PT), Slovak Republic (SK), Slovenia (SI), Sweden (SE) and United Kingdom (UK). The analysis uses data on tax burden by economic functions, namely implicit tax rates of consumption (*ITR_C*), labour (*ITR_L*) and capital (*ITR_K*) from Eurostat. Annual data on GDP growth rate (*GDP_rate*) are also taken from Eurostat and they are based on accrual basis. Explanatory variables are chosen in accordance to Szarowská (2013b).

From a methodological perspective, the research is based on a dynamic panel regression model. Compared to the cross-sectional analyses, the panel regression has a very important option of including individual effects (i.e. the existence of heterogeneity across cross-sectional units). This makes presented evidence more credible, given the relatively small number of countries and short time series. The analysis uses Generalized Method of Moments (GMM) for dynamic panel data. Estimations are based on Arellan-Bond estimator (1991). The below models include a lag of one period, as is usual in this type of studies (Acosta-Ormaechea and Yoo, 2012; Arnold *et al.*, 2011; Machová and Kotlán, 2013;

Drobiszová and Machová, 2015). The software E-Views (7) is used for estimations.

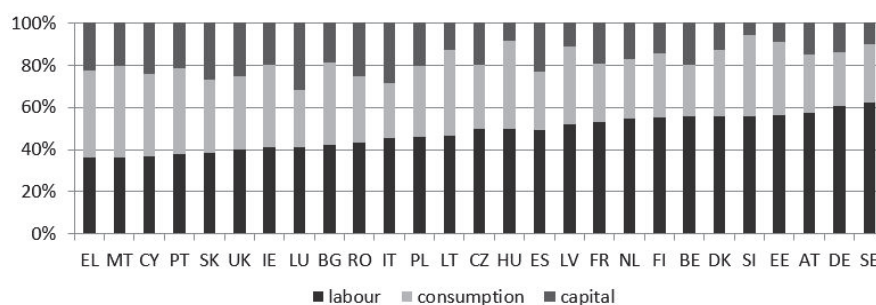
The GMM is a generic method for estimating parameters in statistical models. Usually it is applied in the context of semi parametric models, where the parameter of interest is finite-dimensional, whereas the full shape of the distribution function of the data may not be known. GMM is popular in estimating structural economic models, as it requires much less conditions on model disturbances than Maximum Likelihood. Another important advantage is that it is easy to obtain parameter estimates that are robust to heteroscedasticity of unknown form (Hansen, 1982). For a model specification, Dynamic Panel Data Model Wizard is applied. The wizard aids in specifying members of the class of dynamic panel data models with fixed effects. These models are designed for panels with a large number of cross-sections and a shorter time series (Arellano and Bond, 1991).

RESULTS AND DISCUSSION

Main Trends in a Tax Shift

The total tax burden to GDP ratio includes all taxes and social security contribution receipts. The total tax burden varies widely across Member States, mostly reflecting variations in social preferences for government interventions. This ratio varies in 2014 from 26.9% in Lithuania to 48.9% in Denmark (EC, 2014b). Tax burden and its composition (tax mix) are regularly analysed by Eurostat, so this part is focused mainly on consequences of tax changes and tax shift during the covered period. Next figures depict following groups of taxes: taxes on labour (including personal income tax PIT, corporate income tax CIT and social security contributions SSC), capital (taxes on stocks of capital/wealth and taxes on capital and business income) and consumption (VAT and excise duties). Fig. 1 presents structure of a tax mix and share of taxes in total revenues in year 2012 – the latest year for which detailed data are available.

The structure of a tax burden by economic functions reveals that the eastern EU Member States generate a relatively high share of total revenues henceforward from consumption taxes. In the northern and central European states, revenues come predominantly from labour taxes. This is



1: Structure of a tax mix by economic functions in 2012

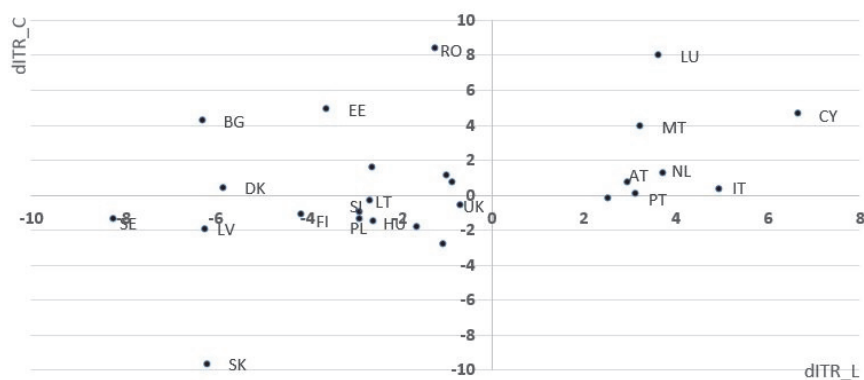
the result of a relatively high burden on the factor labour (for details look at European Commission, 2014c) – compared with the EU average. Especially in central EU Member States such as Czech Republic, Germany, France and the Netherlands this is due to the large share of SSCs. Denmark is a special case as social security revenues there only amount to 1% of GDP (in 2012).

It is necessary to point out that governments have started to adopt Europe 2020 strategy for smart, sustainable and inclusive growth (EC, 2010), based on enhanced coordination of economic policies, which was launched on 3 March 2010. All Member States committed themselves to achieving Europe 2020 targets and translated them into national targets and growth-enhancing policies. Important part of the strategy is focused on a tax policy.

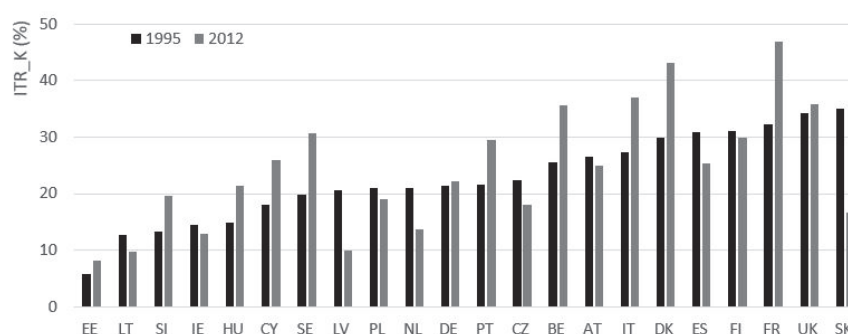
In line with theory and EC recommendations (EC, 2010), taxation of labour and capital should be kept low as it distorts decisions by economic agents, which in turn negatively impacts the use of the growth factors labour, capital and technological progress. Taxation on consumption has less adverse effects in this respect. Tax systems have been redesigned mainly in the countries of northern and eastern Europe, whereas central Europe has seen little change. Fig. 2 presents the shift between implicit tax rates on labour and consumption in percentage points in individual EU countries between 1995–2012. It is necessary to point the fact that figure presents changes in implicit tax burden but it does not express a final value of tax burden. In line with recommendation, seven EU Member States (BE, BG, CZ, DE, DK, EE, RO) decreased labour taxes while increased consumption taxes. Average increase of consumption taxes is very low and it is mainly caused by changes of VAT in most countries. A big group of EU countries (FI, FR, HU, IE, LV, LT, PL, SI, SK, SE, UK) decreased labour as well as consumption taxes. This development was mainly connected with the effort to make the tax systems more growth conductive and attractive. Lowering labour taxes is often connected with decreasing SSC and effort to make labour costs more competitive. CITs affect the location of businesses and decrease domestic and foreign direct investment. In addition,

statutory CIT affects profit shifting practices as multinationals tend to shift reported profits from high-taxed to low-taxed countries. PITs and SSCs paid by employees affect the decisions of individuals about taking paid work and the number of hours they work, hence impacting labour supply. This is in particular true for some specific categories of workers such as low-income, low-skilled, married women and lone mothers. The tax burden on labour, in particular SSCs paid by employers, also affects the cost of labour for employers and hence the demand for labour. Next group of states (AT, CY, IT, MT, LU, NL) increased both types of taxes, and only Spain and Portugal fractionally increased labour taxes without changes of consumption taxes during a period 1995–2012.

The implicit tax rate on labour decreased on average from 35.3% in 1995 to 34.2% in 2012 in the EU-27. Average implicit tax rate on consumption increased from 20.7% in 1995 to 21.6% in 2012 in the EU-27. But it is apparent from reports of EC (2014b and 2014c) as well as Garnier *et al.* (2014) note, macro-economic data do not show a shift from labour to less distorting tax bases in 2011 and 2012 after adoption Europe 2020 strategy. Unfortunately, ITR on labour and on consumption increased on average over the period 2010–2012. Almost all Member States increased VAT rates and/or excise duties and a majority of reforms aimed at increasing the PIT and/or SSCs. Some of the increase in labour taxation in these years was concentrated on better earners, in the form of surtaxes on high incomes (often called “solidarity levies”), the introduction of a new highest income tax brackets, hikes in the top PIT rate (during the period 2010–13, six or seven Member States raised their top PIT rates each year) or increases in the maximum SSC base. Meanwhile, top CIT rates have changed little on average across the EU since 2010. Most countries have stopped reducing corporate rates, in contrast to the more widespread cuts that occurred before the crisis. In other cases, the increase in labour taxation was the result of an overall tax rise (BG, LV) or the removal of some tax allowances without a clear targeting of high income earners.



2: Tax shift between labour and consumption in p.p. (1995–2012)



3: *Implicit tax rate on capital in percentage (1995, 2012)*

Note: there are used values from 2002 (IE) and 2000 (ES, EE) due unavailability of 1995 data

I: *Tax changes adopted from 2013 to 2014*

Type of tax		Measure	Statutory rates	Base or special regimes
Personal income tax	Increase	AT, ES, PT		AT, BE, CZ, EL, FI, FR, HR, IE, LT, NL, SE, SI
	Decrease	BG, EE, EI, MT, NL		BE, BG, CZ, DK, DE, EE, ES, FI, FR, IT, LT, LV, MT, NL, SE, RO, SI, UK
Corporate income tax	Increase	BE, DE, EL, FR, SK		AT, BE, EL, ES, FI, FR, HR, LT, LV, PL, SE, SK
	Decrease	DK, EE, FI, FR, ES, PT, UK, SK		AT, BG, BE, EL, ES, FR, HR, IE, IT, LT, LV, NL, PT, RO, UK
Social security contributions	Increase	CY, HR		CZ, EE, HR, HU, RO, SK
	Decrease	AT, EE, IT, LV, RO		BE, ES, FR, HU, LV, SE, SI, SK, UK
Value added tax	Increase	CY, FR, IT, LU, PL, SI		BE, CY, DE, DK, EE, EL, FR, HR, IT, LU, PL, SI
	Decrease			BE, DK, EL, ES, FR, IE, LT, RO
Excise duties	Energy, electricity	Increase	BE, CY, BG, EE, ES, FI, FR, HR, IT, LV, MT, NL, PL, RO, SI	BE, EE, FR
		Decrease		BG, DK, DE, HR, UK
	Tobacco, alcohol, sugar etc.	Increase	AT, BE, CZ, DE, EE, ES, FI, HR, IE, IT, LT, LV, MT, NL, PL, PT, RO, SE, SI, UK	
		Decrease	DK, UK	
Other environmental taxes	Increase	AT, BG, ES, FI, FR, HR, HU, IT, LT, LV, NL, PT, SI, UK		BE, CY, FR, NL, UK
	Decrease	BG, IE		DK, MT, UK

Some EU Member States (Belgium, France) used a fiscal devaluation (a shift from SSCs to consumption taxes in a revenue-neutral way) as a possible instrument to boost competitiveness. By lowering unit labour costs and changing the relative price of imports (since VAT bears on domestic consumption) tried to foster exports and thus to improve the trade balance.

Fig. 3 shows changes in a tax burden on capital, which is an objective of a tax competition with a connection to the aggressive tax planning by multinational enterprises and aggressive tax competition by national jurisdictions. On-going globalization and digitalization have increased the geographic mobility of the tax base and governments try to attract and gain new tax bases.

Implicit tax rate on capital are not accessible for all EU Member States (data is available for a different time span). Values of rates and definition of tax base have reported a varied development in individual EU Member States, but attracting taxation on capital and acquiring additional budget sources are the primarily goals of realized changes. Actual tax burden varies from 8.1% in Estonia to 46.9% in France (in 2012). Average ITR on capital was 23.6% in 1995 (based on data of 19 countries), and it surprisingly increased on 24.4% in 2012 (sample of 22 countries – IE, EE and ES were added). The biggest decrease (–18.3 p. p.) realized Slovakia with the aim to achieve the benefits of tax competition (detailed information about ITRs and structure of ITRs is available in EC, 2014c).

However, development over the lastest years (2013 and 2014) is not included in a report of EC yet, that's why Tab. I summarizes tax measures realized in this period (without calculated effect on ITRs). As set out the theory and practice, positive outcomes can be achieved in two ways: by either providing the right incentives within the provisions of specific taxes or by shifting the tax structure in a desirable way. In 2013–2014, the number of countries implementing targeted labour tax cuts has risen (EC, 2014a). During this period, the most popular type of measure was the extension of the tax-free allowance or a PIT credit for the lowest earners, implemented in 12 Member States. Some of them (such as LV and LT) have also increased a tax credit for dependents. Bulgaria and France have extended tax credits for low income earners, Spain has introduced a PIT break for on-the-job training in new technologies.

Tax Shift by and its Effect on Economic Growth – Empirical Evidence

In order to test whether tax shift matters for economic performance, there are estimated econometric models based on Arellan-Bond

estimator (1991). The basic dynamic panel model is defined in (1) and variables are explained above:

$$\Delta GDP_rate_{it} = \alpha \times GDP_rate_{it-1} + \beta_1 \times \Delta ITR_C_{it} + \beta_2 \times \Delta ITR_L_{it} + \beta_3 \times \Delta ITR_K_{it} + \varepsilon_{it}. \quad (1)$$

Information criteria (Akaike criterion, Schwarz criterion and Hannan-Quinn criterion) identified as the optimal time lag 1 year. Split of time span into two periods allows deeper analysis of structural changes related to an impact of crises. Period was divided by the year 2008. Models 1 and 4 are focused on a whole period (1995, resp. 1997–2012), models 2 and 5 on pre-crisis period (1995, resp. 1997–2007) and models 3 and 6 on post-crisis period (2008–2012). Tab. II presents the most appropriate specifications of models resulting from GMM (results of other estimations are available on request).

As it is already noted, for models specification, Dynamic Panel Data Model (DPDM) Wizard is applied. The DPDM Wizard is a special tool included in the software E-Views (7) which aids in specifying members of the class of dynamic panel data models with fixed effects. All models include cross-section fixed effects (orthogonal deviations) and constant

II: Panel Regression Estimations (Generalized Method of Moments/Dynamic Panel Data)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
GDP_RATE ₍₋₁₎	0.46*	0.42*	0.25*	0.46*	0.35*	0.28
ΔITR_C	1.16*	0.65*	0.76*	0.27*	0.80*	-0.19
ΔITR_L	-0.06	-0.15	-0.22	-0.33*	-0.16**	-0.48*
ΔITR_K	-0.08*	0.03	-0.21*	-0.12*	-0.05	-0.10
@LEV "1997"				0.36	-0.22	
@LEV "1998"				1.54*	0.58**	
@LEV "1999"				0.99*	0.04	
@LEV "2000"				0.38	-0.56	
@LEV "2001"				1.66*	0.99*	
@LEV "2002"				-0.13	-0.70*	
@LEV "2003"				0.20	-1.14*	
@LEV "2004"				0.56	-1.07*	
@LEV "2005"				1.76*	-0.20	
@LEV "2006"				1.45*	-0.88*	
@LEV "2007"				2.99	0.47*	
@LEV "2008"				2.85		3.67*
@LEV "2009"				-1.05		-0.53
@LEV "2010"				-7.02*		-7.16*
@LEV "2011"				3.31*		2.25*
@LEV "2012"				1.68*		1.68*
S.E. of reg.	3.03	1.48	4.42	1.91	1.35	2.57
S.D. depend. var	2.83	1.61	4.48	2.83	1.61	4.48
Instrumental rank	136	66	70	152	77	75
J-statistics	133.85	61.71	68.90	140.02	60.87	66.74
Observations	335	225	110	335	225	110

Note: Symbols *and ** denote statistical significance at the 5% and 10% level

added to instrument list. Models 4, 5 and 6 contain also period fixed effects as dummy variables for a better capture the impact of the crisis (there are labeled as @LEV “year”). Their adding increased a statistical quality of models. The reported J-statistic is the Sargan statistic (value of the GMM objective function at estimated parameters).

The main results concerning the effect of a shift of tax burden on economic growth indicate the relationship is stronger for consumption taxation than for labour and capital taxation and the most important difference is in a way of influencing the economic development. Tab. II shows that the estimated coefficients of ITR on consumption are positive and statistically significant (except Model 6, in which is negative and statistically insignificant). This finding confirms that increase of ITR on consumption contributes to the economic growth. Contrary, increase of labour taxation seems to have negative influence on economic development, as coefficients are negative and statistically significant with including dummy variables during the reporting period. Tax shift on capital taxation has negative but statistically insignificant impact on economic growth in the observed countries (except Model 2). Period fixed effects play important and statistically significant role, especially in a post-crisis period. Findings in Model 6 report negative effect of tax changes, but influence of labour taxes is not only the strongest but also the only significant variable. It suggests that harmful effect of labour taxation is increasing in a period of unfavorable economic conditions.

Results of panel analysis confirm proposals of European Commission (2010, 2014a) and theoretical conclusions about a tax shift. It is possible to conclude that consumption taxes are less distortive than labour taxes. That is because part of consumption is made from accumulated assets, which are a relatively inelastic tax base. Moreover, consumption taxes usually do not have a progressive tax structure. Next, consumption taxation includes environmental taxes which can help to internalise externalities and generate at the same time tax revenues. Negative effect of labour taxes on economic growth, especially potential harmful impact of corporate taxes, present many studies such as Myles (2009), Johansson *et al.* (2008), Prammer (2011). However, the exact impact of labour taxes on economics and on a labour market depends on the labour demand elasticity, the degree of centralization of the wage bargaining and the distribution of incomes among different income levels (look at Loretz, 2008). In terms of a tax shift, the results are in line with the findings of other empirical studies on impact of taxes and economic growth, such as Mendoza *et al.* (1994), Carey and Tchilinguirian (2000), Johansson *et al.* (2008), Garcia *et al.* (2011) or Garnier *et al.* (2013, 2014), but they partly differ from findings of Romero-Ávila and Strauch (2008), Karras and Furceri (2009) or Zipfel and Heinrichs (2012). The variety is generated due to differences used in econometric models, country samples, observation periods and considered variables.

CONCLUSION

Taxes are still the fundamental public revenue but the globalization and the economic crisis have changed the environment and conditions for the tax policy. Governments have to find the way how to consolidate their budgets while at the same time promoting economic growth. Theory and practice suggest that raising consumption taxes and at the same time lowering taxes on labour and capital can stimulate economic growth.

The aim of the paper was to examine effects of tax shift by economic functions on economic growth and to provide a direct empirical evidence in the EU. The study uses the Eurostat's definition to categorize tax burden by economic functions and implicit tax rates of consumption, labour and capital are investigated. First, paper summarizes main development of a tax shift in a whole EU till 2014 and followed empirical analysis is based on annual dynamic panel data of 22 EU Member States in a period 1995–2012 (time span is divided into a pre-crisis and a post-crisis period).

Statistics shows that the total tax burden as well as its composition varies widely across Member States, mostly reflecting variations in social preferences. In line with theory and EC proposals, tax systems have been redesigned mainly in the countries of northern and eastern Europe, whereas central Europe has seen little change. The ITR on labour decreased on average from 35.3% in 1995 to 34.2% in 2012 in the EU-27. Average ITR on consumption increased from 20.7% in 1995 to 21.6% in 2012 in the EU-27. Seven EU Member States (BE, BG, CZ, DE, DK, EE, RO) realized a recommended tax shift and decreased labour taxes while increased consumption taxes. But it is apparent from reports of EC (2014b and 2014c) and also macro-economic data do not present a shift from labour to less distorting tax bases in 2011 and 2012 after adoption Europe 2020 strategy. Unfortunately, ITRs of labour and of consumption increased on average over the period 2010–2012 and almost all Member States increased VAT rates and/or excise duties and a majority of reforms aimed at increasing the PIT and/or SSCs in 2013–2014. Some EU Member States (Belgium, France) used a fiscal devaluation (a shift from SSCs to consumption taxes in a revenue-neutral way) as a possible instrument to boost competitiveness. By lowering unit labour costs and changing the relative price of imports tried to foster exports and thus to improve the trade balance.

The following direct empirical evidence tested whether tax shift matters for economic performance. Explanatory variables were not examined in individual regressions, but the study used GMM applied on dynamic panel data and estimations are based on Arellan-Bond estimator (1991). Results of a panel analysis confirm positive and statistically significant impact of consumption taxes increase and weaker but negative effect of labour taxation on economic growth. It approves an assumption that labour taxes (mainly PIT and CIT) are usually associated with a lower economic growth and consumption taxes such as recurrent property taxes, consumption taxes and environmental taxes are the least detrimental to growth. In a post-crisis period, findings report labour taxation as the strongest and the only significant variable. It suggests that harmful effect of labour taxation is increasing in a period of unfavorable economic conditions. A tax shift on capital taxation has negative but often statistically insignificant impact on economic growth.

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