

EVALUATION OF SOCIAL, ECONOMIC AND FISCAL IMPACT ON INCENTIVES OF PERSONAL TAXATION IN LITHUANIA

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Abstract. Tax incentive is optional but highly important element of taxation, used in order to achieve different goals. On the one hand, tax incentives form tax expenditures and thus reduce budget revenue; on the other hand, they influence behavior of persons and businesses and may have positive or negative social and economic effect. This article analyzes the incentives of personal taxation in Lithuania and their social, economic and fiscal impact. The study was conducted using the method of descriptive and factor analysis. The results revealed economic impact of tax incentives applicable in Lithuania¹.

Keywords: tax incentives, tax expenditure, social, fiscal, economic impact

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1. Introduction

Tax incentive is one of the tax elements, performing a crucial role in the tax system, which in its turn affects wide spectrum of sustainable development facets (Mackevičius, Novikovas 2012; Giriūnas *et al.* 2013; Giriūnienė 2013; Laužikas, Mokšėckienė 2013; Giriūnas, Mackevičius 2014; Bileišis 2014). Although tax incentive is not a mandatory element of tax system, however during the last decade it is widely used in the practice of significant number countries in whole world. Most low-income countries, even those with a high level of public debt and those where most of the population lives below the poverty threshold, use tax incentives in national tax systems (Zhicheng Swift 2006).

The prevalence of tax incentives can be associated with financial globalization and global financial crisis started in 2008. While these processes require ensuring and promoting economic growth of the countries, tax incentives are the instrument which helps to reach these goals. Despite that, the tax system which includes tax incentives encourages businesses and private persons to change their behavior. Malinina (2010) points out that tax system, embracing tax incentives, is distorted since it encourages tax payers to carry out different activities than they would carry out under neutral tax regime. Moreover, tax system becomes less fair and equitable, since some persons pay fewer taxes than others with same level of income. On the other hand, tax incentives are considered to be an appropriate fiscal measure which enables to adjust economic and social processes, to promote the priority areas of economy, attract capi-

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tal and investments as well as stop undesirable socio-economic trends (Klišauskas, Puzinskaitė 2012).

Since tax incentives have social, economic and fiscal impact, in order to evaluate the relevance and necessity of incentives of personal taxation in Lithuania, it is appropriate to investigate the impact of tax incentives in these three dimensions. The **purpose** of this research is to determine and evaluate expediency of incentives of personal taxation, uncovering their social, fiscal and economic impact. In order to reach this goal there were used the following **methods**: analysis and synthesis of scientific literature and legal documents, statistical data analysis, factor analysis. In order to eliminate impact of limitations encountered statistical methods including the trend of data series and relative data were used. Factor analysis is carried out in four phases: verification of data compliance to

the method based on the Kaiser-Meyer-Olkin measure, indication of the factors, rotation and interpretation of factors, estimation of factor values. Data period used for analysis is year 2010-2014.

2. Theoretical aspects of tax incentives

Tax incentive is a highly controversial element of taxation, usage of which is related to ambiguous relationships, which occur from one side, by promoting growth of business and personal income and lowering social exclusion, from the other side, by growing tax expenditures. This presupposes that tax incentive is multifaceted and diverse element of taxation. Due to this reason, the definitions of tax incentive still do not lead to unified concept. Finance theorists provide different definitions of tax incentives, which vary from tax privilege to tax expenditure (Table 1).

Table 1. Variety of concepts of tax incentives

Author	Year	Definition
R. Vainienė	2000	Tax incentive is the privilege to a taxpayer distinguishing one by some characteristics.
A. Easson, E. M. Zolt	2002	It is special exemptions or deductions, given by special credits, preferential tax rates or deferred taxes. Though, it is difficult to distinguish them from the provisions indicating that it is a part of overall tax structure.
B. Bolnick	2004	It is a benefit resulted by tax incentives: tax holidays, preferential tax rates, etc.
Republic of Lithuania Law of tax administration	2004	Tax incentives are exceptional taxation conditions that are more favorable than other conditions, and are laid down to particular taxpayers or group of them.
Zhicheng Li Swift	2006	All tax incentives are tax expenditures designed to change the behavior in order to achieve specific economic and social goals.
Review of tax expenditures...	2009	Alternative to direct government expenditures made in order to achieve economic and social goals, which is usually considered as tax expenditures.
M.R Jacobsen <i>et. al.</i>	2009	Tax expenditures that provide more favorable taxation conditions for certain activity group of taxpayers.
B. Sudavičius	2010	Exceptional taxation conditions for taxpayer or group of them, which are more favorable compared to normal conditions and which enable taxpayer not to pay tax at all or to pay a smaller amount.

Source: compiled by the authors

The analysis of definitions of tax incentives allows distinguishing three fundamental aspects: tax incentive is a component of overall tax system; it is set by tax law; this is tax expenditures deriving from exceptional conditions of taxation, which occur in many different forms. Taking into account the first two aspects, it can be noted that tax incentives are regulated exclusively by legislators, which must reflect economic and social politics in the country and provide an implementation of specific objectives.

Governments have a number of social and economic objectives and different measures to achieve them.

Tax policy is one of alternatives for implementing specific goals, using regulation function of taxes. Governments use taxes to raise more revenue necessary to fund government expenditures. In such way governments affect income distribution and influence behavior (Easson and Zolt 2002). In order to implement economic and social objectives, tax incentives are widely used. The goals of tax incentives are:

- solve certain social problems (support for socially vulnerable groups of society, promotion of employment, lower social exclusion and tax burden);
- to encourage certain business activities and eco-

conomic activity in priority regions (investments, agriculture);

- to encourage economic growth in the country.

These goals reveal that tax incentives are directed to certain groups of society or businesses, what results that these subjects receive some form of financial benefit. However, in some cases in practice, a person who benefits from tax incentive may depend on circumstances in which tax incentive is embraced. When tax incentive is aimed to reduce the price of goods and services, a person who benefits from such tax incentive is a resident (private person) (in such cases when lower price is paid due to application of tax incentive), however, the actual beneficiary is a business entity (National audit office report on tax incentives 2013). Easson, Zolt (2002) state that tax incentives do not justify in practice because they are usually ineffective, inefficient and create conditions for abuse and corruption. National Audit Office of Lithuania points out that one of the reasons why goals are not always achieved is that in some cases proposals of establishing tax incentives lack of specific goals of certain tax incentives. Vague formulation of objectives of tax incentives complicates evaluation of objectives implementation (National audit office report on tax incentives 2013).

Summarizing, Hungerford (2006) notes that establishment of tax incentives can be considered as justified if tax incentives:

- 1) adjust market failures;
- 2) are targeted;
- 3) do not reduce income tax progressivity;
- 4) introduces no additional complexity in tax laws;
- 5) help to avoid economic interferences;
- 6) are more economically effective than direct spending programs.

In the design of tax incentives the variety of forms of tax incentives plays very important role. Properly selected and applied form of tax incentive enables to achieve intended goals more effectively. Some scientists provide sufficient narrow approach to the forms of tax incentives distinguishing only such forms as tax concessions and tax exemptions (Sudavičius 2010), while others name more forms of tax incentives. In addition to forms mentioned above Klemm (2009) also distinguishes tax holidays, special zones, investment tax credits, investment allowance, accelerated depreciation, reduced tax rates, financial incentives.

In practice forms of tax incentives are applied in dif-

ferent methods. Incentives that reduce tax rate or increase tax-exempt amount of tax object are widely used to enforce objectives of social policy, while tax incentives that extend deadline for tax payment or eliminate taxation of certain object are usually used to stimulate economic activity of certain businesses or regions. On the other hand, the implementation of social and economic goals using various forms of tax incentives has a direct impact on budget revenues called tax expenditures or unearned revenues. Tax expenditures are usually defined as the government's projected revenue loss that is resulted by tax incentives for certain groups of taxpayers or activities (Guide... 2012). In other words, it is a deviation from the standard tax rate. It is a loss of revenues or the government tax expenditures, while for the taxpayers it is reduction of tax liabilities (Tax expenditures...2010). Intrinsic characteristics of tax expenditures are following (Malinina 2010):

- reflects the loss of tax revenues, i.e. leads to the reduction of budget revenues;
- arises from tax incentives and tax exemptions compared to the basic tax system;
- contributes to implementation of social and economic policy objectives;
- is direct alternative to public spending.

From fiscal point of view, tax expenditures formed on the basis of tax incentives are treated unambiguously in scientific literature. Many theorists criticize tax expenditures and, as states Jacobsen *et al.* (2010), the main criticism is directed towards concept of tax rates of tax system as the concept of tax expenditures itself has not sufficiently rigid formal basis and is more or less subjective result of pragmatic choices. Criticism also involves hidden reforms related to reports of tax expenditures and analysis of these expenditures, which means transparent and apolitical tax policy and idea of social decision making (Jacobsen *et al.* 2010). Another criticism is directed to lower efficiency of tax expenditures in comparison with direct expenditures with the following reasons:

- tax expenditures may generate incorrect distribution among taxpayers because more sophisticated taxpayers can easily take more advantages of tax incentives;
- interest groups can be created especially when expenditures are narrowly defined – it can lead to a very broad political lobbying (Guide... 2012).

OECD agrees with this attitude (2010), stating that

tax expenditures are tend to decrease the transparency and clarity of budget process because they are more difficultly identified and examined compared with direct expenditures. Nevertheless Burto, Stewart (2011) identifies key advantage of tax expenditures in comparison with direct expenditures – government, giving certain incentives to a wide range of taxpayers without identifying each recipient of tax incentive, is able to reduce costs of tax administration as well as costs of benefit for taxpayers.

According to Lithuania Free Market Institute (2000), tax incentives have no impact on the budget. Since the budget depends only on the sum of revenues that is possible to adjust according tax rules, by legalizing tax incentives government voluntarily determines the part of revenues that is required to meet its needs.

Hungerford (2006) systemizes criticisms on tax expenditures and identifies following approaches:

- identifies the budget process as a source of the growth of tax expenditure;
- argues that tax expenditures are less efficient than direct expenditures while trying to achieve social and economic objectives;
- indicates that tax expenditures increase the complexity of tax administration and decrease the justice of income tax, which is detrimental to entire tax system.

Though tax expenditures are criticized by many scientists, they are widely used in tax systems of the countries. After comparing tax expenditures in some EU countries it can be stated that in practice there are significant differences in the level of expenditures as well as in forms of tax incentives (Table 2).

Table 2. Personal tax expenditures in some countries of EU

Country	Tax expenditures	Expenditures (% of GDP)	Year
Estonia	Increased exemption of basic pension	0,70	2013
	Increased basic exemption after the birth of second child	0,14	
	Mortgage interest deductions	0,10	
	Education expense deductions	0,08	
Spain	Work-related benefits	1,00	2013
	Housing investment deductions	0,18	
	Benefits related to overall taxation	0,17	
	Social security benefits	0,11	
	Exemptions for revenues from lotteries, betting, etc.	0,09	
France	Tax deductions for household employees	0,18	2013
	Tax relief on pensions	0,16	
	Activities from a credit	0,12	
	Relief for kindergarten services	0,09	
	Tax benefit related to saving payments	0,07	
Netherlands	Tax benefit for self-employed	0,31	2013
	Exemption for capital payments	0,15	
	Tax incentive for donations and gifts	0,06	
	Tax incentive for school expenditure	0,04	
	Tax incentive for housing borrowers	0,06	
Italy	Tax credit for work income, self-employed income and pensions	2,41	2012
	Tax credit for dependent family members	0,67	
Denmark	Exemption for income from shift work	0,08	2012
	Tax subsidy to housing owner	0,05	
	Tax reduction for private renovation	0,06	
	Tax incentive for investments to private pension funds	0,05	

Source: compiled by the authors according to Tax reforms in EU member states (2013)

In summary, it must be stated that level of tax expenditures in the national budget is very important measure; therefore government's decisions must be highly weighted and assessed. Tax incentives, creating budget disposals, imply that tax expenditures must ensure implementation of objectives sought. Otherwise tax expenditures lose their essence and purpose and bring colossal budget losses that affect all country's residents and businesses.

3. Tax incentives for individuals and tax expenditures in Lithuania

Taxes are of great importance for public finance; therefore the tax policy which is implemented by the government is of crucial importance and compliance with the main principles of taxation. In the program of the Government of Lithuania (years 2012-2016) the creation of welfare state is anticipated that will be implemented by reforming tax system in order to reduce social exclusion, strengthen public solidarity, develop public finance. The essence of this transformation – more equal tax burden distribution be-

tween labor and capital, higher income and wealth taxation progressivity, application of socially relevant and targeted tax incentives only.

National Audit Office of Lithuania (National audit office report on tax incentives 2013) concludes that content and objectives of tax incentives are associated with impact and benefits to business and society; however, from 70 tax incentives, evaluated by National Audit Office of Lithuania, even 18 affect the society directly. It shows that tax system in Lithuania is characterized by extremely large number of tax incentives, but the real benefits to individuals are still questionable. It should be noted that tax incentives are not constant – they vary depending on changes of government policy, country's economic potential and opportunities. Therefore it is very important to analyze existing tax incentives and examine the impact of their changes to national budget.

One of the key aspects of public finance is government revenues. In recent years, the relative share of tax revenues is more than 65 percent of the total national budget revenues (Table 3).

Table 3. Structure of national budget revenues in 2008-2013, percent

REVENUES (% of total revenues)	2008	2009	2010	2011	2012	2013
Taxes	80,45	68,30	67,50	65,65	66,20	68,70
Personal income tax	18,90	15,70	14,90	13,70	14,00	15,50
Corporate income tax	10,70	7,10	4,10	4,40	4,60	5,90
Value added tax	34,10	28,60	31,30	30,80	32,10	31,90
Excise duties	12,40	13,70	13,00	13,00	11,80	12,30
Other taxes	4,35	3,20	4,20	3,75	3,70	3,10
Other revenues	6,05	6,40	9,10	8,15	8,30	7,20
Revenues from wealth	1,70	2,20	4,20	2,70	4,50	3,40
Revenues from goods and services	3,65	3,40	3,90	4,85	3,20	2,80
Revenues from fines and confiscations	0,50	0,35	0,50	0,40	0,40	0,60
Other unlisted revenues	0,20	0,45	0,50	0,20	0,20	0,40
Revenues from realization of tangible fixed assets and transactions of financial assets	0,60	0,30	0,40	0,40	0,60	0,90
EU funds	12,90	25,00	23,00	25,80	24,90	21,80
Total	100,0	100,0	100,0	100,0	100,0	100,0

Source: compiled by the authors, according to data of Lithuania Ministry of Finance (2014)

In fiscal terms (by the share in total budget revenue), the most significant taxes are value added tax and personal income tax and their percentage in national budget revenues in 2013 accounted respectively 31,90 % and 15,50 %. Since the fiscal value of these taxes is the greatest, their role in tax expenditure structure is certainly significant.

Tax incentives for individuals are usually grouped according to the tax base – VAT, PIT, social insurance, etc., according to the form of tax incentives – tax exemptions, tax deferrals, etc., according to the purpose – for low income individuals, housing, vocational training and studies, etc. (Figure 1).

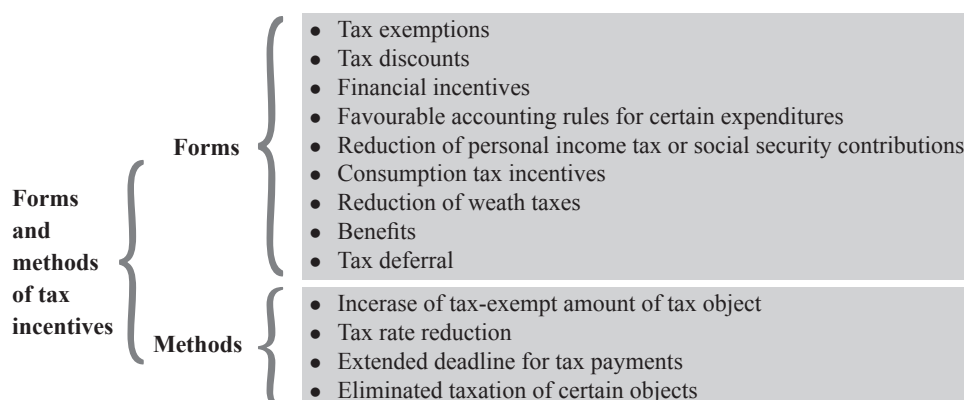


Fig.1. Forms and methods of tax incentives for individuals

Source: compiled by the authors

Tax incentives for individuals are defined by Lithuanian tax legislation (Table 4).

Table 4. Taxes paid by individuals and incentives of these taxes in 2013

Tax	Object	Rate	Tax incentives for individuals
Social security contributions	Work-related income	3%	statutory exhaustive list of income exempted form tax
Compulsory health insurance contributions	personal income	6%	statutory exhaustive list of income exempted form tax
Personal income tax	personal income	5 % - income from individual activity; 15 % - all other income; fixed amount tax for business license	tax-exempt amount, applied to work-related income; incentive for special payments (PIT returns)
Value added tax	goods and services	21%	5 % and 9 %
Excise duties	spirits, tobacco, energy products, electricity	depends on product group	statutory exhaustive list of goods exempted form excise duties
State duty	services provided by institutions	not less than 3 LTL and not more than 270 thousand LTL	duty reduction by 50 % for passport and ID for individuals provided by law; duty reduction or exemption from duty at the expense of municipal budget; exemption from duty (statutory exhaustive list)
Land tax	private land	from 0,01 % to 4 % of land value	untaxable subjects and objects provided by law; tax reduction or exemption from tax at the expense of municipal budget
Real estate tax	real estate	individuals owned housing, garden, garages and other buildings for part total value over 1 million LTL - 1 %; other real estate – from 0,3 to 3 % (determined by municipality councils).	statutory list of tax-exempt real estate (therein - individuals owned housing, garden, garages and other buildings with a total value up to 1 million LTL); tax reduction or exemption from tax at the expense of municipal budget

Tax	Object	Rate	Tax incentives for individuals
Inherited wealth tax	inherited wealth	when value of inherited wealth is not bigger than 0.5 million LTL – 5 %; when value of inherited wealth is bigger than 0.5 million LTL – 10 %.	exemption for wealth inherited by spouse, first order heirs, as well as inherited wealth with a value up to 10 thousand LTL; tax deferral; tax reduction or exemption from tax at the expense of municipal budget
Customs duties	imported and exported goods	in accordance with EU legislation depending on group of goods	cases provided by EU regulation
Stamp duty	proceedings in the court	depending on the case	exemption from duty (statutory exhaustive list); partial exemption depending on financial circumstances; deferral of duty depending on financial circumstances; reduction of duty by 25 % for e-document submission
Consular fee	services provided	not less than 2 EUR and not more than 500 EUR	statutory exhaustive list of exemptions

Source: compiled by the authors, according to Tax laws of Lithuania (The Law on excise duty, The Law on Personal Income, The Law on Consular Fee, The Law on Immovable property tax, The Inheritance Tax Law, The Law on State Fees, The Law on Land Tax)

Further analysis in this section involves most significant in fiscal terms taxes – VAT and PIT, incentives of these taxes and their significance.

Value added tax. In accordance with generated revenues, indirect taxes (where the most important is value-added tax) dominate in the tax structure of Lithuania. Since VAT is easily administered and comprehensive, it often becomes a control center by changing tax rate and nature of tax incidences in order to reach specific objectives. VAT incentives are particularly prevalent in the EU countries and regarded as suitable way to redistribute income by charging a lower rate (*de facto* subsidizing – Ashta 2007) food, goods and services of culture, education and health-care. Basically, in the forefront of taxation dispute there is the question of VAT system and its incentives.

Taking into account the experience of the EU countries, it should be noted that in all these countries VAT incentives are widespread and application on them within the limits of EU directives is considered

to be more the rule than the exception. Moreover, it is noted that the most commonly applicable tax incentives are related to motives of social justice (pharmaceutical products, food, transport), education (books, periodicals); in the old member states culture is very important motive as well (Bikas, Saikevičius 2010).

VAT rate from introduction of this tax in 1 May 1994 till now has changed several times: in 1994-2008 VAT rate was equal to 18 percent; in 2008 the rate was increased by 1 percentage point to 19 percent; in 2009 rate of 21 percent was set. 2009 year changes of VAT incentives were especially complicated. Since 1 January 2009 all ever applied tax incentives were eliminated. Thus a precedent have been created t in the EU when all VAT incentives were eliminated for the first time. Since 1 July 2009 some tax incentives were reintroduced: there were extended validity of reduced 9 percent rate for books and periodical publications; restored reduced 5 percent rate for pharmaceutical and medical care as well as 9 percent reduced rate for heating (Table 5).

Table 5. Changes of reduced VAT rates in Lithuania

Area	Period				
	till 2009.01.01	since 2009.07.01	since 2009 07 01	2010/2011	since 2012 till now
Food	5	Not applied	Not applied	Not applied	Not applied
Heating	9	Not applied	9	9	9
Pharmaceutical products	5	Not applied	5	5	5
Passenger transportation	5	Not applied	Not applied	Not applied	9
Books and periodicals	5	Not applied	9	9	9
Culture and sports events	5	Not applied	Not applied	Not applied	Not applied
Writers and composers activities	5	Not applied	Not applied	Not applied	Not applied
Agricultural services and products	5	Not applied	Not applied	Not applied	Not applied
Hotels	5	Not applied	Not applied	9	Not applied

Source: compiled by the authors, in according to Lithuania law of value-added tax with amendments and supplements

Such government's manipulation of tax incentives demonstrates indecision, lack of purposefulness, instability and lack of goals of tax system. Since VAT is a consumption tax, incentives of this tax decrease tax burden, and budget disposals of this tax expenditure is offset by an increase of consumption.

However, the analysis of VAT revenue in 1999-2009 in Lithuania shows that the impact of standard VAT rate on VAT revenues was positive and large of all independent variables. The difference between standard and lowest not zero reduced tax rates had a significant positive impact. Government revenues from VAT were bigger in periods than certain goods and services were charged by lower rate than in periods when VAT incentives were eliminated (Bikas, Raškauskas 2011). In addition, study of Mexico case examined the impact of the number of reduced VAT rates on VAT revenue. The results of this study showed that the number of reduced tax rates is statistically significant and the greater number of them increases VAT revenues (Tijerina-Guajardo and Pagan 2000).

Emphasizing fiscal significance of VAT incentives, it should be noted that budget disposals due to applicable VAT incentives substantially increased in 2009-2013 and amounted to 481 million LTL in 2013. In addition, budget disposals due to applicable VAT incentives represent a significant share of total budget disposals due to all tax incentives which in 2009, 2010 and 2012 accounted for about one-fifth, in 2011-2012 – more than one-third of all disposals (Table 6).

Table 6. Budget disposals due to VAT incentives in 2009-2013

	2009	2010	2011	2012	2013
VAT disposals, million LTL	200	150	315	380	481
VAT disposals, percent in total tax disposals	20,42	21,05	34,33	37,38	19,39

Source: compiled by the authors, according to data of Lithuania Ministry of Finance (2014)

Personal income tax. Hussey, Lubick (1996) describes personal income tax as multifaceted tax that includes all types of income and involves capital gains as well as any other income allowing very few deductions. The incentives of this tax are directed to ensure social justice. The purpose of such tax incentives is to decrease tax burden for low income individuals in order to reduce their social exclusion and improve quality of life. Lithuania's personal income tax law provides various tax incentives which can be grouped as following:

- 1) tax-exempt income;
- 2) income taxed at reduced rate.

Diversity of personal income sources is quite large (wages, self-employment income, income in kind, income from capital gains, etc.). However, a key component of this tax is a tax rate. Standard PIT rate for wages and work-related income till 1 July 2006 was gradually reduced from 33 percent and now stands at 15 percent (Table 7). Consistent reduction

of PIT rate can be attributed to government’s social policy and one of its goals –personal income increase.

Table 7. Changes of PIT rate in Lithuania

Since	Till	Tax rate	Taxable income
2003 01 01	2006 06 30	33%	all income except income taxed at reduced rate
		15 %	income from distributed profit, performing artists income, professional fees, income from copyright contracts, property rental income, etc.
2006 07 01	2007 12 31	27 %	all income except income taxed at reduced rate
		15 %	income from distributed profit, performing artists income, professional fees, income from copyright contracts, property rental income, etc.
2008 01 01	2008 12 31	24 %	all income except income taxed at reduced rate
		15 %	income from distributed profit, performing artists income, professional fees, income from copyright contracts, property rental income, etc.
2009 01 01	now	15 %	standard income (wages, other benefits)
		5 %	self-employed income
			fixed amount tax for business license

Source: compiled by the authors, in according to Lithuania law of personal income tax with amendments and supplements

It should be noted that personal taxation system applicable in Lithuania is proportional. As it is mentioned by Teather (2005), in practice there are several aspects that are common to “flat” tax systems: there are many exemptions and deductions eliminated and personal allowances and benefits increased. Many “flat” tax systems provide a significant increase in tax-exempt amount. Paulus, Peichl (2008) agrees that “flat” tax system is useful for very rich as well as very poor, but in this system individuals from middle-income group lose, because this group of people does not have any tax incentives or benefits, or they are very symbolic. PIT incentives in Lithuania have been changed depending on government’s goals and policy implemented (Table 8).

Table 8. Tax-exempt income and incurred expenditure in Lithuania

Tax-exempt income	
benefits and compensations; insurance benefits; pension benefits and retirement annuities; interests; income received as a charity; gifts received from spouses, close relatives or not exceeding 8000 LTL per year; inherited income, charged by inherited wealth tax; income from property sale; income from agricultural activities; amounts adjudged by court; scholarships; trophies, prizes and lottery winnings; gifts and donations received and used in political campaign; clergy maintenance; income received for services funder a voucher; tax-exempt amount and additional tax-exempt amount.	
Deductible expenditures till 2009	Deductible expenditures since 2009
Expenditures for one personal computer with software purchased in 2004–2009 and (or) installation of internet access; interests for one housing mortgage loan; life insurance premiums; contributions to pension funds; sums paid for vocational training and (or) studies.	life insurance premiums; contributions to pension funds; sums paid for vocational training and (or) studies.

Source: compiled by the authors, in according to Lithuania law of personal income tax with amendments and supplements

PIT law provides that total amount of deductible expenditure cannot exceed 25 percent of total resident’s taxable income taxed at rate of 15 percent. Among PIT incentives tax-exempt amount and additional tax-exempt amount applicable to work-related income are considered to be the most important. Tax-exempt amount (TEA) depends on received income, number of children (additional tax-exempt amount, ATEA), level of working capacity. Since 2014 January TEA calculation procedure has been changed: for resident whose monthly labor income does not exceed 1000 LTL monthly the size of tax-exempt income is 570 LTL. TEA is not applicable to persons whose monthly wage is 3192 LTL or more; thus changes of TEA calculation procedures are significant for employees those income is lower. Individuals who receive a minimum monthly wage since 1 January 2014 this amount was increased by 21 LTL or 2.54 percent. It shows very negligible increase of wage for individuals with lowest work-related income.

Analysis of TEA and its impact on society and public finance showed that as much as 65 percent Lithu-

anian employees earn only up to 2000 LTL, while only about 10 percent earns over 3500 LTL, the remaining salary range is in between 2001 LTL – 3500 LTL. Moreover, the results show that in 2011 this exemption was used by only 20.8% of the working population; it can be argued that TEA fully implements the principle of social justice. While assessing the real value of the TEA in different taxable income groups, a common TEA real value, which represents 42.448.454 LTL, was set. This is 1.13 percent of overall PIT revenue; it can be said that the practical application of TEA has no significant influence to the national government PIT revenues. Assessment of fiscal effect of PIT incentives revealed that budget disposals due to applicable PIT incentives significantly increased in 2013 (tax expenditures account 3.81 percent of total revenues or 934 million LTL) and represent the largest share of total tax expenditures, as application of TEA determines even 37 percent budget disposals due to applicable PIT incentives.

4. Research methodology

The main purpose of this research is to determine expediency and impact of selected tax incentives, uncovering their social, fiscal and economic nature and effects.

Factor analysis was selected for the main research method with following arguments:

- 1) accumulates all variables to more general factors characterizing the origin of variable (social, fiscal, economic) and its effect;
- 2) facing with a lack of data to investigate the latent factors which are not known but may be of significant influence in the model;
- 3) to create orthogonal (mutually uncorrelated) factors, which can be used in subsequent studies for regression analysis avoiding the problem of multicollinearity.

Limitations of the analysis were identified:

- short series of available data;
- not evaluated, not measured, and not public variable data.

In order to eliminate impact of these limitations statistical methods including the trend of data series and relative data were used. The main task of factor analysis is depending on the correlation between observed variables to classify them into groups with some unifying directly unobserved factor (Čekanavičius, Murauskas 2002). The phases of factor analysis are following:

- I. Verification of data compliance to the method based on the Kaiser-Meyer-Olkin (KMO) measure.
- II. Indication of the factors – determination of the number of factors used.
- III. Rotation and interpretation of factors.

Variables used and their economic assumptions are shown in Table 9.

Table 9. Variables and economic assumptions

	Variable	Assumption/relation
X ₁	PIT expenditures investment into education	It is assumed that PIT expenditures are invested in higher education: PIT expenditures/Costs of one student's place at university
X ₂	Share of university places created due to PIT expenditures	University places created due to PIT expenditures / Total university places
X ₃	PIT expenditures investment into new workplaces	It is assumed that this amount of PIT incentives is used to create new workplaces with an average wage in the country: PIT expenditures / Average wage
X ₄	PIT expenditures investment into employment	Jobs created due to PIT expenditures / Employment
X ₅	Share of PIT, VAT, excise duties and real estate tax expenditures in GDP	Selected tax expenditures / GDP
X ₆	Share of PIT, VAT, excise duties and real estate tax expenditures in assignments to State Tax Inspectorate	Selected tax expenditures / Assignations to State Tax Inspectorate
X ₇	Ration of PIT, VAT, excise duties and real estate tax expenditures and corruption	Assume that tax incentives encourage corruption, because they are applied to possibly favored goods or services as well as groups of individuals: Selected tax expenditures/ Index of corruption
X ₈	Share of VAT expenditures in export	VAT expenditures / Export

X ₉	Share of VAT expenditures in changes of Consumer price index	VAT expenditures / Consumer price index
X ₁₀	Share of excise duties expenditures in export	Excise duty expenditures / Export
X ₁₁	Share of excise duties expenditures in changes of Consumer price index	Excise duty expenditures / Consumer price index
X ₁₂	Share of real estate tax expenditures in activity of real estate market (transactions)	Assume than real estate tax incentives increase the number of transactions in the market: real estate tax expenditures / number of real estate transactions
X ₁₃	Share of PIT, VAT, excise duties and real estate tax expenditures in revenues of national budget	Selected tax expenditures / Revenues of national budget

Source: compiled by the authors according to data of Transparency International, Lithuania Ministry of Finance, Department of Statistics and authors' calculations

Analyzed period: year 2010-2014. Factor analysis belongs to the category of General Linear Model (GLM) and is based on assumptions of multiple linear regression, the main of which are linear relationship of variables, interval or close to it data, proper selection of variables, absence of variables multicollinearity (Pukėnas 2009). General model of factor analysis, linking number of k variables X₁, X₂, ..., X_k with m general latent (undetected, unrecognized) factors F₁, F₂, ..., F_m and specific (characteristic) latent factor e_i is described by such equation system (Čekanavičius, Murauskas 2002):

$$X_i = \sum_{j=1}^m \lambda_{ij} F_j + e_i \quad (1)$$

where i = 1, ..., k, m < k, i.e. there are less general factors than variables. Multiplying factors λ_{ij} are called weights of factors. Under the assumptions that:

- observed variables have normal distribution, i.e. X_i ~ N (μ_i, σ_i²);
- general factors F_j are non-correlative and their dispersion DF_j = 1;
- characteristic factors are non-correlative and their dispersion De_j = τ_i;
- factors F_j and e_j are non-correlative, here i = 1, ..., k, j = 1, ..., m;

dispersions of observed variables can be expressed as following (Čekanavičius, Murauskas 2002):

$$DX_i = \sigma_i^2 = \lambda_{i1}^2 + \dots + \lambda_{im}^2 + \tau_i = h_i^2 + \tau_i \quad (2)$$

The size h_i² = ∑_{j=1}^m λ_{ij}² is called generality of variable X_i and size τ_i – specificity. The higher is h_i², compared to σ_i², the more information about variable is saved during the transition from primary variables to general factors.

The problem of factor analysis – knowing the values of X_i to draw conclusions about general factors, that determine the behavior of variables X_i, i.e. to estimate the values of factor weights λ_{ij}, characteristic dispersions τ_i (dispersions caused by variation of variable that cannot be explained by general factors), as well as general factors F₁, F₂, ..., F_m.

In the first phase of analysis the comparative index of values of variables correlation coefficients and partial correlation coefficients is calculated. If the value of KMO measure is low, the factor analysis will be inefficient. Low value of this measure shows that correlation between pairs of variables is not explained by other variables. It is considered that the value of KMO should be not less than 0.7, in borderline case – not less than 0.6 (Čekanavičius, Murauskas 2002).

In the second phase of analysis the factors are indicated according to the analysis of fundamental components. Variables are arranged in descending order of dispersions, and then coefficients (weights) (vectors of initial variables covariance matrix) are calculated. Linear relations identified are called the components of variables. The more general dispersion of variables can be explained by general component, the more this component is important accumulating information about its variables. Factor F_j is related to that variables X₁, X₂, ..., X_k, those weight values λ_{1j}[∧], ..., λ_{kj}[∧] in absolute sizes are not lower than 0.4. Positive value of weight indicates positive correlation between variable and factor, negative value shows that correlation is negative. Variables are equally important regardless the sign of weight (Pukėnas 2009).

In the third phase of analysis orthogonal linear com-

binations of factors are concluded. The aim of this procedure that is called orthogonal rotation is to simplify the structure of factors weights matrix and to achieve that every variable would have only few non-zero factor weights. In this research Varimax method of orthogonal rotation was used (Pukėnas 2009). Orthogonality is verified by the matrix of correlation coefficients that is calculated as following (Janilionis 2014):

$$r = \frac{x_1x_2 - x_1x_2}{\sqrt{\sqrt{x_1^2 - (\bar{x}_1)^2}} \sqrt{\sqrt{x_2^2 - (\bar{x}_2)^2}}} \quad (3)$$

where r – correlation coefficient, x_1x_2 – variables.

Analysis was performed using SPSS software tool.

5. Empirical results

Table 10 shows communalities of primary variables – variations of shares of primary variables which can be explained by general factors. It is noticed (Čekanavičius, Murauskas 2002) that general components contains sufficient information about variable if its communality is at least 0.20.

Table 10. Communalities

	Initial	Extraction
X ₁	1,000	,998
X ₂	1,000	,998
X ₃	1,000	1,000
X ₄	1,000	,999
X ₅	1,000	1,000
X ₆	1,000	,998
X ₇	1,000	,992
X ₈	1,000	1,000
X ₉	1,000	1,000
X ₁₀	1,000	1,000
X ₁₁	1,000	1,000
X ₁₂	1,000	,989
X ₁₃	1,000	,978

Source: compiled by the authors, according to authors' calculations

Data in Table 10 shows very high (close to 1) usability of selected calculated variables in conclusion of factorial components. This indicates feasibility of analysis aims and results.

Table 11. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9,424	72,489	72,489	9,424	72,489	72,489	6,940	53,385	53,385
2	2,278	17,520	90,009	2,278	17,520	90,009	3,079	23,687	77,073
3	1,249	9,604	99,613	1,249	9,604	99,613	2,930	22,540	99,613
4	,050	,387	100,000						
5	2,338E-16	1,799E-15	100,000						
6	1,791E-16	1,378E-15	100,000						
7	9,025E-17	6,942E-16	100,000						
8	5,221E-17	4,016E-16	100,000						
9	3,632E-17	2,794E-16	100,000						
10	-4,522E-17	-3,478E-16	100,000						
11	-1,227E-16	-9,437E-16	100,000						
12	-2,035E-16	-1,565E-15	100,000						
13	-2,740E-16	2,108E-15	100,000						

Source: compiled by the authors, according to authors' calculations

Data in Table 11 indicates what part of general dispersion of variables is explained by each general component (in column “Extraction Sums of Squared Loadings – % of Variance”), as well as what part of cumulative general dispersion of variables is explained by general components (in column “Extraction Sums of Squared Loadings – Cumulative %”). As can be seen from results in Table 11, the first component explains variables the most accurately (up to 72 percent of variables included). Around 17 percent of variables are explained by the second component, and only 9 percent – by the third component.

Data in columns “Rotation Sums of Squared Loadings – % of Variance” and “Cumulative %” shows, what part of general dispersion of variables is explained by each general component as well as what cumulative part of general dispersion of variables is explained by general components in the final result after rotation of components matrix. It should be noted that after rotation proportions between components equalize: 53 percent of variables are ex-

plained by the first, 24 percent – by the second and 22 percent – by the third component. Table 12 enables to entitle the components.

By the data in Table 12 components are characterized by values and direction (sign) of coefficients. The first component is characterized as following:

- strong positive impact on education (PIT incentives impact on creation of new university places with coefficient value 0.971; PIT incentives impact on expenditures for education with coefficient value 0.976); assuming that funds which become available due to PIT incentives are used to create new university places, tax expenditures have strong positive impact on creation of university places; assessment of share of potential university places created due to PIT incentive in all university places, presupposes that PIT expenditures have strong positive impact on the component; it can be concluded that PIT incentives for education have positive impact on the component;

Table 12. Component matrix

	Component		
	1	2	3
X ₁	,976		
X ₂	,971		
X ₃	-,992		
X ₄	-,987		
X ₅	,744	-,491	,454
X ₆	,984		
X ₇	,890	,420	
X ₈	-,682	-,731	
X ₉	-,651		,650
X ₁₀	,947		
X ₁₁	-,677	,410	,612
X ₁₂		,932	
X ₁₃	,975		

Source: compiled by the authors, according to authors’ calculations

- strong negative impact on employment (-0.987) and jobs created (-0.992); assuming that PIT incentives (funds saved) are used for creation of new jobs (with average gross wage), it can be noticed that negative impact of variable is explained by unearned and unused funds due to PIT incentives applicable; without distinction of public and private sectors, negative general impact on the component is observed;
- positive tax incentives impact on assignments to State Tax Inspectorate (0.984); higher tax expendi-

tures result higher volume of employment in State Tax Inspectorate due to higher assignments to this institution; positive impact of workload exceeds negative fiscal impact (higher budget expenditure) on this component;

- significant positive tax incentives impact on national budget (0.975) is observed showing indirect impact due to the sign of coefficient (+), what contradicts to economic logics of tax expenditures; due to this fact, it is concluded that the first component and

tax incentives applicable in this area has a positive (likely indirect) impact on national budget, though bigger than direct expenditure;

- average positive impact on tax expenditure share in GDP (0.744); this coefficient shows positive tax incentives relation with economy in the country, that results in positive impact on the component.

The nature and abundance of variables presuppose that the first component should be entitled “Tax incentives impact on labor market”. Tax incentives encourage the development of qualified labor force, but negatively affect the number of jobs created. Jobs created due to applicable tax incentives positively affect GDP and budget revenues. Larger number of tax incentives applicable encourages the expansion of bureaucratic apparatus (job creation) as well.

The second component is characterized as following:

- weak positive affect on corruption (0.420); positive sign of relative size of tax incentives and corruption index shows tax incentives positive impact on corruption;
- strong positive impact on real estate transactions (0.932); assuming that real estate tax expenditures are used for new transactions, impact on the component is strong and positive;
- average negative impact of VAT incentives on export (-0.731) shows that VAT incentives applicable do not encourage export (conclusion is based on the fact that preferential rate is not included in accounting of tax expenditures).

Number, direction and value of variables presuppose that the second component should be entitled “Tax incentives impact on interest groups”. VAT incentive for export and real estate tax incentive are applied to specific target groups that, in the context of the second component, can be named interest groups. VAT expenditures have negative impact on volume of export, thus do not implement its objectives. It follows that social impact of tax incentives attributable to this component is not extensive, economic – questioned, fiscal – clear and negative.

The third component is characterized as average positive impact of VAT and excise duties expenditures on overall price level (0.650 and 0.612 respectively); VAT and excise duties are consumption taxes, which means that higher number of incentives increases availability and consumption of taxable goods, as a consequence increasing consumer price index (prices).

Number, direction and value of variables presuppose that the third component should be entitled “Tax incentives impact on consumption”. Tax incentives create preconditions to higher income remaining after consumption; promote economic growth and growth the rate of inflation. It should be noted that the authors have decided not to involve variables with weak and moderately weak values to the components analyzed. The results of analysis are adjusted by the procedure of rotation (Table 13).

Table 13. Rotated component matrix and three-dimensional contribution

Economic	Social	Fiscal		Component		
				1	2	3
	+		X ₁	,863		-,482
	+		X ₂	,826		-,545
+			X ₃	-,885		
+			X ₄	-,897		
+			X ₅	,944		
		+	X ₆	,914		
	+		X ₇	,584	,728	
+			X ₈	-,422	-,906	
+			X ₉			,962
+			X ₁₀	,941		
+			X ₁₁			,950
+			X ₁₂		,989	
		+	X ₁₃	,788	,485	

Source: compiled by the authors, according to authors' calculations

Table 13 shows the weights of factors after the procedure of rotation. It can be seen, that the first factor is correlated with variables which could be summarized as variables of labor market, the second factor is correlated with variables which mean exclusivity of tax incentives, the third factor can be identified as a factor of consumption. No significant changes in distribution of variables in the components are observed; therefore preliminary entitlements of factors (components) are acceptable.

Table 13 also shows contribution of variables according to the nature of impact – economic, fiscal and social. It can be noticed that variables examined widely involve tax incentives impact on economics (impact of PIT expenditures on jobs creation and employment, tax expenditures ratio to GDP, VAT and excise

duties ratio to export and consumer price index, real estate tax expenditures ratio to volume of real estate transactions); social (university places, corruption index) and fiscal (budget revenue, budget assignments) impact is slightly lower. Therefore the components analyzed are largely attributable to economic impact of tax incentives. It can be concluded that there is a lack of direct components which could enable to make assumptions necessary to determine fiscal and social impact of tax incentives. The results of orthogonal rotation are shown in Table 14 showing correlations of factors after rotation.

Table 14. Correlation coefficients of components

Component	1	2	3
1	,832	,348	-,432
2	-,176	,904	,389
3	,526	-,248	,814

Source: compiled by the authors, according to authors' calculations

As it is seen in Table 14 factors do not correlate with each other which confirm the adequacy and representativeness of the results of analysis, while volatile positive and negative direction of correlation is caused by identical variables in the composition of certain factor.

Conclusions

The implementation of social and economic goals using various forms of tax incentives has a direct impact on budget revenues, because tax incentives form tax expenditures or unearned revenues. The expediency and feasibility of these expenditures must be assessed in relation to the purposes which application of tax incentives enables to achieve.

Factor analysis revealed that the most important component, comprising the largest part of variables and their distribution, characterizes tax incentives impact on labor market. This component includes positive impact on developing skilled workforce; but have negative impact (is not focused) on the number of jobs created. Jobs created due to tax incentives have positive impact on GDP and budget revenues. Larger number of tax incentives applicable encourages the expansion of bureaucratic apparatus (job creation).

The second component comprises corruption, real estate tax incentives impact on real estate transactions, as well as VAT incentives impact on export. This component reflects specificity of tax incentives and low degree of applicability (prevalence). Since VAT incentives are regulated by the law of the EU, incentives of real estate tax can be adjusted by national authorities.

The third component concerns consumption – incentives of VAT and excise duties lower prices of domestic commodity, but do not guarantee competitiveness in foreign markets (negative impact on export volume).

Factor analysis revealed economic impact of tax incentives applicable in Lithuania.

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