

Assessment of the Influence of Government Expenditure on Subjective Well-being in the European Union Countries

The existence of government stands on preposition that there would be worse situation in society than without it. Traditional view of welfare economists suggest that governing body acts as a social planner maximising social welfare, however, this theoretical consideration is criticised by public choice scholars who prove that human traits cause misleading results in the size of government. The problem of research – is the size of government expenditure causing changes in subjective well-being of society? Authors answer the question by empirical analysis of the relationship between government expenditure and subjective well-being of society in the context of EU.

Keywords: subjective well-being, happiness, government spending, welfare economics, public choice theory.

Vyriausybės veikla pateisinama daugeliu argumentų. Tradicinės gerovės ekonomikos atstovai laikosi nuostatos, kad vyriausybė yra institucinis organas, kuris visuomenėje maksimizuoja socialinę gerovę. Kita vertus, viešojo pasirinkimo teorijos šalininkų teigimu, žmogiškos ydos verčia valdančiuosius nesielti racionaliai, bet priešingai – pernelyg išplėsti vyriausybės veiklą, ypatingai kalbant apie jos išlaidų sistemą. Šio tyrimo probleminis klausimas: ar vyriausybės išlaidų dydis lemia pokyčius visuomenės gerovėje? Autoriai į klausimą atsako pateikdami empirinę vyriausybės išlaidų poveikio pasitenkinimo visuomenės gyvenimu analizę ES kontekste. **Raktažodžiai:** pasitenkinimas gyvenimu, laimė, vyriausybės išlaidos, gerovės ekonomika, viešojo pasirinkimo teorija.

JEL Classifications: H50/H11/Z13/I31/D6.

Introduction

Well-being of society is the key objective for each government ruling the country. Most frequent way to increase welfare is to ensure it and fortify it by material means.

There is no tool to control and to value government policy in the eyes of society. As government is elected, it is essential to verify – did programs which are funded

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through government expenditure, fulfil social expectations and meet their needs or in other words – is government enhancing subjective well-being of society. In order to control and assess the effectiveness of government actions expressed through public expenditure, the need to measure the level of social satisfaction, influenced (or not) by the coincidence to their expectations and feelings reverberated by the choice of government structure, arises.

Traditional view of welfare economists suggest that governing body acts as a social planner maximising social welfare and seeking the most effective Pareto allocation of resources (Besley, 2002). At this point, government is seen as one which actions lead to better outcomes compared to those which were before. However, this theoretical consideration is criticised by public choice scholars (Buchanan, 1970) who prove that human traits cause misleading results in the size of government and so – inefficient outcomes to whole system.

Some researches on this topic were made by: Ch. Bjørnskov et al. (2007), R. Di Tella and R. J. MacCulloch (2005), Z. Hessami (2010), T. Ekici and S. Koydemir (2013), P. Flavin et al. (2011), L. Osberg and A. Sharpe (2013), F. A. Huppert (2009), but none of them gave the clear answer about how government expenditure influences subjective well-being.

The **problem** of research – is the size of government expenditure causing changes in subjective well-being of society?

The **object** of research is – the influence of government expenditure on subjective well-being of society.

Main **aim** is to show theoretical relationship between subjective well-being and government expenditure and measure latter's effectiveness in context of subjective

well-being by determining what could be the optimal size of it.

In reflection to the research target, further **tasks** are raised:

- 1) to analyse theoretical scholars considerations about government expenditure and subjective well-being of society;
- 2) to measure if government expenditure influence subjective well-being of society;
- 3) to reveal how government expenditure influence subjective well-being of society;
- 4) to find optimal size of government expenditure in reflection to societies subjective well-being.

Hypothesis, corresponding the research, were raised:

Main hypothesis H_1 : government expenditure influence subjective well-being of society.

Supporting hypothesis H_2 :

H_{2a} : societies ruled by governments, which expend more on average, tend to have higher subjective well-being;

H_{2b} : in the particular period, society, where government expend more than other, tends to have higher subjective well-being;

H_{2c} : the rise in government expenditure tends to raise subjective well-being of society.

In order to fulfil task number 1, the analysis of scientific literature will be made. In task number 2 – statistical data of 10 EU countries in 10 years period will be analysed and relationship between size of government expenditure and well-being of society will be revealed. Hypothesis will be verified using comparative and econometric analysis.

The Background of Research

Trough out the history, government role over society was seen as actions leading to efficient allocation of resources, distribution of income and economic stabilisation. This situation was formed after getting the knowledge that private market in certain situations does not provide efficient outcomes. The nature of public goods, which are not produced in sufficient amounts, market failures when goods and services are not allocated efficiently, externalities and informational shortages, formed the scope of public actions managed by government. One side of these actions is government spending.

The role of government is still seen as detrimental in creating welfare of society. Traditional view of welfare economists suggest that government acts like a social planner which actions lead to the maximisation of social welfare and the effective Pareto allocation of resources, when there is no other way to increase someone's good by not decreasing others (Besley, 2002). This situation or the first theorem of welfare should lead to complete markets and perfectly competitive equilibrium. The second theorem agrees that Pareto allocation can be decentralised by choice of lump-sum transfers arising the second best Pareto efficiency manner as the restriction on incentives of policy makers.

This point of view is criticised by public choice scholars who prove that agency problem and self-interest of politicians and bureaucrats in the act of government causes misleading results in the size of government and so – inefficient results to economy (Mueller, 2003). According to J. Buchanan (1970) even if governing body knows what the most effective policy is,

this does not guarantee that it will come into action.

Theoretical considerations about effectiveness of government became crucial after the fact of rise in public spending all around the world and especially in Europe. While in 50's average government spending in Europe reflected 25 % of GDP (Arpaia, Turrini, 2008; Tanzi, Shuknecht, 2000), according to Eurostat it doubled in the year of 2013. As size of government rose dramatically since middle of XX century, important economic issue came into question – are actions of government effective. Topic became more sensitive after the financial crisis in 2009 influencing higher levels of the budget debts in most countries.

The effectiveness or optimal size of government can be analysed from two perspectives. One of them was proposed by D. Armev and R. Armev in 1995. Scholars revealed the relationship between the size of public sector (expressed as tax burden) and the indicator of economy – growth of GDP. They stated that if government doesn't collect taxes, country is without a rule of law and private agents protect their own rights. This situation leads to insecurity and instability of whole economy and even small size of government would provide welfare with provision of property rights and rule of law (De Witte, Moessen, 2009). Existence of government reduces income but supports higher economic growth rate through creation of public goods and services so increasing the efficiency of whole economy. At a low level of public spending, increase in tax rate causes growth as long as expenditure is treated as being productive (Scully, 2003). However it was noted by J. Slemrod et al. (1995) that there is a tendency of richer societies having bigger governments. The public choice

theory though predicts that government in these circumstances is expending over the efficient level so causing lower levels of GDP growth. In this situation, estimation of Armey curve relating Tax burned and GDP growth is seen as one of the tool to measure the effectiveness of government.

As GDP, after basic needs level is fulfilled, fails to reflect the welfare of society (Kisieliauskas, Pukeliene, 2013), another consideration of effective government can be raised. By measuring how public spending affects the well-being of society, the direct link between government actions and people whose welfare it is said to be promoting, can be created. However there are a small number of studies made in this field. Ch. Bjørnskov et al. (2007) failed to find the relation of life satisfaction and government consumption in a worldwide cross-country study. R. Di Tella and R. J. MacCulloch (2005) in the study of 10 OECD countries found a positive but insignificant effect of government consumption on satisfaction of life. However Z. Hessami (2010) found inversely U-shaped relationship between government size and well-being while making the research on EU countries. Among other researches that prove relationship between government spending and well-being of society can be named: T. Ekici and S. Koydemir (2013) who made a research on society of Turkey, P. Flavin et al. (2014) who found that citizens are more satisfied with their lives as the level of state intervention into the market economy increases. L. Osberg and A. Sharpe (2013) in their measure of well-being proved the great significance of government actions in healthy and F. A. Hupfert (2009) in unhealthy societies.

R. Veenhoven (2000) has investigated the relation between the expenditure of social security and well-being. His research

resulted in no significant correlation between the variables. P. Ouweneel (2002) made a research on social class of unemployed who according to his hypothesis should have higher well-being in countries with larger welfare benefits. However, author has not found any significant effect on unemployed. Expenditure for welfare (in wider sense that welfare economic provides) provision was considered by more authors. B. Radcliff (2001) proved the significant positive relation between welfare spending and average happiness. R. Di Tella et al. (2003) provided evidences that higher unemployment benefits increase national well-being. K. Kotakorpi and J. Laamanen (2010) made a research on health expenditures in Finland. Their findings proved the positive correlation on well-being.

This brief analysis shows that the solution of problem to the government's evaluation in the context of societies is important but not sufficiently explored. Scholars have different opinions proved by their statistical analysis of different contexts. However, researchers have proved that not only the size of public expenditure but also the composition of it matters. Leaving the composition analysis to the future explorations, this paper will deal with certain theoretical hypothesis about relationship between government and subjective well-being of society in Section 3. In Section 4 data and methods of the research will be presented. Section 5 will provide empirical research while 6 will conclude the analysis made.

Theoretical Hypothesis of the Research

In the previous section, two theoretical considerations were briefly discussed. One

came from welfare economic point of view while another from public choice perspective. Welfare economics treat government as being social planner ensuring Pareto optimal allocation of resources, what means that government should provide public services and goods determining higher or at least not lower well-being of society. However another view, which came from public choice theorists, proves that government becomes too large and allocation of goods and services misleads the optimal condition. This misallocation can be also caused by political cycle phenomena analysed by W. Nordhaus (1975). Scholar found evidences of excessive spending of politicians before the election in order to boost their probability to be re-elected. These situations should worsen well-being of society as a result of resources wasted to support huge bureaucratic mechanism.

Without any prejudice on previously mentioned positions, the research will be based on theoretical hypothesis which are constructed as follows:

Main hypothesis H_1 : government expenditure influence subjective well-being of society.

Logical explanation: as we could see in the previous section, main function and cause of the government is the assumption that situation without it, would be worse. As private markets fail to produce certain goods and services, public one, ensures the effective functioning of social and economic systems. As so, government action, expressed as expenditure, with no change in other conditions, should lead to increase social well-being. However, the existence of selfish human traits, allows public choice scholars assume that government becomes too large and ineffective and so – decrease subjective well-being. As these two considerations collide, having welfare

economics and public choice theories in mind, we can analyse if actions of government, expressed as its fiscal policy, causes any changes in well-being of society. *The alternative of hypothesis would prove that government expenditure does not influence subjective well-being of society.*

Supporting Hypothesis H_2 :

H_{2a} : societies ruled by governments, which expend more on average, tend to have higher subjective well-being;

H_{2b} : in the particular period, society, where government expend more than other one, tends to have higher subjective well-being;

H_{2c} : the rise in government expenditure tends to raise subjective well-being of society.

Logic explanation: if government expenditure does influence well-being of society the vector of effect must be analysed. According to welfare economists, government is a social planner, which allocates resources in the best way. If so:

- a) in the static view, bigger government, in terms of expenditure, should cause higher well-being of certain society;
- b) in the static view, society with higher government spending should outperform other society in comparison, having smaller government;
- c) in the dynamic view, well-being of society with a rise of expenditure should rise. Otherwise, the enlargement of government, supporting public choice theory, should lead to a negative result.

Otherwise, according to the public choice theorists:

- a) in the static view, bigger government in terms of expenditure, should not cause lower well-being of certain society;
- b) in the static view, society with higher government spending should not

- outperform other society in comparison, having smaller government;
- c) in the dynamic view, well-being of society with a rise of expenditure should fall.

Data and Methods

In this part the context, period, data and main research methods used in the research are represented.

Context: the influence of government expenditure to happiness is analysed in the context of 27 European Union member states. Croatia is skipped due to lack of statistics analysed.

Period: to examine appropriate relationship valuation of economic factor to subjective well-being, period of 10 years (from 2003 to 2012) is chosen. Size of period was selected on bases of eligible quantity and reliable accessibility principles. Two outliers in the period (the expansion of EU in 2004 and financial crisis in 2008) emerges, which ex ante and ex post analysis allows to determine the long term tendency of relationship between phenomena which is analysed.

Sources: on the basis of accessibility and reliability criteria, data was collected from European statistic department and World happiness databases.

In order to accept or reject hypothesis raised, there is a research made on relationship between government spending and happiness. For this reason correlation, regression, comparative and graphic analysis is made. Observation covers whole and separate period's analysis.

Data is analysed using SPSS 17 software package.

Variables: first variable in the research used is average happiness valuation in

10-grade system, where individual answers to question: "how happy you are in your life" (when 10 means very happy; 5 average happy; 1 unhappy). Variable is measured in ordinal scale and reflect subjective well-being of society analysed. Second variable is government expenditure per capita, which is the reflection of governments size and public spending made.

Methods of analysis:

Pearson **Correlation** analysis, which shows the statistical relationship between random variables. Correlation in range of $[-0.7; +1]$ is considered to be strong and $[-0.4; +0.7]$ – average. Correlation value equal or near equal to 0 is considered to be absent. The significance of correlation is tested by significance test at the 0.05 level.

Simple linear regression is used to value the statistical relationship between two variables where one variable is dependent (response) and another independent (explanatory). In case of one independent variable, regression has standard expression:

$$y = \beta_0 + \beta_1 x \quad (1)$$

Coefficient β_0 in 1 equation is secant of regression line (value of y when x equals to zero) and shows the value of dependent variable in two cases – when independent variable is insignificant or (coefficient β_1 is equal to zero) equal to 0. Coefficient β_1 shows the slope of regression line and amount of change in dependent variable when independent changes by 1.

When linear regression equation is made, it is necessary to verify hypothesis of significance. Hypothesis $H_0: \beta_1 = 0$ and the alternative $H_1: \beta_1 \neq 0$ is examined. If H_0 is confirmed, on the basis of equation $y = \beta_0 + \beta_1 x$, the inference is made that average value of y is equal to β_0 for each

value of x and independent variable x does not influence dependent variable (there is no significant relationship between variables). If H_0 is denied, the inference can be made that change of independent variable x influence change of dependent variable y by value of β_1 . Hypothesis is verified in accordance to p -value measuring level of significance. Value of p is probability of validity in zero hypotheses. Usually this probability is equal to 5 % (value $p = 0.05$).

Other regression model characteristics are:

- Coefficient of determination (R^2) – measuring how much in percentage dependant variable Y can be explained by independent variables in the interval of $[0; 1]$. The higher value corresponds to

better model. In cases where $R^2 < 0.20$, model is considered to be insufficient.

- T (Student) test for certain variable measures the significance of variable in the model. If test value t is lower than 0.1, variable is considered to be statistically insignificant (Čekanavičius, Murauskas, 2001).

Empirical Research and Results

In order to represent the EU 27 in the context of average government expenditure and happiness in a period of 2003 to 2012, a brief look to the Fig. 1 should be made.

Fig. 1 is made of 4 quadrates from the bottom left corner representing nations in

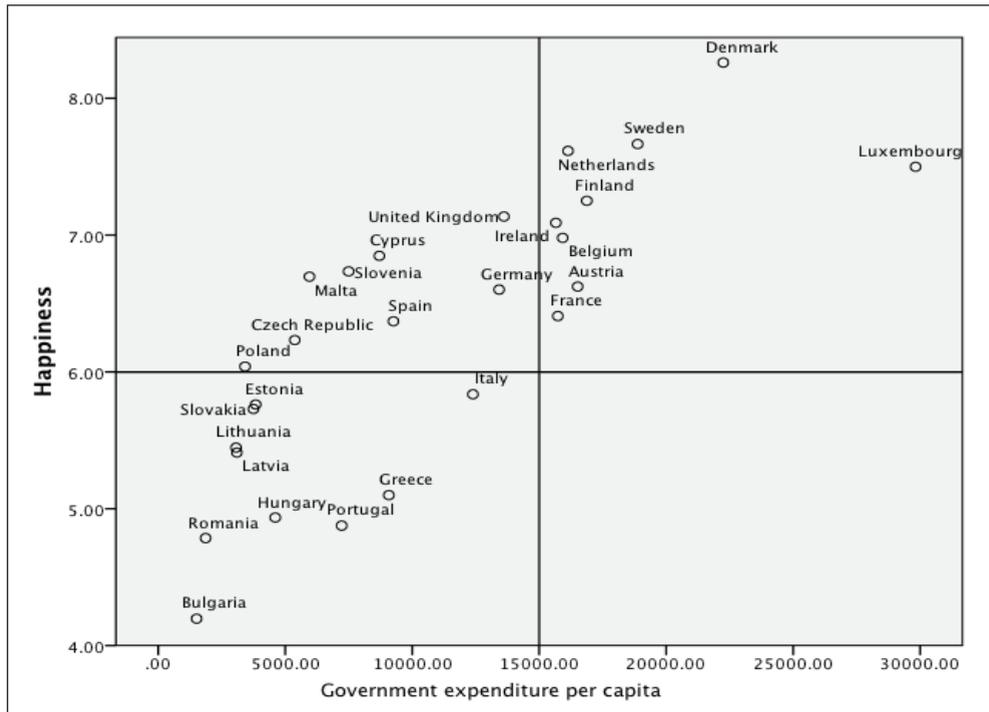


Fig. 1. Average happiness and government expenditure data in EU 27, 2002–2013

Source: made by authors using Eurostat and Happiness database.

frame of low happiness (considered to be lower than value 6), low budget spending (considered to be lower than 15000 EUR per capita), then rising up and showing high happiness (considered to be higher than value 6) and low budget spending, moving right and reflecting high happiness and high budget spending (considered to be higher than 15000 EUR per capita). Low happiness and budget spending can be found in 10 from 27 EU countries, while high happiness and budget spending reflects 1/3 of EU. Biggest extreme can be seen in 3 EU nations: Denmark (22246 EUR per capita and 8.2) and Luxembourg (29818 EUR per capita and 7.5), where both happiness and public spending are at a high; and Bulgaria, where both indicators are extremely low (1511.43 EUR per capita and 4.2). On average in the period from 2003 to 2012 EU 27 countries were spending 10571 EUR per inhabitant and expressing their happiness at level 6.3 from 10, what makes sense, that EU 27 countries are more happy than unhappy.

Examining government expenditure as percentage from GDP, was seen that on average, government size fluctuates from 37 % in Bulgaria, Estonia, Lithuania, Romania, Slovakia to 52 % in Sweden, Finland, Belgium, Austria and 54 % in France and Denmark.

As the context of research is drawn, theoretical hypothesis can be examined. In order to test main hypothesis H_1 considering the relation of government expenditure and subjective well-being H_2 hypothesis with all its variations must be analysed.

Hypothesis H_2 is compounded from 3 propositions, considering static and dynamic frame of situation in EU 27 countries. It analyses average, intermittent and periodical data on happiness and public spending.

As seen in Table 1, where 10 highest average data is selected, Luxembourg, Denmark and Sweden are the countries with highest average government spending. These countries appear in the top of happiest countries as well. Only 3 countries

Table 1

Countries with highest and lowest government spending and happiness

TOP high G per capita	TOP happiest	TOP low G per capita	TOP unhappiest
Luxembourg	Denmark	Bulgaria	Bulgaria
Denmark	Sweden	Romania	Romania
Sweden	Netherlands	Lithuania	Hungary
Finland	Luxembourg	Latvia	Portugal
Austria	Finland	Poland	Greece
Netherlands	UK	Slovakia	Latvia
Belgium	Ireland	Estonia	Lithuania
France	Belgium	Hungary	Slovakia
Ireland	Cyprus	Czech Republic	Estonia
UK	Slovenia	Malta	Italy

Source: made by authors using Eurostat and Happiness database.

(Austria, France and Ireland) from top highest spenders per capita do not appear in the list of happiest nations. Austria is the biggest outlier in this list. Being 5th highest spender it is only in the middle (15th position) of happiest nations. France is another example being 8th between highest spenders, is only 14th in the list of happiness. Otherwise, Cyprus and Slovenia, being 9th and 10th in the happiest list and outperforming such countries as Germany, France, Italy and Spain, corresponds only to 15th and 16th positions in the highest public spenders list.

Table 1 covers list of lowest EU 27 average government spending and happiness nations. Bulgaria (1511.43 EUR and 4.2) and Romania (1865.21 EUR and 4.7) takes top positions in both categories. However 5 unhappiest nations (corresponding Portugal, Greece, Slovakia, Estonia and Italy) do not appear in the lowest government-spending group. As example Greece is 5th between unhappiest nations, but takes place in the middle between highest government spenders. Italy, holding 10th place between unhappiest EU nations, appears in the 12th position of highest spenders.

Table 2

EU 27 highest government spending and happiest countries, 2003–2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Government spending	LUX	LUX	LUX	LUX	LUX	LUX	LUX	LUX	LUX	LUX
	DN	DN	DN	DN	DN	DN	DN	DN	DN	DN
	SW	SW	SW	SW	SW	SW	FIN	IRL	SW	SW
	AU	AU	FIN	FIN	FIN	FIN	NL	SW	FIN	FIN
	FIN	FIN	BE	AU	AU	IRL	AU	FIN	AU	AU
	NL	FR	AU	NL	IRL	AU	SW	NL	BE	BE
	FR	NL	FR	FR	NL	NL	IRL	AU	NL	NL
	BE	BE	NL	BE	FR	BE	BE	BE	FR	FR
	GE	UK	UK	IRL	BE	FR	FR	FR	IRL	IRL
	IRL	GE	IRL	UK	UK	UK	GE	GE	GE	UK
Happiness	DN	DN	DN	DN	DN	DN	DN	DN	DN	DN
	SW	LUX	SW	SW	SW	SW	NL	NL	NL	SW
	NL	SW	NL	LUX	NL	NL	SW	SW	SW	NL
	LUX	NL	LUX	NL	LUX	LUX	LUX	LUX	LUX	LUX
	IRL	IRL	IRL	IRL	FIN	FIN	FIN	FIN	UK	UK
	UK	CY	FIN	FIN	IRL	IRL	IRL	UK	FIN	FIN
	FIN	FIN	UK	BE	BE	CY	UK	BE	IRL	BE
	AU	UK	CY	UK	UK	UK	BE	CY	BE	IRL
	CY	BE	BE	CY	CY	MA	CY	IRL	GE	GE
	SLOV	MA	SLOV	ESP	SLOV	BE	MA	GE	CY	SLOV

Source: made by authors using Eurostat and Happiness database.

Otherwise Malta, which is 10th in the category of lowest spenders, appears in the 11th place between happiest nations.

These lists provide clear information for considerations on hypothesis H_{2a} . Hypothesis expressed as: “societies ruled by governments, which expend more on average, tend to have higher subjective well-being” is accepted as result of findings above: 7 out of 10 EU highest public spenders appears in top 10 happiest countries lists. However opposite statement that societies ruled by governments, which expend less on average, tend to have lower subjective well-being is less clear, because it could be approved only in 5 cases out of 10.

Putting into consideration the intermittent situation of EU 27, hypothesis H_{2b} : “in the particular period, society, where government expend more than other, tends to have higher subjective well-being”, can be analysed. Table 2 represents situation about 10 happiest and highest government spenders in the analysed period.

As Table 2 shows, highest government spending was in Luxembourg, while

happiness – in Denmark. From the perspective of hypothesis H_{2b} , this can be the case, that highest spending does not guarantee highest happiness. If Denmark, could be the example of high coincidence of high public spending (2nd place in whole period) and happiness (1st place in whole period), than such high spending countries as Austria, France, Belgium and Germany, in all separate periods show, that there were always evidence of countries which expend less, but show higher results in the valuation of happiness. Opposite example comes from countries such as Slovenia, Cyprus, Malta, and Spain, which in certain periods appeared in high Happiness list and outperformed countries from high public spending group.

To sum up, the conclusion on hypothesis H_{2b} , can be made up – despite some evidences of high conjunction between high government spending and happiness in such countries as Denmark and Sweden, the hypothesis H_{2b} : “in the particular period, societies, where government expend more than other, tend to have

Table 3

Results of correlation and regression analysis in Q1 group countries

	Correlation	Regression coef.	R²
Bulgaria	0.96	positive	0.92
Romania	0.27	positive	0.07
Hungary	-0.53	negative	0.28
Portugal	-0.56	negative	0.31
Greece	-0.47	negative	0.22
Latvia	0.32	positive	0.10
Lithuania	0.45	positive	0.20
Estonia	0.69	positive	0.48
Slovakia	0.86	positive	0.74
Italy	-0.69	negative	0.48

Source: made by authors using SPSS 17 software.

higher subjective well-being”, is rejected as in most cases (not bolded 95 out of 100) which were analysed, rank in the spending list does not coincide with rank in the happiness list. In addition, there were always such countries where public spending was lower but happiness – higher and spending – higher but happiness lower comparing to other countries.

Finally, after examining static situation of EU 27 in the context of government spending and happiness, research enters into periodic – dynamic analysis. 3rd variation of hypothesis H_2 , deals on the question about positive effect of government spending to subjective well-being of society, stating that increase of first variable, should increase the latter one.

For this reason, econometric analysis, using Pearson correlation and linear regression methods, was made. Results of all EU 27 countries distributed into 3 quadrates (Q1, Q2 and Q3 corresponding size of government spending and happiness) are represented in Tables 3, 4 and 5.

Starting from group Q1, where both, happiness and public spending are at a compared low level, we can note that in

6 countries out of 10, positive correlation between government spending and subjective well-being was found, proving that variables move to the same direction. However, only 3 of these cases were strong and statistically significant. The highest positive correlation discovered in Bulgaria, where both indicators were at a lowest level in EU 27. Highest strong and negative correlation was found in Italy. Regression analysis, which reveals the strength of causality between variables showed quite the same picture – in 6 countries positive effect of government spending to happiness of society was revealed. The magnitude of linear model, which is reflected through coefficient of determination R^2 , states that in 4 cases independent variable (government spending) explains dependent variable (happiness) in the sufficient level, while there were 3 sufficient models, explaining negative impact of spending to happiness.

Group Q2 contains countries where happiness is at a high and public spending are at a low compared level. In this situation in 3 countries out of 8, positive correlation between variables was observed.

Table 4

Results of correlation and regression analysis in Q2 group countries

	Correlation	Regression coef.	R²
Poland	0.78	positive	0.60
Czech Republic	0.56	positive	0.32
Spain	-0.76	negative	0.59
Malta	-0.28	negative	0.08
Slovenia	-0.61	negative	0.37
Cyprus	-0.44	negative	0.19
United Kingdom	0.24	positive	0.06
Germany	0.75	negative	0.57

Source: made by authors using SPSS 17 software.

2 of these cases were statistically significant. The highest positive correlation was discovered in Poland and Germany. Highest negative statistically significant correlation was found in Slovenia. Regression analysis revealed that in 3 countries positive effect of government spending to happiness of society exists. However only in 2 of these cases government spending explain the increase of happiness in the sufficient level, while there is 3 sufficient models, explaining negative impact of spending to happiness. Interesting case appears in Germany, where correlation analysis states statistically significant positive relation between variables, but regression model proves negative causality of government spending to happiness. While investigating causality, the latter will be hold as a case.

Group Q3 presents countries where both happiness and public spending are at a high compared level. Here in 6 countries out of 9, positive correlation between variables was observed. 2 of these cases were strong and statistically significant. The highest positive correlation was discovered in Denmark – country where happiness

and government spending are at highest levels in EU 27. Highest negative statistically significant correlation was found in Austria. Regression analysis revealed that in 7 countries positive effect of government spending to subjective well-being of society exists. In 4 of the cases, government spending explains the increase of happiness in the sufficient level, while there are no sufficient models, explaining negative impact of spending to happiness.

In order to sum up, it is important to note that in 15 cases out of 27 positive correlations were found, but only 7 were statistically significant comparing to 5, which were negative. In 16 cases positive linear model coefficient of regression was found. 10 of these models could be held as being sufficient to describe the positive causality, compared to 7 showing negative relation.

To make generalizing note about validity of hypothesis H_2 in the context of EU 27, some additional analysis was made. Countries were sorted by the size of government expenditure in order to observe the tendency of statement mentioned in hypothesis. It was found that in countries

Table 5

Results of correlation and regression analysis in Q3 group countries

	Correlation	Regression coef.	R ²
Denmark	0.80	positive	0.64
Luxembourg	0	positive	0.01
Sweden	0.451	positive	0.20
Austria	-0.44	negative	0.19
Belgium	0.139	positive	0.01
Netherlands	0.78	positive	0.60
Finland	0.36	positive	0.13
France	0.5	positive	0.25
Ireland	-0.12	negative	0.01

Source: made by authors using SPSS 17 software.

where government spending per capita are:

- at compared low level (from 1511 EUR in Bulgaria to 3835 EUR in Estonia), additional spending tends to have positive impact on subjective well-being. This counts for Romania, Lithuania, Latvia, Poland and Slovakia;
- at compared average level (from 4607 EUR in Hungary to 12390 EUR in Italy) additional spending tends to have negative impact on subjective well-being; Range contains countries such as Malta, Portugal, Slovenia, Cyprus, Greece and Spain;
- at compared high level (from 13422 EUR in Germany to 29818 EUR in Luxembourg) additional spending tends to have positive impact on subjective well-being. Here stands UK, France, Belgium, Netherlands, Finland, Sweden and Denmark.

Additional analysis revealed that H_{2c} : **“the rise in government expenditure tends to raise subjective well-being of society”** – could be accepted for countries having high and low, and rejected in countries having average government spending levels.

However validation of this hypothesis needs further considerations. Dynamics of happiness reaction to government spending is reflected in Fig. 2. There are 270 cases of happiness and government expenditure combinations, starting from lowest observed budget spending equal to 809 EUR in Romania, to highest – 35769 EUR in Luxembourg and lowest happiness – 3.97 in Bulgaria and highest – 8.4 in Denmark.

Fig. 2 analysis of data dynamics in EU 27 allowed spotting an important tendency. It is obvious that at the beginning as government expenditure rises, happiness is rising as well, but further increases

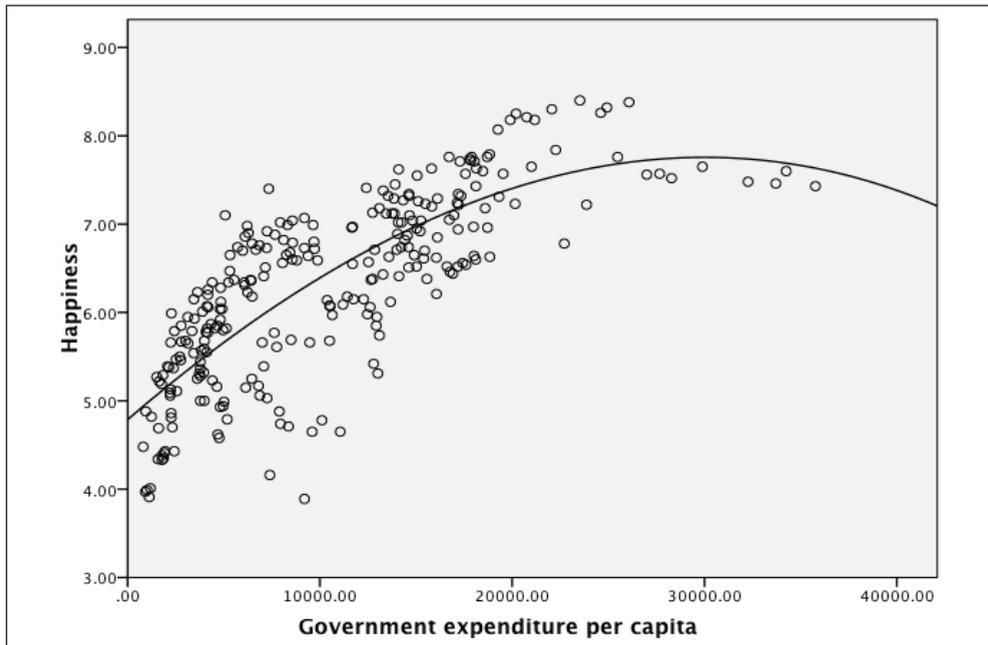


Fig. 2. Relation between happiness and government expenditure in EU 27

Source: made by authors using Eurostat and Happiness database.

in spending causes inadequate rise in subjective well-being. Similar situation was found in relation between income and happiness analysed by J. Kisieliauskas and V. Pukeliene in 2013. Scholars found the evidence of diminishing marginal utility of money to happiness and this caused to analyse the phenomena in government spending case as well. For that reason, trend analysis was made and the best fitted model for this situation was found to be cubic one. Cubic trend line was added to Fig. 2 showing that at the beginning, happiness tends to rise at a slowing rate, while at from some point of government expenditure, starts to decrease.

However, the hypothetical turning point, from which additional government spending do not add additional happiness from the model observed, can be calculated using trend line equation (2):

$$Y = 4.76 + 1.94 \cdot 10^{-4} \cdot x - 3.17 \cdot 10^{-9} \cdot x^2 \quad (2)$$

where Y corresponds to happiness and X – government spending in euros per inhabitant. According to calculations,

maximum of happiness maximising point of the model estimated is 30688.1 EUR per inhabitant, which corresponds to 7.5 of happiness. However, this turning point should not be held as optimal size of government, not only for the reason that it was estimated through hypothetical point of view.

While examining EU 27 happiness and government spending data was found, that the only country, where spending where equal or higher than 30688.1 EUR estimated from the model above, was Luxembourg. But the critical point is that on average there were always at least 3 countries (naming Denmark, Sweden and Netherlands), which were spending less, but having more happiness. The reason could be not the size but the different composition of public spending, but this analysis is planned for the next research.

In order to find optimal size of government it is crucial to examine actual data and seek not for the concrete size, but rather recommended interval, which wouldn't maximise but rather optimize happiness in the context of EU 27. As it was mentioned before, average

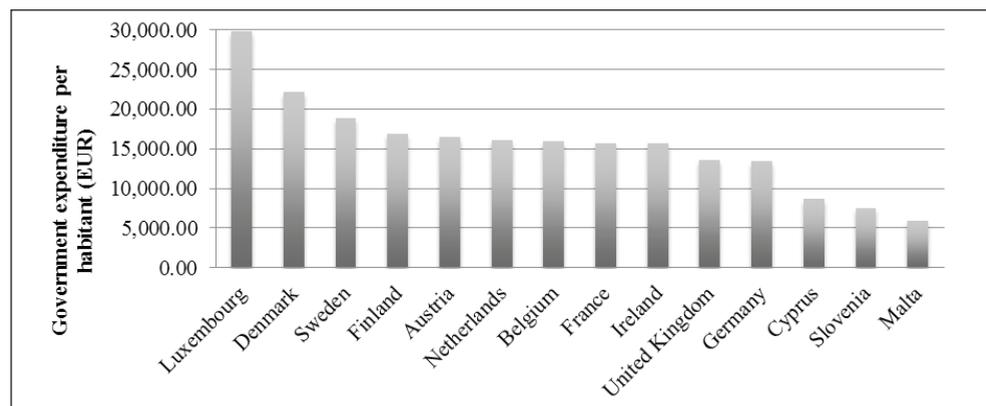


Fig. 3. Government expenditure per inhabitant in happiest EU 27 countries

Source: made by authors using Eurostat and Happiness database.

happiness in EU 27 was 6.3 and there exists 14 countries, which have higher estimation. Average public spending for the period 2003–2012 is showed in Fig. 3.

As could be seen from Fig. 1, in happiest countries, the average of government spending fluctuates in the interval from 14000 to 17000 EUR (Germany, UK, Ireland, France, Belgium, Netherlands, Austria and Finland). Examining happiest years of the same countries was found, that countries were mostly at the same range of government size. This could lead to a conclusion, that it is likely that depending on the structure of public expenditure, optimal size of government should range from 14 to 17 thousand euros per capita in order to achieve fair enough quantity of subjective well-being in society. Having in mind, that in half of the countries, government size as per cent from GDP is already big enough (more or near to 50 %), necessity for change of structure in expenditure arises. However, for most countries, where happiness is lower than EU 27 average, size of government is less than 40 %. In this case growth of government expenditure together with decomposition of budget structure should be considered.

Conclusions

The role of government is seen as crucial in creating welfare of society. However two approaches have different points of view on how size of government influence well-being of society. Traditional view of welfare economists suggest that government acts like a social planner which actions lead to the maximisation of social welfare and the effective Pareto allocation of resources. Public choice scholars prove that agency problem and self-interest of

politicians and bureaucrats in the act of government causes misleading results in the size of government and so – inefficient results to economy.

There are some researches made on this topic by: Ch. Bjørnskov et al. (2007), R. Di Tella and R. J. MacCulloch (2005), Z. Hessami (2010), T. Ekici and S. Koydemir (2013), P. Flavin et al. (2014), L. Osberg and A. Sharpe (2013), F. A. Huppert (2009), but none of them has the clear answer about how government expenditure influences subjective well-being.

In this paper the influence of government expenditure to happiness was analysed in the context of 27 European Union member states in the period of 2003–2012. Croatia was skipped due to lack of statistics.

Countries were grouped into 3 categories: nations in frame of low happiness (considered to be lower than value 6) and low budget spending (considered to be lower than 15000 EUR per capita), high happiness (considered to be higher than value 6) and low budget spending, high happiness and high budget spending (considered to be higher than 15000 EUR per capita). Low happiness and budget spending were found in 10 from 27 EU countries, while high happiness and budget spending reflects 1/3 of EU. On average in the period from 2003 to 2012 EU 27 countries were spending 10571 EUR per inhabitant and expressing their happiness at level 6.3 from 10, what makes sense, that EU 27 is more happy than unhappy.

Hypothesis H_{2a} “societies ruled by governments which expend more on average, tend to have higher subjective well-being” is accepted as result of findings because: 7 out of 10 EU highest public spenders appear in top 10 happiest countries lists. However opposite statement that societies

ruled by governments, which expend less on average, tend to have lower subjective well-being is less clear, because could be approved only in 5 cases out of 10.

Hypothesis H_{2b} “in the particular period, societies where government expend more than other, tend to have higher subjective well-being” is rejected as in most cases (95 out of 100) which were analysed, rank in the spending list did not coincide with rank in the happiness list.

Hypothesis H_{2c} “the rise in government expenditure tends to raise subjective well-being of society” was accepted for countries having high and low and rejected in countries having average government spending levels.

Main hypothesis H_1 “government expenditure influence subjective well-being of society”, in accordance to supporting hypothesis H_2 , was accepted.

Graphical analysis allowed finding cubic trend of data dynamics in EU 27. This raises considerations about diminishing marginal utility of public spending. Hypothetical turning point from which additional government spending do not

add additional happiness was calculated – 30688.1 EUR per inhabitant what corresponds to 7.5 of happiness according to the trend model.

However, in happiest countries (higher than EU 27 average) the average of government spending fluctuated from 14000 to 17000 EUR. Examining happiest years of the same countries was found, that countries were mostly at the same range of government size. This leads to a conclusion, that it is likely that depending on the structure of public expenditure, optimal size of government should range from 14 to 17 thousand euros per capita in order to achieve fair enough quantity of subjective well-being for the society.

In half of countries, government size as per cent from GDP is already big enough (more or near to 50 %), necessity for change of structure in expenditure arises. In most countries, where happiness is lower than EU 27 average, size of government is less than 40 %. In this case growth of government expenditure together with decomposition of budget structure should be considered.

References

1. Armev, D., Armev, R. (1995). *The Freedom Revolution: The New Republican House Majority Leader Tells Why Big Government Fail, Why Freedom Works, and How We Will Rebuild America*. – Washington, D. C. Regnery Publishing Inc.
2. Arpaia, A., Turrini, A. (2007). *Government Expenditure and Economic Growth in the EU: Long-run Tendencies and Short-term Adjustment*. European Commission. – Social Science Electronic Publishing, Inc.
3. Besley, T. (2002). *Encyclopaedia of Public Choice. Welfare Economics and Public Choice*. London School of Economics and Political Science. ISSN 0047-2727.
4. Bjørnskov, Ch., Dreher, A., Fischer, J. (2007). *The Bigger the Better? Evidence of the Effect of Government Size on Life Satisfaction around the World // Public Choice*. Vol. 130, p. 267–292.
5. Čekanavičius, V., Murauskas, G. (2001). *Statistics and its Applications*. – Vilnius: TEV.
6. Buchanan, J. (1970). *Notes for an Economic Theory of Socialism // Public Choice*. Springer. Vol. 8 (1).
7. De Witte, K., Moesen, W. (2009). *Sizing the Government // Public Choice*. Springer. Vol. 145 (1), p. 39–55.
8. Eurostat Database. *Detailed Statistics on the EU and Candidate Countries*. Internet access: <epp.eurostat.ec.europa.eu/>, [accessed August 2, 2015].

9. Di Tella, R., MacCulloch, R. J. (2005). Partisan Social Happiness // *Review of Economic Studies*. Vol. 72, p. 367–393.
10. Di Tella, R., MacCulloch R., Oswald A. (2003). The Macroeconomics of Happiness // *Review of Economics and Statistics*. Vol. 85 (4), p. 809–27.
11. Ekici, T., Koydemir, S. (2013). Social Capital, Government and Democracy Satisfaction, and Happiness in Turkey: A Comparison of Surveys in 1999 and 2008. doi: 10.1007/s11205-013-0464-y.
12. Flavin, P., Pacek, A. C., Radcliff, B. (2011). State Intervention and Subjective Well-Being in Advanced Industrial Democracies // *Politics & Policy*. Vol. 39, p. 251–269.
13. Hessami, Z. (2010). The Size and Composition of Government Spending in Europe and Its Impact on Well-Being. Internet access: <<http://mpira.ub.uni-muenchen.de/21195/>>, [accessed August 2, 2015].
14. Huppert, F. A. (2009). A New Approach to Reducing Disorder and Improving Well-Being // *Perspectives on Psychological Science*. Vol. 4 (1), p. 108–111.
15. Kisieliauskas, J., Pukeliene, V. (2013). The Influence of Income on Subjective Well-being // *Applied Economics: Systematic Research*. Vol. 7, Iss. 2, p. 13–27.
16. Kotakorpi, K., Laamanen, J. (2010). Welfare State and Life Satisfaction: Evidence from Public Health Care, forthcoming in *Economica*.
17. Mueller, D. C. (2003) *Public Choice III*. – Cambridge University Press.
18. Nordhaus, W. (1975). The Political Business Cycle // *Review of Economic Studies*. Vol. 42, p. 169–190.
19. Osberg, L., Sharpe, A. (2013). Moving from a GDP-Based to a Well-Being Based Metric of Economic Performance and Social Progress: Results from the Index of Economic Well-Being for OECD Countries, 1980–2009.
20. Ouweneel, P. (2002). Social Security and Well-Being of the Unemployed in 42 Nations // *Journal of Happiness Research*. Vol. 3, p. 167–92.
21. Radcliff, B. (2001). Politics, Markets, and Life Satisfaction: The Political Economy of Human Happiness // *American Political Science Review*. Vol. 95 (4), p. 939–952.
22. Scully, W. (2003). Optimal Taxation, Economic Growth and Income Inequality // *Public Choice*. Vol. 115, p. 299–312.
23. Slemrod, J., Gale, W., Easterly, W. (1995). What do Cross-country Studies Teach about Government Involvement, Prosperity and Economic Growth? // *Brookings Papers on Economic Activity*. Vol. 2, p. 373–431.
24. Tanzi, V., Shuknecht L. (2000). *Public Spending in the 20th Century: Global perspective*. – Cambridge University press. doi: 10.1017/CBO9780511625800.017.
25. The World Database of Happiness. Internet access: <worlddatabaseofhappiness.eur.nl>, [accessed August 2, 2015].
26. Veenhoven, R. (2000). Well-Being in the Welfare State: Level Not Higher, Distribution Not More Equitable // *Journal of Comparative Policy Analysis*. Vol. 2, p. 91–112.

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VYRIAUSYBĖS IŠLAIDŲ POVEIKIO PASITENKINIMUI GYVENIMU VERTINIMAS ES ŠALYSE

S a n t r a u k a

Pagrindinė vyriausybės funkcija – užtikrinti visuomenės gerovę. Gerovės ekonomikos atstovų teigimu, vyriausybės veikia kaip socialiniai planuotojai, siekiantys visuomenės gerovės maksimumo. Kita alternatyvi fenomeną aiškinanti teorija (viešojo pasirinkimo teorija) teigia, kad dėl žmogiško netobulumo vyriausybės atstovai yra linkę išlaidų atžvilgiu didinti vyriausybę iki neefektyvaus dydžio.

Moksliniame diskurse, kylant dviem skirtingoms nuomonėms, ES 27 šalių kontekste atliktas ekonometrinis tyrimas.

Šiame tyrime kelti esminiai klausimai: ar apskritai visuomenė valdoma didelės vyriausybės (kalbant apie išlaidas) pasižymi aukštesniu pasitenkinimo gyvenimu vertinimu; ar konkrečiais periodais visuomenė valdoma daugiau išlaidaujančios vyriausybės

pasižymi aukštesniu pasitenkinimo gyvenimu lygiu; ar vyriausybės išlaidų didėjimas lemia pasitenkinimo gyvenimu augimą?

Iškėlus klausimus atitinkančias hipotezes ir šalis suskaidžius į 3 klasterius pagal vyriausybės išlaidų ir pasitenkinimo gyvenimu dydį, nustatyta:

- visuomenės, valdomos vyriausybių, kurios per periodą vidutiniškai patyrė daugiau išlaidų, pasižymėjo aukštesniu pasitenkinimo gyvenimu vertinimu;
- tai, kad vyriausybė tam tikru metu išleidžia daugiau nei kita vyriausybė, negarantuoja didesnės to laikotarpio visuomenės gerovės;
- vyriausybės išlaidų didėjimas lemia augantį visuomenės pasitenkinimą gyvenimu daug ir mažai išleidžiančiose vyriausybėse, priešingai nei vidutinėmis vyriausybės išlaidomis pasižyminčiose visuomenėse.

Remiantis tyrimo rezultatais, prieita prie išvados, kad vyriausybės išlaidos daro poveikį visuomenės pasitenkinimui gyvenimu, taip pat nustatyta kam reikia tolimesnių tyrimų:

- grafinė ir ekonometrinė analizė leido atrasti vyriausybės išlaidų ir pasitenkinimo gyvenimu ryšio pobūdį, kurį geriausia atspindi kubinė funkcija. Ši funkcija byloja apie mažėjančio vyriausybės išlaidų poveikio visuomenės pasitenkinimo gyvenimu dėsnį ir hipotetinį tašką, nuo kurio vyriausybės išlaidos nėra linkusios didinti pasitenkinimo gyvenimu. Toks išlaidų dydis, remiantis grafinė ir matematine analize, siekia 30688,1 EUR gyventojui;
- jau minėtoji analizė leido atrasti dar vieną tendenciją, kuria pasižymėjo ES 27 šalys. Tose šalyse, kuriose aukščiausias pasitenkinimo gyvenimu lygis, vyriausybės išlaidos asmeniui svyravo nuo 14000 iki 17000 EUR.

Turint omenyje, kad nuo Antrojo pasaulinio karo laikų Europos valstybėse vyriausybės išlaidos didėjo drastiškai, o didžiojoje dalyje siekia daugiau nei 50 proc. šalies BVP, papildomi tyrimai turėtų būti atlikti remiantis ne tik bendrų išlaidų dydžiu, bet ir išlaidų struktūros duomenimis, numatant galimybę visuomenės gerovę modeliuoti ne didinant vyriausybės išlaidas, bet keičiant jų kompoziciją.