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The effect of taxes and public expenditures on happiness: Empirical evidence from OECD countries

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ABSTRACT

Taxes collected for public expenditures have economic, social, and environmental objectives. Public expenditures financed through taxes cover a wide range of spending made by the public. They may have some effects on the happiness of individuals and society due to the fact that taxes are collected from individuals by force, and public expenditures are made for the needs and economic development of the country. In this study, the effect of taxes and public expenditures on happiness has been investigated in 23 OECD countries during the period of 2010-2017 by panel data analysis. As a result of the study, it has been determined that taxes and public expenditures have a positive effect on the level of happiness.

1. Introduction

Taxes are collected by the state to be used for the country's needs. In addition to this purpose, taxes are also collected for economic, social, and environmental purposes, considering the instantaneous conditions. Public expenditures, financed by taxes, cover a wide range of spending as a part of countries' needs.

The fact that taxes are collected by force by the state and whether public expenditures are used considering the country's needs or not may lead to various effects on individuals and, therefore, social satisfaction. In addition to the fact that taxes are used for financing public expenditures, the perception by individuals in the society that they are also used as policy tools to reach the fiscal and economic policy objectives, as well as ensuring a well-established, clear and comprehensible tax system may positively affect the tax awareness and tax ethics of the citizens in the country, and therefore, it can be prevented that taxes are regarded as a burden by individuals in terms of the tax psychology.

Considering the public expenditures, we can say that implementing effective and fair public expenditures and the fact that educational, health, and social spending on human capital have a significant share in public expenditures may lead to individual and social satisfaction. Since expenditure policies are generally implemented through established, effective, and fair tax systems in developed countries, taxes may have positive effects on the satisfaction and happiness of individuals. On the other hand, since taxes lead to a withdrawal of personal income, they may have a possible negative impact on happiness. Based on such reasons, it is important to investigate the overall effects of taxes and public expenditures on happiness.

For the motivation that the researches on the subject are still inadequate in the related literatüre, this paper has investigated the effect of taxes and public expenditures on happiness for the period of 2010-2017 in 23 OECD countries, given the limited data existence. Firstly, the theoretical background of the subject has been explained so that the issue can be better understood. In the next parts, literature review, data, and method are included. Then, empirical analysis has been initiated. Here, first of all, theoretical information about the tests used in the study has been included, and finally, results have been presented and interpreted. In the conclusion part, the study is concluded with an overall evaluation and recommendations.

2. Theory

Happiness can be defined as a state of mind in which individuals feel satisfied. What is certain about the concept of happiness is that there is no agreement in the definition of the term. Happiness is a subjective concept which varies from one

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individual to another. Analyzing the determinants of happiness is the professional field of sociologists and psychologists; however, economists have begun to get involved in this issue seriously in the last few years (Kasmaoui and Bourhaba, 2017).

Taxes are considered a heavy burden since they reduce the disposable income of the individuals from whom they are collected, and they are not welcomed by these individuals. Therefore, they may have some reactions against taxes. In addition, there are many factors that determine voluntary tax payment; for that reason, tax ethics has an important place among these factors (Bilgin, 2011). It is expected that taxation regarded as the withdrawal of individual income, in general, affects happiness negatively. However, tax revenues are used to finance consumption and public expenditures that are expected to increase welfare in general. Determining which effect is dominant by country or country groups can be presented by empirical analyses. According to a different view, a progressive tax system has an effect on the relative position of the individual in income distribution, and for that reason, it has potential consequences, which are apparently significant for the happiness study (Akay et al., 2012).

When we have a look in terms of public expenditures, Jefferson (1809) said that caring for human life and happiness is the first and only legitimate aim of a good government. Aristoteles and Ibn Haldun also argued that promoting happiness was one of the important roles of the government. Public expenditures may be a basic economic tool for the government in order to enhance the welfare of an individual. For instance, the state may affect happiness by developing a good social security system or investing in the health and education sectors (Kasmaoui and Bourhaba, 2017).

The World Happiness Report is a well-known data source and research report indicating life satisfaction in countries. The source used in the calculation of happiness scores in the World Happiness Report is the Gallup World Poll consisting of symbolic national surveys conducted in more than 140 languages and more than 160 countries (Gallup World Poll). The main life assessment question asked in the survey is: "Please, imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel that you stand at present?" (Also known as "Cantril Ladder") (Ortiz-Ospina and Roser, 2017). As the published happiness index converges to 0, happiness decreases; as it converges to 10, happiness increases (Ortiz-Ospina and Roser, 2017).

Table 1 indicates the happiness index of 23 OECD countries used in the study as a sample in 2017, the ratio of tax revenues to GDP, and the ratio of public expenditures to GDP. When we look at Table 1, it can be seen that Finland has the highest happiness score according to 2017 data and Denmark follows it.

Table 1: Happiness index, ratio of tax revenue to GDP, ratio of public expenditure to GDP for selected OECD countries in 2017

Country	Happiness Index	Tax Revenue (%GDP)	Public Expenditure (%GDP)
Austria	7.29	41.77	49.15
Belgium	6.92	44.6	52.15
Czechia	6.78	34.89	38.95
Denmark	7.59	45.98	51.16
Finland	7.78	43.34	54.18
France	6.43	46.23	56.47
Germany	7.07	37.54	43.93
Greece	5.14	39.39	47.32
Hungary	6.06	37.71	46.94
Ireland	7.06	22.84	26.27
Israel	7.33	32.73	39.51
Italy	5.91	42.38	48.74
Lithuania	6.27	29.84	33.09
Luxemburg	7.06	38.65	43.08
Netherlands	7.45	38.75	42.5
Poland	6.2	33.9	41.11
Portugal	5.71	34.71	45.67
Slovakia	6.36	32.9	40.19
Slovenia	6.16	36.02	43.17
Spain	6.23	33.66	40.99
Sweden	7.28	43.96	49.33
United Kingdom	6.99	27.14	37.95
United States	7.1	33.26	40.82

Source: Ortiz-Ospina and Roser (2017) of Happiness Index, and authors' own elaborations based on the OECD (2019a) of Tax Revenue, the OECD (2019b) of Public Expenditure

It has been observed that the happiness index in the sampling group is generally close to each other. It is also seen that Greece has the lowest happiness ratio, and Portugal follows it. When we analyze the ratio of tax revenues to GDP, it is seen that France has the highest ratio, and Denmark follows it, and Ireland has the lowest ratio, and the UK follows it. It is also indicated in the table that France is the country with the highest public expenditure ratio to GDP, and Finland follows it, and Ireland is the country with the lowest ratio, and Lithuania follows it. Development and social welfare level, tax system, and public expenditure policies of the country can be indicated among the reasons that happiness index, tax revenues, and public expenditures vary from country to country.

3. Literature review

A literature review is going to be analyzed under two titles as the literature on the relationship between public size (measured as public expenditures/GDP) and happiness and the literature on the relationship between taxes and happiness.

3.1. Literature on the relationship between public size and happiness

There are studies in the literature on the relationship between public size and happiness (Ram, 2009; Flavin et al., 2014; Kasmaoui and Bourhaba, 2017; Dao, 2017). It was concluded in the conducted studies that public size generally had a positive effect on happiness (Flavin et al., 2014; Kasmaoui and Bourhaba, 2017). However, in

literature, there is also a study that has determined that public size does not decrease happiness (Ram, 2009) or a study that has determined that public size affects happiness in the short term (Dao, 2017).

Frey et al. (2000) investigated the effect of institutions on happiness based on the survey data carried out on more than 6000 citizens in Switzerland. As a result, it was concluded that institutional (or constitutional) factors had a systematic and highly positive effect on happiness. In another study, Ram (2009) investigated the relationship between government expenditures and population and happiness using large cross-country examples. Various happiness, revenue, and government expenditure criteria were used in the study. As a result of the study, it was concluded that the increase in government expenditures did not decrease happiness in a wide context among countries. In a similar study, Hessami (2010) investigated the relationship between government size and welfare using the data set on country basis and the surveys, including 153,268 people in 12 EU countries in the term of 1990-2000. As a result of the study, it was concluded that there was a U-shaped relationship in an adverse direction between government size and welfare. In another study, Tabar et al. (2016) showed that government expenditures have a positive impact on private consumption in the long-term but have a negative effect on private consumption in the short-term.

Ott (2011) investigated the relationship between government quality and happiness using the correlation analysis method and 2006 annual data in 130 countries. As a result of the study, it was determined that there was a positive relationship between government quality, especially the technical quality and average happiness in nations. In a similar study, Flavin et al. (2014) investigated the effect of the scope of state size on human welfare in industrial democracies in the 1981-2017 period. OECD countries were utilized as samples in the study. As a result of the study, it was determined that citizens found life more satisfying as the degree of government intervention to the economy increased. In another study, Kasmaoui and Bourhaba (2017) investigated the relationship between public expenditures and happiness in 132 countries in the 2006-2015 period using panel data analysis. As a result of the study, it was determined that a higher amount of public expenditures all over the world was related to more happiness. In a similar study, Dao (2017) investigated the effect of state size on happiness in 183 countries in the 1990-2016 period using panel data analysis. As a result, it was determined that state expenditures affected happiness in the short term.

3.2. Literature on the relationship between taxes and happiness

There are a limited number of empirical studies in the literature on the relationship between tax and happiness (APS, 2011; Akay et al., 2012). It is generally found out in the conducted studies that there is a positive relationship between taxes and happiness (APS, 2011; Akay et al., 2012). The studies on the relationship between taxes and happiness and close to this issue are summarized below.

Weisbach (2008) evaluated the results of happiness research for taxation. As a result of the study, it was expressed that the findings of the research on happiness had the potential to change the tax policies. In another study, APS (2011) analyzed the relationship between tax progression and personal welfare in 54 countries, which participated in the survey by the Gallup Organization, with a total of 59.634 participants in 2007. As a result of the study, it was determined that a more progressive tax system made people happier. In a similar study, Akay et al. (2012) investigated the effect of tax payments in Germany on personal happiness in the 1985-2010 period using more than 110.000 individual observation panels that they were obtained from German Socio-Economic Panel (SOEC) data. As a result of the study, it was determined that adhering to net income tax conditions was associated with higher happiness levels.

Çevik (2012) investigated the tax ethics and taxpayers' interaction with the government and society within the context of individual norms using a total of 1.346 survey forms through the ANOVA test between January 28 and March 5, 2007. As a result of the study, it was found that in explaining the tax compliance, taxpayers' personal values, norms, social and political environment were important. Dumludağ et al. (2017) investigated the relationship between happiness and income, spending, saving, and having financial assets using a survey for 3008 people in Turkey in 12 regions (TUIK Level 2 classification). As a result of the study, it was determined that expenditures had a negative, yet savings had a positive effect on happiness.

4. Data and method

In this study, the effect of the public expenditures and taxes on happiness has been investigated by using the variables which are the ratio of public expenditures to GDP as a representative of public size and the ratio of taxes to GDP in 23 OECD countries for the period of 2010-2017 given the limited data existence. As the dependent variable, happiness index and as the independent variables, taxes and public expenditures have been used in the empirical analysis. Happiness index has been obtained from Ortiz-Ospina and Roser (2017), and the data of public expenditures and taxes have been taken from OECD (2019a; 2019b).

The relationship among the variables has been tested through the panel data analysis method. First of all, cross-sectional dependency test has been conducted in the study, and since there is no cross-sectional dependency among the variables, Maddala and Wu (1999) and Im et al. (2003) tests which are among the first generation unit root tests have been

applied. Later on, the existence of a long term relationship among the variables used in the study has been tested through Pedroni (1999; 2004) and Kao (1999) cointegration tests. Then, the coefficients and direction relationships among the variables have been estimated through the panel FMOLS estimator. Variables and definitions are presented in Table 2.

Table 2: Data description

Variable	Abbreviation	Source
Happiness	HAP	Ortiz-Ospina and Roser (2017)
Taxes (% GDP)	TAX	OECD (2019a)
Public Expenditure (% GDP)	PUB	OECD (2019b)

A single model has been estimated in the study, and the equation of the model is presented in Eq. 1:

$$HAP_{2it} = \alpha_{it} + \beta_1 TAX_{it} + \beta_2 PUB_{it} + u_{it} \quad (1)$$

5. Empirical analysis

Cross-sectional dependency, unit root, cointegration, and panel FMOLS tests are included in this part.

5.1. Cross-sectional dependency test

The existence of cross-section dependence among the variables remarkably affects the study consequences (Pesaran, 2004). In this regard, firstly, the cross-sectional dependency among the variables has been tested in the study.

During the use of cross-sectional dependency test, when the lag is larger than the sectional unit, Breusch and Pagan (1980) LM test and when the sectional unit is larger than the lag, Peseran (2004) CDLM test is performed (Eq. 2). However, when the sectional unit is equal to the lag, Peseran (2004) CDLM2 test is performed. In addition, Pesaran et al. (2008) developed a bias-adjusted LM test.

$$CD_{lm} = \sqrt{\frac{1}{n(n-1)}} \sum_{i=1}^{n-1} \sum_{j=i+1}^{n} (T\check{\rho}_{ij}^2 = \pi r^2 - 1) \quad (2)$$

When the probability value in cross-sectional dependency results is smaller than 0.05, the null hypothesis is rejected, and cross-sectional dependency is determined among the variables (Pesaran et al., 2008). The hypotheses of cross-sectional dependency test are presented below;

H_0: "There is no cross-sectional dependency."
H_1: "There is cross-sectional dependency."

Cross-sectional dependency test results are presented in Table 3.

When we look at Table 3, we can see that there is no cross-sectional dependency among the variables in all tests according to the model results. For that reason, first-generation unit root test has been used in the study.

5.2. Unit root test results

Maddala and Wu (1999) unit root test and Im et al. (2003) unit root test, which are first-generation unit root tests, have been performed in the study in order to test the stationarity of the series. When Maddala and Wu (1999) panel unit root test used in the study defines p values obtained for the cross-section i as π_i, the unit root test can be tested by the formula presented in Eq. 3. The null hypothesis of Maddala and Wu (1999) unit root test is as "series are unit rooted."

$$P\lambda = -2 \sum_{i=1}^{N} log(\pi_i) \sim \chi_{2N}^2 \quad (3)$$

Im et al. (2003) panel unit root test uses ADF statistics. Some series are enabled to be unit rooted in the alternative hypothesis in Im et al. (2003), one of the most frequently preferred unit root tests. Panel unit root test results are presented in Table 4.

In Table 4, we can find out that the series is not stationary at their levels, and they become stationary as their first differences are taken.

5.3. Cointegration tests results

Pedroni and Kao cointegration tests are included in this part.

5.3.1. Pedroni cointegration test results

The existence of a long term relationship among the variables has been tested by Pedroni (1999; 2004) cointegration test in the study. In the cointegration test developed by Pedroni, the cointegration among the variables is tested with a total of 7 tests, including 4 within group and 3 between groups. The most advantageous side of Pedroni (1999; 2004) test is that it allows the heterogeneity. While the null hypothesis of Pedroni cointegration is "there is no cointegration among the variables," the alternative hypothesis is "there is cointegration among the variables." Pedroni cointegration test results are presented in Table 5.

When Pedroni cointegration test results in Table 5 have been analyzed, cointegration has been identified in 4 out of 7 tests. This relationship has been identified in total 4 test statistics as 2 out of 4 within group tests and 2 out of 3 between group tests. In other words, it has been identified that the variables used in the study have been acted together in the long term.

Table 3: Results of cross-sectional dependence tests

Test	Model	
	Statistic	P-Value
CD_{LM1} (Breusch and Pagan,1980)	508.186	0.200
CD_{LM2} (Pesaran, 2004)	64.168	0.120
CD_{LM} (Pesaran, 2004)	22.507	0.110
Bias-Adjusted CD Test	64.635	0.120

Table 4: Results of unit root tests

Variables	Constant							
	Im et al. (2003)				Maddala and Wu (1999)			
	Level		First Difference		Level		First Difference	
	Test Statistic	P-Value	Test Statistic	P-Value	Test Statistic	P-Value	Test Statistic	P-Value
HAP	-0.9046	0.1828	-3.0368***	0.0012	57.3787	0.1212	80.4504***	0.0007
TAX	0.62468	0.7339	-2.05262**	0.0201	45.9377	0.4748	64.2742**	0.0246
PUB	0.53477	0.7036	-5.7396***	0.0000	42.7920	0.6074	68.7381***	0.0099

Note: *** is significant at 1%, ** is significant at 5% and * is significant at 10% significance levels

Table 5: Pedroni cointegration test results

$HAP_{2it} = \alpha_{it} + \beta_1 TAX_{it} + \beta_2 PUB_{it} + u_{it}$

(Within Group)

	Test Statistic	P-Value	Weighted Statistic	P-Value
Panel v-Statistic	-0.752641	0.7742	-1.466479	0.9287
Panel rho-Statistic	0.702301	0.7588	1.628307	0.9483
Panel PP-Statistic	**-6.749185*** **	0.0000	**-3.665582*** **	0.0001
Panel ADF-Statistic	**-1.757685** **	0.0394	**-3.448359*** **	0.0003

(Between Groups)

	Test Statistic	P-Value
Group rho-Statistic	3.877063	0.9999
Group PP-Statistic	**-4.468904*** **	0.0000
Group ADF-Statistic	**-5.763463*** **	0.0000

Note: *** is significant at 1%, ** is significant at 5% and * is significant at 10% significance levels. Barlett Kernel method has been applied, and Bandwidth has been found by applying the Newey-West method

5.3.2. Kao cointegration test results

The long term relationship among the variables used in the study has also been tested by the cointegration test developed by Kao (1999). Kao (1999) cointegration test is a test which uses DF and ADF test statistics. The hypotheses of the cointegration test are presented below;

H_0: There is no cointegration among the series.
H_1: There is cointegration among the series.

Kao cointegration test results are presented in Table 6.

Table 6: Kao cointegration test results

$HAP_{2it} = \alpha_{it} + \beta_1 TAX_{it} + \beta_2 PUB_{it} + u_{it}$

	Test Statistic	P Value
ADF	**-2.569585***	0.0051

Note: *** is significant at 1%, ** is significant at 5% and * is significant at 10% significance levels. Barlett Kernel method has been applied, and Bandwidth has been found by applying the Newey-West method

When the cointegration test results have been analyzed, the presence of cointegration has been identified, and in other words, the variables acted together in the long term. These test results favor Pedroni cointegration test results.

5.4. Panel FMOLS test

The direction relationship and coefficient estimation among the variables have been tested by the panel FMOLS test developed by Pedroni (2000) in the study. Various econometrical tests have been developed in order to perform coefficient and direction estimations. Panel FMOLS test developed by Pedroni (2000) is a test technique that can correct the errors occurring in estimators. Pedroni also checked the test on small samples, and he concluded that the performance of the result (t statistics) was good with Monte Carlo simulations. Panel FMOLS test results are presented in Table 7.

Table 7: Panel FMOLS test results

$HAP_{2it} = \alpha_{it} + \beta_1 TAX_{it} + \beta_2 PUB_{it} + u_{it}$

Variable	Coefficient	Test Statistic	P-Value
TAX	**0.000805** **	2.046532	0.0427
PUB	**0.075306** **	2.443430	0.0159

Note: *** is significant at 1%, ** is significant at 5% and * is significant at 10% significance levels

By analyzing Table 7, it has been determined that taxes and public expenditures have a positive effect on happiness. The level of this relationship has been found significant at a significance level of 5% for both of the variables. Financing the expenditures of the public by the taxes, the use of taxes for social, economic and environmental purposes, the presence of a well-established tax system and clear and comprehensible legislation by creating tax awareness through tax ethics can be the reasons for the positive effect of taxes on happiness resulted in the empirical analysis of the study.

Since the public expenditures include spending on human capital investments such as education, health, and social expenditure and state personnel salaries, and also contribute to the economic and social development of the country as an economic policy tool, public expenditures are expected to positively affect the happiness of individuals.

In addition, the fact that the majority of OECD countries included in the analysis are mostly developed countries, and they have an established and comprehensible tax system can be indicated as a reason for this result.

6. Conclusion

Taxes collected in force by the state can be used for economic, social, and environmental purposes in addition to financing the public expenditures. On the one hand, taxes may lead to various individual and social reactions as they are collected by force; on the other hand, they can be taken kindly depending on tax awareness. Public expenditures create satisfaction on individuals when they are used effectively, fairly, and in accordance with needs; however, they can lead to reactions when they are

used unnecessarily and unfairly. For such reasons, it is really important to investigate the effect of taxes and public expenditures on happiness. Determining which effect is dominant by country or country groups can be presented by empirical analyses. The main goal of this study is to analyze the effect of taxes and public expenditures on happiness in the case of OECD countries and to contribute to the limited literature associated with the subject.

In this paper, the effect of taxes and public expenditures on happiness has been investigated through the panel data analysis method in 23 OECD countries in the 2010-2017 period, given the limited data existence. As a result of the conducted study, it has been determined that taxes and public expenditures have a positive effect on happiness. The use of taxes on the country's needs, the opportunity to use them for economic, social, and environmental purposes and the presence of established, clear, and comprehensible tax systems influence tax awareness, ethics, and psychology and may have an effect on individual and social satisfaction.

As public spending is fairly made and affect the distribution of income positively, and the share of human capital investments are significantly high, they can make remarkable contributions to individual and social happiness. The presence of established and well-functioning systems about taxes and public expenditures, especially in developed countries, may lead to positive effects on individuals and society. From this point of view, it can be stated that constructing a comprehensible and well-established tax system, using taxes efficiently and effectively in accordance with the policy purposes and making public expenditure fairly depending on the country's needs, can affect the happiness of individuals and social satisfaction positively.

Compliance with ethical standards

Conflict of interest

The authors declare that they have no conflict of interest.

References

Akay A, Bargain O, Dolls M, Neumann D, Peichl A, and Siegloch S (2012). Income, taxes and happiness. IZA Discussion Paper, IZA Institute of Labor Economics, Bonn, Germany.

APS (2011). A more progressive tax system makes people happier, 54-nation study finds. Association for Psychological Science, Washington, USA.

Bilgin HK (2011). Türkiye'de vergi ahlakinin belirleyicileri [Determinants of tax moral in Turkey]. METU Studies in Development, 38(2): 167-188.

Breusch T and Pagan A (1980). The Lagrange multiplier test and its applications for the error components model with incomplete panels. Review of Economic Studies, 47: 239-253. https://doi.org/10.2307/2297111

Çevik S (2012). Mükellefin devlet ve toplumla etkileşimi, bireysel normlar ve vergi ahlakı. Maliye Dergisi, 163: 258-289.

Dao TK (2017). Government expenditure and happiness: Direct and indirect effects. Research Paper, International Institute of Social Studies, Hague, Netherlands.

Dumludağ D, Gökdemir Ö, and Veenhoven R (2017). Gelir, harcama ve tasarruf ve mutluluk ilişkisi: Türkiye Örneği. Marmara Üniversitesi Bilimsel Araştırma Projesi. Available online at: https://bit.ly/2Uj4Tr7

Flavin P, Pacek AC, and Radcliff B (2014). Assessing the impact of the size and scope of government on human well-being. Social Forces, 92(4): 1241-1258. https://doi.org/10.1093/sf/sou010

Frey BS, Luechinger S, and Stutzer A (2000). Happiness, economy and institutions. Economic Journal, 110(466): 918-938. https://doi.org/10.1111/1468-0297.00570

Hessami Z (2010). The size and composition of government spending in Europe and its impact on well-being. KYKLOS, 63(3): 346-382. https://doi.org/10.1111/j.1467-6435.2010.00478.x

Im KS, Pesaran MH, and Shin Y (2003). Testing for unit roots in heterogeneous panels. Journal of Econometrics, 115(1): 53-74. https://doi.org/10.1016/S0304-4076(03)00092-7

Jefferson T (1809). To the republicans of Washington county, Maryland. Available online at: https://bit.ly/2MEbtE5

Kao C (1999). Spurious regression and residual-based tests for cointegration in panel data. Journal of Econometrics, 90(1): 1-44. https://doi.org/10.1016/S0304-4076(98)00023-2

Kasmaoui K and Bourhaba O (2017). Happiness and public expenditure: Evidence from a panel analysis. MPRA Paper No. 79339, Munich Personal RePEc Archive, Munich, Germany.

Maddala GS and Wu S (1999). A comparative study of unit root tests with panel data and a new simple test. Oxford Bulletin of Economics and Statistics, 61(S1): 631-652. https://doi.org/10.1111/1468-0084.61.s1.13

OECD (2019a). Tax revenue (Indicator). Organization for Economic Co-operation and Development Data, Paris, France.

OECD (2019b). General government spending (Indicator). Organization for Economic Co-operation and Development Data, Paris, France.

Ortiz-Ospina E and Roser M (2017). Happiness and life satisfaction. Our World in Data. Available online at: https://bit.ly/3eWa5sE

Ott JC (2011). Government and happiness in 130 nations: Good governance fosters higher level and more equality of happiness. Social Indicators Research, 102(1): 3-22. https://doi.org/10.1007/s11205-010-9719-z **PMid:21516144 PMCid:PMC3068254**

Pedroni P (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. Oxford Bulletin of Economics and Statistics, 61(S1): 653-670. https://doi.org/10.1111/1468-0084.61.s1.14

Pedroni P (2000). Fully modified OLS for heterogeneous cointegrated panels. Advances in Econometrics, 15: 93-130. https://doi.org/10.1016/S0731-9053(00)15004-2

Pedroni P (2004). Panel cointegration: Asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. Econometric Theory, 20(3): 597-625. https://doi.org/10.1017/S0266466604203073

Pesaran MH (2004). General diagnostic tests for cross section dependence in panels. CESifo Working Paper Series No. 1229;

IZA Discussion Paper No. 1240, IZA Institute of Labor Economics, Bonn, Germany.

Pesaran MH, Ullah A, and Yamagata T (2008). A bias-adjusted LM test of error crosssection independence. Econometrics Journal, 11(1): 105-127. https://doi.org/10.1111/j.1368-423X.2007.00227.x

Ram R (2009). Government spending and happiness of the population: Additional evidence from large cross-country samples. Public Choice, 138(3-4): 483-490. https://doi.org/10.1007/s11127-008-9372-0

Tabar FJ, Najafi Z, and Badooei YS (2016). Experimental test of government expenditures increases and crowding out of private consumption. International Journal of Advanced and Applied Sciences, 3(6): 59-65.

Weisbach DA (2008). What does happiness research tell us about taxation? The Journal of Legal Studies, 37(S2): S293-S324. https://doi.org/10.1086/529073