Fiscal transparency: cross-country comparisons

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Abstract

The evaluation of fiscal transparency impact on budget indicators performance is examined in the article according to the grouping of countries by the following features: budget transparency, income per capita, level of economic development and economic freedom. The main aim of the study is to determine the relationship between fiscal transparency indexes and indicators of countries' development. As the result of evaluation it was determined that the main indicators of budget execution under the influence of its transparency vary in different groups of countries. In particular, the studies have shown that the value of Open Budget Index causes the reduction of public debt and the increase in the share of public expenditure, but in countries with high and medium level of development the opposite effect of budget transparency on public debt is characteristic, and the positive impact of budget transparency on the share of public expenditure is characteristic only for countries with high economic freedom.

Keywords: fiscal transparency, budget, public debt, public revenues, public expenditure.

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Introduction

At the stage of development of democratic society the achievement of disclosure of the budget preparation and execution is one of the factors of understanding between the government and public and stability in the country. The need for objective and reliable information about the state of formation and use of budget funds on state and local levels, as well as transparency of the authorities' decisions become a prerequisite for the integration of Ukraine into the European community. Besides, a mandatory condition for such integration is to assess the activity of government and economic development, which is also possible through assessing the impact of fiscal transparency on budget execution indicators.

In economic literature the essence of fiscal transparency was often considered in works of such domestic and foreign scholars as N. Zachosova, D. Kutsenko, M. Hvesyk, A. Sunduk and O. Dobrianskyi, S. Kim, N. Hryshchenko, H. Kopitts, D. Craig, M. Robinson, A. Krutov, A. Muhyna and many others. An important contribution to the research on the relationship of fiscal transparency with a number of different kinds of factors, including the stability of public debt, public debt belong to such scholars as J. Tilly [1], J. Alt and D. Lassen [2]. Noteworthy are the developments of V. Cimpoeru [3] as for the impact of budget transparency on the economy development and of G. Boldrik on the relationship of fiscal transparency and economic growth of countries. The research on the relationship of budget transparency and economic increase of countries is also observed in the works by of Teig [4]. Most of the works reflect the relationships of budget transparency and macroeconomic indicators, but in order to confirm the reliability of the correlation of budget transparency indexes, country development indicators and efficiency of public administration there is a need for research considering the level of countries development.

The research on the correlation authenticity of fiscal transparency and country development indicator should be carried out on the basis of the grouping of countries, which will examine the relationship of groups and budget transparency.

Therefore, to determine such a relationship before the countries grouping, there is a need to identify the features according to which it will be done. Such a grouping should take place in the context of the following characteristics:

- the level of transparency of the budget – according to the methodology of calculating the index of economy transparency of the countries is distributed into five groups: wide level; substantial level; limited level; minimal level; neglitible level or a lack of transparency. Of those countries with sufficient transparency of the budget the countries with a broad and substantial level are determined; with insufficient - countries with limited, minimal or negligible levels are determined;
- the level of income per capita – statistical base of assessments of budget transparency includes also such an index as a group of countries by income – with a high level; the level is above average; with the below average level; with a low level. According to calculations, to the group of high-income countries we included data of the countries with high level and above average level of income, and to the countries with low level − data of the countries with below average and low income level;
- the stage of economic development – the methodology for calculating the Global Competitiveness Index also provides the evaluation of country development stage – oriented to inputs; focused on efficiency; focused on innovation, as well as countries, occupying transitional positions between stages. For the calculation the following groups of countries had been formed: with a low level of development – oriented to inputs and transitive countries which are in transition to efficiency factors; with a medium level of development – countries focused on efficiency and transitive countries in transition to innovation orientation; countries with a high level of development – oriented to innovation;
- the level of economic freedom – data for the Economic Freedom Index developed by The Heritage Foundation, which include key indicators of the economic environment, controlled by the government, as of 2015 contain information on 180 ranked countries. Accordingly, in the study the countries with the position in the ranking of 1-90 were elected as the countries with high economic freedom, and countries with low level of economic freedom – the position in the ranking of 91-180.

For practical calculations a sample of 36 countries was formed (Albania, Algeria, Azerbaijan, Bolivia, Bulgaria, China, Croatia, the Czech Republic, Egypt, France, Georgia, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Macedonia, New Zealand, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, the South African Republic, Sudan, Spain, Sweden, Tajikistan, Ukraine, the United States, the United Kingdom, Venezuela, Vietnam), the selection of which was made considering countries with different values of budget transparency and various general level of development. Statistical research database covers the years when the calculations of Open Budget Index in the period from 2006 to 2015 have occurred (2006, 2008, 2010, 2012, 2015). For the assessment the instrument of panel regression modeling using software Stata 12 was chosen. As the result of the use of a panel regression with random effects, we obtain the following results of evaluating the impact of fiscal transparency on the dynamics of public debt (see Table 1).

Table 1. Results of the evaluation of the impact of Open Budget Index on the ratio of public debt to GDP for different groups of countries

The group of countries	Open Budget Index	Credit rating according to Standard & Poor's agency	The Wald criterion (Wald chi2)	Prob > chi2
Countries with sufficient budget transparency	-1.2882** (0.6264)	-29.1099* (16.9757)	5.76	0.0561
Countries with insufficient budget transparency	-1.2882** (0.6264)	-29.1099* (16.9757)	5.76	0.0561
Countries with high income	-1.0615** (0.4879)	-26.5264* (15.3102)	6.81	0.0333
Countries with low income	-0.4281 (0.3555)	X	1.45	0.2285
Countries with high level of development	-2.0466** (0.8460)	-39.7934 (27.2476)	7.19	0.0275
Countries with medium level of development	-0.4267* (0.2333)	-30.5475 (9.9800)	15.08	0.0005
Countries with low level of development	0.0351 (0.3524)	-4.4114 (13.6303)	0.10	0.9489

Table 1 (cont.). Results of the evaluation of the impact of Open Budget Index on the ratio of public debt to GDP for different groups of countries

The group of countries	Open Budget Index	Credit rating according to Standard & Poor's agency	The Wald criterion (Wald chi2)	Prob > chi2
Countries with high level of economic freedom	0.0396 (0.2303)	-22.7300 (15.7009)	2.12	0.3460
Countries with low level of economic freedom	-0.3695 (0.3836)	X	0.93	0.3354

Note: in parentheses the values of standard deviation are presented; ** – statistical significance at 95%; * – statistical significance at 90%; X – the variable is excluded from the model because of collinearity.

In the result of calculations we can note the presence of a general positive effect caused by the growth of budget transparency for statistics of public debt, which is observed in the reduction of the debt burden on the country's GDP by increasing values of Open Budget Index. Herewith, quite interesting is the fact that quantitative estimates for countries with different levels of budget transparency were identical, while the grouping of countries on other grounds made it possible to obtain different results. Thus, for the countries with high income the effect is inverse and statistically significant, while for low-income countries the level of adequacy of the constructed model is insufficient for the interpretation of results. For countries with high and medium level of development we received a statistically significant inverse relationship, the quantitative value of which is higher in countries with high level of development, while for countries with low development significant results were not obtained. The results obtained in the assessment of countries with different levels of economic freedom were unsuitable for interpretation for both groups of the countries surveyed.

We should note that the calculations made to determine the effect of public debt transparency on its level, presented in Table 2, showed that from 9 models built only regression for assessing the situation in countries with medium level of development was adequate. Moreover, its calculations showed no statistically significant effect of the studied factor on resulting symptoms, indicating the absence of significant role of the information transparency increase for public debt data in order to control its level.

Table 2. Results of the evaluation of the impact of public debt transparency on the ratio of public debt to GDP for different groups of countries

The group of countries	Public debt transparency	Credit rating according to Standard & Poor's agency	The Wald criterion (Wald chi2)	Prob > chi2
Countries with sufficient budget transparency	0.0688 (0.2941)	-20.4688 (17.4124)	1.45	0.4851
Countries with insufficient budget transparency	0.0688 (0.2941)	-20.4688 (17.4124)	1.45	0.4851
Countries with high income	-0.0875 (0.2436)	-22.1345 (15.8794)	2.06	0.3562
Countries with low income	0.2938 (0.3109)	X	0.89	0.3448
Countries with high level of development	0.0137 (0.4142)	-31.5822 (29.4818)	1.15	0.5633
Countries with medium level of development	-0.0303 (0.1590)	-33.5559*** (10.3787)	10.88	0.0043
Countries with low level of development	0.2220 (0.3707)	0.5332 (12.4125)	0.36	0.8388
Countries with high level of economic freedom	0.0396 (0.2303)	-22.7300 (15.7009)	2.12	0.3460
Countries with low level of economic freedom	-0.0694 (0.3539)	X	0.04	0.8445

Note: in parentheses the values of standard deviation are presented; *** – statistical significance at 99%; X – the variable is excluded from the model because of collinearity.

The results of the evaluation of budget transparency impact on the dynamics of budget revenues received in the next stage are reflected in Table 3.

Table 3. Results of the evaluation of the impact of Open Budget Index on the ratio of public revenue to GDP for different groups of countries

The group of countries	Open Budget Index	Human Development Index	Global Competitiveness Index	The Wald criterion (Wald chi2)	Prob > chi2
Countries with sufficient budget transparency	-0.0004 (0.0302)		-0.9230 (0.8986)	1.32	0.5180
	-0.0370 (0.0288)	3.6199** (1.6899)		4.85	0.0884
Countries with insufficient budget transparency	-0.0004 (0.0302)		-0.9230 (0.8986)	1.32	0.5180
	-0.0370 (0.0288)	3.6199* (1.6899)		4.85	0.0884
Countries with high income	-0.0423 (0.0330)		-1.8141** (0.8719)	7.66	0.0217
	-0.0521 (0.0332)	11.0369 (7.7647)		4.94	0.0844
Countries with low income	0.0663 (0.0563)		-0.7348 (2.2742)	1.39	0.4989
	0.0441 (0.0602)	2.1268 (2.2409)		2.25	0.3250
Countries with high level of development	-0.0278 (0.0416)		-7.0611*** (1.6216)	20.57	0.000
	-0.0503 (0.0489)	X		1.05	0.3045
Countries with medium level of development	0.0102 (0.0334)		-1.0799 (1.0149)	1.13	0.5677
	-0.0164 (0.0326)	4.005** (1.6275)		6.07	0.0481
Countries with low level of development	0.0611 (0.0976)		0.0878 (3.4649)	0.43	0.8054
	0.0545 (0.1004)	1.5954 (3.6448)		0.70	0.7061
Countries with high level of economic freedom	0.0770* (0.0459)		-1.7921 (1.4063)	3.19	0.2028
	-0.0099 (0.0405)	8.8418*** (2.1138)		19.07	0.0001
Countries with low level of economic freedom	0.0421 (0.0449)		-0.3172 (1.8449)	0.89	0.6421
	0.0478 (0.0501)	-0.1152 (2.2281)		0.97	0.6164

Note: in parentheses the values of standard deviation are presented; ** – statistical significance at 95%; * – statistical significance at 90%; X – the variable is excluded from the model because of collinearity.

Due to the results of the evaluation, it was determined that the index of public revenue transparency stands a determinant of fiscal revenues level only for the group of countries with high economic freedom, causing the average growth of ratio of government revenue to GDP by 0.077% with an increase in Open Budget Index value per unit. Herewith the analysis of the effect of control variables shows a significant role of the Human Development Index in the formation of government revenue in countries with different levels of budget transparency, countries with medium level of development, and countries with high economic freedom. At the same time, for the countries with high income and high level of development the impact of the Global Competitiveness Index on state revenue provision is significant. The analysis of changes in public revenue under the influence of components that reflect the disclosure of information on public revenues, presented in the Table 4, showed that 5 from 18 models built are adequate; their evaluation results reflect the important

role of the group of countries in terms of budget transparency effects to impact effectiveness of budget performance. Thus, for countries grouped by level of budget transparency we obtained the significant inverse effect of public revenue transparency on their GDP dynamics – the growth of the component's value per unit determines the reduce of public revenue by an average of 0.04%. Herewith, the role of the Human Development Index for these countries is statistically significant and positive in terms of growth in state revenue, while the Global Competitiveness Index is not a crucial variable. At the same time, analyzing the impact of control variables in econometric models with high adequacy and the lack of a statistically significant effect of budget revenue transparency variable, we should note that the Human Development Index provides raising government revenue in countries with a medium level of development and countries with high economic freedom while the Global Competitiveness Index, in contrast, causes a decrease in countries with high income and high level of development.

Table 4. Results of the evaluation of the impact of budget revenue transparency on ratio of fiscal revenue to GDP for different groups of countries

The group of countries	Budget revenue transparency	Human Development Index	Global Competitiveness Index	The Wald criterion (Wald chi2)	Prob > chi2
Countries with sufficient budget transparency	-0.0304 (0.0193)		-0.4981 (0.8388)	3.89	0.1432
	-0.0403** (0.0183)	3.4225** (1.5681)		8.20	0.0166
Countries with insufficient budget transparency	-0.0304 (0.0193)		-0.4981 (0.8388)	3.89	0.1432
	-0.0403** (0.0183)	3.4225** (1.5681)		8.20	0.0166
Countries with high income	-0.0253 (0.0231)		-1.8893** (0.8703)	7.10	0.0287
	-0.0314 (0.0236)	11.6210 (7.5008)		4.42	0.1099
Countries with low income	0.0361 (0.0514)		-1.6705 (2.8144)	0.67	0.7160
	0.0283 (0.0565)	2.3407 (2.8895)		1.59	0.4514
Countries with high level of development	-0.0389 (0.0242)		-7.4117*** (1.5763)	23.65	0.0000
	-0.0288 (0.0296)	X		0.95	0.3308
Countries with medium level of development	-0.0035 (0.0242)		-0.9832 (0.9777)	1.19	0.5519
	-0.0149 (0.0238)	4.3527** (2.0714)		4.49	0.1058
Countries with low level of development	0.0468 (0.0974)		-1.2946 (4.7029)	0.24	0.8876
	0.0792 (0.1044)	1.0004 (4.8038)		1.08	0.5839
Countries with high level of economic freedom	0.0312 (0.0344)		-1.3249 (1.3771)	1.26	0.5332
	-0.0190 (0.0296)	8.8603*** (2.0316)		19.29	0.0001
Countries with low level of economic freedom	0.0084 (0.0384)		-1.0884 (2.1690)	0.27	0.8745
	0.0269 (0.0477)	-0.9067 (3.1306)		0.32	0.8527

Note: in parentheses the values of standard deviation are presented; *** – statistical significance at 99%; ** – statistical significance at 95%; X – the variable is excluded from the model because of collinearity.

Assessing the impact of budget transparency on the level of public expenditure allowed us to obtain the following results (see Table 5).

Table 5. Results of the evaluation of the impact of Open Budget Index on the ratio of public expenditure to GDP for different groups of countries

The group of countries	Open Budget Index	Human Development Index	Global Competitiveness Index	The Wald criterion (Wald chi2)	Prob > chi2
Countries with sufficient budget transparency	0.1253*** (0.0481)		-0.4135 (1.4630)	7.72	0.0211
	0.0789* (0.0433)	7.0060*** (2.5057)		16.40	0.0003
Countries with insufficient budget transparency	0.1253*** (0.0481)		-0.4135 (1.4630)	7.72	0.0211
	0.0789* (0.0433)	7.0060*** (2.5057)		16.40	0.0003
Countries with high income	0.0621 (0.0410)		-0.7661 (1.0985)	2.42	0.2985
	0.0630 (0.0398)	13.3792* (7.6223)		5.02	0.0813
Countries with low income	0.0584 (0.0569)		0.1134 (2.3366)	1.11	0.5754
	-0.0169 (0.0554)	7.5449*** (2.0619)		14.67	0.0007
Countries with high level of development	0.0273 (0.0662)		-4.2976 (2.7581)	2.46	0.2917
	0.0103 (0.0665)	X		0.02	0.8776
Countries with medium level of development	0.0766** (0.0391)		-0.5356 (1.1908)	3.84	0.1469
	0.0376 (0.0344)	6.8215*** (1.7187)		20.34	0.0000
Countries with low level of development	0.0066 (0.0922)		1.7829 (3.3528)	0.34	0.8428
	-0.0388 (0.0888)	8.2797*** (3.2039)		6.83	0.0328
Countries with high level of economic freedom	0.1185*** (0.0409)		0.2729 (1.2429)	10.99	0.0041
	0.0923** (0.0381)	4.4883** (1.9889)		16.60	0.0002
Countries with low level of economic freedom	0.1056** (0.0519)		-1.7615 (2.2801)	4.25	0.1194
	-0.0178 (0.0192)	10.8216*** (2.2887)		24.72	0.0000

Note: in parentheses the values of standard deviation are presented; *** – statistical significance at 99%; ** – statistical significance at 95%; * – statistical significance at 90%; X – the variable is excluded from the model because of collinearity.

It should be noted that the impact of Open Budget Index on the dynamics of budget expenditures was positive, statistically significant and quantitatively identical for both countries with a sufficient level of budget transparency and for the countries where it is insufficient. Herewith, Human Development Index is a catalyst for growth of public expenditure in country's GDP, and the Global Competitiveness Index does not play a significant role. Next, it was statistically proven that Open Budget Index is not a determinant of budget expenditure for countries with high and low levels of development, while for countries with medium level of development it determines the growth of government spending, relative to GDP, by 0.0766% with an increase in the index per unit. At the same time, we should note the fact that for countries with high economic freedom a quantitative impact of Open Budget Index on the level of public spending is higher than for countries with low level of economic freedom, while for both groups of countries the received connection is di-

rect and statistically significant. The evaluation conducted for groups of countries with different income levels, did not allow us to obtain results suitable for interpretation in terms of the effect of the increase in budget transparency on the level of public expenditure in relation to GDP.

The detailed study of the effect of budget transparency on the level of public expenditure, done by evaluation the impact of the component describing the budget expenditure transparency on the resulting sign (see Table 6), showed the presence of variation of such an influence. The estimates for countries with different levels of budget transparency were statistically significant and quantitatively identical, demonstrating the positive impact of greater public expenditure transparency on their share in the GDP, whereby a catalyst of such an exposure is Human Development Index. At the same time, in countries with high income we recorded the presence of the positive impact of a budget transparency variable on the level of public expenditure in different models, while for low-income countries we found an inverse statistically significant relationship between budget expenditure transparency and the share of public spending, accompanied by a positive impact of Human Development Index on resulting sign.

Table 6. Results of the evaluation of the impact of budget expenditure transparency on ratio of public expenditure to GDP for different groups of countries

The group of countries	Budget expenditure transparency	Human Development Index	Global Competitiveness Index	The Wald criterion (Wald chi2)	Prob > chi2
Countries with sufficient budget transparency	0.0529 (0.0329)		0.0815 (1.3370)	2.88	0.2368
	0.0573* (0.0311)	12.3013* (6.8640)		6.20	0.0449
Countries with insufficient budget transparency	0.0529 (0.0329)		0.0815 (1.3370)	2.88	0.2368
	0.0573* (0.0311)	12.3013* (6.8640)		6.20	0.0449
Countries with high income	0.0531* (0.0275)		-0.4002 (1.0611)	3.84	0.1464
	0.0567** (0.0275)	13.1145* (7.4627)		6.85	0.0326
Countries with low income	-0.0460 (0.0518)		0.5578 (2.3781)	0.80	0.6703
	-0.1043** (0.0486)	7.8013*** (2.2556)		13.54	0.0011
Countries with high level of development	0.0161 (0.0456)		-4.0566 (2.7330)	2.44	0.2953
	0.0217 (0.0461)	X		0.22	0.6374
Countries with medium level of development	0.0318 (0.0301)		-0.3983 (1.0920)	1.16	0.5589
	0.0300 (0.0285)	5.4906** (2.4593)		6.11	0.0472
Countries with low level of development	-0.0450 (0.0784)		0.6370 (3.2902)	0.34	0.8457
	-0.1582** (0.0739)	9.5774*** (3.2314)		10.53	0.0052
Countries with high level of economic freedom	0.0283 (0.0338)		1.1119 (1.1231)	2.37	0.3057
	0.0293 (0.0323)	3.7980 (2.4914)		3.67	0.1593
Countries with low level of economic freedom	0.0661 (0.0435)		-1.5412 (2.3345)	2.58	0.2748
	-0.0238 (0.0213)	11.1551 (2.4389)		21.95	0.0000

Note: in parentheses the values of standard deviation are presented; *** – statistical significance at 99%; ** – statistical significance at 95%; * – statistical significance at 90%; X – the variable is excluded from the model because of collinearity.

Quite interesting is the fact that among the models constructed for countries with different levels of development, adequate and statistically significant results were shown only by the regression of public expenditure on budget expenditure transparency considering the Human Development Index for the countries with low level of development; the results of calculation of this model show that there is an inverse relationship between the transparency of expenditures and their level. Moreover, for countries with different levels of economic freedom there were no statistically significant results for any of the groups.

Changing the key indicators of budget execution under the influence of its transparency varies in different groups of countries as follows:

- in countries with both sufficient and insufficient transparency of the budget the growth of Open Budget Index causes the reduction of public debt and the increase in the share of public expenditure, while the disclosure of the way of formation has the opposite effect on the share of state revenues;
- reduction of public debt under the influence of fiscal transparency is observed only in countries with high income per capita, and the disclosure of budget expenditure causes increasing share of budget expenditures relative to GDP in the countries with high income and its reduce – in the countries with low level of income;
- for countries with high and medium level of development the opposite effect of budget transparency on public debt is characteristic, while the share of public expenditures in countries with medium level of development is directly affected by the growth of Open Budget Index, and in countries with low level of development an inverse impact of expenditure disclosure indicator is observed;
- the increase in the share of public spending under the influence of increasing fiscal transparency is observed in countries with different levels of economic freedom, while the positive impact of budget transparency on the share of public expenditure is characteristic only for countries with high economic freedom.

Conclusions

The study gives an idea of the impact of fiscal transparency on budget execution rates depending on the grouping of the countries by such features as budget transparency, income per capita, level of economic development and economic freedom. The summary of results of the analysis lead to the conclusion that there is a need to improve the budget transparency in terms of incentives for increasing governance priority options specific to individual countries.

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