Budget transparency and fiscal performance: Do open budgets matter?

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BUDGET TRANSPARENCY AND FISCAL PERFORMANCE: DO OPEN BUDGETS MATTER?

TRANSPARENTNOST ROZPOČTU A FISKÁLNÍ VÝKONNOST: MAJÍ OTEVŘENÉ ROZPOČTY VLIV?

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Abstract

Existing published research of the relationship between budget transparency and fiscal performance confirms the expectations that higher budget transparency is associated with smaller budget deficits and lower public debt. However, our previous research did not bring such clear results and raised a fundamental question: Why should greater transparency improve fiscal performance? The objective of the proposed paper is to evaluate the relationship between budget transparency and fiscal performance.

Based on the literature review we have identified three channels through which increased transparency may limit excessive public expenditures resulting in budget deficit and public debt: (1) reduce fiscal illusion, (2) decrease information asymmetry between politicians and voters which may improve accountability and increase political competition, and (3) strengthen the enforcement of fiscal rules. The results of statistical analysis (conditional means analysis for 2008 and correlation and regression analysis for 2003 to 2009) did not prove any significant negative relationship between budget transparency, measured by the Open Budget Index, and budget deficit or public debt. We also found positive and statistically significant relation between corruption and budget transparency.

Key words: budget transparency, fiscal performance, Open Budget Index

Abstrakt

Stávající výzkum vztahu transparentnosti rozpočtu a fiskální výkonnosti potvrzuje očekávání, že vyšší transparentnost rozpočtu souvisí s menším rozpočtovým deficitem nižším a veřejným dluhem. Náš předchozí výzkum nepřinesl tak jednoznačné výsledky a otevřel zásadní otázku: Proč by měla vyšší transparentnost zlepšovat fiskální výkonnost? Cílem tohoto článku je zhodnotit vztah mezi transparentností rozpočtu a fiskální výkonností.

Na základě obsahové analýzy literatury jsou identifikovány tři procesy, díky kterým může větší transparentnost omezit nadměrné veřejné výdaje vedoucí k rozpočtovému deficitu a veřejnému dluhu: (1) omezení fiskální iluze, (2) snížení informační asymetrie mezi politiky a voliči, která zvýší odpovědnost politiků a konkurenci mezi politiky a (3) posílení vymahatelnosti fiskálních pravidel. Výsledky statistické analýzy (analýza podmíněných průměrů pro rok 2008 a korelační a regresní analýza pro období 2003-2009) nepotvrdily existenci významného negativního vztahu mezi transparentností rozpočtu měřenou Indexem otevřeného rozpočtu a rozpočtovým deficitem a veřejným dluhem. Současně jsme potvrdili statisticky významný pozitivní vztah transparentností rozpočtu a mezi mírou korupce.

Klíčová slova: transparentnost rozpočtu, fiskální výkonnost, Index otevřeného rozpočtu

Introduction

Existing published research of the relationship between budget transparency and fiscal performance confirms the expectations that budget transparency is associated with smaller budget deficits and lower public debt. However, our previous research (see Sedmihradská, Haas and Štefek, 2011) did

not bring such clear results and raised a fundamental question: Why should greater budget transparency improve fiscal performance?

The objective of the paper is to evaluate the relationship between budget transparency and fiscal performance. In order to fulfill this objective we raised and answered four research questions:

1. What are the main reasons for excessive public expenditures resulting in budget deficit and public debt and how can these be limited by improved budget transparency?

2. What kinds of relationships were proved in the published research so far?

3. Do countries with higher ranking in the Open Budget Survey show lower budget deficit or smaller public debt?

4. Is higher corruption connected with lower budget transparency?

In order to answer the first two questions we underwent a detailed literature review. The answer of the third question is based on statistical analysis (conditional means analysis for 2008 and correlation and regression analysis for 2003 to 2009). Budget transparency is measured by the Open Budget Index and fiscal performance data are from the International Monetary Fund (2011). The fourth question will be answered using data of Transparency International.

The next section of the paper deals with the relationship of fiscal institutions, budget transparency and fiscal performance and shows three channels through which increased transparency may limit excessive public expenditures resulting in budget deficit and public debt. It also summarizes the results of the existing research of budget transparency impact on fiscal performance. The third section describes the data and methods used and the fourth section presents and discusses the results of the provided analysis. Last section concludes.

1. Fiscal institutions, budget transparency and fiscal performance

Extensive research of the effects of political and institutional factors on fiscal performance, such as public deficit and debt, took place in the last three decades. The obtained results without any doubts confirm that institutions matter.

The term "institutions" is very broad and encompasses any rule or procedure which may influence the decision-making regarding public budgets. Among the constitutional institutions belong the ruses of elections or the form of government (see Persson and Tabellini, 2003). Budget institutions are rules and regulations according to which budges are prepared, approved and carried out (see Alesina and Perotti, 1999, p. 14), e.g., relationship between executive and legislature or existence of numerical targets or multiyear budgeting. A recent detailed review of the existing research about the relationship of institutions and fiscal performance and fiscal sustainability offers for example Rose (2010).
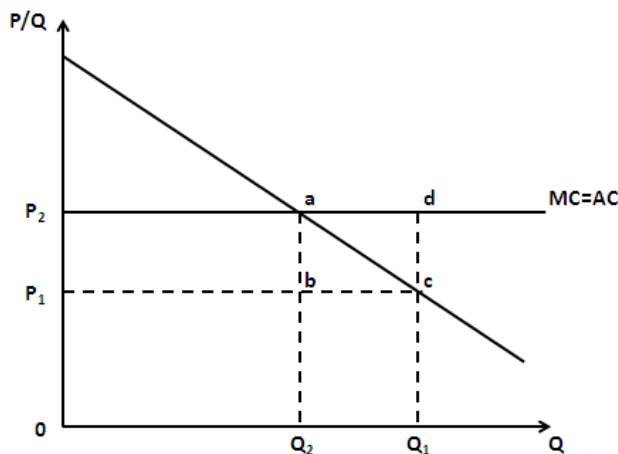
Budget transparency is usually defined as full disclosure of all relevant fiscal information in a timely and systematic manner (see OECD, 2002). Kopits and Craig (1998) define fiscal transparency as "openness toward the public at large about government structure and functions, fiscal policy intentions, public sector accounts, and projections. It involves ready access to reliable, comprehensive, timely, understandable, and internationally comparable information on government

activities (…)"[1]. Budget transparency is one of the features of the institutions shaping the environment of the budgetary process (see von Hagen, 2007, pp. 29 and 31).

There are three main reasons for inefficiency of resource allocation which originates in the framework of the budgetary process: fiscal illusion, deficit bias and misuse of public funds (see von Hagen and Harden, 1994). The first two reasons are quite similar to each other: in both cases citizens underestimate the true price of public good which leads to oversupply of that good, i.e., to excessive public expenditures and consequent debt financing. In case of fiscal illusion citizens fail to recognize the total tax burden and in case of the deficit bias the future obligations are discounted at too high discount rate. The third reason is a consequence of the principal-agent relationship between citizens and politicians.

The impact of fiscal illusion and the deficit bias is shown in Figure 1.1. P_2 and Q_2 show the tax price and the desired quantity of public good in case fiscal illusion is not present. The total budget (expenditures = revenues) is the area $0Q_2aP_2$. In case of fiscal illusion or deficit bias the perceived price falls to P_1, desired quantity grows to Q_1. At this moment the perceived budget is the area $0Q_1cP_1$, however the real budget (expenditures) is $0Q_1dP_2$. The area Q_2Q_1da is the excessive budget (expenditures – revenues = deficit).

Figure 1.1: Fiscal illusion and deficit bias

Source: Dollery and Worthington (1996, p. 263)

Improved budget transparency could limit the difference between the real tax price P_2 and the perceived tax price P_1, which would lead to smaller excessive budget.

The decision making process about public finances has the character of principal-agent relationship as the voters delegate the power to elected politicians. This creates a space for politicians to behave differently from voters desires. Improved transparency can limit this behavior through improved accountability and increased political competition (von Hagen, 2007, p. 37).

Increased transparency enables voters to better understand the budget, i.e., the financial plan of the government, and to evaluate the actual performance of the government. It reduces information asymmetry: the more voters know about and understand the budget process the less politicians can act strategically and use fiscal deficits and excessive expenditures to achieve opportunistic goals.

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[1] KOPITS, G.; CRAIG, J. (1998), p.1

Lack of budget transparency may increase voters' confusion and reduce politicians' commitment to be fiscally responsible (Benito and Bastida, 2009, p. 405). Thus the budget transparency increases the accountability of the politicians.

Budget transparency may increase political competition as the conditions for both the incumbent (i.e., politicians currently in the office) and the competing candidates (i.e., currently in the opposition), will approach. The information advantage of the incumbent will decrease and the promises of the competing candidates will be more realistic (see von Hagen, 2007, p. 37).

Nowadays, many countries use fiscal rules, such as expenditure ceilings, deficit targets or tax ceilings, as a tool to safeguard fiscal sustainability (see Joumard et al., 2003, p. 120). These fiscal rules can only lead to fiscal discipline if they are backed by transparent reporting. Otherwise they create various "perverse" incentives. Fiscal transparency is essential for enforcement of fiscal rules.

The above presented arguments show that expectations that improved budget transparency is associated with better fiscal performance are justified.

Table 1.1 lists four recent studies of the relationship between budget transparency and fiscal performance together with the summary of the applied methods and main findings. All of the studies were cross-sectional and took place between 1999 and 2005. Researching of the influence of budget transparency on fiscal performance requires establishment of a reliable budget transparency indicator, which would allow comparison across countries and time. All of the authors constructed their own budget transparency indicator using internationally comparable data sources (OECD questionnaire or database and IMF Reports on the Observance of Standards and Codes - ROSCs). Results of comparison of different budget transparency indicators provided by De Simone (2009, Tab. 2) show, however, substantial differences among them. For example the correlation coefficient between index of Alt and Lassen (2003) and index of Benito and Bastida (2009) amounts to only 0.316 and is statistically insignificant.

Table 1.1: Existing research on the relationship between budget transparency and fiscal performance

Authors	Fiscal performance indicator	Transparency indicator	Countries	Method	Results
Alt and Lassen (2003)	General government debt per GDP (1999)	Own indicator based on OECD questionnaire (1999)	19 advanced	Multiple regression	Significant (0.05), negative, transparency and debt
Benito and Bastida (2009)	Government debt per GDP Budget balance per GDP (2003)	Own indicator based on the OECD/World Bank Budgeting Database (2003)	41 advanced and developing	Correlation	Significant (0.05), positive, transparency and budget balance
Hameed (2005)	Average fiscal balance over five years (2000-2004)	Own indicator based on IMF ROSCs (2005)	57 advanced and developing	Multiple regression	Significant (0.05), positive, transparency and average primary balance
Jarmuzek (2006)	General government debt per GDP	Own indicator based on IMF ROSCs (2005)	27 CEE countries	Multiple regression	Weak, negative, transparency and debt

	(2005)				

With only one exception (Jarmuzek, 2006) the studies have proved the expected relationship: better transparency is associated with higher budget balance (= lower budget deficit) and lower public debt. Jarmuzek (2006, p. 11) concludes that there is "no strong statistical evidence for importance of fiscal transparency"[2] in the transition economies.

2. Data and methods

The data used in our analysis come from two sources: Data on fiscal transparency come from the results of the Open Budget Survey, which are available electronically at the web page of the Open Budget Partnership (2010a). Data on fiscal performance come from the International Monetary Fund (2011) World Economic Outlook Database from April 2011.

For the purpose of evaluation of budget transparency we have used the Open Budget Index for the years 2006, 2008 and 2010. The Open Budget Index (OBI) is computed using the data from the Open Budget Survey which is compiled from a questionnaire completed for each country by independent budget experts who are not associated with the national government. The Survey in over 120 questions examines the availability of eight key budget documents and their comprehensiveness, the extent of oversight provided by legislatures and supreme audit institutions and opportunities available to the public to participate in national budget decision-making processes (see Open budget partnership, 2010).

Descriptive statistics of OBI are shown in Table 2.1. During the analyzed years the number of the surveyed countries grew from 60 to 94 (93 analyzed, due to unavailability of fiscal data we have excluded East Timor from the analysis). The ranking of many countries has changed, sometimes substantially. This explains why the correlation coefficient is only between 0.747 and 0.827 for the OBI in different years.

Table 2.1: Descriptive statistics of OBI

	N	Mean	Min	Max	Std.Dev.	Number of countries[1]					Correlation	
						scant or no	minimal	some	significant	extensive	obi 2008	obi 2010
obi2006	60	45.500	3	89	21.781	8	15	23	8	6	0.747***	0.827***
obi2008	83	40.434	0	88	24.684	23	15	26	15	4		0.802***
obi2010	93	42.301	0	92	24.644	22	18	33	13	7	0.802***	

Note: *** correlation is significant at 0.01 %

[1] Based on the OBI countries are divided into 5 groups: scant or no (0-20), minimal (21-40), some (41-60), significant (61-80) and extensive (81-100) (see Open budget partnership, 2010).

Fiscal performance was evaluated using relevant indicators available in the International Monetary Fund (2011) World Economic Outlook Database. The following table lists the applied variables together with a short description.

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[2] JARMUZEK, M. (2006) p. 11

Table 2.2: Fiscal performance variables

Subject Descriptor	Subject Notes	Units
General government gross debt	Gross debt consists of all liabilities that require payment or payments of interest and/or principal by the debtor to the creditor at a date or dates in the future.	Percent of GDP
General government net lending/borrowing	Net lending (+)/ borrowing (-) is calculated as revenue minus total expenditure.	Percent of GDP
General government primary net lending/borrowing	Primary net lending/borrowing is net lending (+)/borrowing (-) plus net interest payable/paid.	Percent of GDP
Gross domestic product per capita, current prices	GDP is expressed in current U.S. dollars per person. Data are derived by first converting GDP in national currency to U.S. dollars and then dividing it by total population.	U.S. dollars
Gross domestic product, constant prices	Annual percentages of constant price GDP are year-on-year changes; the base year is country-specific.	Percent change
Unemployment rate	Unemployment rate can be defined by either the national definition, the ILO harmonized definition ("unemployed" are those who are currently not working but are willing and able to work for pay, and have actively searched for work), or the OECD harmonized definition (unemployment rate gives the number of unemployed persons as a percentage of the labor force).	Percent of total labor force

Source: International Monetary Fund (2011), World Economic Outlook Database

Missing data were supplied from Eurostat in case of unemployment rate for Bulgaria and Sweden and in case of general government primary net lending/borrowing for Poland and Romania. Data of unemployment rate for Turkey come from OECD.

The year of the OBI indicator is the year of its publishing, however, the evaluation reflects the transparency of the budget document for one or two years before publishing, thus the OBI 2006 reflects the situation in 2004 and 2005 for most of the countries. As the OBI is published biannually we use the same OBI for two years.

We have used multiple methods in order to find out whether there is a relationship between budget transparency and budget balance and public debt.

First we have focused on the cross-sectional research: We have undertaken analysis of conditional means for the year 2008 and correlation analysis for the years 2004-2009 in the software STATISTICA 7.1.

For the longitudinal research we have decided to estimate, similarly to our previous research (see Nitschová, 2001) the model of Roubini and Sachs (1989), which allows evaluation of the factors influencing annual budget deficit (i.e., the change of the debt to GDP ratio):

$$d(b_{it}) = a_0 + a_1.d(b_{i,t-1}) + a_2.d(r_{it}) + a_3.d(q_{it}) + a_4.d(u_{it}) + a_5.OBI_{it} + v_{it}, \tag{1}$$

where

- $d(b_{it})$ is the difference between general government gross debt as a % of GDP in the years $\underline{t}$ a $\underline{t\text{-}1}$;

- $d(b_{i,t-1})$ is the difference between general government gross debt as a % of GDP in the years $\underline{t\text{-}1}$ and $\underline{t\text{-}2}$;

- $d(r_{it})$ is difference between the real interest rate in the years $\underline{t}$ and $\underline{t\text{-}1}$[3];

- $d(q_{it})$ is the difference in the percent change of the gross domestic product in constant prices in the years $\underline{t}$ and $\underline{t\text{-}1}$;

- $d(u_{it})$ is the difference in the unemployment rate in the years $\underline{t}$ and $\underline{t\text{-}1}$; and

- OBI_{it} is the Open Budget Index.

For estimation of the model we have used fixed-effects models analysis in the software Gretl 1.9.2.

For the measuring relation between corruption and public budget transparency we use Corruption Perceptions Index which is published by Transparency International every year. It can reach values from 0 (the highest rate of corruption) to 10 (the lowest rate). We have undertaken correlation analysis for the years 2006, 2008 and 2010 in the software STATISTICA 7.1.

3. Results

There are first presented the results of the cross-sectional analysis of the relationship between budget transparency measured by the OBI and budget balance and public deficit and then the estimates of the equation (1).
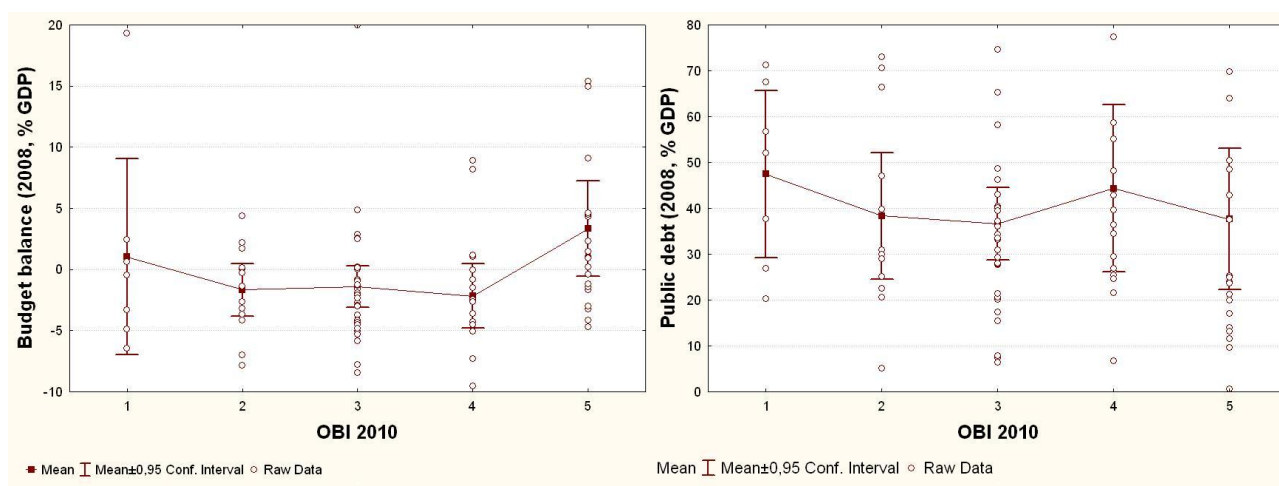
The figure of the conditional means shows that the budget balance is decreasing (i.e., budget surplus turns into budget deficit between the countries with extensive (1) and significant (2) budget transparency) with the exception of the group of countries with scant or no transparency, which shows the highest budget balance. Regarding the fact, that these countries provide hardly any fiscal data, the quality of the provided data is quite questionable. Analysis of variance proved that there are significant differences in the budget balance among the five groups and the LSD (least significant difference) test proved that differences between the last group (5) and all the remaining groups but the first one (i.e., 2, 3 and 4) are significant at 5 % level. The analysis of the conditional means of the public deficit did not prove any significant differences between the groups of countries based on their transparency level.

Figure 3.1: Average budget balance and public debt in different transparency groups (2008)

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[3] First, we have calculated the interests paid (as a % of GDP) as the difference between general government net lending/borrowing and general government primary net lending/borrowing (both as a % of GDP). Second, we have calculated the nominal interest rate as a share of the interests paid in public debt (both as a % of GDP). Third we have adjusted the nominal interest rate for inflation.

Note: Outliners, i.e. budget surplus above 20 % of GDP (1 case), budget deficit above 10 % of GDP (1 case) and public debt above 80 % of GDP (4 cases), are not shown in order to keep the figures well arranged.

Based on the OBI countries are divided into 5 groups: 1=extensive (81-100), 2=significant (61-80), 3=some (41-60), 4=minimal (21-40) and 5=scant or no (0-20).

Table 3.1 shows the results of the correlations between OBI and budget balance (general government net lending/borrowing) and OBI and public debt (general government gross debt) for the years 2004 and 2009. In bold there are marked the years when the relationship had the expected signed (+ for budget balance and – for public debt). The results are not statistically significant at the 5% level with only two exceptions – budget balance in 2006 and 2008. However, in these cases the sign is wrong.

Table 3.1: Correlation results: Budget balance and government debt (% GDP) and OBI (2004-2009)

Y	X	r(X,Y)	r2	t	p	N	
balance2004	obi2006	0.0548	0.0030	0.4178	0.6777	60	Y=-1.7635+0.0091*X
balance2005	obi2006	-0.0041	0.0000	-0.0314	0.9750	60	Y=-0.2299-0.0009*X
balance2006	obi2008	-0.302***	0.0912	-2.8502	0.0055	83	Y=6.4878-0.1074*X
balance2007	obi2008	0.0253	0.0006	0.2280	0.8202	83	Y=1.0954+0.0146*X
balance2008	obi2010	-0.242***	0.0585	-2.3789	0.0195	93	Y=2.4029-0.0637*X
balance2009	obi2010	0.1204	0.0145	1.1569	0.2503	93	Y=-6.1568+0.0208*X
debt2004	obi2006	-0.1846	0.0341	-1.3415	0.1857	53	Y=66.1715-0.2524*X
debt2005	obi2006	-0.1901	0.0361	-1.3964	0.1685	54	Y=62.0766-0.2468*X
debt2006	obi2008	0.1129	0.0127	0.9774	0.3315	76	Y=38.1844+0.1877*X
debt2007	obi2008	0.1211	0.0147	1.0494	0.2974	76	Y=33.8007+0.1361*X
debt2008	obi2010	0.0241	0.0006	0.2209	0.8257	86	Y=38.341+0.0262*X
debt2009	obi2010	0.0508	0.0026	0.4659	0.6425	86	Y=41.2135+0.0571*X

Note: *** correlation is significant at 0.01 %

The results of the estimation of equation (1) presented in Table 3.2 show that the model predicts quite well the budget deficit and that all the independent variables have the right sign, i.e., the budget deficit is higher in case economy slows down, unemployment and interest rate increases and high budget deficit in the previous year. The impact of budget transparency is negative, i.e., higher

transparency is associated with lower budget deficit. However, our results do not allow us to reject the null hypothesis that budget transparency does not influence budget deficit.

Table 3.2: Fixed-effects estimates of budget deficit - d(b_{it}) (18 cross-sectional units[1], 6 time periods, 108 observations)

	(1)		(2)		(3)	
const	6.2694		6.6811		6.3652	
	(4.5737)		(4.2897)		(4.2995)	
q(t)	-0.3169	***	-0.3146	***	-0.3039	***
	(0.0850)		(0.0842)		(0.0841)	
u(t)	2.0052	***	2.0271	***	2.0914	***
	(0.3420)		(0.3305)		(0.3280)	
r(t)	0.1038		0.1046			
	(0.0811)		(0.0806)			
OBI	-0.1151		-0.1225	*	-0.1174	
	(0.0763)		(0.0708)		(0.0710)	
b(t-1)	0.0268					
	(0.0989)					
Adjusted R-squared	0.5809		0.5854		0.5821	
Durbin-Watson statistic	2.1197		2.0829		2.0962	

Note: std. error reported in parenthesis, *** significant at 0.01 %, * significant at 0.1 %
[1] Brazil, Bulgaria, Costa Rica, Croatia, Czech Republic, Egypt, France, Chad, Jordan, Nepal, Norway, Poland, Romania, Slovenia, Sweden, Turkey, United Kingdom, United States,

In contrary to most of the previous research we did not confirm a clear relationship between budget transparency and budget deficit or public debt. The main contribution of our paper is the longitudinal design of the research and the application of an independent, internationally recognized measure of budget transparency.

The weakest point of the research is the selection of the countries in the longitudinal research. While the cross-sectional research (correlation analysis) included 53 to 93 countries, i.e. six or seven countries were missing, there were included only 18 countries in the longitudinal research (regression analysis) and this selection was purely dependent on the availability of the whole set of fiscal and economic data.

The answer on the fourth question is obvious from the Table 3.3. We see strong correlation between corruption and public budget transparency with undoubtful statistical significance in all three years

with available data. This finding confirms aspect of the misuse of the public funds (see von Hagen and Harden, 1994).

Table 3.3: Corruption Perceptions Index and Open Budget Index

Year	No.of countries	Corr.coeff.	p-value
2006	59	0,7052	0,000
2008	78	0,5029	0,000
2010	92	0,6532	0,000

Conclusions

There are at least three channels through which increased transparency may limit excessive public expenditures resulting in budget deficit and public debt: (1) reduction of fiscal illusion, (2) decrease of information asymmetry between politicians and voters which may improve accountability and increase political competition, and (3) stronger enforcement of fiscal rules. However, the results of statistical analysis which combined conditional means analysis for 2008 and correlation and regression analysis for 2003 to 2009 did not prove any significant negative relationship between budget transparency, measured by the Open Budget Index, and budget deficit or public debt. We also found strong and statistically significant relation between corruption and public finance transparency.

Acknowledgement

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