Open Budget and Accounting - A Glance of Monitoring

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Abstract: Existing published research into the relationship between budget transparency and tax accounting performance confirms the expectations that higher budget transparency is associated with smaller budget deficits and lower public debt. The objective of this paper is to re-evaluate the relationship between budget transparency and tax accounting performance. Based on the literature review we have identified three channels through which increased transparency may limit excessive public expenditure resulting in budget deficit and public debt: (1) reduced tax accounting illusion, (2) decreased information asymmetry between politicians and voters which may improve accountability and increase political competition, and (3) strengthening in the enforcement of tax accounting rules. The results of statistical analysis (conditional means analysis for 2008, correlation and regression analysis for 2003 to 2009) did not prove a significant negative relationship between budget transparency, measured by the Open Budget Index, and budget deficit or public debt. We found a negative and statistically significant relationship between corruption and budget transparency.

Keywords: budget transparency, tax accounting performance, Open Budget Index

1. Introduction

Before going on to look at the actors, issues, initiatives and best practices associated with the issue, we will start out with some definitions. The concept of “open budget data” draws on ideas and practices from two distinct but related areas as Open Government Data (OGD) and Open Budgeting. These two areas are in turn associated with broader fields such as Open Government and Open Development. Though they may sound very similar, each of these areas has a different conception of openness. In this paper, we shall review some of the different understandings of the “openness” in “open budget data” that have been proposed by practitioners and researchers, and offer a synthesised definition drawing on previous work in this area.

Existing research paper lights into 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 did not bring such clear results but raised a fundamental question: Why should greater budget transparency improve tax accounting performance? The objective of this paper is to evaluate the relationship between budget transparency and tax accounting performance. To find out the main reasons why excessive public expenditure results in budget deficit and public debt and various ways that can these be limited by improved budget transparency. Kind of relationships have been proved in research published to date. Higher ranking in the Open Budget Survey show lower budget deficit or smaller public debt. To find whether higher corruption associated with lower budget transparency.

In order to answer the first two questions we undertook a detailed literature review. The answer to the third question is based on statistical analysis i.e conditional means analysis for 2008 and correlation and regression analysis for 2003 to 2009. Budget transparency is measured by the Open Budget Index and tax accounting performance data are taken from the International Monetary Fund. The last question is answered based on correlation analysis. Corruption is measured by the Corruption Perceptions Index.

The next section of the paper deals with the relationships between tax accounting institutions, budget transparency and tax accounting 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 into budget transparency impacts on tax accounting performance. Finally, there is a brief discussion about the relationships between corruption, transparency and tax accounting performance. The third section describes the data and methods used and the final section presents and discusses the results of the provided analysis.

2. Scope of Study

Many transparency researchers argue that financial transparency is a required concept which can serve a wide range of different political views and policy proposals. Different arguments about why financial transparency matters will lead to different priorities around what data is made available, how it is made available, for whom to use.

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and to what end. David Heald argues that the “optimal configuration of transparency” will differ depending on what concern one is seeking to address, for example, “reducing corruption” or “increasing efficiency, effectiveness and legitimacy”.

Many commentators argue that international norms and standards around financial transparency at intergovernmental level have their roots in efforts to promote “good governance” and “fiscal discipline.” In particular it is held that public financial management reforms were pursued to control expenditure, reduce budget deficits, and signal credibility to international markets to attract foreign investment. In this context the intended direct users and beneficiaries of information released through financial transparency initiatives would often be governmental and intergovernmental actors, multilateral initiatives, development agencies, foreign investors and private sector actors.

Some have argued that focus on fiscal discipline in global financial transparency norms and standards from the 1990s meant that historically some intergovernmental actors have been “less aware of or concerned with distributive and other impacts on local populations”. It is commonly held that fiscal transparency is an enabler for greater public participation and democratic accountability around public finances. However, it is also acknowledged that the causal dynamics between these three concepts is not always straightforward or predictable. The relationship between transparency, citizen engagement and accountability is not simple or linear. Improvements in the availability of government information do not necessarily result in greater public participation in policy processes; even when they do, this will not automatically lead to governments becoming more accountable to their citizens. David Heald argues that “the production and distribution of information per se is insufficient” as “transparency requires an audience with the capacity to understand and act”. Hence in the following paragraphs we will survey some of the different mechanisms through which the greater availability and openness of budgetary information is argued to lead to better outcomes for citizens.

Many researchers and practitioners argue that open budgets can improve the quality of democratic engagement and deliberation around fiscal policy by enabling greater citizen awareness of public finances and more informed debate. Citizens’ budgets are intended to make resource allocations more accessible to broader audiences (International Budget Partnership, 2012a). In the context of open budget data it is often argued that data visualisations may help to improve public understanding of public finance5.

Greater openness is also widely argued to increase trust in government.

As well as initiatives intended to promote greater understanding and awareness of public finances, there are also various forms of more active budgetary monitoring projects to help ensure that allocated resources deliver the results that they are supposed to. For example, projects have been undertaken to use social audits, citizen report cards and procurement tracking to provide oversight of financial flows. Some civil society organisations have experimented with more formal mechanisms like Public Expenditure Tracking Surveys (PETS), originally developed and used by IGOs, to identify potential corruption, misuse or leakages of public funds. It is argued that open data brings new opportunities for citizen budget monitoring, including through geocoding projects and topic specific tracking initiatives. There have also been suggestions that releasing granular information about public expenditure can enable citizens to help identify waste. The UK government suggested that “armchair auditors” could help to facilitate cost savings, and von Lucke et al give several examples of citizen “austerity budget” projects in Germany.

Some argue that financial transparency enables greater citizen participation in the budgeting process6.

Several reports explicitly mention the potential role of open data in participatory budgeting initiatives where citizens have more direct control in how public funds are allocated7. Von Lucke et al also mention the opportunities created by digital technologies for new forms of participation, deliberation, commenting and discussion around public finance, which they term “Open Budget 2.0”8.

While there have been a spate of experiments to increase participation around budgeting, as an aside it is worth noting that many countries included in IBP’s Open Budget Survey received low scores for public participation indicating that there is room for progress in this area. As well as information about public money being used to improve public understanding of and participation in fiscal policy, it is argued that civil society organisations can use data to improve their analysis, advocacy and policy proposals which


References


may result in better outcomes for citizens. For example, Oxfam and Development Finance International collaborated on a report looking at whether spending on the Millennium Development Goals was adequate to meet targets. As well as directly using fiscal data for public interest advocacy, civil society organisations and media organisations may also play an important role as intermediaries or “information brokers.”

It is widely argued that financial transparency can lead to better and fairer resource allocations for citizens (International Budget Partnership, Development Finance International, Oxfam America, 2014). For example, poverty ceding or “pro-poor” budgeting initiatives use financial transparency as an instrument to advance fiscal policies that distribute public funds in favour of disadvantaged groups. This includes advocating for increased spending in certain areas, for earmarking a percentage of revenues (e.g. from natural resource) for social spending programmes, as well as arguing for more progressive taxation and tax distribution policies.

3. Tax accounting Institutions, Budget Transparency and Tax accounting Performance

Extensive research into the effects of political and institutional factors on tax accounting performance, such as budget deficit and public debt, has been carried out in the past three decades. Results obtained confirm without any doubt that institutions do really 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 rules of election or the form of government. “Budget institutions” comprise rules and regulations according to which budgets are prepared, approved and implemented, e.g., the character of the 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 tax accounting performance and tax accounting sustainability is offered for example in Rose.

Budget transparency is usually defined as full disclosure of all relevant tax accounting information in a timely and systematic manner. Accountings transparency as “an openness toward the public at large about government structure and functions, tax accounting policy intentions, public sector accounts, and projections. It involves ready access to reliable, comprehensive, timely, understandable, and internationally comm-parable information on government activities.” Budget transparency is one of the features of the institutions shaping the environment of the budgetary process.

There are three main reasons for the inefficiency of resource allocation which originates in the framework of the budgetary process: tax accounting illusion, deficit bias and misuse of public funds. 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 the case of tax accounting illusion citizens fail to recognize the total tax burden and in case of the deficit bias the future obligations are discounted at an excessive discount rate. The third reason is a consequence of the principal-agent relationship between citizens and politicians.

The impact of tax accounting illusion and the deficit bias is shown in Figure 1. $P_2$ and $Q_2$ show the tax price and the desired quantity of public good in case tax accounting illusion is not present. The total budget is the area $Q_2aP_2$. In case of tax accounting 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 $Q_1cP_1$, however the real budget (expenditures) is $Q_2aP_2$. The area $P_2Pcd$ is the excessive budget (expenditures – revenues = deficit). We can observe a mix of different forms of tax accounting the public does not recognize the total tax burden (i.e., tax illusion) or full costs of government borrowing (i.e., debt illusion) and it believes that the benefits of public expenditures are higher than the real relationship price = tax (i.e., expenditure illusion).

![Figure 1: Tax accounting illusion and deficit bias](source: Dollery and Worthington)

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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 a smaller excessive budget.

The decision making process about public finances has the character of a principal-agent relationship as the voters delegate the power to elected politicians. This creates space for politicians to behave differently from voters desires. Improved transparency can limit this behaviour through improved accountability and increased political competition. 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 tax accounting deficits and excessive expenditures to achieve opportunistic goals. Lack of budget transparency may increase voters’ confusion and reduce politicians’ commitment to be fiscally responsible. 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) get closer. The information advantage of the incumbent will decrease and the promises of the competing candidates will be more realistic.

Nowadays, many countries use tax accounting rules, such as expenditure ceilings, deficit targets or tax ceilings, as a tool to safeguard tax accounting sustainability.

<table>
<thead>
<tr>
<th>Table 3: Tax Accounting Performance Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>General government primary net lending/borrowing</td>
</tr>
<tr>
<td>Gross domestic product per capita, current prices</td>
</tr>
<tr>
<td>Gross domestic product, constant prices</td>
</tr>
<tr>
<td>Gross domestic product, constant prices</td>
</tr>
<tr>
<td>Unemployment rate</td>
</tr>
</tbody>
</table>

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

These tax accounting rules can only lead to tax accounting discipline if they are backed by transparent reporting. Otherwise they create various “perverse” incentives. Tax accounting transparency is essential for enforcement of tax accounting rules. Tax accounting performance was evaluated using relevant indicators available in the International Monetary Fund. World Economic Outlook Database. Table 3 lists the applied variables together with a short description.

Missing data has been supplied from Euro state in the case of unemployment rate for Bulgaria and Sweden and in the case of general government primary net lending/borrowing for Poland and Romania. Data on unemployment rate for Turkey came from OECD.

The OBI indicator is the publishing year, 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 have naturally used 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 focused on the cross-sectional research: we undertook 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 decided to use, similarly to our previous research, the model of Roubini and Sachs, which allows evaluation of the factors influencing annual budget deficits (i.e., the change of the debt to GDP ratio)

\[
d(b_{it}) = a_0 + a_1d(b_{it-1}) + a_2d(r_{it}) + a_3d(q_{it}) + a_4d(u_{it}) + a_5OBI_{it} + v_{it},
\]

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

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• \( d(r_n) \) is the difference between the real interest rate in the years \( t \) and \( t-14 \);
• \( d(q_e) \) is the difference in the percent change of the gross domestic product in constant prices in the years \( t \) and \( t-1 \);
• \( d(u_n) \) is the difference in the unemployment rate in the years \( t \) and \( t-1 \); and
• \( \text{OBI}_a \) is the Open Budget Index.

For estimation of the model we have used panel data fixed-effects model analysis in the software Gretl 1.9.2. The model is estimated for 18 countries: France, Jordan, Nepal, Norway, Poland, Brazil, Costa Rica, Croatia, Czech Republic, Bulgaria, Chad, Romania, Slovenia, Sweden, Turkey, United Kingdom and United States. For the other countries data were not available for the whole period or for all variables.

First, we 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 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.

For measuring of the 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 100 (the lowest rate). We have undertaken correlation analysis for the years 2006, 2008 and 2010 in the software STATISTICA 7.1.

### 4. Results

First this paper reveals the results of the cross-sectional analysis into the relationship between budget transparency measured by the OBI and budget balance and public deficit. After this we present the results of the estimation of equation (1). The figure 2 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.

With regard to the fact, that these countries provide hardly any tax accounting data, the quality of the provided data is ex-remely questionable. Analysis of variance proved that there were 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 except the first one (i.e., 2, 3 and 4) are significant at 5 % level. The analysis of the conditional means of the public debt did not prove any significant differences between the groups of countries based on their transparency level.

#### Table 4: Correlation results: Budget balance and government debt (% GDP) and OBI (2004-2009)

<table>
<thead>
<tr>
<th>Y</th>
<th>X</th>
<th>r(X,Y)</th>
<th>r2</th>
<th>t</th>
<th>P</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>balance2004</td>
<td>obi2006</td>
<td>0.0548</td>
<td>0.0030</td>
<td>0.4178</td>
<td>0.6777</td>
<td>60</td>
</tr>
<tr>
<td>balance2005</td>
<td>obi2006</td>
<td>-0.0041</td>
<td>0.0000</td>
<td>-0.0314</td>
<td>0.9750</td>
<td>60</td>
</tr>
<tr>
<td>balance2006</td>
<td>obi2008</td>
<td>-0.302*</td>
<td>0.0912</td>
<td>-2.8502</td>
<td>0.0055</td>
<td>83</td>
</tr>
<tr>
<td>balance2007</td>
<td>obi2008</td>
<td>0.0253</td>
<td>0.0006</td>
<td>0.2280</td>
<td>0.8202</td>
<td>83</td>
</tr>
<tr>
<td>balance2008</td>
<td>obi2010</td>
<td>-0.242*</td>
<td>0.0585</td>
<td>-2.3789</td>
<td>0.0195</td>
<td>93</td>
</tr>
<tr>
<td>balance2009</td>
<td>obi2010</td>
<td>0.1204</td>
<td>0.0145</td>
<td>1.1569</td>
<td>0.2503</td>
<td>93</td>
</tr>
<tr>
<td>debt2004</td>
<td>obi2006</td>
<td>-0.1846</td>
<td>0.0341</td>
<td>-1.3415</td>
<td>0.1857</td>
<td>53</td>
</tr>
<tr>
<td>debt2005</td>
<td>obi2006</td>
<td>-0.1901</td>
<td>0.0361</td>
<td>-1.3964</td>
<td>0.1685</td>
<td>54</td>
</tr>
<tr>
<td>debt2006</td>
<td>obi2008</td>
<td>0.1129</td>
<td>0.0127</td>
<td>0.9774</td>
<td>0.3315</td>
<td>76</td>
</tr>
</tbody>
</table>

Note: 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). 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 for ease of presentation.

Source: Compiled from various calculations.

Figure 2: Average budget balance and public debt in different transparency groups (2008)

Original image: Figure 2
empirical finding complies with theoretical assumptions. Transparency in all three years with available data. This finding complies with theoretical assumptions and earlier empirical findings.22

Table 4 shows the results of the correlation 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. The expected relationship (+ for budget balance and – for public debt) can be found only in a few cases: budget balance in 2004, 2007 and 2009 and public debt in 2004 and 2005. The results shown 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 opposite to the expectation.

The results of the estimated equation (1) presented in Table 5 shows that the model predicts reasonably well the budget deficit and that all independent variables have the correct sign, i.e., the budget deficit is higher as economy slows down, unemployment and interest rates increase and the budget deficit in the previous year is high. 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.

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 in 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 in the selection of countries used in the longitudinal research. While the cross-sectional research (correlation analysis) included 53 to 93 countries, there were included only 18 countries in the longitudinal research. While the cross-sectional research was based on a sample of 53 to 93 countries used in the longitudinal research. While the cross-sectional research was based on a sample of 53 to 93 countries used in the longitudinal research.

The results of statistical analysis which combined conditional means analysis for 2008 and correlation and regression analysis for 2004 to 2009 did not prove the expected significant negative relationship between budget transparency, measured by the Open Budget Index, and budget deficit or public debt. The main reason that increased budget transparency did not limit budget deficit and public debt in the expected magnitude is the fact that transparency may limit excessive accounting performance. 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 tax accounting illusion, (2) a decrease of information asymmetry between politicians and voters which may improve accountability and increase political competition, and (3) stronger enforcement of tax accounting rules. The results of statistical analysis which combined conditional means analysis for 2008 and correlation and regression analysis for 2004 to 2009 did not prove the expected significant negative relationship between budget transparency, measured by the Open Budget Index, and budget deficit or public debt. The main reason that increased budget transparency did not limit budget deficit and public debt in the expected magnitude is the fact that transparency by itself, i.e., without engagement of civil society or advocacy groups, is insufficient to improve governance (Open Budget Partnership, 2013, p. 4). The OBI score measures mainly the timely availability of budget information. The assessment of conditions for public participation was included for the first time in OBI 2012. The discrepancy between our findings and findings of other studies of Alt and Lassen in 2003, Benito and Bastida in 2009, Hameed in 2005 and to some extend Jarmuzek in 2006 requires new research in this area. The OBI score is calculated based on a sample of 18 countries.

Table 5: Fixed-effects estimates of budget deficit - d(bi,t) (18 cross-sectional units, 6 time periods, 108 observations)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of countries</th>
<th>Corr. coeff.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>59</td>
<td>0.7052</td>
<td>0.000</td>
</tr>
<tr>
<td>2008</td>
<td>78</td>
<td>0.5029</td>
<td>0.000</td>
</tr>
<tr>
<td>2010</td>
<td>92</td>
<td>0.6532</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: * standard error reported in parenthesis, ** significant at 0.01 %, *** significant at 0.1 %.
Source: Compiled from various data calculations.

5. Conclusions

Institutions, including budget transparency, influence tax accounting performance. 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 tax accounting illusion, (2) a decrease of information asymmetry between politicians and voters which may improve accountability and increase political competition, and (3) stronger enforcement of tax accounting rules. The results of statistical analysis which combined conditional means analysis for 2008 and correlation and regression analysis for 2004 to 2009 did not prove the expected significant negative relationship between budget transparency, measured by the Open Budget Index, and budget deficit or public debt. The main reason that increased budget transparency did not limit budget deficit and public debt in the expected magnitude is the fact that transparency by itself, i.e., without engagement of civil society or advocacy groups, is insufficient to improve governance (Open Budget Partnership, 2013, p. 4). The OBI score measures mainly the timely availability of budget information. The assessment of conditions for public participation was included for the first time in OBI 2012. The discrepancy between our findings and findings of other studies of Alt and Lassen in 2003, Benito and Bastida in 2009, Hameed in 2005 and to some extend Jarmuzek in 2006 requires new research in this area. The OBI score is calculated based on a sample of 18 countries.
than indicators based on the IMF Code of Good Practices on Tax accounting Transparency and does not evaluate budget transparency outside the central government. The mismatch in the coverage of the OBI and the indicators evaluating tax accounting performance of the general government may weaken the relationship between them. In accordance with previous research we found negative and statistically significant relationships between corruption, measured by Perception Corruption Index, and public finance transparency, measured by Open Budget Index.

References