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THE EFFECTS OF BUDGET TRANSPARENCY ON THE BUDGET BALANCES AND EXPENDITURES OF CROATIAN LOCAL GOVERNMENTS

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Abstract

The purpose of this paper is to find out whether budget transparency (BT) allows for better control over public finances, especially in pre-election periods. Thus we investigate the impact of BT, i.e., the digital availability of five key budget documents, on the budget balances and expenditures of all 556 Croatian local governments (LGs) over the 2014-2019 period. The dynamic panel data analysis with several control variables shows that higher BT tends to increase expenditures and the probability of achieving deficits, especially in poorer LGs. Improved BT increases electorates' confidence, making public goods and services more interesting to voters, ultimately increasing public expenditures. However, we found that BT limits political budget cycles (PBCs), i.e., 'opportunistic' expenditures and deficits in the pre-election period.

Keywords: *Budget transparency; local governments; budget balance; expenditures; Croatia*

JEL classification: *H72, H76, H79*

1. Introduction

Budget/fiscal transparency (BT/FT)[1] increases the visibility of fiscal actions, enabling citizens to influence the efficiency of public funds, government accountability and opportunities for corruption (e.g., Alt and Lassen 2006b; Benito, Guillamón, and Ríos 2021; Guillamón and Cuadrado-Ballesteros 2021; Kaufmann and Bellver 2005; Kopits and Craig 1998). Due to the increased interest in national and local FT and, at the same time, widespread increases in public deficits and debts, it is important to determine FT effects on government fiscal performance.

Several studies have focused on the impact of FT on budget balances, public debt, and expenditures (e.g., Alt and Lassen 2003, 2006a, 2006b; Alt, Lassen, and Skilling 2002; Hameed 2005; Vicente, Benito, and Bastida 2013). It seems that FT leads to higher government expenditures (Alt, Lassen, and Skilling 2002) but also to lower unnecessary expenditures thanks to smaller political budget cycles (PBCs) (Akhmedov and Zhuravskaya 2004; Ríos et

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al. 2018). The evidence generally tends to support the idea that FT leads to lower deficits (Alt and Lassen 2006b; Benito and Bastida 2009; Ríos et al. 2018) and reduced public debt (Alt and Lassen 2006b; Gerunov 2016; Montes, Bastos, and de Oliveira 2019).

The discussion on the impacts of national FT has mostly focused on budget balances based on multi-country analysis (e.g., Hameed 2005; Sedmihradska and Haas 2012), while research on the impacts of local FT and its effects on LGs' budget balances and expenditures is scarce. We found two studies at LG levels: the first, analysing the effect of FT on budget balances and expenditures by Ríos et al. (2018), was based on a sample of 100 Spanish municipalities; the second, exploring the relationship between FT and total expenditures by Vicente, Benito, and Bastida (2013), was founded on a sample of the 97 largest Spanish municipalities; both looked at the broader notion of FT (developed by Transparency International Spain).

We focus exclusively on BT to answer *whether the BT level of Croatian LGs affects their budget balances and/or expenditures*. We investigate all 556 Croatian LGs[2] in the 2014-2019 period using the Open Local Budget Index (OLBI) developed by the Institute of Public Finance (IPF) (see Ott, Bronić, and Petrušić 2015; Ott, Mačkić, and Bronić 2018). As in Ríos et al. (2018), the budget balance is measured as the share of nonfinancial revenue minus nonfinancial expenditures in nonfinancial revenue, while expenditures are measured as the total (current and capital) per capita (pc) expenditure (as in Alt, Lassen, and Skilling 2002). To further determine the robustness of the dependent variable and outcomes, we included an additional measure of the share of total expenditures in total residents' income (a proxy for local GDP). Dynamic panel data (DPD) analysis control variables are residents' pc income, unemployment rate, LGs' own revenues, women councillors, dependency ratio, political competition, electoral cycle, and interaction variables.

We show that in LGs with higher BT, politicians are more likely to increase expenditures and deficits, especially if they have small own revenues pc. We also prove that LGs' PBC and BT are a conditioning factor that limits 'opportunistic' pre-election expenditures and deficits. The results are consistent with, e.g., Akhmedov and Zhuravskaya 2004; Alesina and Perotti 1999; Alt and Lassen 2006b; Vicente, Benito, and Bastida 2013.

The originality of this paper is in its use of an original measure of local BT (OLBI) and a unique panel dataset of 556 LGs during a six-year period. From an international perspective, this paper is one of the first attempts to explore the effects of BT on both budget balances and expenditures, including all LGs in one European post-communist country. The paper is also, to our knowledge, the first attempt to analyse conditional PBC by including the election cycle and the level of BT.

We proceed with a literature review, a description of the LG system in Croatia, data and methodology, analysis and results, discussion and policy recommendations.

2. Literature Overview

As argued by Alt and Lassen (2006b) and Alesina and Perotti (1996), because there is no unique definition of FT, it is also hard to measure and analyse it appropriately. BT and FT are often used interchangeably. Kopits and Craig (1998, p. 1) define FT as 'openness towards 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 … so that the electorate and financial markets can accurately assess the government's financial position and the true costs and benefits of government activities, including their present and future economic and social implications'.

The OECD (2002, p. 7) defines BT as 'the full disclosure of all relevant fiscal information in a timely and systematic manner'. The World Bank (2015, p. 1) defines BT more narrowly as 'the extent and ease with which citizens can access information about and provide feedback on government revenues, allocations, and expenditures.'

With the view that BT should focus only on budgets and that FT could include government structure and functions, we define BT as the possibility for citizens to obtain complete, accurate, and timely information about budgets, presented in an understandable form on official LG websites (Ott, Mačkić, and Bronić 2019). Like da Cruz et al. (2016), we focus on the timely availability and understandable form of documents, in accordance with OECD best practices for budget transparency (OECD 2002).

We present theories that can explain why and how higher BT might reduce unnecessary expenditures and deficits. First, *principal-agent theory* explains that voters normally want more competent politicians in office, who provide more public goods for given levels of taxation (Alt and Lassen 2006b; Ferejohn 1999). Problems arise when agents (elected officials) are motivated to act in their own interest rather than in that of the principals (citizens). Agents assume risks more easily, incurring excessive expenditures and deficits,

since it is poorly informed voters who, in due time, will pay the costs. Increased BT informs citizens about the actions taken by incumbents and might reduce unnecessary expenditures (de Araujo and Tejedo-Romero 2016; Laswad, Fisher, and Oyelere 2005). Second, according to *fiscal illusion theory*, with non-transparent budgets, illusion might arise as voters do not have all the information and might underestimate the level of budget revenues and overestimate the benefits of additional public expenditures, resulting in further expenditures, higher deficits and/or debts (e.g., Benito and Bastida 2009). BT helps voters to be better informed about the costs of public programmes and to control inefficient expenditures. Third, *political budget cycle (PBC) theory* explains how politicians in the pre-election period try to increase their chances of re-election by offering tax reductions and increasing and/or reallocating expenditures towards more visible purposes (e.g., Alt and Lassen 2006b; Drazen and Eslava 2010; Rogoff 1990; Shi and Svensson 2003, 2006). Different PBC models are based on information asymmetries between incumbents and voters, assuming that voters prefer competent incumbents; however, before elections, they usually cannot know their competences. To signal competency, manipulative incumbents provide tax reductions and/or increases/changes in expenditures, which might result in higher deficits and debt (Shi and Svensson 2003; Veiga and Veiga 2007). Shi and Svensson (2002), in a model that includes politicians' rents (their private benefits) and the share of informed voters (the percentage of voters that can distinguish pre-electoral manipulations from incumbent competence), show that the lower the share of informed voters (i.e., transparency), the higher the return from boosting expenditures before election. Alt and Lassen (2006b) point out that the extent of the impact of PBC depends on the FT level, thus stressing the importance of exploring conditional PBCs. Finally, Klomp and de Haan (2013) also emphasize conditioning factors determining the magnitude of opportunistic fiscal manipulations, one of which is also the transparency of the budget process.

Previous studies argue that higher FT usually leads to surpluses and lower FT to deficits. Stein, Talvi, and Grisanti (1998) show that BT (mostly focused on procedures) has a positive relationship with the ratio of the budget/primary surplus to GDP. Some find that FT is positively related to the primary fiscal balance (the fiscal balance minus the ratio of interest payments to GDP) (e.g., Hameed 2005). Ríos et al. (2018), the only study at the LG level, also find that FT has a positive relationship with budget balance (the share of non-financial revenue minus nonfinancial expenditure in nonfinancial revenue).

Milesi-Ferretti (2004) argues that higher BT lessens the incentives for creative accounting and reduces expected deficits. Alesina and Perotti (1996) argue that BT is negatively related to the ratio of the primary deficit to GDP. However, Sedmihradska and Haas (2012), analysing the Open Budget Survey, measuring deficit as the difference between the ratio of general government debt to GDP, find a negative relationship with BT and argue that without the engagement of civil society or advocacy groups, BT alone is insufficient to improve fiscal performance.

Alt and Lassen (2006b) stress that in the pre-election year in low-transparency industrial countries, the FT has a negative relationship with the surplus to GDP ratio. Shi and Svensson (2006) analysed 85 countries in 1975–1995 and found that a larger share of informed voters leads to a smaller PBC.

Based on previous empirical evidence and in line with principal-agent, fiscal illusion and PBC theories, it is to be expected that higher BT reduces unnecessary deficits. However, as shown by, e.g., Balaguer-Coll, Prior, and Tortosa-Ausina (2016) and Działo et al. (2019), budget balance mostly depends on fiscal, political, and socioeconomic forces within LGs (e.g., the need for capital expenditures, the level of own revenues, share of older population, tourism). Additionally, not all deficits (and indirectly debts) are unnecessary/opportunistic deficits (e.g., if used for development projects, which will increase future GDP). Thus, it is possible to have increased BT and increased deficit, and we cannot unequivocally expect a particular but rather a statistically significant relationship taking either a positive or negative sign.

We also explore the effect of BT on expenditures. We found only two studies investigating the relationship of FT and expenditures. Analysing 50 US states, Alt, Lassen, and Skilling (2002) find a positive relationship between the FT index and both total nominal and real pc expenditures. Based on principal-agent theory, they argue that more transparent fiscal institutions will lead to an increase in voter confidence in politicians, which, in turn, will lead to larger government. Voters will be more willing to hand control of resources to politicians whose actions they can more readily observe. Increasing transparency makes public goods provision more attractive to voters, thereby increasing the size of government (Alt, Lassen, and Skilling 2002, p. 233).

Analysing the effect of municipal FT on the PBC magnitude in the 97 largest Spanish LGs in 1999-2009, Vicente, Benito, and Bastida (2013) find that those with lower FT show the effect of the electoral cycle on total expenditures, while more transparent ones do not show this effect and that the magnitude of the

electoral cycle in capital expenditures does not vary among LGs with low or high FT. Their results suggest that as transparency allows for better voter control over public finances, politicians are reluctant to increase total expenditures, especially in pre-election periods. Shi and Svensson (2002) argue that in regularly and timely informed electorates, politicians refrain from increasing expenditures, as voters are more 'equipped' with information and can more clearly distinguish pre-election manipulation from the actual competencies and intentions of politicians. According to fiscal illusion theory, insufficient transparency of revenues can create an illusion for voters, which is why they tend to underestimate the level of budget revenues and overestimate the benefits of additional public expenditures. In other words, untangling budget revenues and generally increasing BT also reduces voters' desire for higher expenditures. Consistent with the present discrepancy between theories and previous empirical findings, as in the case of the budget balance variable, we cannot unequivocally expect a particular relationship but rather a statistically significant relationship with either a positive or negative sign.

3. Research Design, Data, and Methodology

3.1. Sample and Context

We use the whole population dataset of all 428 Croatian municipalities and all 128 cities. Accordingly, the population is set in such a way as to include all the local governments of one country. A unique panel dataset includes all variables representing observations for each LG in 2014-2019.

Cities and municipalities perform activities of local importance that directly address citizens' needs that are not – constitutionally or legally – assigned to the central government (such as housing and community amenities, spatial and urban planning, childcare, welfare, primary healthcare, preschool and elementary education, consumer and environmental protection, fire brigades and roads). The majority of their tasks are financed from their own budgets, while some decentralized functions (primary and secondary education, social welfare, healthcare and fire protection) are co-financed by the national budget. The Budget Act stipulates a balanced budget rule (total revenues and receipts must cover total expenditures and outlays). If, during the budget year, expenditures and outlays increase or revenues and receipts decrease, the budget must be balanced by identifying new revenues and receipts and/or reducing the expenditures and outlays. Although LGs have to pass a balanced budget and try to balance their budget during the fiscal year, they are allowed to finish the year with an unforeseen deficit. When that happens, LGs must publish a decision about how they plan to cover the unforeseen deficit in a maximum period of three years. The electoral system is based on proportional representation, and local elections are held every four years within the second quarter of a given year.

3.2. Variables

Dependent Variable

To examine the impact of BT on LG fiscal performance, we use two regression specifications. The first explores the impact of BT on LGs' budget balance (measured as nonfinancial revenue minus nonfinancial expenditures divided by nonfinancial revenue)[3] (as in Ríos et al. 2018). The second explores the impact of BT on total LG expenditures, using two measures: total expenditures pc (as in Alt, Lassen, and Skilling 2002) and the share of total expenditures in total residents' income. Lacking the GDP data for the LG level, we use a GDP proxy – residents' income – to examine the robustness of our dependent variable and overall results.

Independent Variable of Interest

The variable of interest is OLBI, developed by the IPF, representing the annual digital availability of five key budget documents on the websites of LGs. The OLBI takes a value from 0 to 5, depending on the number of published documents. Each year at the same time, IPF researchers check the digital availability of year-end reports, mid-year reports, budget proposals, enacted budgets, and citizens budgets. As regulated by the Budget Act (2015) and/or the Act on the Right of Access to Information (2015), LGs are obliged to publish year-end reports, mid-year reports, and enacted budgets, while for budget proposals and citizens budgets, there is no legal obligation, only the recommendation from the Ministry of Finance (MoF). In addition to the Croatian legislative framework and recommendations, five requested budget documents were selected in accordance with international FT practices (see, e.g., OECD 2002).

During the six-year period, the percentage of LGs that published all five documents increased from 3% to 52%, while the number of LGs that did not publish any document decreased from 30% to 1.3% (Ott et al. 2020). In the observed period, LGs most often

published enacted budgets (82%) and year-end reports (73%), followed by mid-year reports (67%) and budget proposals (54%), while the citizens budget is the least published (32%). Yearly publications of results and rankings encourage LGs to be more transparent (see, e.g., Ott et al. 2020), enhancing their competitiveness (as also argued by Guillamón, Bastida, and Benito 2011).

Control Variables

In addition to the OLBI, the right-hand side of the regression equation includes control variables, chosen according to similar research, theoretical underpinnings, and consideration of the satisfaction of the validity of the system GMM model in regression specifications.

Socioeconomic and Demographic Variables

The *residents' income pc* and *unemployment rate* are used to depict the economic conditions and the level of development in the LG. These are some of the 'classical' control variables when analysing the determinants of government fiscal performance. As it is argued that LG expenditures are 'a normal good' with a positive income elasticity of demand, it is expected that residents' income level will have a positive effect on expenditures and a negative effect on the budget balance of LGs (Działo et al. 2019). Wealthier governments (e.g. higher income pc) are also more inclined to adopt laws on information disclosure, i.e. enhancing budget transparency (e.g. Benito, Guillamón, and Ríos 2021). Higher unemployment usually reduces tax revenues and increases related expenditures, such as unemployment benefits (Zafra-Gómez, López-Hernández, and Hernández-Bastida 2009). Thus, it is expected that a higher unemployment rate would increase LGs' expenditures and budget deficits.

To control for specific demographic factors that may affect budgetary performance, we include the *dependency ratio*, a variable representing the ratio of the population older than 65 to the population between 15 and 64. A higher share of the elderly population would mean lower personal income tax (PIT) revenue and higher expenditures (e.g., social security and health care), which could end up deteriorating budget balance (see, e.g., Klomp and de Haan 2013).

Fiscal and Political Variables

Wanting to control for LG fiscal capacity, measured with *own revenues pc,* we expect a negative relationship with LG expenditures and a positive relationship with budget balance. As argued by Woo (2003), governments with more own resources are in a better position to solve socioeconomic and distributional problems, which can help them to reduce unnecessary expenditures and deficits. With higher own revenues, it is easier to finance the needs of the local population without borrowing (Działo et al. 2019). LGs with better fiscal capacity may have better opportunities to provide more services cheaper and more effectively, in line with the basic settings of economies of scale (see Swianiewicz 2002; Turley et al. 2018). This is because LGs with weak fiscal capacity (small own revenues pc) mostly spend their funds on administrative overheads (Swianiewicz 2010), and any additional expenditures usually have to be financed by borrowing or grants.

To control for whether greater political competition contributes to improved LG fiscal performance, *political competition*[4] is included in the model (see, e.g., Ashworth et al. 2006; Padovano and Ricciuti 2009). It is also argued that greater female representation in local politics (*women councillors*) affects changes in the structure of power and in the management of LG (Medina and Antonio 2015). Consistent with social role and expectation state theories, some typical stereotypes are that women are better at performing government affairs and social services (Eagly, Karau, and Makhijani 1995) and can be expected to promote a more transparent, open, accountable and inclusive way of working (de Araujo and Tejedo-Romero 2018), thus bringing about an improvement in governance (del Sol 2013). Accordingly, it is expected that women will opt for better fiscal performance and have less motivation for unnecessary expenditures and deficit creation.

Interaction and PBC-related Variables

We also want to address the existence and magnitude of PBC in Croatian LGs in regard to expenditures and deficits. According to PBC theory, opportunistic politicians tend to manipulate budgets in the pre-election period (increasing expenditures and consequently deficits) to signal their competence to voters to increase the probability of (re-)election (e.g., Rogoff 1990; Rogoff and Sibert 1988; Shi and Svensson 2003). Thus, we use dummy variables *pre-election* and *election* years[5] to test whether the budget is manoeuvred, expecting higher expenditures/deficits in pre-election times (e.g., Alt and Lassen 2006b; Shi and Svensson 2006; Veiga and Veiga 2007). We add interaction variables *pre-election year*OLBI* (testing the conditional PBC effect of BT on expenditures/deficit) and *pre-election year*capital expenditures pc* (whether the higher capital investment in the pre-election years affects performance).

Finally, we cannot neglect the specific positioning of LGs in Croatia and the generally high dependence of the economy on tourism. Balaguer-Coll, Prior, and Tortosa-Ausina (2016) argue that tourism-relied LGs need more infrastructure and more public services to meet all the needs of domestic and foreign populations, thus having more investment and expenditure (deficit/borrowing). Accordingly, we control for LGs situated by the sea (a proxy for tourism-oriented LGs) and their capital investment needs, i.e., the impact of such interaction on fiscal performance by including the interaction variable *seaside*capital expenditure pc*. Definitions of all variables with a description of measurements and data sources are presented in Table 1.

Table 1. Definition of variables

Variable	Description	Source
Dependent variables		
Budget balance	Nonfinancial revenue minus nonfinancial expenditures divided by nonfinancial revenue.	MoF data on LGs' finances.
Expenditure pc	Total budget expenditures pc.	
Expenditure in income	Share of total budget expenditures in average residents' income for each LG.	
Independent variable of interest		
OLBI	Open Local Budget Index, the annual online availability of 5 documents - year-end report, mid-year report, budget proposal, enacted budget and citizens budget.	Institute of Public Finance.
Control variables		
Socioeconomic and demographic		
Income pc	Residents' average annual income pc.	Ministry of Regional Development and EU Funds (MRDEU). Pc amounts are based on the Croatian Bureau of Statistics population estimates.
Unemployment rate	Unemployment rate, as registered by the Croatian Employment Service.	MRDEU.
Dependency ratio	Share of elderly (65+) in the working age population (15-64).	Croatian Bureau of Statistics.
Fiscal and political		
Own revenues pc	Total revenues diminished by: domestic and foreign grants and donations; special agreements: the co-financing of citizens for community self-government purposes; additional shares in PIT and equalization grants for decentralized functions.	MoF data on LGs' finances.
Women councillors	Political representation of women, the share of female representatives in the total number of LG councillors.	State Electoral Commission (SEC).
Political competition	Difference between the percentage of votes won by candidates for the executive in 2013 and 2017 local elections. The bigger the difference between the winner and the second on the list, the smaller the political competition.	Authors' calculation based on data from SEC.
Capital expenditures pc	Pc capital expenditures.	MoF data on LGs' finances.
Seaside	Dummy variable - 1 if the LG is situated by the sea.	Authors' calculation.

3.3 Research Model

To explore the impact of BT on the LG budget balance and total expenditures, we set up a strongly balanced panel data regression: for the six-year period (2014-2019) and 556 LGs, we have 3,336 observations. Several authors stressed that panel data analysis yields more robust results than individual time series or cross-sectional studies (Anessi-Pessina and Sicilia 2015; Cuadrado-Ballesteros 2014). Additionally, panel data analysis allows the control of unobserved time-specific and/or individual heterogeneity among the observed explanatory variables (Baltagi, Fingleton, and Pirotte 2014).

In the first regression specification, to test the impact of BT on the budget balance, we set the following equation:

$$budget\ balance_{it} = \alpha + \beta_1 OLBI_{it} + \beta_2 unemployment\ rate_{it} + \beta_3 income\ pc_{it} + \beta_4 own\ revenues\ pc_{it} + \beta_5 women\ councillors_{it} + \beta_6 preelection\ year * OLBI_{it} + \beta_7 preelection\ year * capital\ expenditures_{it} + \beta_8 election\ year_{it} + \beta_9 seaside * capital\ expenditures_{it} + \varepsilon_{it}; i = 1, \dots N;\ t = 1, \dots T \quad (1)$$

where α denotes time-invariant fixed effects, β_1 is a vector of the estimated parameter of the variable of interest, and β_2 - β_9 are vectors of the estimated parameters of the included control variables. N denotes the cross-sectional dimension (number of LGs), and T denotes the number of time periods (time series dimension).

In the second regression specification, to test the impact of BT on the total budget expenditures, the following equation is set:

$$budget\ expenditures_{it} = \alpha + \beta_1 OLBI_{it} + \beta_2 own\ revenues\ pc_{it} + \beta_3 women\ councillors_{it} + \beta_4 political\ competition_{it} + \beta_5 dependency\ ratio_{it} + \beta_6 preelection\ year_{it} + \beta_7 preelection\ year * OLBI_{it} + \beta_8 election\ year_{it} + \varepsilon_{it}; i = 1, \dots N;\ t = 1, \dots T.$$

In accordance with previous similar studies, we use two different measures for total budget expenditures, i.e., pc values, and the share of expenditures in residents' income for each LG. To estimate these two specifications, we applied a DPD estimator, namely, the two-step system generalized method of moments (system GMM) technique (Arellano and Bover 1995; Blundell and Bond 1998; Roodman 2009). This approach is useful to control for endogeneity of the lagged dependent variable, i.e., when there is correlation between the explanatory variable and the error term. It is also designed to account for omitted variable bias, unobserved panel heterogeneity, measurement errors, autocorrelation, and heteroskedasticity.

4. Results

4.1. Descriptive Analysis

Table 2 presents the descriptive statistics for all the dependent variables, the variable of interest and the control variables. Panel A displays continuous variables, and panel B displays discrete variables. For all continuous variables, there are large differences between the minimal and the maximal values. Regarding the dependent variable *budget balance*, there are larger deviations from the balanced budget on the deficit side than in the case of surpluses (186 vs. 66%). Although deficits are more pronounced in some LGs, the mean shows a slight surplus (0.29%). The second dependent variable, *expenditure pc*, also shows large differences among LGs. The mean value of LGs' total pc expenditures is HRK 4,205 (from HRK 643 to HRK 29,789). Additionally, *expenditure on income* shows that there are large differences among LGs in regard to the share of total expenditure in residents' income of each individual LG (up to approximately 180%); however, the mean value is 16%.

In regard to the discrete variables (panel B), the variable of interest *OLBI* shows that there is a higher frequency in the publication of a larger number of budget documents. In the period 2014-2019, approximately a quarter of LGs published all five requested budget documents, while significantly fewer LGs published 2 or 1 or did not publish any documents (approximately 11% in each group). The three budget documents for which there is a legal obligation to publish (year-end reports, mid-year reports, and enacted budgets) are published more than the documents for which this legal obligation does not exist (budget proposals and citizens budget).

The control variables also deserve a comment. Large differences in socioeconomic and demographic variables - *unemployment rate*, *income pc*, and *dependency ratio* - point to large economic and social inequalities among LGs. Such gaps among LGs confirm the spatial fragmentation and inequality of regional development (see Klarić 2017; Nejašmić and Njegač 2001). This is also confirmed by the variables *own*

Table 2. Descriptive statistics

Panel A: continuous variables					
Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Budget balance (%)	3,336	0.29	18.78	-186.49	66.32
Expenditure pc	3,336	4,205	2,795	643	29,789
Expenditure in income (%)	3,336	16.31	11.21	1.62	182.35
Unemployment rate (%)	3,336	14.06	9.59	0.41	57.92
Income pc	3,336	26,553	6,977	1,436	53,102
Own revenues pc	3,336	3,141	2,375	232	20,730
Women councillors (%)	3,336	21.26	12.64	0	66.67
Political competition (%)	3,336	29.13	22.15	0.16	98.26
Capital expenditures pc	3,336	1,247	1,379	0	23,384
Dependency ratio (%)	3,336	30.60	11.58	14.38	178.05
Panel B: discrete variables					
	Frequency	Percentage	Cumulative		
OLBI					
0	342	10.25	10.25		
1	367	11.00	21.25		
2	392	11.75	33.00		
3	682	20.44	53.45		
4	697	20.89	74.34		
5	856	25.66	100.00		
Pre-election year (1)	556	16.67	16.67		
otherwise (0)	2,780	83.33	100.00		
election year (1)	556	16.67	16.67		
otherwise (0)	2,780	83.33	100.00		
seaside (1)	708	21.22	21.22		
otherwise (0)	2,628	78.78	100.00		

Source: Authors' calculations

revenues pc and *capital expenditures pc,* which show that individual LGs have different fiscal capacities and fiscal needs.

There are also large differences among LGs in the representation of women in local councils (from 0 to 67%). The mean value of 21%, significantly lower than the European average of 32% (Shreeves and Prpic 2019), indicates gender imbalances in local representative bodies. In addition to the PBC-related variables, the *seaside* control variable is included, which shows that approximately 21% of LGs are located by the sea, representing a proxy for larger tourist activities.

4.2. Panel Data Regression Analysis

To overcome the shortcomings of the FE/RE models (e.g., potential endogeneity issues), we use the system GMM estimator (Arellano and Bover 1995; Roodman 2009), favourable for small time-series and large cross-sectional dimensions, the case in our panel dataset. Because of the short time span (6 years), we use only one lagged year. According to Arellano and Bover (1995) and Blundell and Bond (1998), the system GMM estimator corrects endogeneity by introducing instruments to improve the efficiency and robustness of the model. Therefore, we employ a system of two equations – instruments for orthogonal deviations equation and instruments for levels equation, i.e., internal instruments (GMM type endogenous variable) and external instruments (instrumental variables) and include time dummies as instruments (Roodman 2009). In Stata, we use the *xtabond2* command, as it makes available a finite-sample correction to the two-step covariance matrix, makes two-step robustness more efficient, and addresses the instrument proliferation

problem (Blundell, Bond, and Windmeijer 2001).

The validity of the GMM estimator depends on satisfying the assumption that error terms are not exposed to the serial correlation problem and on the validity of the instruments used. The Arellano-Bond test for *AR* (1) (see Tables 2 and 3) indicates a first-order serial correlation ($p = 0.000$), as expected in the system GMM settings due to the lagged dependent variable. All estimated models show the absence of second-order serial correlation in disturbances (*AR* (2), $p = 0.457$; $p = 0.217$; $p = 0.192$). We also monitor other conditions for meeting the validity of the GMM estimator, that the number of instruments is less than the number of groups, and the Hansen test of overidentifying restrictions. The Hansen test in the first model specification ($p = 0.203$) and in the estimates for *budget expenditures* ($p = 0.258$ and 0.134) confirms that the instruments used can be considered valid (Roodman 2009). Finally, the *F*-statistic in all three estimations strengthens the correct model specification, showing that the overall regression specification is significant ($F = 6.82$; 102.28; 84.58; $p = 0.000$).

The results for the first estimation (Table 3) show that the BT variable (*OLBI*) is significant at the 1% level and negatively associated with our dependent variable *budget balance* ($\beta_1 = -2.056$, $p = 0.003$), indicating that higher LG BT increases the likelihood of a deficit. As argued by Alt, Lassen, and Skilling (2002), higher transparency leads to higher voter confidence in politicians, making public goods more interesting to the electorate, which has the effect of increasing public expenditures and deficits. We found that increased budget expenditures make it difficult for LGs to maintain a balanced budget, especially for those with lower *own revenues pc*, as they usually have to borrow to finance additional expenditures, thus increasing the likelihood of a deficit. We prove the existence of PBC at the LG level, i.e., an increase in deficit in the pre-election year is influenced by the manipulative increase in capital expenditures (*Pre-election*capital expenditures*). However, we find that more transparent executives on average do not seek to manipulate budgetary outcomes in pre-election times (*Pre-election*OLBI*). In fact, we find that PBC is conditioned by the level of BT, i.e., it can be observed as a conditional factor that limits 'opportunistic' pre-election expenditures and deficits.

The variable *own revenues pc*, representing LGs' fiscal capacity, shows that higher fiscal capacity contributes to budgetary surplus. As stressed by Działo et al. (2019), higher own revenues make it possible for LGs to finance local needs more easily without borrowing. These LGs often have better opportunities to provide more services more cheaply and effectively, in line with the basic settings of economies of scale.

Table 3. Results of the dynamic panel-data system GMM estimation, *budget balance*

Independent and control variables	Short run	Long run
Dependent_lagged	-0.076* (-1.94)	
OLBI	-2.056*** (-2.86)	-1.887*** (-3.01)
Unemployment rate	0.030 (0.54)	
Income pc	0.0001 (0.75)	
Own revenues pc	0.0007** (2.47)	0.001** (2.48)
Women councillors	0.007 (0.23)	
*Pre-election*OLBI*	1.713*** (6.49)	1.584*** (6.45)
*Pre-election*capital expenditures*	-0.001* (-1.71)	-0.001* (-1.73)
*Seaside*capital expenditures*	-0.001** (-2.79)	-0.001** (-2.81)
No. of observations	3,336	
No. of groups	556	
No. of instruments	14	
AR(1) (*p*-value)	0.000	
AR(2) (*p*-value)	0.457	
Hansen test (*p*-value)	0.203	
F-statistic	6.82***	

Source: Authors' calculations

Note: *t*-statistics (in parentheses) are based on White heteroskedasticity-consistent standard errors. In the long-run estimations, *z*-statistics are in parentheses. The long-run coefficients are calculated as β (significant short-run variable)/1-β (lagged dependent variable). Significance levels: 1%, ***; 5%, **; 10%, *.

Consistent with Balaguer-Coll, Prior, and Tortosa-Ausina (2016), we found that LGs with access to the sea (as a proxy for a tourism-oriented LG) have higher capital expenditures and are more likely to run deficits (*Seaside*capital expenditures*).

For the variables that proved significant in the basic short-run estimations, we also calculated the long-run effects for each individual variable (third column in Table 3), which significantly confirmed our basic short-run outputs. The values of BT, fiscal capacity, and PBC-related variables also have a long-run impact on our dependent variable budget balance.

In regard to budget expenditures (Table 4), we presented two measures – total expenditures pc and the share of total expenditures in each LG's total

residents' income. The variable of interest – *OLBI* – is positively associated with both measures of our dependent variable *budget expenditures* (significant at 1% and 5% for short and long run, respectively). These results are in line with Alt, Lassen, and Skilling's (2002) analysis and principal-agent theory, suggesting that electorates have more confidence in politicians who are more fiscally transparent, which leaves politicians room for higher expenditures, i.e., for increasing government size.

We have also found the effect of the electoral cycle on total expenditures, showing that LGs' budgets are manoeuvred in the pre-election year when the executive increases total budget expenditures. However, more transparent LGs do not show these opportunistic cycles (*Pre-election*OLBI*). In this sense, BT can be viewed as a stronghold that reduces the possibility of pre-election manipulations. Additionally, in the period close to the local elections (approximately five months before and seven months after the elections – variable *election year*), we found that the local executive reduces total expenditures, i.e., adjusts or stabilizes the budget for the upcoming longer postelection period.

The own revenues pc variable shows that LGs with more own resources better manage their funds and generally show smaller public expenditures, both pc and as a share of residents' income. These effects diminish in the long run. It seems that LGs with lower own revenues pc do not have enough revenues to cover the necessary expenditures because their per capita expenditures and/or share of expenditures in income are significantly higher than they are in larger LGs. This can be related to the aforementioned economies of scale. Consistent with social role and

Table 4. Results of the dynamic panel-data system GMM estimation, *budget expenditures*

	Expenditure pc		Expenditure in income	
Independent and control variables	Short run	Long run	Short run	Long run
Dependent_lagged	0.356**		0.208	
	(2.43)		(1.03)	
OLBI	3.669***	5.698**	16.68***	21.07**
	(4.12)	(2.74)	(4.27)	(2.62)
Own revenues pc	-0.565*	-0.877	-0.005***	-0.006**
	(-1.88)	(-1.49)	(-4.22)	(-2.72)
Women councillors	-28.78*	-44.69	-0.152**	-0.192*
	(-1.74)	(-1.53)	(-2.16)	(-1.86)
Political competition	5.292		0.040	
	(0.71)		(1.28)	
Dependency ratio	74.65**	115.91**	0.451***	0.569***
	(2.51)	(2.29)	(3.35)	(3.02)
Pre-election year	8,336***	12,943**	37.95***	47.93**
	(3.83)	(2.63)	(3.99)	(2.51)
*Pre-election*OLBI*	-3.195***	-4.961**	-14.40***	-18.18**
	(-4.02)	(-2.71)	(-4.12)	(-2.56)
Election year	-666**	-1.034**	-3.29***	-4.16***
	(-2.74)	(-2.29)	(-3.31)	(-2.87)
No. of observations	3,336		3,336	
No. of groups	556		556	
No. of instruments	14		14	
AR(1) (*p*-value)	0.000		0.000	
AR(2) (*p*-value)	0.217		0.192	
Hansen test (*p*-value)	0.258		0.134	
F-statistic	102.28***		84.58***	

Source: Authors' calculations

Note: *t*-statistics (in parentheses) are based on White heteroskedasticity-consistent standard errors. In the long-run estimations, *z*-statistics are in parentheses. The long-run coefficients are calculated as β (significant short-run variable)/1-β (lagged dependent variable). Significance levels: 1%, ***; 5%, **; 10%, *.

expectation states theories, we find that the greater female representation in local representation is, the lower the total expenditures, particularly in the short run estimates.

Finally, we show that a higher share of the elderly population in a particular LG (*dependency ratio*) brings about an increase in total expenditures (as previously discussed by Klomp and de Haan 2013).

5. Discussion and Conclusions

We explore the impact of the level of LGs' BT on budget balances and expenditures. Using a dataset of all 556 Croatian LGs in the 2014-2019 period, we show that increasing BT makes public goods more interesting to the electorate, thus causing an increase in public expenditures. It seems that this situation makes it difficult to maintain a balanced budget, especially for LGs with low fiscal capacity (*own revenues pc*), which usually have to borrow to finance additional expenditures, thus increasing the likelihood of a deficit. We also prove the existence of (conditional) PBC at the LG level, showing that BT reduces total expenditures and deficits in the pre-election year.

In regard to other control variables, one of the biggest impacts on budgetary outcomes is made by the *own revenues pc* variable, indicating that LGs' fiscal capacity largely determines their fiscal performance. We found that higher fiscal capacity contributes to better budgetary balance and expenditure management. In the context of economies of scale, LGs with lower own revenues pc simply do not have enough revenues to cover the necessary expenditures, as their expenditures (pc and as share in residents' income) are higher than in LGs with higher fiscal capacity. LGs with small own revenues pc often spend most of their revenues on administrative overheads; thus, additional expenditures usually have to be financed by borrowing or grants. This points to spatial fragmentation, unequal regional development, and the unsustainability of 'small' LGs in Croatia that lack the resources to perform the most basic functions. The government should encourage (and demand) mutual association of spatially close LGs to organize the joint provision of public goods and services, thus improving quality and reducing costs and enabling joint applications for EU funding. The government should also finally consider territorial reorganization and a reduction in the number of LGs (especially the smaller ones).

The second recommendation for policy makers is self-evident and directed towards the continuous promotion and improvement of LGs' BT and citizen participation, which is a process that should be established and understood as a mechanism based on continuous improvement in line with recommended good practices. We find that BT limits the level of pre-electoral budgetary manipulations, and it must serve as a stepping stone to the next developments – citizen involvement, constructive participation, participatory budgeting, and improvements of budget literacy. Greater BT (followed by continuous scrutiny by residents and councillors) could significantly contribute to better allocation of local funds, reducing (unnecessary) expenditures and achieving a better budget balance. Doing so leaves space for the improvement in the efficiency of local budgets and quality of the public goods and services provided, which is the final output felt by the end users – local residents. Additionally, if they want to improve their own sustainability, LGs with low fiscal capacity need to find more ways to generate greater amounts of their own revenues. All actors – central government, LGs and political parties – should constantly promote activities that encourage gender-balanced representation on candidate lists. This strengthens women's political representation in local executives and representatives, which has the effect of improving BT, participation, and accountability (see, e.g., de Araujo and Tejedo-Romero 2018; Tavares and da Cruz 2020) and inducing better management of local expenditures, as proven in this paper. In accordance with the results of this paper, the citizens themselves should be additionally engaged, demand higher BT and participate in the process of planning and execution of budget funds. In general, citizens, the media and experts need to exercise better control over local finances, especially in opportunistic pre-election years.

The originality of this work lies in its use of the OLBI as a new measure of local BT and a unique panel dataset of all 556 Croatian LGs over the six-year period. It is a rare exploration of the effect of BT on both budget balances and expenditures based on a dataset consisting of every LG in a single country. We show that BT itself is not sufficient for the achievement of better fiscal performance but can still serve as a conditioning factor that determines the magnitude of budgetary outcome manipulations for opportunistic goals.

Future studies could i) try to develop a more extensive measure of local BT focusing on the quality of budgetary documents, ii) employ additional methodologies (such as spatial regression analysis) that use the available unique panel database, iii) build on these results and focus the investigation solely on (conditional) PBC effects including some other controls such as the proportion of people who have Internet access, iv) explore the effects of re-election of local incumbents on budgetary performance, etc.

Endnotes

1 In the literature, the terms BT and FT are often used interchangeably. Here, the abbreviation FT denotes both terms, since FT is a broader term that also includes government structure and functions. The abbreviation BT represents solely budgetary transparency.

2 Croatia has 556 LGs (consisting of 128 cities and 428 municipalities) plus 20 counties (regional self-government). The City of Zagreb with its status of both city and county is here included as a city. We focus exclusively on the local government level, i.e. cities and municipalities.

3 Nonfinancial revenue includes current and capital revenue. Nonfinancial expenditure includes current and capital expenditures.

4 Initially, we have also considered incorporating the variable *political ideology*, but the political spectrum and present coalitions at the LG level are very mixed in Croatia, including numerous coalitions with different (conflicting) political affiliations, making it difficult to divide into classic left and right wing governments.

5 Although our objective is not exclusively the research of (conditional) PBC, we do use electoral cycle and interaction variables to address this issue. The local elections in 2013 and 2017 were held in May, so the dummy variable *election year* reflects the effects of the period closely related to the holding of elections, i.e., the short pre-election and post-election period. However, future studies could add (isolate) an additional model exclusively related to the electoral cycle effects.

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