What determines the fiscal success at a local level? The case of Croatian local government units

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Abstract. The paper investigates the relationship between Croatian local government budget outturns (i.e., fiscal success) and a chosen set of economic and non-economic determinants. The determinants are divided into four groups: (i) economic, (ii) political, (iii) transparency and (iv) socio-historical. Three main goals are set in the paper. The first is to determine whether there are differences in fiscal success at the different levels of administrative governance (counties, cities and municipalities) in Croatia. Subsequently, the second goal is determining whether such differences are of an economic or non-economic origin and third, whether such differences are robust, meaning do they persist at all three administrative levels. If the differences are not persistent, the question remains as towards what determinants (economic or non-economic) do they diverge. The analysis is conducted on the entire population, i.e. 428 municipalities, 128 cities and 20 counties for the period 2012–2014. Panel data and regression analysis are applied to study the differences and signs of independent variables. The obtained results indicate that differences between local government units in Croatia stem are of an economic and political origin.

Keywords: local government budget, Croatia, panel data analysis, budget transparency, political economy

1. Introduction

The main issues typically emphasized in the on-going debate on Croatian regional development are the large number of local government units (LGUs), the overlapping of their functions and responsibilities[‡] as well as limited fiscal capacity

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‡ Yilmaz and Guner [24] point out the necessity of a clear framework that describes the roles and responsibilities of different levels of government. Otherwise, the division of roles and responsibilities may become a potential source of tension and confusion in decentralization.

([15] and [10]). The general thought in literature on local government is that these issues may lead to a lack of fiscal responsibility, inefficiencies and consequently lower fiscal success of LGUs ([2] and [15]). In view of the current lack of fiscal success of Croatian LGUs, the literature concludes that it is a direct consequence of inadequate decentralization processes carried out in the 1990s that resulted in local budgets having first and foremost a social and political and not economic function. This in return resulted in their pro-cyclical effect during business cycles that jeopardized the stabilizing function of public finances ([12], [13] and [14]).

Accordingly, the main motivation in this paper is a holistic approach to fiscal determinants in regional and local government levels in Croatia. Thus, this paper takes a closer look at the relationship between Croatian local government budget outturns (i.e., fiscal success) and selected economic and non-economic determinants. Three main goals are set out in the paper: (1) to determine whether there are differences in fiscal success at different levels of administrative governance (counties, cities and municipalities) in Croatia; (2) to determine whether such differences have an economic or non-economic origin, and (3) whether such differences are robust, meaning do they persist at all three administrative levels. If the differences are not persistent, the question is as in what determinants (economic or non-economic) do they diverge. Methodology based on panel data and regression analysis are applied in order to study the differences and signs of the independent variables.

Given that empirical literature on the fiscal success of Croatian LGUs is limited, this research contributes to a better understanding of determinants involved in fiscal success by combining two branches of literature, i.e., economic and political. Consequently, it provides new insight into the fundamental issue, i.e. the fiscal success in local public finances and regional economics. Keeping that in mind, the determinants are divided into four distinct groups of variables: (i) economic, (ii) political, (iii) transparency and (iv) socio-historical. The analysis is conducted for all three levels of LGUs, i.e., 428 municipalities, 128 cities and 20 counties during the period 2012–2014 and involves the (i) economic, (ii) political (iii) transparency and (iv) socio-historical components.

The remainder of the paper is organised as follows. The current state of local government units and a rationale for the selecting the particular variables are explained in the second section. In section three, existing empirical research is explained. The fourth section discusses the utilized data set, while the fifth section provides an overview of the methodology. The main empirical results and their implications for the fiscal success of the LGUs are elaborated in the sixth section. And finally, the main conclusions of the conducted research are summarized in section seven along with recommendations for future research.

2. Local and regional governments in Croatia

Croatia is a small and fiscally centralized country, divided into an excessive number of regional and local government units. Currently, it is divided into three administrative levels. Namely, it has 20 counties plus the City of Zagreb which, as the capital city, has special status. These 21 units represent the regional government. However, the counties are further divided into 428 municipalities and 128 cities which represent local governments.

Each regional and local unit manages its own budget which is approved by the regional or local council. Since the local elections in 2009, county and municipality heads and mayors are elected directly by voters and have the power to formulate and send their budgets to regional and local councils for approval. Therefore, regional and local councils may reject a proposed budget. However, in that case, the local or regional unit in question calls for early elections. Hence, first political variable selected in this paper is the ideological stance of an incumbent – mayor, county or municipality head since they are the most important figure in the budget process.

The revenue and expenditure side of the budget is recorded in manner similar to the national budget. Based on economic classification, the expenditure side of the budget is mostly concentrated on material costs and salaries as well as on other expenditures[§], while the functional classification indicates that public revenues go mostly towards general public services, transport, communication and education [23]. The revenue side of the budget is divided into tax revenue, non-tax revenue, capital revenue and grants. Given that Croatia is a textbook example of a fiscally centralised country ([3] and [23]), the majority of the local government revenue comes from income tax which is a common tax shared between the central government and cities and municipalities. Moreover, both regional and local governments have their own tax revenues (e.g. surtax, real estate commerce tax, etc.) which together constitute the majority of their revenue. For that reason, this article focuses on tax revenues to examine their impact on the fiscal success of local and regional units.

With respect to high fiscal centralization, special emphasis was given to grants from the central government to regional and local units due to vaguely defined economic and but clear political criteria [20]. Existing economic regional imbalances in Croatia have been already empirically investigated and they all point to a high vertical fiscal imbalance and horizontal fiscal inequalities. These findings emphasize the need for clearer economic criteria and a focus on vertical as well as horizontal equilibrium ([3] and [23]). Closely connected is the question of indebtedness of local and regional units in Croatia, which also represents one

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[§] The negative relationship between the budget transparency and the higher the share of other expenditures is often highlighted in the literature.

of the variables in the empirical part of this paper. Existing legislation [25] obliges regional and local level to seek for approval from the Ministry of Finance in case of any credit or bond obligations and puts cumulative constraints on all regional and local governments. But there seems to be a moral hazard problem in this, due to the fact that the central government guarantees for their debts, hence local and regional units circumvent these constraints in various ways.

3. Literature review

To date, empirical literature on the fiscal success of Croatian LGUs is limited. Existing empirical research has focused mainly on municipalities and cities and, to the authors' knowledge, there has not been a single paper that has simultaneously examined all three levels of administrative governance in Croatia.

Rašić Bakarić et al. [22] analysed factors that influence economic success of Croatian cities. The authors found that among factors that determine differences in economic success are the size of the cities, the distribution of cities into larger regional units (e.g. cities in the northwestern part of Croatia exhibit better results compared to cities in other regions) and the dominant political party in a city. The same authors conducted a similar study for Croatian municipalities [21] and concluded that large municipalities have a higher fiscal capacity. The authors recommend a more cost effective and fiscally sustainable administrative division and the enlargement of current municipalities. Furthermore, a mayor's political affiliation is directly related to differences in the relative amount of aid granted from the central government budget. Jurlina Alibegović and Slijepčević [11] investigated the possibilities for measuring the performance of LGUs. The authors identified that one of the main obstacles for regional development is a significant divergence of budgetary outturns from the originally approved budget, both on the revenue and expenditure side of the budget.

On the international level, Ashwort et al. [1] analysed 28 countries from 1976 to 2000 and found that the amount of revenue raised by sub-national governments leads to a long-term fall in the size of government. However, grants have the opposite effect. In addition, the authors found evidence that greater decentralization of expenditure leads to greater overall spending. On the other hand, on a panel of 17 OECD countries over the period from 1975 to 2001, Baskaran [5] reports that expenditure decentralization significantly reduces public indebtedness, whereas tax decentralization and vertical fiscal imbalances are statistically insignificant.

Using budget data from a panel of 47 US states for the period 1970-1991, Bohn and Inman [6] found that balance requirements enforced as constitutional constraints by an independently elected (not politically appointed) state supreme court have significant positive effects on a state's general fund surplus. Similar results relating to fiscal constraints on the budget balance were confirmed by Feld

and Kirchgassner [7] using a panel of the 26 Swiss cantons from 1980 to 1998. Furthermore, the authors provide evidence that direct democracy leads to signify-cantly lower expenditure and revenue. Additionally, cantonal as well as local expenditure and revenue are lower, the higher the share of local expenditure. The impact of he ideology of incumbents on the size of US state government between 1950 and 1997 was empirically tested by Pickering and Rockey [19]. The authors report that the interaction of ideology and mean income is a key determinant of state government size. Namely, a one standard deviation move towards the left of the ideology spectrum increases state government size by about half a standard deviation.

4. Data

The paper uses three distinct datasets:

1. a dataset that consists of a cross-section of Croatian counties ($N = 20$) for the period from 2012 to 2014 ($T = 3$),
2. a cross-section of Croatian cities $N=128$ ($N = 128$) for the period from 2012 to 2014 ($T = 3$), and
3. a cross-section of Croatian municipalities ($N = 428$) for the period from 2012 to 2014 ($T = 3$).

All datasets employ the same set of variables and the data on these variables were obtained from various sources. The dependent variable, fiscal success (FS) was defined as a ratio of budget surplus/deficit and total revenues and is therefore expressed in per cent of total revenue of the local government. Data on budget surplus/deficit and total revenues of the local government were obtained from the Ministry of Finance. The determinants of fiscal success (independent variables) are divided into four groups. The first group consists of economic variables: share of tax revenues in total revenues (TAX); debt level (DEBT) measured as debt per capita in national currency (HRK), and deflated by the harmonised index of consumer prices (HICP), 2015=100; and share of grants in total revenue (GRANTS). Data on tax revenues, debt level and grants were obtained from the Financial Agency (FINA), while the HICP series were obtained from Eurostat.

The second group of independent variables contains political variables that describe political affiliation of the mayor labelled as ideo_l and ideo_r. The variables are defined as dummy variables that take on the value of one if a mayor supports left wing parties (ideo_l) or right wing parties (ideo_r), respectively, and zero otherwise. Coinciding ("matching") of political affiliation at the local and central government level (variable MATCH) is defined as a dummy variable that takes on the value of one if the political affiliations at the local and central government level coincide. Data for the political variables are taken from State Electoral Commission of the Republic of Croatia.

The third group (transparency) includes only one independent variable: the citizens' budget (CB), defined as a dummy variable that takes on the value of one if the local government unit issues a budget guide or similar simplified form of a budget document aimed at clarifying the local budget process to its inhabitants. The source for these data is the Institute of Public Finance.

And finally, in the fourth group, as a representative of socio-historical variables, the variable war affected areas (WA) was analysed. WA is measured as the number of war veterans with disability for every 1000 inhabitants. The relevant data were obtained from Croatian Bureau of Statistics (CBS).

5. Methodology

Limited by the availability of data, the analysis was based on two different empirical models. The impact of economic and political determinants on fiscal success was studied using a panel methodology. Given that the analysis is performed on the entire population, i.e. 428 municipalities, 128 cities and 20 counties, and the conclusions are drawn from the entire population, the panel fixed effects model is the preferred model [9]. The model is defined as

$$y_{i,t} = \alpha_i + X_{i,t}\beta + u_{i,t}, \quad i = 1,\ldots,N, t = 1,\ldots,T \tag{1}$$

where $y_{i,t}$ is the dependent variable, i.e., fiscal success, $X_{i,t}$ is a matrix of selected economic and political determinants, is a matrix of coefficients and $_i$ is a group-specific constant term that captures (individual) heterogeneity for each group. $u_{i,t}$ is the error term.

Matrix $X_{i,t}$ comprises economic variables (TAX, DEBT, GRANTS), political variables (ideo_l, ideo_r and MATCH) and an interaction term: GRANTS_MATCH. Inclusion of the interaction term as an additional regressor, enables analysing if the relationship between GRANTS and FS depends on compliance of political affiliations at the local and central government level.

For selecting the appropriate panel model, two tests were applied: the *F*-test for poolability and the Breusch-Pagan Lagrange multiplier (LM) test for random effects. The *F*-test for poolability (*F*-test for Fixed Effects) is performed to verify if individual (group-specific) effects exist. If the null hypothesis is rejected, the conclusion is that there is a significant fixed effect, i.e. that the fixed effect model is preferred to the pooled ordinary least squares (OLS) model.

The Breusch-Pagan Lagrange multiplier (LM) test examines if any random effect exists. The null hypothesis is that the error variance components are zero. If the null hypothesis is not rejected, the pooled OLS model is preferred. Otherwise, the random effect model outperforms the pooled OLS.

As a result of model specification tests, the pooled OLS model proved to be the adequate model for all local government units (counties, municipalities and cities)[**], i.e., for all LGUs we imposed restrictions on model (1) where $=$ $_i$ for all $i = 1,…,N$ and estimated the pooled OLS model

$$y_{i,t} = \alpha + X_{i,t}\beta + u_{i,t}, \quad i = 1,…,N, t = 1,…,T \ . \tag{2}$$

When analysing the effect of (iii) transparency and (iv) socio-historical variables on fiscal success, the analysis was restricted to the year 2014 due to data availability. Hence, regression analysis was performed. Two separate models were estimated using fiscal success (FS) as a dependent variable and variables citizens' budget (CB) and war affected areas (WA) as explanatory variables.

6. Empirical results

The results of the descriptive statistics for the dependent variable (fiscal success) presented in Table 1 confirm that there are differences with respect to fiscal success at different levels of administrative governance. The sample of municipalities was classified as fiscally "liberal" in the sense that their fiscal success, budget balance, indicates, on average, budget deficit. On the other hand, the sample of counties and cities were classified as fiscally "conservative" in the sense of keeping their budget balance prudent in comparison to the municipalities. One can relate this result to the fiscal strength of the examined LGUs and the existing legislation, such as the Budget Act. As a fiscally centralized country, the Croatian central government shares its tax revenues mostly with cities and municipalities (e.g. income tax) which makes them fiscally much more powerful compared to counties [3]. Additionally, there is not much "room of for manoeuvring" for municipalities to use local public utility companies in order to circumvent legislative constraints on budget deficit and debt levels, as cities often do, so their fiscal success is lower [4].

	Municipalities	Cities	Counties
Observations	1284	384	60
Mean	-0.9889	1.6505	1.6970
Standard deviation	20.9215	13.2162	4.0875
Min	-234.0997	-81.0629	-12.8811
Max	88.9671	35.1626	10.0524

Table 1: *Descriptive statistics for the dependent variable (fiscal success) for the period 2012-2014*

[**] OLS model produces efficient and consistent parameter estimates [9].

The descriptive statistics for the economic and political determinants are presented in Table 2 and the transparency and socio-historical variables given in Table 3.

	TAX	DEBT	GRANTS	Ideo_l	Ideo_r
Municipalities					
Observations	1284	1284	1284	1284	1284
Mean	43.7120	302.1947	20.4810	0.1635	0.6106
Standard deviation	16.0324	869.8249	17.3145	0.3700	0.4878
Min	4.5006	0	0	0	0
Max	84.5505	10762.85	90.4718	1	1
Cities					
Observations	384	384	384	384	384
Mean	49.0787	651.0762	16.1609	0.2682	0.5417
Standard deviation	12.6001	737.7886	11.8846	0.4436	0.4989
Min	6.0323	0	0.3485	0	0
Max	79.5710	3955.278	61.9005	1	1
Counties					
Observations	60	60	60	60	60
Mean	42.3407	290.8588	44.3711	0.2167	0.6833
Standard deviation	15.8264	293.7089	16.4067	0.4154	0.4691
Min	16.8692	0.0295	10.6576	0	0
Max	79.2048	1071.111	71.1054	1	1

Table 2: *Descriptive statistics for economic and political determinants for the period 2012-2014*

The results from Table 2, namely the share of tax revenues in total revenues, indicate that, on average, all three administrative levels have less than 50% of their revenues stemming from taxes. Thus, confirming high fiscal centralization of regional and local government in Croatia as noted by [2], [3] and [23]. Data on debt and grants complete the picture. The highest percentage of grants in total revenues was recorded in counties, thus indicating their low fiscal strength. Additionally, this finding also provides one of the reasons why counties have a prudent fiscal stance. They do not have access to significant funds that would allow them to behave in a fiscally irresponsible manner. The sequence of debt for three administrative levels is exactly the same as is the case for grants. Namely, counties have the lowest level, whereas cities, fiscally the strongest local units, have the highest amount of debt. Political variables indicate that right wing incumbents

were mostly in power during the 2012-2014 period across all three administrative levels.

	Observations	Mean	Standard deviation	Min	Max
Municipalities					
CB	427	0.0094	0.0964	0	1
WA	418	7.9707	7.7218	0	46.2921
Cities					
CB	128	0.1484	0.3569	0	1
WA	128	10.3670	8.9720	0.1650	64.9826
Counties					
CB	20	0.35	0.4894	0	1
WA	20	0.0174	0.0083	0.0038	0.0296

Table 3: *Descriptive statistics for transparency and socio-historical variables for 2014*

As shown in Table 3, three administrative levels diverge significantly regarding budget transparency and war consequences. The highest percentages of war affected areas are recorded at the city and municipalities level, due to the fact that not all parts of Croatia were exposed to war. A small percentage of municipalities issue citizens' budget (CB) while the highest percentage was recorded at the county level. This finding has two important implications. First, low administrative capacity at the municipality level indicates that municipalities have a high opportunity cost when it comes to publishing CBs. Second, since budget transparency is ultimately a question of political will, this is a clear sign of a lack of such will and disrespect towards their constituency.

Based on the result of specification tests of the models, the following tables (Tables 4-6) present the results of the estimated models for the political and economic determinant (Table 4), for the transparency determinant (Table 5) and for the socio-historical determinant (Table 6).

	Municipalities	Cities	Counties
TAX	-0.0439	-0.0058	-0.0237
	(0.0440)	(0.0558)	(0.0677)
DEBT	-0.0042**	0.00015	-0.00037
	(0.0013)	(0.0010)	(0.0020)
GRANTS	-0.0326	0.00004	-0.0476
	(0.0448)	(0.0749)	(0.0764)
ideo_l	0.3590	-0.0767	-1.2049
	(2.4170)	(1.9841)	(2.4809)
ideo_r	1.6194	-1.5159	1.0789
	(1.3609)	(1.7859)	(2.1839)

GRANTS_ MATCH	0.1535* (0.0886)	-0.1112 (0.1056)	0.1169* (0.0647)
constant	1.2780 (2.6869)	3.1846 (3.7996)	3.2493 (5.7207)
Observations	1284	384	60
F statistics	2.82	0.42	1.05
Prob > F	0.0098	0.8655	0.4023
R-squared	0.0347	0.0042	0.1099
Root MSE	20.603	13.293	4.0687
Model specification tests			
F-test for poolability	F(427,849) = 1.05 Prob > F =0.2665	F(127,249)=1.27 Prob > F =0.0539	F(19, 34) = 1.48 Prob > F = 0.1572
LM test for random effects	chibar2(01) = 0.00 Prob>chibar2=1.00	chibar2(01) = 0.00 Prob>chibar2=1.00	chibar2(01) = 0.00 Prob>chibar2=0.49

Robust standard errors are in parenthesis;
*, ** statistical significance at 10% and 5%, respectively

Table 4: *Results of the estimated model for economic and political determinants.*

The results of the estimated model (Table 4) enable successful identification and determination of factors that influence the observed differences of fiscal success at different levels of administrative governance. With respect to the political and economic determinants, a significant correlation for one economic variable, namely debt level of LGUs, and one interaction variable that combines political and economic variable was established. This interaction variable combines the level of grants that central government provides to LGUs with partisan "matching" (dummy variable that takes on the value one if the incumbents at the local and national level are members of the same or ideologically similar party).

Furthermore, the obtained results indicate that there are differences among the LGUs in Croatia. Namely, at the county and municipality level there is a positive correlation between the interaction variable (GRANTS_MATCH) which indicates that in LGUs with lower fiscal capacities political affiliation does determine fiscal success. This result has serious implications due to its clear relationship with opportunistic political budget cycles that are already confirmed at the local level in Croatia [13]. The findings of this research confirm that a county or municipality is able to get scarce financial resources through grants just by being politically "loyal". Considering that a significantly large part of funds being allocated through grants are capital expenditures that do not come under financing of the decentralized functions and through the fiscal equalization model, incumbents at the central level have enough room for discretionary movements.

In addition, these results are in line with the conclusions obtained in previously conducted researches at city and municipality levels in Croatia that also test political affiliation and its effect on the economic variables ([20], [21] and [22]). Moreover, debt level has a negative effect on fiscal success at a municipality level, which is as expected based on the economic theory ([20] and [23]) and existing legislation [25].

	Municipalities	Cities	Counties
CB	-14.2900*	-2.1307	-0.6411
	(8.0440)	(2.9748)	(1.7407)
constant	0.7162	3.1873	3.3643
	(0.9819)	(1.2824)	(1.0115)
Observations	427	128	20
Fstatistic	3.16	0.51	0.14
Prob > F	0.0764	0.4752	0.7169
R-squared	0.0047	0.0034	0.0076
Root MSE	20.159	13.152	3.6828

Robust standard errors are in parenthesis;
* denotes statistical significance at 10%,

Table 5: *Results of the estimated model for the transparency determinant.*

Due to the fact that there was only one observation (for 2014) for the transparency and socio-historical variables, their significance could not be tested in the panel setting, so a simple linear regression model was estimated (Table 5 and Table 6). The results indicate a statistically significant coefficient for municipalities for both the transparency and socio-historical determinant. Regarding the transparency determinant, the obtained results confirm the findings of Gerunov [8] that there is actually a negative correlation between level of transparency and fiscal success. However, it should be pointed out that the research performed in this paper differs as Gerunov [8] uses the Open Budget Index and investigates its effect on budget balance, primary balance and government debt across a sample of 57 countries. On the other hand, the indicator used in this paper involves only 1 out of 5 indicators that are collected and investigated at the level of LGUs in Croatia ([16], [17] and [18]).

	Municipalities	Cities	Counties
WA	0.2658**	0.1267	-102.4176
	(0.1096)	(0.1349)	(112.177)
constant	-1.4461	1.5570	4.9194
	(1.5371)	(1.7833)	(2.1245)
Observations	418	128	20
Fstatistic	5.88	0.88	0.83

Prob > F	0.0157	0.3494	0.3733
R-squared	0.0103	0.0075	0.0563
Root MSE	20.127	13.125	3.5913

Robust standard errors are in parenthesis;
*, ** statistical significance at 10% and 5%, respectively

Table 6: *Results of the estimated model for the socio-historical determinant.*

As was the case for the transparency variable, a statistically significant coefficient was obtained in the sample of municipalities for the socio-historical variable (war affected areas) as well. The positive sign indicates two facts. First, since these LGUs are mostly areas of special state concern (ASSC), tax and other public policies favour them in the sense of tax subsidies, faster administrative procedures etc. Furthermore, the population in these areas aspire for their communities to return to a previous level of quality in terms of living (e.g. the level of infrastructure). Based on that, major infrastructural investments are carried out by the central government which does not place an additional burden on the local budget.

6. Conclusion

The empirical analysis performed in the paper has confirmed that there are differences in fiscal success at different level**s** of administrative governance. The municipality group has been classified as fiscally "liberal", whereas counties and cities have been classified as fiscally "conservative" in regard to their budget balance. Institutional constraints (i.e. the Budget Act and legal constraints on the level of deficit and debt that do not take into account indebtedness of local public utility companies) and fiscal strength of LGUs are primary reasons for these circumstances. Furthermore, the obtained results indicate that these differences among the LGUs in Croatia have an economic and political origin. Moreover, the paper confirms that the observed determinants are present at the county and municipality levels, whereas no significant effects were reported at the city level. Namely, at the county and municipality levels, there is a positive correlation between fiscal success and the interaction variable which combines the share of grants in total revenue and the political affiliation at the local and central government level. This result points out that in LGUs with lower fiscal capacities, political affiliation determines fiscal success. In other words, ideology does matter. This is in line with previous research relating to political influence on LGUs budget outcomes ([20] and [13]) and inadequate local and regional administration in Croatia ([12] and [14]). At the municipality level, the results indicate a negative correlation between the level of debt and fiscal success, which is in accordance with economic theory and existing legislation [25].

With respect to the transparency and socio-historical determinants, the performed analysis points to a negative effect of the citizens' budget and a positive effect of war affected areas on fiscal success. These results are surprising because the theory suggests that higher levels of budget transparency would result in higher interest in the fiscal stance of the local and regional government by constituency (i.e. better budget surplus or balanced budget). Second, intuitively, we would expect that voters do not pay attention to fiscal outcomes and economic theory of voting in those areas which open a lot of "room for manoeuvring" for incumbents with respect to fiscal prudency. Therefore, future research should include a more encompassing budget transparency indicator which may provide a correction for the existing limitations of this study (one transparency indicator in only one year). The Institute of Public Finance collects and publishes OLBI (open local budget index) that, besides the citizens' budget, includes four additional budget documents and covers all regional and local units (in 2015 and 2016)[††]. Another limitation of this study is that it uses only one socio-historical variable – war affected areas. Further research should include the level of education of inhabitants in respective local and regional units, various gender and age cohorts, and level of information literacy. Also, with respect to the used socio-historical determinant, variable war affected areas could be re-calculated based on the 2011 census in order to check the robustness of obtained results and additional interaction variables could be created (e.g. areas closer to the coast vs. areas in continental Croatia) to see whether there are some other determinants that might explain the obtained coefficient in this research.

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