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DO POLICY COUNCILS CURB CORRUPTION?

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GRUPO TEMÁTICO: 10 Controle social e combate à Corrupção na Administração Pública

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Do policy councils curb corruption?

Abstract:
This paper explores the role of societal accountability on corruption by addressing the question of whether a better performance of policy councils have a positive effect on preventing cases of corruption. The dataset is made of a sample of 1,223 Brazilian municipalities, randomly selected by a national public audit anticorruption program, which took place from 2006 to 2015 and whose independent audit reports are officially released and publicly available. The analysis deployed different estimation techniques, such as regression, semiparametric matching, and instrumental variables, which follow a formal framework for causal inference. A significant effect of social accountability through policy councils on deterring corruption is observed. These results are consistent with the theoretical frameworks and empirical findings about the positive effects of good governance institutions on curbing corruption and contribute to a better design of democratic anticorruption policies.

Keywords: Corruption. Policy Councils. Social Accountability. Public Governance. Civil Society.

Introdução:

Integrity is and will continue to be a notable issue of public governance (ROMAN, 2012). However, the right-fit way to achieve public integrity remains an important question. Are societal accountability mechanisms an effective tool for deterring corruption? Empirical evidence of tangible impacts of social accountability initiatives is mixed and context-dependent (FOX, 2015; O'MALLEY, 2013). These are relevant policy problems, particularly for countries like Brazil, where governments have recently been democratized and manage low levels of societal trust, as well as high heights of corruption perception (IPI, 2020). Literature agrees that, to overcome corruption, citizens need to cooperate to enhance public integrity practices, enforce them properly, and hold public officials accountable. It is a complex societal problem related to structure and agency, an interaction between institutions and individuals, which results, or not, in a highly valuable public good: the public integrity.

This approach implies that controlling governmental corruption demands from all citizens an individual commitment to public integrity. It means not just compliance with existing norms, but a universalistic ethical behavior: a strong individual perception that rules should apply to us all. Behind all of this, lies an assumption that curbing corruption is not only a matter of changing public officials' behavior, but a result of civil society attitudes in fostering public integrity and contributing to its coproduction through social accountability. Thus, if civil society is empowered, social accountability makes local public officials and service providers directly accountable to the communities they serve, and this mechanism can play a critical role in fighting corruption and increasing overall public management performance (OLKEN, 2007; BJORKMAN, SVENSSON, 2009; MURIU 2013; PANDEYA 2015; BRINKERHOFF, WETTERBERG, 2016; NYQVIST, DE WALQUE, SVENSSON, 2017).

In order to achieve these goals, many social mechanisms can be deployed. Empirical tests have still reached mixed conclusions about their effects and other literature has more emphasized mechanisms such as consultation, participatory budget, and citizens report than policy governance councils' (GOLUBOVIC, 2010; FOX, 2015; CAMARGO, STAHL, 2016; POSNER, RAFFLER, PARKERSON, 2019). This article contributes to overcoming these pitfalls by providing an analysis of the corruption phenomena as a social dilemma, a description of the policy council's causal chain, and presenting the results of robust tests for inferring the effect of this sort of social accountability mechanism on corruption.

1. Corruption as a social dilemma

Corruption is a case of multiple-person dilemma that can be properly understood both as a social trap or as a social fence. As a trap, there is immediate private gain and long-term collective loss; as a fence, there is immediate individual loss and long-term societal gain (CROSS, GUYER, 1980; KOLLOCK, 1998; VAN LANGE, BALLIET, PARKS, VAN VUGT, 2014). As a social trap or take-some dilemma, corruption is a noncooperative result of individuals (corrupt public agents) that are tempted with immediate individual benefits that cause collective losses (KASSUM, VINCKE, 2013; CHEN, JIANG, VILLEVAL, 2016). This perception is well-illustrated by a corrupt public office holder who misuses his power to decide in favor of a briber, imposing a loss of social welfare through the overpricing or the low quality of the public services provided. That is also the case of political parties that, even when not engaging in proper corrupt transactions, have a strong private incentive to exploit administration to its full, making everyone else pay the social costs that result from the degradation of public resources such as the impartiality principle, whose violation nurtures all the clientelist relationships (ARNOLD, 1990; WILKISON, KITSCHILD, 2007).

From a different viewpoint, as a social fence or take-some dilemma, corruption is perceived as a noncooperative result caused by a failure to support collective action for public integrity due to individuals that avoid contributing to the production of such public good. For instance, corruption flourishes when individuals and organizations abstain from spending their resources (time, money, personal, etc.) to better hold the government accountable, because they have an incentive to both avoid the costs of producing public good and free ride the common benefits of it. As a social fence dilemma, anti-corruption policy emphasis is shifted from the government to civil society. In this case, corruption is a policy problem about production of a public good through collective action: the public integrity. Therefore, focus is on how to produce collective action to sustain public integrity all over

the State.

1. Methodology

Research design

This article tests the hypothesis that social accountability (treatment), through the policy councils, has a significant effect on curbing governmental corruption (effect) in Brazilian municipalities. Thus, the question of our research assumes the classic format of a policy impact evaluation formula:

$$\Delta = (Y \mid I = 1) - (Y \mid I = 0) \qquad \text{fórmula 1}$$

The formula states that the causal impact (Δ) of a intervention (P) on an outcome (Y) is the difference between the outcome (Y) with the intervention (P = 1) and the same outcome (Y) without the intervention (I = 0) (Gertler *et al*, 2016). Although we can observe and measure the outcome (Y) with the intervention (Y | I = 1), there are no data to establish what the outcome would have been in the absence of it (Y | I = 0). Notwithstanding, in this public initiative, this crucial counterfactual cannot be outlined by a Randomized Controlled Trial (RCT) design, because treatment and control groups were not randomly assigned (GLENNERSTER; TAKAVARASHA, 2013).

Therefore, to construct valid comparison groups that will allow us to estimate the counterfactual, I deploy OLS and GLM regression analysis, non-parametric matching - as a strategy for estimating causal effects by conditioning on observed variables to block back-door paths – and instrumental variable – as a strategy that uses exogenous variation to isolate covariation in the causal and outcome variables (Morgan, Winship, 2015). To analyze the plausible attribution of this treatment, a dataset formed of a sample of 1,223 randomly selected Brazilian municipalities, around 22% of the population, from years 2006 to 2015, were gathered.

Data source and measurement

In 2003, the federal internal control agency, named *Controladoria-Geral da União* (CGU), introduced a national program based on the random auditing of municipalities for their use of federal funds and gave full public access to their reports (CGU, 2020; SANTOS, 2013). This program, called *Programa de Fiscalização por Sorteios Públicos*, selected municipalities with up to 500,000 inhabitants by means of a lottery carried out by the official lottery system. These cases cover approximately 22% of the municipalities under the population thresholds, and the samples are geographically well distributed all over the territory.

The federal auditing agency is fully independent from the local government and, for each sampled municipality, a pool of service orders, which must be impersonally observed during the inspection process, is previously opened. For both education and health programs, all federal transfers are subject of auditing in every sampled municipality. During this process, a series of previously planned meetings with members of the local community, as well as with the policy councils, took place.

Once the auditing is complete, a detailed report is made and sent to the central CGU agency in Brasília, where information is then compiled and submitted to other political, administrative, and legal public bodies such as the National Congress, the National Court of Auditor's (*Tribunal de Contas da União* - TCU), the Federal Prosecution Service (*Ministério Público Federal* – MPF), the local City Council, the City Hall, etc. All reports are officially released and made available to the public at the CGU website (CGU, 2020).

Respondent variable

From 2006 to 2015, the auditors counted the audited irregularities by themselves. Altogether, 94,492 records were classified during this period by the CGU auditors among information and comments, formal failures, administrative failures or serious failures. According to the classification of the auditors, serious failures are the undesirable situations that significantly compromise the performance of the program or unit, in which there is the characterization of one of the following occurrences: i) the practice of an illegal, illegitimate, uneconomic management act or violation of the legal or regulatory standard of an accounting, financial, budgetary, operational or patrimonial nature, which has the potential to cause damage to the treasury or constitute a serious deviation from the principles to which it is submitted to the administration; ii) damage to the treasury resulting from an illegitimate or uneconomic management act; and; iii) embezzlement of public money, goods or values.

Serious failures comprise exactly the corrupt practices such as frauds in the procurement of goods and services, adoption of a non-competitive procurement process that allows diversion of funds, over-invoicing of goods and services, and other forms of private appropriation of public funds. As many studies have demonstrated, the count of serious failures in audited municipalities provide a reliable proxy of corruption in Brazilian municipalities (FERRAZ, FINAN, 2011; CAMPOS, CASTELAR, SOARES, 2018). Thus, two versions of this corruption indicator were used as

respondent variable: i) the original count, made by the auditors, and ii) its binary recoding to allow analysis by logistic regression.

Explanatory and control variables

The model's explanatory variable is also calculated from the analysis of these reports that points specific malfeasance in the policy council's composition or functioning. The first criteria verify whether the councils are truly civic – respecting the legal minimum requirements of civil society participation. The second criteria verify whether the councils are truly engaged in social accountability. Each municipality likewise had audited the regular composition and functioning of its four main municipal policy councils: the Municipal Health Council (CMS), the School Food Council (CAE), the Basic Education Fund Council (FUNDEB), and the Social Assistance Council (CMAS). From the analysis of every auditing report, it is possible to read if any of these councils had problems with composition or function.

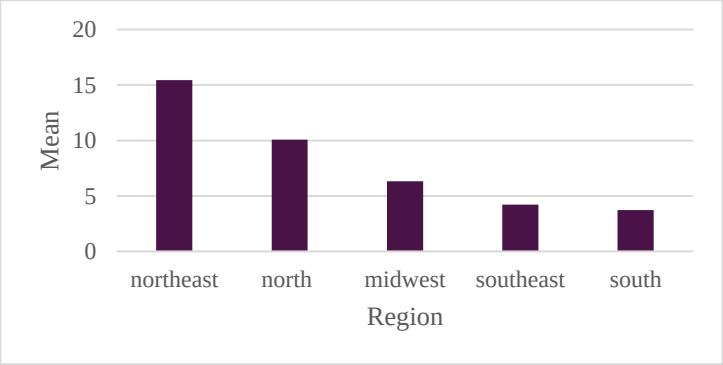
Thus, if these four councils are properly composed and engaged in social accountability, according to the audit carried out by the CGU, the social accountability indicator is assigned a value of four (one point for each policy council). Then, for each council with a failure in composition or functioning, identified by the auditors, one point was subtracted from the indicator, up to the limit of zero - a situation in which none of the municipal councils were properly operating for social accountability. Later, this variable was recoded in the treatment and control group. Cases that score 0, 1 or 2 were assigned to control group (0), and others which scored 3 or 4 to social accountability through policy councils were assigned to treatment group (1).

These sort of wrongdoings with councils are independent from the serious failures, audited by different service orders, and eventually counted as administrative failures. The most frequent failures identified by field auditors are deficiency of social representativeness in the council's composition, political-oriented appointment of councilors, lack of proof documentation about social accountability activities (meetings minutes, inspections reports, approved regulations, etc.). Some of these practices were identified by other studies that conclude that there is not just a lack of administrative maturity, but also a wicked effect of political clientelism on the policy councils' performance (DOMBROWSKI, 2008; LAVALLE; VOIGT; SERAFIM, 2016; ALMEIDA; TATAGIBA, 2015).

Exploratory analysis was performed to identify potential cofounders. Results showed that there is an association between corruption, political-administrative regions (south, southeast, midwest, north, northeast) and the size of the municipalities (small and medium). The number of audit

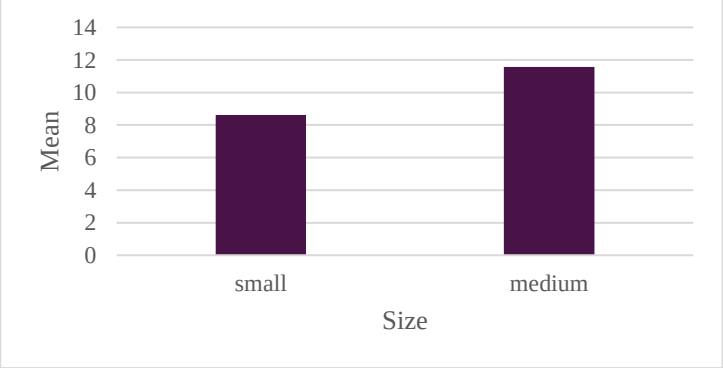
service orders issued for each municipality because of its theoretical relevance. For that reason, region, size, and service orders were taken as control variables in the following estimations. Official data about municipalities were released by the Brazilian Institute of Geography and Statistics - *Instituto Brasileiro de Geografia e Estatística* (IBGE, 2010a; 2018). The statistical analysis was carried out by RStudio desktop®.

Graph 1. Corruption per region



The results of the Kruskal-Wallis test (Monte Carlo method) points out that there is a significant difference (H(4)= 312,83; p<.001) between corruption in the Brazilian political-administrative regions (south, southeast, midwest, north and northeast).

Graph 2. Corruption per size



The results of the Mann-Whitney test (Monte Carlo method) show that there is a significant difference between corruption in small and medium-sized municipalities (U=139939; z= -3,956; p<.001).

Data Analysis

To estimate the effect of social accountability through policy councils on curbing corruption, we deploy two strategies for causal inference and different statistical techniques for observational studies, such as regression, matching and instrumental variable. The first strategy for estimating

causal effect is the condition on variables to eliminate the noncausal portion of an association between treatment and effect, and the second strategy uses an exogenous variation in an appropriate instrumental variable to isolate covariation in the causal and outcome variable (MORGAN; WINSHIP, 2015).

Initially, the naïve Ordinary Least Squares (OLS) regression model and the logistic regression model were run for getting a first glance at the statistical coefficients. However, in the OLS regression model, the statistical assumptions such as normality and heteroscedasticity are violated. In addition, the use of logistic regression implies a significant loss of information when the response variable is transformed into a binary variable. Actually, corruption is a count variable and a Generalized Linear Model (GLM) would fit better to correct for the normality assumption from the Gauss–Markov theorem (GILL, 2001; CAMERON; TRIVEDI, 2005).

The Poisson regression model is considered the standard GLM model for count dependent variables such as corruption (Campos, Castelar, Soares, 2018; Vieira, 2013). However, as long as there is also a problem of over-dispersion and excess zero counts, a Zero-inflated negative binomial regression is expected to fit even better for a regression analysis approach (ZEILEIS, KLEIBER, JACKMAN, 2020). A Vuong test was made to compare the ordinary Poisson model with the zero-inflated model (VUONG, 1989).

Finally, matching and instrumental variable methods were run to produce a more accurate and reliable assessment of the social accountability effect on curbing corruption through a valid estimate of the counterfactual. Matching uses statistical techniques to construct an artificial comparison group. Thus, for every possible case under treatment, it attempts to find a nontreatment unit (or a set of nontreatment units) that has the most similar characteristics possible. Two variants of matching algorithms were tested: exact and the nearest neighbor. Exact algorithm constructed the counterfactual for each treatment case using the control cases with identical values on all the control variables. Nearest-neighbor algorithm constructed the counterfactual for each treatment case using the control cases that are closest to the treatment case on a unidimensional distance measure constructed from the control variables, most commonly an estimated propensity score. Despite literature states that matching can allow for consistent and unbiased estimations, selection on unobservable remains an unsolved problem (MORGAN, WINSHIP, 2015; GERTLER *ET AL*, 2016).

Instrumental variable was applied to overcome this methodological challenge and allow an unbiased estimation. As randomized approach is not feasible, an encouragement design to select an

instrumental variable was adopted as an external source of variation that affects the probability of receiving the treatment, but is otherwise unrelated to the participants' characteristics. A binary measure of civic density was chosen as an instrumental variable. Policy councils are supposed to exist in any Brazilian municipality (there is universal coverage), so the design of incentive for civic density can serve as a promotion of genuine involvement of civil society in policy councils with no direct empirical or theoretical relationship with corruption, except through a mechanism of social accountability like the one previously described.

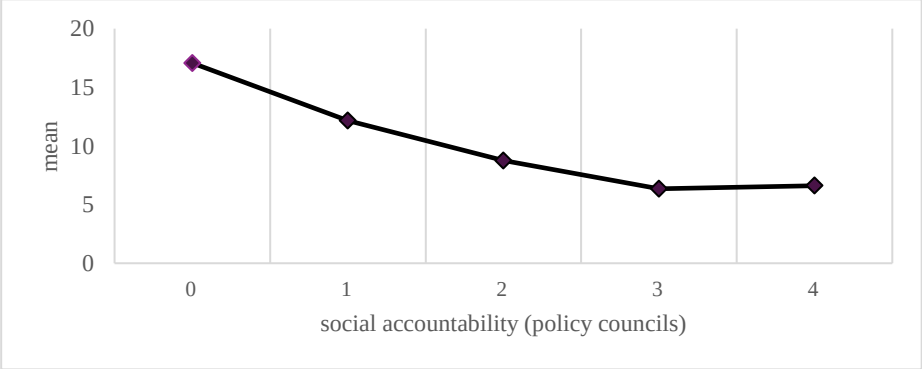
The instrumental variable was coded considering the municipality density of civil society organizations. In 2010, sampled municipalities had on average 39,79 civil society organizations officially registered in their territory (IBGE, 2010b). Taking this threshold into consideration, all municipalities below this value were ranked 0 and all those above were ranked 1.

2. Results

This section provides empirical evidence that social accountability through policy councils are associated with lower levels of corruption in Brazilian municipalities. As predicted in our causal model, municipalities with policy councils that genuinely engaged in social accountability have performed better in sustaining the governmental public integrity than those without such a mechanism. These findings are robust with various specifications and estimation techniques, including two different strategies for causal reasoning.

Through an initial exploratory analysis, it is possible to see that there is a decrease in the average cases of corruption as more social accountability through policy councils is observed.

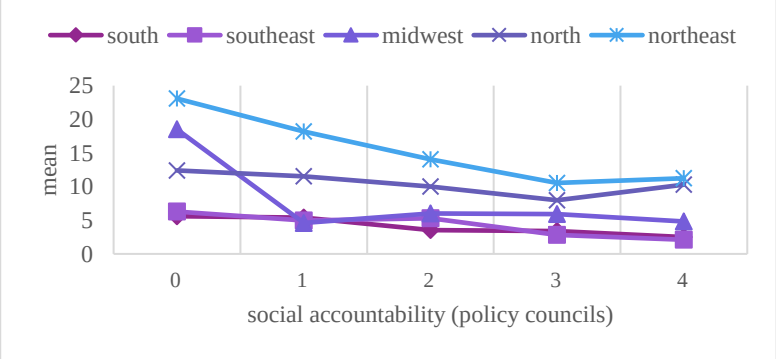
Graph 3. Corruption per social accountability categories



The results of the Kruskal-Wallis test (Monte Carlo method) show that there is a significant difference (H (4) = 87,5; p<.001) between municipalities that do not have any social control through policy councils and those that do. The Jonckheere-Terpstra test confirms the existence of a

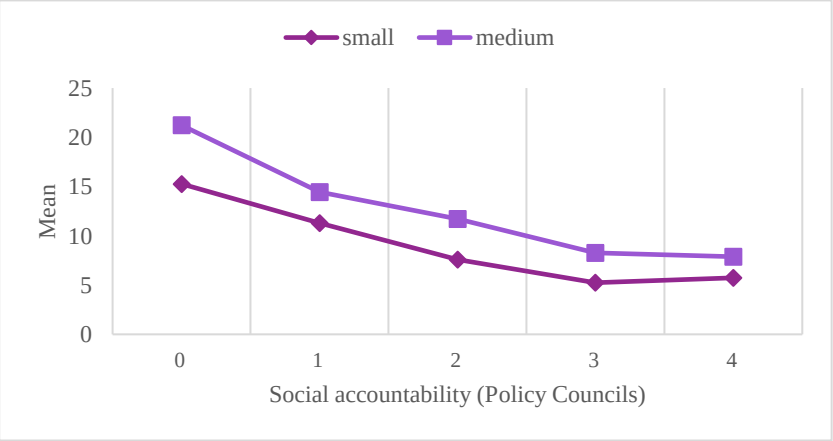
statistically significant trend in the data, because the greater the indicator of social accountability through policy councils, the lower the observed mean for the corruption indicator (JT =223069; p<.001).

Graph 4. Corruption per social accountability controlled by region



The results of the Kruskal-Wallis test (Monte Carlo method) show that there is a significant difference between municipalities that do not have any social accountability through policy councils and those that do, even when controlling by regions: south (χ^2_4= 11,753, p<.019), southeast (χ^2_4=21,045, p<.001), midwest (χ^2_4=9,26, p<.001), north (χ^2_4=10,551, p<.032), and northeast (χ^2_4=67,01, p<.001).

Graph 5. Corruption per social accountability controlled by size



The same trend is observed when comparing the results by municipality size. The results of the Kruskal-Wallis test (Monte Carlo method) show that the same pattern also persists when controlled by small-size (χ^2_4=68,438, p<.001) and medium-sized (χ^2_4=29,168, p<.001).

1st strategy: conditioning to eliminate the noncausal portion of an association

The first strategy for estimating causal effect is condition on variables to eliminate the noncausal portion of an association between treatment and effect (Morgan, Winship, 2015). Initially, an ordinary last square (OLS) regression was used as a technique to estimate the best-fitting linear approximation to a conditional expectation function in the population.

It would be inappropriate to give a causal interpretation to any of the estimated coefficients in β in the naïve model, it is better interpreted as an attempt to estimate the best linear approximation to the conditional expectation. This descriptive result displays a negative association between corruption and social accountability (β = -4.604, p<.001), when controlling by size, region, and service orders. However, assumptions such as normality and heteroscedasticity were violated, indicating bias and inefficiency on the coefficient's values.[1]

Therefore, a series of generalized linear models was employed to better estimate these coefficients. Firstly, a standard count model was run through a Poison link function. Then, a negative binomial regression to correct for overdispersion. Finally, a zero-inflated negative binomial regression for modeling count variables with excessive zeros (CAMERON, TRIVEDI, 2005). The results evidence that all coefficients are statistically significant (p<.001) and reinforce the hypothesis of a negative relationship between corruption and social accountability in different estimation models: Poisson (β = -0.433, p<.001), negative binomial (β = -0.435, p<.001) and zero-inflated (β = -0.396, p<.001).[2] We could interpret this as meaning that with social accountability, corruption diminishes a bit more than 40% on average holding all other predictors equal.

Subsequently, a logistic regression was run to estimate a logit model. Of the sample, 191 (15,6%) municipalities had no cases of corruption and 1.032 (84,4%) had at least one case. The research hypothesis posed to the data is that "the likelihood that a municipality had at least one case of corruption is related to its social accountability, size, region, and service orders".

According to logit estimate, the log of the odds of a municipality having had at least one case of corruption was negatively related to social accountability (p<.001), small size (p<.05), south (p<.001), southeast (p<.001), midwest (p<.001), and north (p<.1) and positively related with the number of audit service orders issued (p<.05). In other words, in the presence of social accountability

[1] According to the Jarque–Bera test we reject the null hypothesis and conclude that the residuals are not normally distributed (χ^2_2 = 4076.3, p<.001) and to the Breusch-Pagan test (χ^2_6= 403.98, p<.001) we reject the null hypothesis and conclude that the residuals are not homoscedastic.
[2] According to the Vuong test we reject the null hypothesis and conclude that the zero-inflated negative binomial model is superior to the Poisson model (p<.001).

through policy councils, it is less likely that a municipality would have cases of corruption. In fact, the odds of a municipality with social accountability having a case of corruption were 0.4956 (= $e^{0.702}$) times lower than the odds of a municipality without social accountability.[3]

Finally, matching was applied for condition on variables to eliminate the noncausal portion of an association between social accountability and corruption. In the absence of experimental data, matching serves to isolate how the treatment variable affects responses (Rubin 2006; Imai, Van Dyk, 2004). Treatment estimates support the previous hypothesis, and the difference between treatment and control group was statistically significant in matching algorithms.

The matching estimators support that corruption is negatively related with social accountability when controlling for the size, region, and service orders. However, this model also keeps the assumption that there is no selection by unobservable, so a different causal strategy was also applied to increase our confidence on the estimation.

2nd strategy: exogenous variation in an instrumental variable to isolate covariation

The second strategy applied an instrumental variable (exogenous variation) to isolate covariation in the causal and the outcome variable (Morgan, Winship, 2015). This model is expected to overcome the omitted-variable bias and estimate the true effect of social accountability in corruption, taking into consideration the previous control variables – size, region, and service orders (ABADIE, 2003). This instrumental variable offers a more credible identification strategy because municipalities count with different levels of civic density.

The analysis shows that civic density is a strong instrument. First, it is significantly associated with social accountability (β=0.1514, p<.001). Second, social accountability and corruption are an independent phenomenon of civic density. Third, there is no association between civic density and corruption (β=-0.027, p<.37587) other than the association that is generated by a direct path that begins at the instrument (civic density) and ends at the outcome (corruption) through the treatment (social accountability) (SOVEY; GREEN, 2010). Besides, first-stage F-statistic evidences the instrument's relevance (F=23.54, p<.001) (STOCK; YOGO, 2004).

According to Angrist, Imberns and Rubin (1996), this sample can be distinguished by four groups of respondents (compliers, defiers, always-takers, never-takers). Compliers are municipalities which sustain social accountability in policy council if the civic density is high or lack social

[3] According to the Hosmer-Lemeshow Test we reject the null hypothesis and conclude that the observed and expected proportions are not the same (χ^2_8 = 9.8476, p<.2759).

accountability when civic density is low. Always-takers are municipalities which always keep high levels of social accountability no matter the civic density. Never-takers are municipalities which never exert social accountability no matter the civic density. Lastly, defiers are the municipalities that have high level of civic density but low levels of social accountability, or low levels of civic density and high levels of social accountability.

The average treatment effect on compliers supports the research hypothesis that a decrease in corruption on municipalities is observed with an increase in social accountability, when controlling by size, region, and service orders (β=-15.046, $p<.005$). As the instrument (civic density) predicts the causal variable (social accountability) but is linearly unrelated to the outcome (corruption), it is possible to infer that the estimation is more accurate than previous OLS and GLM estimators.

Table 3. Finding's Summary

Model	β coefficient	P-value
OLS	-4.604	.01
Poisson	-0.433	.01
Negative binomial	-0.435	.01
Zero-inflated	-0.396	.01
Logistic	-5.007	.01
Matching (Exact)	-1.652	.10
Matching (Nearest)	-5.007	.01
Instrumental Variable	-15.046	.05

In common, all these estimates provide evidence for the causal reasoning that, when civil society is genuinely engaged in the policy council activities, social accountability thrives, and its outcomes favor public integrity. Therefore, strengthening public policy councils, providing incentives for civil society engagement in social accountability, proved to be a significant public governance mechanism for reducing corruption, even without considering the other intrinsic democratic benefits, such as a potential increase in governmental legitimacy.

Conclusions

This paper contributes to contemporary democratic institutional design literature by explaining how policy councils can generate incentives for collective action that contributes to an

increase in public integrity, and presenting evidence that supports this claim for the local Brazilian government. These results sum with a growing literature that seeks to both investigate the impact of specific institutional configurations to better design anti-corruption policies, and understand how participatory mechanisms can increase the overall public management performance and legitimacy.

Nevertheless, this is not an ending story. Instead, more analysis is needed to evaluate each chain of the policy council's theory of change (from inputs to impact). More in-deep analysis about how the civil society dynamics influence the council's activities, for instance, would help to enlighten the crucial assumption that councils create more incentives for civil society to engage in collective action for public integrity. To estimate the general effect of the social accountability on corruption through policy councils is just one step into better policy governance design, but evidence-based recommendations to better policy towards social accountability and good governance are undeniably a critical contribution in that process.

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