



Responsible Editor: Rodrigo de Souza Gonçalves
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Evaluation Process: Double Blind Review pelo SEER/OJS

Are more Transparent Countries also more Democratic?

ABSTRACT

Objective: to evaluate the relationship between fiscal transparency and the degree of democracy of countries.

Method: to measure the proxies, the Open Budget Index and Democracy Index indicators were used, with data from 2006 to 2019, which were evaluated through Exploratory Data Analysis, Correlation test and Chi-square test of independence.

Results: in general, there is a significant, positive and strong relationship between fiscal transparency and the degree of democracy of countries, especially when countries with distinct performances are grouped together. However, this relationship can exhibit very distinct behavior, depending on the region in which the country is located.

Originality/Relevance: there is a higher incidence of transparency studies at regional and local levels, to the detriment of transnational investigations. In addition, understanding transparency as a fundamental principle for the consolidation of a Democratic State, it is expected that there will be a direct relationship between the measured variables. However, we highlight the recent contradictory findings of Arapis and Reitano (2018), who found a negative relationship between these two indicators, contrary to the theory and previous literature on the subject.

Theoretical/methodological contributions: as established by the literature, the findings shown here are sufficient to disagree with the conclusions of Arapis and Reitano (2018), and confirm that more democratic countries tend to have greater transparency regarding their budget information.

Social contributions/for management: tax transparency is an important instrument of social control in a democratic society, however, from a certain degree of democracy, there are no significant differences in tax transparency rates between countries.

Keywords: Fiscal Transparency; Open Budget Index; Degree of Democracy; Democracy Index; National Governments.

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Received: June 16, 2020

Revised: November 2, 2020

Accepted: February 26, 2021

Published: April 27, 2021



How to Cite (APA)

Leroy, R. S. D., Brunozi Júnior, A. C., & Ávila, L. A. C. (2021). Are more Transparent Countries also more Democratic?. *Journal of Accounting, Management and Governance*, 24 (1), 130-147.
http://dx.doi.org/10.51341/1984-3925_2021v24n1a8

1 INTRODUCTION

For effective control over the initiatives of public managers, it is necessary to prepare and disclose more transparent public budgets and balance sheets, which is called fiscal, financial or budgetary transparency (Caamano-Alegre et al., 2013; Zuccolotto & Teixeira, 2014).

Conceptually, the International Monetary Fund (IMF) defines fiscal transparency as “publicly available information on the government's fiscal policy formulation process”, present in public and open access fiscal reports, and should have characteristics of “clarity, reliability, frequency, timeliness and relevance” (International Monetary Fund, 2018, p. 1).

Thus, fiscal transparency provides a comprehensive view of the governments budget, in addition to the outcome of public policies, stimulating good governance and helping in the fight against corruption; these factors, in turn, tend to assist in achieving financial and economic stability through increasing the credibility of budget planning and market confidence, with better budget results, lower borrowing costs and “less creative” accounting by governments (Wehner & De Renzio, 2013).

Regarding this approach to transparency, researchers have presented reflections on financial responsibility in the public sector, highlighting the pressures suffered by public administrations to disseminate high quality information, thus achieving sustainable financial balance (Puron-Cid & Rodríguez Bolívar, 2018).

To meet these accountability and transparency requirements in the public sector, providing understandable financial information is a relevant way to meet social demands (Wang, 2002). However, both in subnational and national contexts, the environments in which public actors are inserted can be complex, providing distinct conditions for the promotion of transparency.

In this aspect, the literature (Puron-Cid & Rodríguez Bolívar, 2018; Zuccolotto & Teixeira, 2017) has pointed out that there is a relationship between several characteristics and fiscal transparency of public entities, such as demographic, socioeconomic and political factors. This work will be limited to the analysis only of the political factor, more specifically of democracy.

This choice is justified by the observation of the work of Arapis and Reitano (2018), who found a negative association between tax transparency and the variation of democracy at the country level, contradicting most of the theory and previous studies, which, with the exception of Kono (2006), had always found positive and significant associations between tax transparency and democracy (Ríos et al., 2016; Wehner & De Renzio, 2013).

It is noteworthy that in the last 20 years of research, the relationship of dependence between the effectiveness of transparency and social and political contexts is consensual, inferred from comparisons between democracies and autocracies, low levels of literacy and empowerment, as well as the inconsistent effects of their dependence on resources (Alt, 2019).

Therefore, it is understood here that the principle of transparency is paramount for the promotion of democracy, since it provides the society with information on the management of public resources and the promotion of accountability, enabling social control. Thus, considering the empirical results offered by the literature and the recent contradictory findings of Arapis and Reitano (2018) regarding the relationship of tax transparency and levels of democracy, the following research question arises: What is the empirical relationship between levels of tax transparency and the degree of democracy in countries?

Objective: to evaluate the relationship between fiscal transparency and the degree of democracy of countries.

The choice for a country-level study was motivated by the fact that tax transparency has been a central theme in international development debates, especially within regulatory bodies. However, in relation to the academic literature, it was identified a higher incidence of studies on transparency at regional and local levels, to the detriment of investigations at transnational level, a factor considered surprising by the literature and that motivates the deepening of discussions involving countries (Ríos et al., 2016; Wehner & De Renzio, 2013).

This work offers innovation to the literature, since it adds knowledge to perceptions about an important determinant of tax transparency. The discussions involve an important aspect in national public policies, given that sometimes reforms related to the implementation of transparency occur at the initiative of external actors to which countries are financially dependent (donors), who do not always consider local realities (De Renzio & Angemi, 2012).

Based on the assumption that transparency is a fundamental principle for democratic consolidation, this imposition of tax transparency practices can contribute to its adoption only in a ceremonial way, creating an “illusion of transparency” (Heald, 2006) and not promoting real democratic advances in countries. Thus, especially in the most fragile democracies, it is possible that the relationship between proxies does not happen according to theoretical expectations.

In addition, the present discussion is considered appropriate, considering the current scenario of significant emergency expenditures by national governments, due to the COVID-19 pandemic, and the need for its complete and accessible disclosure, mainly due to the budgetary impact of these expenditures. Furthermore, in the Brazilian context, there has been a scenario of debates related to the importance of institutions for the promotion of democracy and the Brazilian democratic maturation, which reinforces the opportunity of this proposal.

Finally, it is considered important to carry out this study to add perceptions to the Academy about the political factors related to tax transparency, especially regarding its relationship with the degree of democracy between countries. Thus, this work has social relevance, since it contributes to the debates on the topic in democratic contexts, and academic, since it aims to add perceptions about the findings of the literature on the topic.

2 THEORETICAL FRAMEWORK

For the objective proposed in this paper, we opted for the analysis from the perspective of the economic aspect of Institutional Theory, or New Institutional Economy. In the next subtopic, the theoretical basis used in this work will be presented, and then a review of the empirical literature on the political determinants of tax transparency will be presented.

2.1 New Institutional Economics

Although conceptually inserted in the context of the firm, NIE's analytical tools can be applied to the state and its bureaucracy, since, according to Furubotn and Richter (2005, p. 471), the state can be interpreted as a firm. According to the authors, both contexts can be portrayed as political systems in which individuals build social relationships and decision makers have conflicting goals and limited cognitive capacity, and the existence of transaction costs is assumed.

It is noteworthy that, in the scope of the NIE, in addition to transaction costs, there is an alternative approach related to the logic of collective action, in which Olson (1965) and his followers introduce to the study of institutions the political dimension, the concept of social capital and the possibility of collective actions and cooperative solutions. Despite its recognized importance for NIE, in the present study the approach of transaction costs was

opted, by Williamson (1985) and Douglass North (1990), because it is understood that this is more appropriate to the interpretations proposed here.

It should be noted that the NIE has as its central message that institutions matter for economic performance (FURUBOTN; RICHTER, 2005; NORTH, 1990) and that in the present study the concept adopted is that proposed by Douglass North (1990), who proposes that institutions are the “rules of the game”, that is, norms built by individuals to enable any and all type of social and/or political interaction.

Inserted in this context, the concept of transaction cost is advocated by the theory. Williamson (1993) points out that, as a contractual relationship, a transaction occurs under conditions of limited rationality, in a previously unknown context and with uncertainties about future conduct and, therefore, *ex ante* and *ex post* costs related to the contractual risks of the transaction are incurred in this relationship. According to the author, *ex ante* costs are related to guarantees, most present when there is difficulty in establishing prior contractual conditions, and *ex post* derive from their monitoring, more significant when it is necessary to adapt to new circumstances.

In this paper, the focus is on the study of formal contractual relations established between national governments and donors, who act as regulatory agents of tax transparency at the international level. As examples of such donors, one can cite institutions such as the IMF, the OECD and the World Bank (De Renzio & Angemi, 2012).

Thus, to mitigate the risks of opportunistic conduct of agents in this contractual relationship, the parties incur transaction costs related to guarantees and monitoring. Among the transaction costs incurred in these contractual relationships, the following stand out: (i) the monitoring by the donor of the financing granted to the countries, which in general are committed to publicizing the allocation of resources (fiscal transparency), obeying the standards of disclosure established by the donor (IMF Tax Transparency Code, for example); and (ii) the result of the commitment assumed by countries (formally or informally) in relation to compliance with these fiscal transparency standards, which often incurs changes in their formal rules (legislation and recommendations on transparency, for example), under influence of an important agent.

This commitment of adequacy tends to impose changes in the institutional matrix of countries, since it has the consequence of changing standards and enforcement institutions. According to the Williamson model (1993, p. 113), due to the relationship of mutual influence between the analytical levels of the institutions, these changes also cause changes in the governance structures (micro institutions) and in the behavior of individuals, given that the commitment assumed by the countries in adapting the way of giving transparency to the management of public resources generally materializes in the form of national legislation, with top down adoption, in which the entire structure of public administration needs to adapt to the new “rules of the game” (North, 1990).

However, as Bueno (2004) points out, the evolution of the institutional matrix of a society (institutional changes) is, in general, path dependent, that is, it occurs much more incrementally than radically, because they depend more on informal behavioral constraints. According to the author, changing formal norms (laws and regulations) is relatively easy, but really effective changes occur due to unwritten codes of behavior (social and cultural norms), so institutional change (democratic, for example) is not always fast, but gradual.

Thus, as countries have distinct institutional structures, with different degrees of efficiency of transactions between agents, the institutional change resulting from relations with donors occurs with different intensities, depending on their institutional development. In other words, the institutional environment in which fiscal transparency is inserted in countries

tends to change, in accordance with the commitments made to donors, as their institutions mature.

Therefore, combining the fact that the performance of fiscal transparency of countries depends on their institutional matrix (rules and enforcement), to the fact that usually an institutional change is a more gradual process, the result tends to be that, in many of them, the adoption is slower or only ceremonial, not resulting in a democratic transformation, which would be the macro purpose of transparency.

2.2 Empirical Literature Review

Transparency is a fundamental principle for the consolidation of a Democratic State, since it allows citizens to interact and control their representatives, as well as the exercise of negative power at the end of the cycle of representation (Zuccolotto & Teixeira, 2017).

Even if there are several concepts in the literature, their meaning still remains without consolidation, which may be due, in part, to the different approaches related to the flow of information, such as transparency under the budgetary or fiscal perspectives, accounting, institutional or organizational, social or civic, the bidding process, contracts and agreements, media, among others (Zuccolotto & Teixeira, 2017).

In this regard, due to the choices of this paper, it is emphasized that the approach adopted is limited to transparency from a fiscal (or budgetary or financial) perspective, which is characterized as a critical element for effective tax management, since it refers to “Information available to the public on the government's fiscal policy formulation process”, and tax reports and other public information must be made available with “clarity, reliability, frequency, timeliness and relevance” (International Monetary Fund, 2018, p. 1).

Thus, in relation to the empirical literature on the subject, the Academy has addressed fiscal transparency at the national level with studies mainly related to the evaluation of entities from this perspective, as well as the factors that influence them to have better performances, being highlighted, in addition to its own characteristics, the context in which the country is inserted.

Initially, it is noteworthy that, at the country level, Bellver and Kaufmann (2005) were pioneers in this type of study, analyzing 194 countries and building a Transparency Index with components related to economic/institutional and political transparency. The findings of this paper consisted of a positive association between transparency and better indicators of socioeconomic and human development, high levels of competitiveness and low corruption (Bellver & Kaufmann, 2005).

Conducting research at the OECD member level between 2007 and 2013, based on an administrative culture approach, Rodríguez-Bolívar, Caba-Pérez and López-Hernández (2015) analyzed the use of new technologies by central governments to improve their accountability and democracy and make budget data transparent to stakeholders. Confirming that there are differences between countries in different administrative cultures, the results of the study point to the influence of the region, political, institutional factors and levels of government on the tax transparency of OECD member countries (Rodríguez Bolívar et al., 2015).

The work of Arapis and Reitano (2018) present a longitudinal study at a transnational level on the factors associated with fiscal transparency, indicating a positive association of this with economic recessions, fiscal imbalance and foreign development aid and a surprising negative association with democracy, contradicting most of the previous studies.

Specifically about the Supreme Audit Institutions of the country, Suzart (2012), based on data from 85 to national governments, did not acknowledge the existence of a relationship between their levels of independence and transparency of the tax, but said that in the countries

where these companies are active there will be a greater disposition of the management practices on fiscal transparency.

The work of Alcaíde-Muñoz, Rodríguez-Bolívar and López-Hernández (2017) brings together the empirical results of several studies on the factors that favor the disclosure of financial information by a public entity, highlighting some effects such as administrative culture, accounting regime, level of government and impact of the measurement of the variables used. In addition to highlighting that the transparency of information in governments depends on institutional and environmental factors and that these are positively associated with the disclosure of public financial information, the authors point out that the discrepancies in results between the studies analyzed were mainly determined by the factors administrative style and level of government (Alcaide Muñoz et al., 2017).

As for the specific role of political determinants in government fiscal transparency, the literature points to factors such as political competition, political parties, abstention, ideology (Zuccolotto & Teixeira, 2017), degree of democracy, political strength, participation rate and government size (Puron-Cid & Rodríguez Bolívar, 2018). As for the political determinants of fiscal transparency at the national level, the research of Benito and Bastida (2009), Wehner and De Renzio (2013) and Cicatiello, De Simone and Gaeta (2017) stand out.

The first is an international comparison involving 41 countries, which assessed the relationship between budget transparency, the fiscal situation and political participation, concluding that, to some extent, transparency affects political factors such as participation, since the more transparent the budget reports, the more incentives people would have to vote (Benito & Bastida, 2009).

Wehner and De Renzio (2013, p. 96) investigated a sample of 85 countries using 2008 data and based on the premise that “greater fiscal transparency is associated with better budget outcomes, lower sovereign borrowing costs, less corruption, and less creative accounting by governments”. The authors highlight the positive effects of free and fair elections and party competition in democratically elected legislatures.

Already Cicatiello et al. (2017) investigated the effect of a set of policy variables on the level of tax transparency in 36 democratic countries, through panel data analysis from 2003 to 2013. The authors showed strong links between political environments and the dynamics of tax disclosure; the negative effect of legislative fragmentation and government control on tax transparency; and the fragile effect of government ideology.

Based on the above, even if there are already studies addressing the determinants of fiscal transparency, it is deemed necessary to develop additional studies, since, according to Rodríguez-Bolívar et al. (2013, p. 558), there is “heterogeneity in the results obtained, and conclusive evidence has not yet been obtained on the influence of the factors mentioned above”, a fact corroborated some time later by the same authors in another study (Alcaide Muñoz et al., 2017).

Therefore, we identify the opportunity to contribute to the academy with additional insights, the scope of the investigations to a larger number of countries as well as the updating of data in order to offer more recent insights to the literature.

Moreover, if transparency is a requirement for democratic consolidation, theoretically what is expected is a positive relationship between them. Therefore, understanding whether democracies are maturing as a result of improvements in transparency levels fosters debates in the Academy about the ceremonial adoption of practices in countries and about illusions of transparency.

3 METHODOLOGICAL PROCEDURES

3.1 Research Design

This work, primarily descriptive and quantitative, has as its scope the countries that were evaluated by the tax transparency index Open Budget Index (OBI), published by the International Budget Partnership (IBP), in the years in which it was disclosed, which are 2006, 2008, 2010, 2012, 2015, 2017 and 2019.

This indicator is used to assess the budgetary transparency of national governments, based on three components of budgetary accountability systems: public availability of budgetary information (Transparency); opportunities for the public to participate in the budgetary process (Public Participation); and the role and effectiveness of formal oversight institutions, including the legislative body and Supreme Audit Institutions (Power of the Supervisory Institutions). Thus, based on the amount and timeliness of budget information that governments make publicly available, a score ranging from 0 (less transparent) to 100 (more transparent) is assigned, which determines the country's ranking in the OBI (International Budget Partnership, 2020).

The index was initially proposed to be published every two years from 2006, but in 2014 it was not published, and it was carried out the following year. In addition, combining the criteria of geographical proximity and similarities in the performance of tax transparency, the organization (IBP) grouped the countries into seven groups, namely: (i) East Asia and the Pacific; (ii) East Europe and Central Asia; (iii) Latin America and the Caribbean; (iv) Central-East and North Africa; (v) South Asia; (vi) Sub-Saharan Africa; and (vii) Western Europe, the United States and Canada. Thus, Table 1 shows the distribution of the number of countries with the OBI index released, segregated by year and region.

Table 1

Number of countries with Open Budget Index (OBI) disclosure, by region and by year

Regions (OBI)	2006	2008	2010	2012	2015	2017	2019
East Asia and Pacific	7	12	13	14	14	16	16
East Europe and Central Asia	12	17	18	19	20	21	21
Latin America and the Caribbean	12	15	16	16	16	17	18
Central East and North Africa	4	7	8	10	10	10	10
South Asia	5	6	6	6	6	6	6
Sub-Saharan Africa	14	22	24	26	27	35	36
Western Europe, United States and Canada	5	6	9	9	9	10	10
TOTAL	59	85	94	100	102	115	117

Note. Adapted from *the International Budget Partnership (2020)*.

In order to measure the degree of democracy, the Democracy Index (DI) was used, an index published by The Economist Intelligence Unit, which ranges from 0 (less democratic) to 10 (more democratic) and is based on five factors assessed by country: (i) electoral process and pluralism; (ii) civil liberties; (iii) government functioning; (iv) political culture; and (v) civic participation (The Economist Intelligence Unit, 2020). It should be noted that this index presents data from 168 countries, which were evaluated in the years 2006 to 2019. For this study, only the countries and years with both indexes (OBI and DI) were used, and the others were disregarded.

3.2 Analysis Techniques

In relation to the analysis itself, because it is only two proxies, techniques were used to explore their relationships through different methodological treatments. Although most of the previous works on the determinants of fiscal transparency treat the relationship of data

through prediction models (regressions), in the present work, it was opted for other techniques to investigate the relationship between transparency and democracy.

First, the Exploratory Data Analysis (EDA) was performed, with the measures of central tendency and dispersion of the data relating to the Fiscal Transparency of the countries, measured by the OBI, and the Degree of Democracy of each, represented by the DI. According to Triola (2008), the EDA aims to investigate the data set to understand its important characteristics, being a prior examination that aims to organize and synthesize them, to become familiar with them and, thus, understand their behavior.

It is noteworthy that, since these are data related to seven years, the annual EDA was performed, with the measures of mean, standard deviation, minimum and maximum of the data regarding fiscal transparency and the degree of democracy (Table 2). In addition, the same measures of these indices were analyzed by region, according to the IBP grouping (Table 3).

To ascertain the relationship between fiscal transparency and the degree of democracy, several Spearman correlation coefficients were calculated between these indicators, being: (a) by region, each year separately; (b) by region, with data from all years; (c) by year, with all countries; (d) aggregating all data from countries, in all years (Table 4). It should be noted that the choice of Spearman's correlation coefficient occurred because it was a non-parametric technique, considering that many of these groups of indicators do not follow the assumptions necessary for the use of parametric techniques.

Also in order to verify the relationship between the variables related to the countries, they were grouped, being divided according to the Transparency Index into five strata, according to Arapis and Reitano (2018): (i) 0-20; (ii) 21-40; (iii) 41-60; (iv) 61-80; and (v) 81-100. For grouping the degree of democracy, The Economist Intelligence Unit (2020) classification was used, which divides the countries according to the DI into: (i) Authoritarian Regime (0.00-4.00); (ii) Hybrid Regime (4.01-6.00); (iii) Failed Democracy (6.01-8.00); and (iv) Full Democracy (8.01-10.00).

It is noteworthy that, to verify that the strata are statistically equal, the Analysis of Variance (ANOVA) was calculated (Table 5) and, to identify which would be different, the Tukey Multiple Comparison Test was calculated (Table 6). According to Triola (2008, p. 508), ANOVA is "a method to test the equality of three or more population means through the analysis of sample variances" and the Tukey Test performs two-to-two comparisons of the difference between group means, being applied when the F test for ANOVA treatments is significant.

Thus, it became possible to construct the cross table for calculating the Chi-Square test (Table 7), in order to verify the independence of the groups and conclude on the relationship between the Tax Transparency (OBI) and Degree of Democracy (DI) strata. The Chi-Square test is a measure of discrepancy between observed and expected frequencies, being used as a test of adhesion, independence or homogeneity (Gujarati, 2000). By studying the relationship of dependence between two variables, The Chi-square test of independence will be used in this paper.

As a methodological choice, we specifically opted for these techniques to analyze the relationship between the variables, to the detriment of regressive models, since it is not objective to ascertain the predictive power of an explanatory variable in relation to a dependent one. This study sought to deepen the exploration of the behavior of the relationship between the proxies, in order to map the behavior of the variables, individually and interrelated, understand the reasons for unexpected behaviors and understand the variations of the relationships between them.

4 RESULTS

4.1 Presentation of Results

In order to know the behavior of the data of the indicators of Fiscal Transparency (OBI) and Degree of Democracy (DI), the measures of mean, standard deviation, minimum and maximum of this population of countries were calculated, being segregated by year of analysis (Table 2) and by region, in accordance with the segregation of the IBP (Table 3).

Table 2

Exploratory Analysis of Indicator Data, by year

Year	N	Tax Transparency (OBI)				Degree of Democracy (DI)			
		Mean	Standard Deviation	Minimum	Maximum	Mean	Standard Deviation	Minimum	Maximum
2006	59	46.02	22.23	3	89	5.93	1.85	1.65	9.88
2008	85	39.73	25.19	0	88	5.63	1.89	1.52	9.88
2010	94	42.21	24.53	0	92	5.66	1.90	1.52	9.80
2012	100	42.68	24.22	0	93	5.60	1.89	1.62	9.93
2015	102	45.36	21.54	0	88	5.64	1.89	1.50	9.93
2017	115	41.87	24.80	0	89	5.54	1.94	1.50	9.87
2019	117	44.64	22.78	0	87	5.48	2.00	1.13	9.87

From the data presented, it is first verified the growth of the number of countries evaluated by the IBP each period, resulting from the effort to evaluate the fiscal transparency of all nations. As for the OBI itself, it is noticed that there is significant heterogeneity in the dispersion of the data, considering that the standard deviation represents in every year about 50% to 65% of the average, in addition to the high amplitude of the index, which shows that in the population there are countries with extreme performances in terms of fiscal transparency.

With these data in hand, it can be seen that there is a high variability in the countries' fiscal transparency, with all the levels of performance in the years analyzed in terms of the amount and punctuality of budget information made publicly available, and it is possible to observe a heterogeneity in the performance of countries over the years.

Regarding the degree of democracy, it was possible to observe a decrease in the average DI between the years analyzed, with an inverse relationship with the inclusion of new countries in the analysis. It was also observed that the standard deviation represented between 30% and 35% of the mean of the indicator, which shows that the data are more concentrated around the mean, if compared to the OBI, even if its amplitude was also high, considering that the index varies between 0 and 10.

Thus, it is possible to infer that, on average, the countries analyzed do not represent developed democracies, since most of them are concentrated around a relatively low average, which indicates that most are considered as Hybrid (4.01-6.00) or as Failed Democracy (6.01-8.00).

In order to explore the data segregated by region, Table 3 shows the measures of center and dispersion of the data. It is important to note that the data of all the years analyzed were considered and aggregated.

From these measures, the distinctions between the regions in both indicators are evidenced, considering the average differences between them. It is noteworthy that, both in relation to Fiscal Transparency and the Degree of Democracy, the group “Western Europe, United States and Canada”, with 10 countries, has the highest average performance, with low standard deviation and intermediate amplitude. This allows us to conclude that the countries

of this group are relatively homogeneous, both in terms of transparency and democracy, with high values in both.

Table 3

Exploratory Analysis of Indicator Data (2019), by region

Region (OBI)	N	Tax Transparency (OBI)				Democracy Level			
		Mean	Standard Deviation	Minimum	Maximum	Mean	Standard Deviation	Minimum	Maximum
East Asia and Pacific	16	52.88	19.56	19	87	6.18	2.10	2.26	9.26
East Europe and Central Asia	21	55.38	15.46	17	81	5.51	1.66	1.93	7.69
Latin America and the Caribbean	18	50.56	22.23	0	82	6.18	1.38	2.88	8.13
Central East and North Africa	10	21.80	21.95	0	61	3.80	1.43	1.93	6.72
South Asia	6	41.83	8.61	28	50	5.24	1.48	2.85	6.90
Sub-Saharan Africa	36	31.08	18.97	0	87	4.38	1.64	1.13	7.81
Western Europe, United States and Canada	10	71.60	8.76	53	86	8.55	0.74	7.52	9.87

On the other hand, the “Central-East and North Africa” group, also with 10 countries, has the lowest average of the indexes, but with high variability, considering the standard deviation and the amplitude of the data. Also with high amplitude and variability around low averages, the “Sub-Saharan Africa” group, with 36 countries, is characterized as second worst among the groups.

As for the other groups, there are diverse behaviors among them, with transparency and democracy more homogeneous among themselves, such as “East Europe and Central Asia”, and others with greater internal heterogeneity, such as “East Asia and the Pacific”. In addition, sorting the groups according to the averages, it should be noted that, with the exception of the “South Asia” and “East Europe and Central Asia” groups, transparency and democracy rankings coincide, which signals a possible positive relationship between the indicators.

In order to verify the relationship between fiscal transparency and the degree of democracy of countries, the correlation coefficients by region, by year and totals are presented in Table 4, in which statistically significant ones are signaled.

Table 4

Spearman's correlation between Fiscal Transparency and Degree Of Democracy, by region, by year and totals

Region	2006	2008	2010	2012	2015	2017	2019	Total
East Asia and Pacific	0.786*	0.825**	0.764**	0.807**	0.829**	0.789**	0.820**	0.801**
East Europe and Central Asia	0.726**	0.847**	0.665**	0.601**	0.454*	0.518*	0.356	0.554**
Latin America and the Caribbean	0.550	0.456	0.581*	0.545*	0.542*	0.404	0.200	0.452**
Central East and North Africa	0.333	0.857*	0.108	0.341	0.375	0.628	0.286	0.374**
South Asia	0.700	0.771	0.928**	0.319	0.257	-0.290	0.086	0.423**
Sub-Saharan Africa	0.893**	0.660**	0.792**	0.549**	0.720**	0.514**	0.565**	0.650**
Western Europe, United States and Canada	-0.900*	-0.771	0.191	0.611	0.483	0.372	0.328	0.285*
Total	0.765**	0.792**	0.796**	0.712**	0.720**	0.703**	0.680**	0.729**

Notes. ** statistically significant correlation at the level of 1%; * statistically significant correlation at the level of 5%.

Unlike what Arapis and Reitano concluded (2018), analyzing the data only for 2006, 2008, 2010 and 2012, Table 4 shows that in all analyzed years, considering all countries together, the correlation coefficients between the indicators were significant, positive and strong (between 0.680 and 0.796), which also occurs when considering the data of all periods in aggregate form (0.729). This first finding already seems to corroborate the previous literature, which points out that in a society equipped with information on the management of public resources, social control tends to occur more effectively.

Considering the correlations of the countries in each region, it is observed that in many of them the coefficients were not significant in some of the years, especially in the groups “Latin America and the Caribbean”, “Central-East and North Africa”, “South Asia” and “Western Europe, United States and Canada”. This non-significance of the correlations is largely explained by the small number of countries belonging to these groups, as shown in Table 1, which did not allow statistical inferences to be made.

Analyzing the groups that had periods with significant correlations, it is observed that in most of them the coefficient was considered strong (between 0.7 and 0.9) or moderate (between 0.5 and 0.7). It is also noted, considering the total correlation by region, that the groups with high internal heterogeneity are presenting higher correlation coefficients, such as the case of “East Asia and the Pacific” and “Sub-Saharan Africa”, which have high standard deviation and amplitude (Table 3), combined with the highest correlations (Table 4).

This finding may support the explanation that in less homogeneous groups there seems to be greater correlations, since it is found in these countries with different characteristics, both related to fiscal transparency and the degree of democracy.

Another example that corroborates this explanation is the “Western Europe, United States and Canada” group, in which the only significant negative correlation coefficient is present. Even if it is considered that in the year in question (2006) only five countries of this group were evaluated (Table 1), it is noticed that overall their internal variability is low, both for the OBI and for the DI, and that these have the highest averages for both indexes (Table 3). That is, since the countries that make up this group have the highest indexes of tax transparency and degree of democracy, with low internal variability, it seems sensible to conclude that from a certain degree of democracy, there is no difference between the tax transparency indexes of the countries.

Thus, analyzing the correlation coefficients together with the characteristics of the groups, it is possible to infer that, in general, there is a positive and strong correlation between fiscal transparency and degree of democracy, especially when countries with diverse performance are present and well distributed in the population.

This finding of correlations is important to determine the behavior of the relationship between the variables, however it has as inherent limitation the possible effect of outliers, which can give bias to the analysis, because they affect the center and dispersion measures and the correlation coefficients. An alternative form of analysis that is not affected by this limitation is the division of the population into strata, through the grouping of countries with similar performances among themselves and different from the others.

In this study, the OBI was divided into five strata (0-20; 21-40; 41-60; 61-80; and 81-100) and the DI into four (Authoritarian Regime (0.00-4.00); Hybrid Regime (4.01-6.00); Failed Democracy (6.01-8.00); and Full Democracy (8.01-10.00)). To verify whether the strata are in fact different, the Analysis of Variance (ANOVA) was calculated, which has the Null Hypothesis (H_0) that the means of the groups are statistically equal. Table 5 shows the result of ANOVA for the Tax Transparency and Degree of Democracy strata.

Table 5
Analysis of Variance of the Tax Transparency and Degree of Democracy strata

	Sources of Variation	Degrees of Freedom	Sum of Squares	Mean Square	Statistics F	P-Value
Tax Transparency	Factor	4	354.847,24	88.619,56	2.787,02	0,0000
	Residuals	667	21.208,76	31,80		
Degree of Democracy	Factor	3	2.162,83	720,94	1.877,91	0,0000
	Residuals	658	252,61	0,38		

Based on the results shown in Table 5, the null hypothesis of group equality in both variables is rejected, which allows the inference that, for both transparency and democracy, the average of at least one of the strata differs from the others.

In order to verify which groups differ from the others, Tukey's Multiple Comparison Test was performed (Table 6), which compares all of them, two by two, and concludes by equality or not of the groups through the analysis of the overlap of the confidence intervals of the means.

Table 6
Tukey's Multiple Comparison Test

Tax Transparency Strata				Degree of Democracy Strata			
Factor	N	Means	Groups ¹	Factor	N	Means	Groups ¹
81-100	40	85.72	a	Full Democracy	66	8.69	a
61-80	118	68.85	b	Failed Democracy	245	6.87	b
41-60	237	50.22	c	Hybrid Regime	189	5.18	c
21-40	132	33.15	d	Authoritarian Regime	162	2.99	d
0-20	145	8.01	e				

Note. ¹ the test assigns equal letters to groups in which the confidence intervals of the means overlap (homogeneous with each other) and different letters to groups with significantly different means.

From the result of the test, it is possible to infer that all the formed strata are statistically different from each other, there being no more than one group that resembles the other. Therefore, considering the fact that the strata are not equal, the analysis of these can be carried out without the risk of bias in the grouping. Thus, the cross tabulation of the strata was performed, evidenced in Table 7.

Table 7
Cross Tabulation of Strata of Fiscal Transparency and Degree of Democracy and Results of the Chi-Square test of Independence

		Tax Transparency Strata					Total	
		0-20	21-40	41-60	61-80	81-100		
Strata	Authoritarian Regime	Noted	99	41	26	6	0	172
		Expected	37	34	61	30	10	
Degree of Democracy	Hybrid Regime	Noted	36	56	87	8	2	189
		Expected	41	37	67	33	11	
	Failed Democracy	Noted	10	35	114	74	12	245
		Expected	53	48	86	43	15	
	Full Democracy	Noted	0	0	10	30	26	66
		Expected	14	13	23	12	4	
Total			145	132	237	118	40	672
Test			Value	Degrees of Freedom			P-Value	
Chi-Square of Independence			455.20	12			0.000	

Together with the cross tabulation, the Chi-Square Test was calculated in order to verify the independence of the groups and to conclude about the relationship between the strata. In this test, to draw conclusions about the relationship between the variables, the

expected values of all cells are compared with their respective observed values. Thus, the Null Hypothesis (H_0) of the test is that the variables in question are independent of each other.

It can be seen in Table 7, considering the expected and observed values, that the relationship between the strata is directly proportional, since there is a greater concentration of countries with low fiscal transparency in the group of “Authoritarian Regime”, while most of the countries with good transparency are part of the group “Full Democracy”. In addition, most of those with average levels of tax transparency, which are the majority of countries, are classified as “Hybrid Regime” or “Failed Democracy”.

These conclusions are validated by the result of the Chi-Square test, in which the null hypothesis of independence of the variables is rejected. This allows us to conclude that, by comparing the expected values with those observed, the strata are dependent on each other, that is, fiscal transparency is statistically related to the degree of democracy.

4.2 Discussion of Results

Analyzing only the fiscal perspective of transparency and the degree of democracy of the countries in the years in which the OBI was released, it was found a significant and positive relationship between them, when considering the years or the totaled regions. When the groups separated by year were analyzed, there were 26 significant correlations out of 49 possible, with the positive behavior occurring in 25 of them, with the exception of the “Western Europe, United States and Canada” group in 2006, which with five countries present had a high negative correlation.

In addition, to reduce the possible bias of outliers, the data were stratified and cross-tabulated in order to verify their independence. From the results of this test, it was possible to conclude by the dependence of the strata, which implies saying that they are dependent on each other and there is a directly proportional relationship between them.

Combined with these results, it is possible to conclude that, as a rule, more democratic countries tend to be more transparent and vice versa, since it is not possible to conclude as to the causal relationship in this work. Theoretically, in more evolved democracies there is the culture of social control as a mechanism of external control exercised by the population, because these are agents outside the administrative structure and disconnected from the activity that is the object of control (Castro, 2007).

We also highlight the external control mechanisms exercised by donors, which are important agents in the promotion of fiscal transparency between countries, establishing contractual relations for the promotion of structural reforms aimed at increasing their fiscal transparency, which would consequently imply democratic maturations.

These contracts, which have the function of mitigating the risks of opportunistic conduct of the agents involved (Williamson, 1973), materialize in multilateral agreements for financing internal public policies in the countries, which must obey clauses that establish, among others, the implementation of specific public policies, including those related to the promotion of fiscal transparency (De Renzio & Angemi, 2012).

Thus, it is understood how fiscal transparency is an important instrument for the promotion of this democratic mechanism, by the ability to provide citizens with data necessary for the monitoring of budgetary information of public policies implemented by the State. This theoretical relationship was corroborated in this article and in works such as by Wehner and Renzio (2013) and Ríos et al. (2016).

Therefore, the conclusions of Arapis and Reitano (2018) seem contradictory, which justify the inverse relationship between transparency and democracy, which goes against Kono (2006), relying on Ferejohn's theory of political agencies (1999), which proposes that

public managers who spend less efficiently, use fiscal transparency to gain voter confidence and more public resources.

Thus, for the evidence highlighted in this paper, using the same measures that are used by the Arapis and Reitano (2018), it seems that the reason is most appropriate for the negative relationship found by the authors to be in the proper regression model used, assuming that: (i) data were considered only from the 59 countries assessed by the first publication of the OBI in 2006, which may have resulted in a more homogeneous group, in which this relationship is not evident; or (ii) the fact that a panel data regression model from the years 2006, 2008, 2010 and 2012 was used, with 12 independent variables, which may have affected the index sign in the equation.

Therefore, as established by the literature some time ago, the findings shown here are sufficient to disagree with the conclusions of Arapis and Reitano (2018), and confirm that more democratic countries tend to have more transparent budgets.

5 CONCLUSIONS

This study proposed the investigation specifically of two important indicators related to national governments, based on the result of a particular article that drew attention, because it contradicted most of the previous literature and was published in a high impact journal.

Using two different methods it was possible to conclude by the significant and positive relationship between the indicators of Fiscal Transparency and Degree of Democracy, both when analyzing the Spearman correlation coefficients of the annual data and by region, and when considering the grouped and related data.

Thus, despite the arguments presented by Arapis and Reitano (2018) that the inverse relationship of the variables is due to the fact that less efficient public managers benefit from transparency, the findings of this work corroborate the previous literature by stating that there is a direct relationship between fiscal transparency and degree of democracy. Thus, it is argued here that fiscal transparency gives subsidies to the exercise of social control, stimulating the maturation of democracy, which tends to become a cycle of accountability and control, enabling the promotion of accountability.

Therefore, a commitment to be made by national governments in democratic contexts is the strengthening of fiscal transparency, through the greater availability of public budget information, more opportunities for society to participate in the budget process and autonomy and independence of formal oversight institutions, including the legislative and supreme audit institutions.

As limitations of this work, it is recognized that, although considering the relationship only between the variables transparency and democracy, several other characteristics of countries are related to both and can be their determinants, such as social, economic, fiscal, organizational and institutional factors (Puron-Cid & Rodríguez Bolívar, 2018).

Thus, it is suggested for future research the investigation of the relationship between transparency and these factors separately, and also the joint analysis of these determinants, in order to verify their ability to predict the level of transparency of countries.

In addition, studies investigating the role of donors in the implementation of public policies of fiscal transparency and the effects of these interventions towards an effective democratic maturation in countries would contribute greatly to the literature.

In addition, in line with Cucciniello, Porumbescu, Grimmelikhuijsen (2017), studies aimed specifically at developing countries, especially Latin America and Africa, are suggested, considering the scenario of low indicators of transparency and democracy between

these countries and the limited number of studies investigating them in depth, which awakens the need for greater deepening of these cases.

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Países mais Transparentes são mais Democráticos?

RESUMO

Objetivo: avaliar a relação entre a transparência fiscal e o grau de democracia dos países.

Método: para mensuração das proxies foram utilizados os indicadores *Open Budget Index* e *Democracy Index*, com dados de 2006 a 2019, que foram avaliados por meio da *Análise Exploratória dos Dados*, teste de *Correlações* e teste *Qui-Quadrado de independência*.


Originalidade/Relevância: há maior incidência de estudos sobre transparência a níveis regional e local, em detrimento das investigações em nível transnacional. Além disso, entendendo a transparência como princípio fundamental para a consolidação de um Estado democrático, espera-se que haja uma relação direta entre as variáveis mensuradas. No entanto, destaca-se os recentes achados contraditórios de Arapis e Reitano (2018), que constataram uma relação negativa entre esses dois indicadores, contrariando a teoria e a literatura prévia sobre a temática.

Resultados: de maneira geral, há relação significativa, positiva e forte entre a transparência fiscal e o grau de democracia dos países, principalmente quando são agrupados países com desempenhos distintos. No entanto, essa relação pode apresentar comportamento muito distinto, dependendo da região em que o país está situado.

Contribuições teóricas/metodológicas: conforme estabelecido pela literatura, os achados aqui evidenciados são suficientes para discordar das conclusões de Arapis e Reitano (2018), e confirmar que países mais democráticos tendem a ter maior transparência em relação às suas informações orçamentárias.

Contribuições sociais/para a gestão: a transparência fiscal é um importante instrumento de controle social em uma sociedade democrática, porém, a partir de determinado grau de democracia, não há diferenças significativas nos índices de transparência fiscal entre os países.

Palavras-chave: *Transparência Fiscal; Open Budget Index; Grau de Democracia; Democracy Index; Governos Nacionais.*

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Recebido: Junho 16, 2020

Revisado: Novembro 2, 2020

Aceito: Fevereiro 26, 2021

Publicado: Abril 27, 2021



Journal of
Accounting,
Management and
Governance

JAMG

Since 1998

