Scientific progress of fiscal transparency research at national governments level

Rodrigo Silva Diniz Leroy[a], Alejandro Sáez-Martín[b], María del Carmen Caba-Pérez[c], Lucimar Antônio Cabral de Ávila[d]

a) Institute of Human and Social Sciences, Federal University of Viçosa, Rio Paranaíba-BRAZIL.
b), c) Department of Business Management, Faculty of Economics and Business Studies, University of Almería, Almería, SPAIN.
d) Faculty of Accounting, Federal University of Uberlândia, Uberlândia-BRAZIL

[b]Corresponding author.
E-mail address: alejandro.saez@ual.es

ABSTRACT

This paper analyzes the scientific progress of research on fiscal transparency of national governments over the past 20 years. We explored the inherent and content characteristics of the papers, through a scientometric analysis, and investigated the role of externalities in the general progress and impact of the research. The number of impactful papers published on this topic can be considered low and we noted the predominance quantitative studies using external database, predominantly written by American and Spanish authors. About the role of language on the topic, English-speaking authors published earlier and have the most impactful papers. Also, the increase of papers is correlated with the regulations of Freedom of Information worldwide, although a low number of papers have specifically analyzed these acts. Finally, the rise of Open Budget Index data increased the number of papers published, though with less scientific impact. Considering the relevance of the topic, we propose future research niches to the literature on fiscal transparency, with different research types and alternative approaches, such as using primary data collection, qualitative and critical methodologies, in-depth case studies on the internal situation of unexplored countries, and studies focused on developing countries, mainly from Africa, Asia and Latin America.

Progreso científico de la investigación sobre transparencia fiscal a nivel de los gobiernos nacionales

RESUMEN

Este documento analiza el progreso científico de la investigación sobre la transparencia fiscal de los gobiernos nacionales en los últimos 20 años. Exploramos las características inherentes y de contenido de los artículos, a través de un análisis cienciométrico, e investigamos el papel de las externalidades en el progreso general y el impacto de la investigación. El número de artículos con impacto publicados sobre este tema puede considerarse bajo y notamos el predominio de los estudios cuantitativos que utilizan bases de datos externas, principalmente escritos por autores estadounidenses y españoles. Sobre el papel del lenguaje en el tema, los autores de habla inglesa son los pioneros y con los artículos más impactantes. Además, el aumento de documentos está correlacionado con las regulaciones de acceso a la información en todo el mundo, aunque un número bajo de documentos ha analizado específicamente su impacto. Finalmente, el aumento de los datos del *Open Budget Index* aumentó el número de artículos publicados, aunque con menos impacto científico. Teniendo en cuenta la relevancia del tema, proponemos futuros nichos de investigación para la literatura sobre transparencia fiscal, con diferentes tipos de investigación y enfoques alternativos, como el uso de la recopilación de datos primarios, metodologías cualitativas y críticas, estudios de casos en profundidad sobre la situación interna de países inexplorados y estudios centrados en países en desarrollo, principalmente de África, Asia y América Latina.

1. Introduction

Due to the social concern regarding the control over public managers' initiatives, in which citizens are interested in obtaining information on the actions implemented by public entities, fiscal transparency has become a debated many approaches in the academic agenda (Alt, 2019). Thus, for this control is necessary the elaboration and disclosure of budgets and more transparent public balance sheets, which is called fiscal or budgetary transparency (OECD, 2017).

Conceptually, the International Monetary Fund (IMF) defines fiscal transparency as the information contained in public and open access fiscal reports "available to the public about the government's fiscal policy-making process", that should have the characteristics of "clarity, reliability, frequency, timeliness, and relevance" (International Monetary Fund, 2018, p. 1). It thus provides a comprehensive view of government budgets, as well as the outcome of public policies, stimulating good governance and helping to combat corruption (International Monetary Fund, 2016).

These characteristics, in turn, tend to help achieve financial and economic stability through increased budget planning credibility and market confidence, with better budget outcomes, lower borrowing costs, and "less creative" accounting by governments (Wehner & De Renzio, 2013).

With regard to this fiscal approach to transparency, researchers have presented reflections on financial responsibility in the public sector, highlighting the pressures suffered by public administrations to disclose high quality information, thus achieving sustainable financial equilibrium (Puron-Cid & Rodríguez Bolívar, 2018). To meet these public sector accountability and transparency requirements, providing understandable financial information is a relevant way to address social demands (Wang, 2002).

In this sense, fiscal transparency has been a central theme in debates on international development, with publications on best practices by important institutions, such as the IMF and the OECD (International Monetary Fund, 1998, 2007, 2014, 2019; OECD, 2002). However, in the academic literature there is a higher incidence of transparency studies at regional and local levels was identified to the detriment of investigations at the transnational level, a factor considered surprising (Wehner & De Renzio, 2013) and which motivates the deepening of discussions involving countries, mainly after the 2012 IMF call for more research on fiscal transparency (Arapis & Reitano, 2018).

Previous scientometrics have studied different aspects about the subject, by different content analysis. Examples of them, which reviewed the literature from the early 90's to 2015, Cucciniello, Porumbescu and Grimmelikhuijsen (2017) researched government transparency, while De Renzio & Wehner (2017) analyzed fiscal transparency and participation in government budgeting.

Also, Alcaide-Muñoz et al. (2017) published an empirical meta-analysis about the factors favoring the disclosure of public financial information. Sáez-Martín et al. (2017) published a descriptive analysis of the state of research into transparency in the public sector between 2005-2014.

However, there was a growth of publications about fiscal transparency by many relevant institutions in the late 90's (Alt, 2019), outstandingly the Code of Good Practices on Fiscal Transparency in 1998 (International Monetary Fund, 1998).

Thus, considering the predominance of descriptive and content analysis, and the growing interest in fiscal transparency by major institutions from the late 1990s, we intended to fill in these gaps. So, we researched the externalities affecting the scientific impact and progress of the research area in the last 20 years, in line with some previous scientometric researches from other areas, such as Dragos & Dragos (2013), Vanclay (2013) and Confraria et al. (2017).

It is relevant to discuss the theme of this research, since countries' internal actions to promote transparency at the subnational level are derived from choices made by national governments, which internally disseminate the guidance of international organizations.

So, the purpose of this paper is to analyze the scientific progress of research on fiscal transparency of national governments over the past 20 years. In addition, the specific objectives are: (i) to describe the current state of research, exploring the characteristics of published papers and (ii) to investigate the role of externalities in the general progress and impact of the research.

For this purpose, we conducted a scientometric analysis of papers on fiscal transparency of national governments published in the past 20 years in journals included in the ISI Journal Citation Reports (JCR) 2018 database and with available Journal Impact Factor (JIF).

We intend to add perceptions and propose future research niches to the literature on fiscal transparency, contributing with the influence of the externalities on the progress of research, such as the authors' language and the publications of Freedom of Information Acts (FOIA) and the Open Budget Index (OBI). Such investigation with this approach is important as it can contribute to stakeholders involved in transparency initiatives – government and society – and to addressing challenges and problems that make it difficult for open government initiatives to reach their full potential (Attard et al., 2015).

2. Review of scientometric studies and research questions

Scientometrics plays an important role in measuring and evaluating research performance by studying the quantitative aspects of the science process as a communication system (Mingers & Leydesdorff, 2015).

In general, we identified that the scientometric studies have been used recurrently in researches of only some areas. In the librarian, for example, Atkins (1988) stated the journals were publishing the same subjects over and over and without any research to back up their claims. To solve this question, by discovering the past, present or future directions of the area, the author made a quantitative analysis of the trends of the subject, using works published between 1975 and 1984 in nine journals in library and information science.

Despite little or no use in certain areas, such works may have social as well as scientific contributions. Debackere & Glänzel (2004) exemplify the use of scientometric data by the Belgian government to allocate public policy resources in 2003, when 93 million was allocated for research at 6 Belgian universities, using data from the web database of Science SCI.

In this sense, we identify the existence of some scientometric studies in the various topics related to the area of public administration, as pointed out by Sáez-Martín et al. (2017). Forrester & Watson (1994), for example, sought to understand what editors and editorial boards were looking for in a public administration journals, finding that, in addition to rigorous review requirements, top-ranked journals are published in the United States.

Lan & Anders (2000) conducted an analysis of the paradigmatic views that guide research related to public administration, arguing in favor of the importance of self-awareness of academics in the area since it offers a clearer research focus, a more sensitive sensitivity, refined to recognize anomalies and a better chance of advancing their theories.

Regarding approaches to specific public administration themes, there is a range of relevant topics to be discussed through scientometrics, such as the performance of public entities (Christensen & Gazley, 2008), Public Sector Benchmarking (Braadbaart & Yusnandarshah, 2008), e-government and transparency (Rodríguez Bolívar et al., 2016), among many others.

On the topics *e-government and transparency*, the literature pointed to the rapid growth of research in these areas (Heeks & Bailur, 2007; Khan et al., 2011; Sáez-Martín et al., 2017; Yildiz, 2007), from the advent and popularization of the internet, according to the evolution of articles pointed out by Rodríguez Bolívar et al. (2016).

Transparency is a fundamental principle for the consolidation of a democratic state, since it provides society with information on the management of public resources and the promotion of accountability. Besides, it allows citizens to interact and control their political representatives, and consequently to exercise the power of decline them at the end of the representation cycle, through voting (Zuccolotto & Teixeira, 2014).

First, about transparency in governments, Alcaide-Muñoz et al. (2017) presented a meta-analytic review of the empirical studies since the first ones in 1983, looking for the factors favoring the disclosure of public financial information. This study shows the variables associated with the disclosure of public financial information, presenting the importance of the research context.

Sáez-Martín et al. (2017) analyzed the current state of research into transparency in the public sector, between 2005 and 2014, specifically the questions of mandatory and voluntary transparency. From a scientometric and descriptive analysis, they provided a critical overview of papers published in JCR journals, finding an increase in the number of studies in the period, particularly on voluntary transparency, and identifying future areas of interest.

Alcaide-Muñoz et al. (2014, p. 140) presented a critical review of the research in information transparency, citizens' participation and public services delivery, concluding that the initial studies tended to focus on case analyzes and "highlighting the presence of the services offered by government agencies, as well as the content of the economic-financial information offered by public administrations through their web pages".

Cucciniello et al. (2017) also synthesized the literature on government transparency, providing a review of 187 studies on the topic between 1990 and 2015. From the descriptive results, they outlined an agenda for future research with detailed suggestions on topics and methods still imminent in the area, such as the need for more investigation about the contextual conditions and transparency outcomes, studies with varying methodologies, neglected countries and claims of transparency by decision makers and managers.

There is a wide use of different theoretical approaches in the papers on transparency, mainly in the context of public administration. García-Tabuyo et al. (2017, p. 355), for example, pointed out the theories proposed by the literature to "explain why public authorities should decide to disclose information", highlighting the agency theory, institutional theory and legitimacy theory. According to the authors, these theories offer different points to "explain why information should be disclosed" and contribute to determine the factors that may influence the amount and nature of information to be disclosed, under transparency laws (García-Tabuyo et al., 2017, p. 355)

Also, even though there are several concepts of transparency in the literature, its meaning still remains unconsolidated, which may be due to different approaches related to the flow of information, such as transparency under the budgetary or fiscal, accounting, institutional or organizational, social or civic, bidding process, contracts and agreements, among others (Zuccolotto & Teixeira, 2014).

Alt (2019) presented the twenty years of transparency research, summarizing how the theme reached the academic agenda, each decade separately and thoughts for the future. According to Alt (2019, p. 6) in the last twenty years "fiscal transparency has become a major theme of contemporary research in political economy and public administration", with many publications on best practices by the World Bank, IMF, OECD, and many other NGOs.

Thus, due to the choices of this work, we delimit our approach to transparency from a fiscal perspective (also called budgetary or financial), which is characterized by the IMF as a critical element for effective fiscal management, since it refers to "information available to the public about the government's fiscal policy- making 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).

Fiscal transparency was the topic reviewed by De Renzio & Wehner (2017, p. 185), which provided "the first systematic review covering 38 empirical studies published between 1991 and early 2015". They concluded that despite the increase of fiscal openness, quality of the budget, governance and development outcomes, just a few studies convincingly identify its causal effects. The authors also highlighted some gaps and pointed out a future research agenda, with suggestions about new approaches about the measures of budget transparency and its determinant factors.

So, the previous literature pointed that there is a lack of studies about fiscal transparency (De Renzio & Wehner, 2017), mainly focused in national governments (Arapis & Reitano, 2018; Wehner & De Renzio, 2013). Besides, considering that one of the first and most important documents about countries fiscal transparency was the first edition of the Code of Good Practices on Fiscal Transparency (International Monetary Fund, 1998), there is a gap of literature reviews on the subject covering the period after the code, that is the last twenty years (Alt, 2019).

Finally, we noted the predominance of descriptive and content analysis (Alcaide Muñoz et al., 2017; Cucciniello et al., 2017; Sáez-Martín et al., 2017), but there are no reviews that jointly analyze the characteristics of the papers. Thus, our first research question is:

RQ1: How many articles on fiscal transparency, at national level, have been published in JCR journals in the last 20 years? What are its characteristics?

In other areas, there are papers that studied the state of research using empirical approaches, relating different externalities with the papers, which led them to important conclusions. Examples are the researches of Dragos & Dragos (2013) and Vanclay (2013) in the environmental sciences, and Confraria et al. (2017), about the scientific impact across countries.

However, there is a lack of scientometric analysis on transparency with empirical approaches. So, it is relevant the dis-

cussion of the externalities that may influence the research on fiscal transparency at national governments. We suppose that three specific externalities can influence the progress of fiscal transparency research: language, Freedom of Information Acts (FOIA) and the Open Budget Index (OBI).

About the first one, Dragos & Dragos (2013) show that linguistic factors can influence the academic output of countries, concluding that the English language is related to the productivity of research in environmental sciences and ecology.

Also, the publications of FOIA worldwide can influence fiscal transparency research, considering that researchers from many areas might increase the interest in studies that evaluates the role of these laws (Mueller, 2019).

Finally, the disclosure of the OBI by the International Budget Partnership (IBP), which provide information on "budget transparency for a large set of countries over time", allow researchers to use the index as a proxy of transparency or "construct their own indices and analyses based on their specific interests" (Seifert et al., 2013, pp. 97-98)

Considering that, to fill in the gap of descriptive and content analysis on transparency research and look for the externalities that affects the scientific impact and progress of the research area, our second research question is:

> **RQ2:** What is the role of the externalities language, FOIA and OBI in the general progress of fiscal transparency research published in JCR journals in the last 20 years?

3. Methodology

According to Glänzel & Schoepflin (1994, p. 376), "since the beginning of the eighties, bibliometrics has evolved into a distinct scientific discipline with a specific research profile", with subfields that gained notoriety, such as scientometric and informetrics.

With regard specifically to scientometrics, it concerns the research of the advancement of knowledge in a scientific field, with special emphasis on the quantitative analysis of bibliometric data, seeking to investigate the development of a specific area (Van Raan, 1997).

Thus, from a thorough examination of the papers, scientometrics helps researchers to understand the theoretical construction and provide a critical view of the field of study, since it allows the description or evaluation of a phenomenon, its nature, state and evolution, through the analysis of bibliometric data (Alcaide-Muñoz et al., 2014). So, in this paper we analyzed the scientific development of the area "fiscal transparency", specifically its application to national governments.

3.1. Sample selection

To select the papers to be analyzed, we followed Sáez-Martín et al. (2017), searching in the ISI database, JSTOR, Scopus and Science Direct, and looking for the following terms in the fields of Title, Abstract and Keywords: "fiscal transparency", "budget transparency", "national government", "country", "countries". The search for both "fiscal" and "budget" terms was because they are often used as synonyms (OECD, 2017). We chose to search only for English expressions, in line with the previous literature of scientometric papers, which proposes that the English language plays a prominent role as the "lingua franca" in scientific communication internationally (López-Navarro et al., 2015, p. 940).

Data collection took place between March 2019 and December 2019. We found a total amount of 757 records, of which: 134 from ISI database, 362 from JSTOR, 114 from Scopus and 147 from Science Direct.

Besides, in line with Wehner & De Renzio (2013) and Arapis & Reitano (2018), we have delimited the research to studies only in national government analyzes, since there is a lack of fiscal transparency studies focused at the national level. Also, we excluded duplicate files and some types of studies, limiting the analysis to scientific papers only. In line with Sáez-Martín et al. (2017), the types of studies excluded were books, abstracts of communications, book reviews and paper from symposioums.

From the remaining papers, we selected those published in Journal Citation Reports (JCR) journals, with available Journal Impact Factor (JIF) from the last available edition on the date of submission of this paper (2018), excluding those without assigned JIF. This choice was because the JCR is actually "the main source of bibliometric indicators known by the scientific community" (Alves et al., 2016, p. 1490) and a popular tool to asses research impact, significance, quality and prestige of a journal (Haghdoost et al., 2014). Moreover, the JIF is a database widely used in scientometric research, such as Rodríguez Bolívar et al. (2012), Alcaide-Muñoz et al. (2014), Rodríguez Bolívar et al. (2016) and Sáez-Martín et al. (2017).

Also, despite knowing that there have been several changes in the index from the date of publication of the papers to that most recent version of the JIF, we chose to analyze only the 2018 edition, which enabled us to investigate the current state of the scientific impact of the field, in addition to standardizing the data to a single edition, so that it was possible to compare the impact factors of the articles.

In addition, in line with Alcaide-Muñoz et al. (2017), we filtered the papers, analysing each one by title, abstract, keywords and sometimes the introduction, to identify the idea of the research topic through the stated objectives.

Therefore, in accordance with the selection criteria described, our final sample consisted of 48 papers on fiscal transparency at national level published in JCR Journals, between January 1999 and December 2019 (see Appendix). We chose this period (1999-2019), in line with Alt (2019).

3.2. Research methods

To answer the *Research Question 1*, we proceeded to a descriptive analysis of the characteristics of each paper, which are divided into inherent and content ones (Table 1). The papers were examined, catalogued and coded using MS Excel, by the following categories: authors, time, affiliation, disclosure, impact, subject and data.

Table 1. Variables used in this study, as well as its references

Charac.	Categories	Variables	References
Inherent	Authors	Authors	Rodríguez Bolívar et al. (2013)
	Time	Year	Debackere & Glänzel (2004)
		Paper Age	Small (2018)
	Affiliation	1st author country	Barjak et al. (2007)
		1st author language	Dragos & Dragos (2013)
	Disclosure	Journal	Valderrama et al (2018)
		Journal area	Sáez-Martín et al. (2017)
	Impact	JIF	Alves et al. (2016)
		Citations	Vanclay (2013)
Content	Subject	Topics	Sáez-Martín et al. (2017)
	Data	Methods	Sáez-Martín et al. (2017)
		Sample	Rodríguez Bolívar et al. (2013)

About the inherent characteristics, the data about *authors* and *year* of the papers are important to show the frequent and important authors and the evolution in the number of publications over the years. In addition, accordingly to Small (2018) the *paper age* is important to show the year of the more recent data used on the papers, highlighting the time difference between the age of the data and the year of effective publication in the journal.

We analyzed the first author's affiliation, specifically the country of the institutions where the authors are affiliated and its official language. We chose to analyze the affiliation of the first authors only because they are usually the most influential and primarily responsible for conducting the researches (Persson, 2001). The variable *1st author language* is a binary variable (dummy) that assigns *1* to English-speaking countries and *0* to other language-speaking countries, according to Dragos & Dragos (2013).

Respecting to the disclosure, the information about the journal and its area were important to find the most frequent ones, to know where and what kind of approach have been disclosed about fiscal transparency in national governments.

Last category of the inherent ones, the impact of the papers was measured by: (i) the Journal Impact Factor (JIF) of each journal, by InCites Journal Citation Report (JCR) 2018, that was collected from Clarivate Analytics® 2019; and (ii) the annual average of *citations*, also collected from Google® Scholar in 2019. In line with Alves et al. (2016), these indicators of papers impact helps the measurement of its performance and scientific influence.

Regarding the content characteristics, to analyze the *topics* and the *methods* of each paper, we used the procedure proposed by Sáez-Martín et al. (2017), classifying each of them according to the topics and methods used by the authors. We showed (see Table 2) the main topics covered by the papers and the number of articles classified in each of them, as well as the methods used in the papers, divided into non-empirical, qualitative and quantitative.

Besides, we evidenced the total percentage that used each topic and the percentage of methods used for each topic published (see Table 2). We classified the methods analyzed as non-empirical and empirical (qualitative and quantitative), in line with Sáez-Martín et al. (2017, p. 1703), considering the first one as "those composed of a review or overview, of a research-based, theoretical or methodological nature, of a particular topic", and the last as "studies are based on experimentation through the observation of phenomena and subsequent statistical analysis".

The sum of the methods total percentage was greater than 100% because most articles use more than one method and we decided to consider in our analysis all the methods used by the papers.

Also, we analyzed and took note of the *sample* of each paper (Rodríguez Bolívar et al., 2013), to cluster the similar and divide them into two groups according to the use of comparative and non-comparative methods (see Table 3).

In the next step, to answer the *Research Question 2*, we verified the relations of some externalities with the characteristics of the papers used in this study.

First, in line with Dragos and Dragos (2013), who found a direct correlation between the number of published articles and the English language of authors' country, we tested the relation between the first authors' official language and the variables *year*, *JIF* and *citations*.

As statistical procedure, we chose the *Mann–Whitney U test*, a nonparametric test that has the null hypothesis (H$_0$) that the distributions of both populations are equal, and is a good option for use in the fields of informetrics and scientometrics (Huber & Wagner-Döbler, 2003).

Then, we evaluated two other important externalities that could had potential to influence the progress of the fiscal transparency research: the number of Freedom of Information Acts (FOIA) around the world and the publications of the Open Budget Index (OBI), from the NGO International Budget Partnership (IBP).

One represents the number of laws governing access to public information around and the most complete database is available at *freedominfo.org* (Sáez-Martín et al., 2017). It was expected that there would be a positive relationship between the variables, as an increasing number of published FOIA should attract the attention of a larger number of researchers.

The other externalities refers to the most used database lately (Alt, 2019). The OBI refers to an independent, biannual and comparative survey that ranks countries according to their budget openness, evaluating the "public availability of national budget information", the "opportunities for the public to participate in the budget process" and the "strength of the oversight institutions" (Seifert et al., 2013, p. 90). Also, it was expected a positive relationship too, considering the increase in the number of available data could stimulate more robust researches.

To evaluate the relation between the externalities and the progress of research, we choose the Spearman's rank correlation, a nonparametric test with null hypothesis (H$_0$) that there is no association between the two variables. According to Bornmann (2015) in scientometric studies Spearman's rho (ρ) is the main metric for calculating correlation coefficient.

4. Analysis of Results

RQ1: *How many articles on fiscal transparency, at national level, have been published in JCR journals in the last 20 years? What are its characteristics?*

We found 48 articles (see Appendix) that fit the delimitations, on fiscal transparency of national governments and published between 1999 and 2019 in journals of the JCR 2018 database, which can be considered a low number, in accordance with Wehner & De Renzio (2013). We noted that there is only 10 papers published until 2012 and a rise of publications after 2013, which can be partly explained by the call for more research on fiscal transparency by the IMF in 2012 (Arapis & Reitano, 2018).

4.1. Inherent Characteristics

The Appendix shows the list of the 48 papers analyzed and its inherent characteristics.

About the most frequent authors, we can highlight the frequency of the ones affiliated to Spanish and American institutions, with 15 papers each one, which appears to be two important research centers on transparency. We noted too that some specific Spanish researchers have published in this topic more frequently, but if jointly considered the affiliation of all authors, we can see that there are more researchers from the USA (27) than from Spain (15), what indicates that they frequently work as partners. Therefore, we can say that although some Spanish researchers are always publishing papers on the subject, the research area has been more diffuse in the USA, since it has more researchers from several research centers.

Regarding the publication year, the studies on the topic began recently, with a real increase in publications only after 2013 (see Appendix). A possible reason for this could be the popularization of internet access worldwide in a relatively recent period and an increase of legislations about public access of governmental information (Mueller, 2019).

However, the lack of current data can be seen by the *paper age*, since in many of them there is a difference between the year of data analyzed and the year of publication effective, with 9 years gaps examples. The most often used data from the years 2008, 2010 and 2012, and there were no papers that used data from the last 3 years (2017-2019). The year of publication of the most recent paper in the sample is 2019, however the one that used the most recent data was García-Tabuyo et al. (2017), who used data from 2016.

In general, from the data of the Appendix, we infer that the average of time difference is approximately 4.5 years, and the most common ones are 5 years (8 papers), 6 years (7 papers) and 4 years (6 papers). It shows the lack of current data in public sector research, specifically about transparency, with outdated databases, when compared to the private sector, which results in a gap between the year of the data and the year of the publication.

We highlight the predominance of journals from the areas *Public Administration* (12 papers) and *Economics* (11 papers). We highlight that the presence of *Public Administration* was previously expected, such as *Political Science* and *Information and Library Science*, which are important areas in the field of transparency (Sáez-Martín et al., 2017).

According to the categories of InCites Journal Citation Reports, *Public Administration* covers researches about the management of public institutions (Clarivate Analytics, 2019b), while *Economics* covers resources on all aspects, including generalist and specialist ones (Clarivate Analytics, 2019a).

Latest data in the table, the impact of research shows the JIF 2018 of journals and the annual average citation of papers, which are usually positively correlated. Among the most cited, we highlight Alt & Lassen (2006a, 2006b), Gelos & Wei (2005) and Kono (2006).

However, although this also happened in our sample, there are some papers with high average citations published in low impact factor journals.

For example, Alt & Lassen (2006a) investigated *fiscal trans-* *parency, political parties, and debt in OECD countries*, publishing one of the most cited papers on the subject in European Economic Review, which has a relatively low impact factor. Also, the research of Hollyer et al. (2011) was about *democracy and transparency* and is published in the Journal of Politics, which is a not one of the most impactful journals in the area.

On the other hand, the journals with the highest impact factor are not always the ones that publish the articles with the highest average citations. Alt, Lassen & Wehner (2014), important researchers on the subject, investigated *domestic politics, transparency and fiscal deviations in Europe* and although it is published in a high impact factor journal (British Journal of Political Science), it has not been frequently cited in the literature.

4.2. Content Characteristics

Regarding the content of the papers, based on the classification proposed by Sáez-Martín et al. (2017), Table 2 shows the main topics and methods used.

Regarding the methods used, we note that almost all papers used more than one. Besides, there is a predominance of researches using quantitative methods and about the topic *Transparency and its relation with other elements*. Most of them are an analyzes of the determinants of fiscal transparency at national government level, most often using regression analysis.

The fiscal transparency indexes used by most papers are indirect measurements, surveyed by some institutions interested on the subject, such as IBP, IMF, OECD and World Bank. We highlight the main examples of these indexes, measured by institutions not linked to specific countries: the Open Budget Index (OBI) used by a wide range of papers in the sample (Arapis & Reitano, 2018; Arbatli & Escolano, 2015; Benito et al., 2006; Bastida et al., 2017; Brusca et al., 2018; Citro et al., 2021; De Renzio & Angemi, 2012; Harrison & Sayogo, 2014; Martí & Kasperskaya, 2015; McNab & Wilson, 2018; Montes et al., 2019; Ríos et al., 2013, 2016, 2017, 2018; Seifert et al., 2013; Wehner & De Renzio, 2013) and the Reports on the Observance of Standards and Codes (ROSC), used by two of them (Andreula & Chong, 2016; Arbatli & Escolano, 2015).

Table 2. Topics and methods used in papers on fiscal transparency published in JCR Journals (1999-2019)

		Topics				
		Transparency and its relation with other elements	Accessibility of public information	Regulation of access to information	Stakeholders perceptions and expectations	Total
	N	38	7	2	1	48
	Methods	%	%	%	%	%
Non-empirical	Literature Review	5,3	0,0	0,0	0,0	
	Critical Review and Discussion	10,5	14,3	50,0	100,0	20,8
	Review of Mandatory Regulations	2,6	14,3	50,0	0,0	
Qualitative	Case Study	7,9	28,6	50,0	0,0	
	Comparative Study	5,3	28,6	50,0	0,0	37,5
	Evaluation Research	5,3	85,7	0,0	0,0	
	Informaetric Study	21,1	85,7	100,0	0,0	
Quantitative	Longitudinal Design	31,6	14,3	0,0	0,0	
	Regression Analysis	73,7	28,6	50,0	0,0	
	Comparative Study	76,3	42,9	50,0	0,0	72,9
	Correlations	28,9	28,6	50,0	0,0	
	Analysis of Variance	5,3	0,0	0,0	0,0	
	Meta-Analysis	5,3	0,0	0,0	0,0	

The values refer to the percentage of methods used for each topic published in articles on transparency and the total percentage is greater than 100% because most articles use more than one method.
Source: Adapted from Sáez-Martín et al. (2017)

However, in our sample there is only one study that creates the measurement of countries' fiscal transparency using primary data (Copelovitch et al., 2018). Also, there is only one that applied the methodology proposed by another paper, that is De Simone et al. (2017), who analyzed the index proposed by Wang et al. (2015).

On the topic of *Accessibility of public information,* we note the variability of methods, with predominance of evaluation researches and informetric studies. In this topic we can highlight the predominance of the qualitative methods, specifically *Evaluation Research* and *Informetric Study*, considering that six out of seven used these ones.

About the other two topics, there is just a few numbers of studies about them. In the topic *Regulation of access to information* there is two papers, that address the open government partnership and the USA transparency policies (Piotrowski, 2017) and the proactive disclosure of public information worldwide (Garcia-Tabuyo et al., 2016).

The last one, *Stakeholders' perceptions and expectations*, consists only the paper of Seifert et al. (2013), who describe the methodology and explains the construction of the Open Budget Index (OBI), with a critical analyzes of the index as a comparative statistical tool.

Moreover, we highlight the representativity of comparative studies in both qualitative and quantitative research. Although there is some limitations and problems to compare countries (Freeman, 1967), mainly because of their cultural differences (Madden, 2005), most papers compare different aspects related to the characteristics of national governments, usually by indirect indices.

Thus, Table 3 shows the sample specifications of analyzed papers, divided into comparative and non-comparative methods.

Table 3. Sample of comparative and non-comparative fiscal transparency papers published in JCR Journals (1999-2019)

Methods	Sample
9 non-comparatives	2 analyzed specifically the United Kingdom; 2 analyzed specifically México; 1 analyzed 39 papers; 1 analyzed all OBI countries, without comparisons; 1 analyzed specifically Taiwan; 1 analyzed many researchers; and 1 analyzed specifically the United States of America.
39 comparatives	15 analyzed the countries reported by OBI; 13 analyzed worldwide; 5 analyzed specifically OCDE countries; 2 analyzed random countries, chosen by data availability; 2 analyzed specifically European Union countries; 1 analyzed specifically countries from Europe, in general; and 1 analyzed specifically emerging market funds.

From Table 3 we can highlight the diversification of samples in non-comparative studies and the predominance of papers comparing countries worldwide, regardless of the differences between them. Besides, attention is drawn to the lack of studies focusing on developing countries, since from the 8 non-comparative papers, that is one specifically about México (Berliner et al., 2018) and in 39 comparative papers, only one is specifically about emerging market funds (Gelos & Wei, 2005).

Then, there is a lack of studies focused specifically on the analysis of national governments' transparency of developing countries. The two papers that have focused on this (Berliner et al., 2018; Gelos & Wei, 2005) are from English-speaking researches (one from UK and four from USA). So, this fact motivates the investigation of the role of this externality in the research of the topic.

RQ2: What is the role of the externalities language, FOIA and OBI in the general progress of fiscal transparency research published in JCR journals in the last 20 years?

The first externality chosen to be analyzed is the first author's official language. From all papers, in 23 the first author is from English-speaking countries and 24 are from other language countries (see Appendix). So, to verify if there is difference in medians of the groups of "English-speaking institutions" and "other language-speaking institutions" referring to the variables *year, JIF* and *citations*, we calculated the Mann-Whitney test (Table 4).

Table 4. Difference in medians: Mann–Whitney *U* test – English as official language

Variable	Language	N	Medians	W	p-value
Year	English	23	2013	373,5	0,037415**
	Others	24	2016		
JIF	English	23	8,667	352,5	0,105462
	Others	24	3,500		
Citations	English	23	2,487	177	0,036004**
	Others	24	1,946		

Notes. ** statistically significant at 5% level.

In variables *year* and *citations* the null hypothesis (H_0) was rejected, which means that there is a statistical association between the first author's language and the variables, at 5% significance. For variable *JIF*, the null hypothesis (H_0) was not rejected, that is it has no statistical association with first author's language.

From the results, we infer that English-speaking first authors were the ones who published earlier on the topic. Besides, the average citations of their papers tend to be higher, even if they don't publish in high impact journals.

This results are in accordance with Dragos & Dragos (2013), since they found a positive relationship between English-speaking authors and the number of published papers.

The second externality is the number of Freedom of Information Acts (FOIA) published worldwide each year. Table 5 shows this data since 1999 as well as the cumulative number of FOIA worldwide. Also, Table 5 shows the number of papers published each year.

We note an increase in published FOIA during the period, with almost a hundred laws worldwide in 20 years, which represents the wave of transparency policies that has swept around the world (Michener, 2015).

In addition, Table 6 shows the correlations between the cumulative number of FOIA each year and the number of papers published each year.

There is a statistical association between the cumulative number of FOIA each year and the number of published papers. In other words, the number of published papers each

Table 5. Papers and FOIA published and the cumulative FOIA around the world (1999-2019)

	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
No. Papers	0	0	0	0	1	0	1	3	0	0	2	0	2	1	4	3	8	4	9	6	3
No. FOIA (worldwide)	7	7	2	7	8	5	6	3	6	5	3	3	9	1	6	5	3	8	1	2	0
Cumulat. FOIA (worldwide)	29	36	38	45	53	58	64	67	73	78	81	84	93	94	100	105	108	116	117	119	119

Source: freedominfo.org, October 2019.

Table 6. Spearman's Rank Correlation – FOIA

Variables	Years	Coefficient	p-value
Papers per Year x FOIA	20	0,7998	0,000014*

Notes. * statistically significant at 1% level.

year is positively correlated with the number of published FOIA.

The last externality is the Open Budget Index (OBI), a bi-annual and comparative index where International Budget Partnership (IBP) indirect evaluates fiscal transparency of the countries, assessing "the availability, timeliness, and comprehensiveness of budget process information and its openness to the public" (Arapis & Reitano, 2018, p. 555). Table 7 shows the number of countries with OBI published each year, divided by region according to IBP division, and the cumulative amount of OBI data each year.

Table 7. Number of countries with Open Budget Index (OBI) disclosure - by region and by year

Region (OBI)	2006	2008	2010	2012	2015	2017
East Asia & Pacific	7	12	13	14	14	16
Eastern Europe & Central Asia	12	17	18	19	20	21
Latin America & Caribbean	12	15	16	16	16	17
Middle East & North Africa	4	7	8	10	10	10
South Asia	5	6	6	6	6	6
Sub-Saharan Africa	14	22	24	26	27	35
Western Europe, U.S. & Canada	5	6	9	9	9	10
Total	59	85	94	100	102	115
Cumulative Total	59	144	238	338	440	555

Source: Adapted from International Budget Partnership (IBP).

The number of countries investigated became higher each year, as well as the amount of data, with significative increase mainly in Africa.

Further, as mentioned earlier the most often used data by the papers are from the years 2008, 2010 and 2012, which coincides with the years of publication of the index. Thus, to verify whether there is a statistically significant relationship between index publications and research progress, Table 8 shows the correlations between the cumulative amount of OBI data and: number of papers published each year (see data on Table 5), JIF of and average of citations of each paper (see data on Appendix).

Table 8. Spearman's Rank Correlation – OBI

Variables	Coefficient	p-value
No. papers each year (since 2003)	0,7364	0,000749*
JIF	-0,2713	0,065082***
Citations	-0,6934	0,000000*

Notes. * statistically significant at 1% level; *** statistically significant at 10% level.

From the results, the null hypothesis (H_0) is rejected in all three cases, which means that there is statistical association between OBI accumulated data and the variables *papers per year* (1%), *citations* (1%) and *JIF* (10%).

This indicates that the number of accumulated OBI data has increased while the number of published papers has also increased. Seifert et al. (2013) pointed that the OBI allowed comparability of countries' fiscal transparency data as it has a lengthy independent review process, which ensures its reliability. Therefore, it could allow the increase of accessibility of government budget information, leveraging the theme for new research questions.

However, despite these increases, the impact of research decreased considering that both *JIF* and *citations* were inversely proportional to the cumulative OBI data. In other words, while more OBI data were published, more articles were also published, but with less scientific impact.

5. Conclusions

This paper investigated the fiscal transparency literature, with the role of important externalities to the research. To do so, we analyzed the scientific progress of this research topic applied to national governments over the past 20 years.

In line with Wehner & De Renzio (2013) and Arapis & Reitano (2018), the number of 48 papers focusing on national governments' fiscal transparency can be considered low. Although the end of the 1990s was marked by a worldwide movement for fiscal transparency (Alt, 2019), researches with scientific impact began to publish on the subject only in 2003, and yet with low number of articles.

This lack of researches in this early period can be attributed to the fact that content on the subject was still incipient and that some important papers were published in non-JCR journals. Among them, we highlight the papers published in Working Papers of institutions such as IMF and World Bank, which despite having a significant average of citations, are not within the main source known to the researchers (Alves et al., 2016).

The low number of impactful papers published on countries' fiscal transparency is noteworthy, since the development of national governments' transparency policies is being under-evaluated by researchers. This is especially worrying as the improvement in national transparency policies can contribute to lower levels of corruption, better electoral accountability of managers and better allocation of public resources (Benito, 2016; De Renzio & Wehner, 2017).

In this line, we also noted from our sample that many papers with high average citations were published in journals with low impact factor and, on the other hand, journals with high impact factor are not always those that publish the articles with the highest average citations. These facts show that the most important references on the subject have been frequently published on low impact journals, such as Alt & Lassen (2006a), that investigated fiscal transparency, political parties and debt, and Hollyer et al. (2011), who investigated the relation democracy and transparency.

About other inherent characteristics, we highlight the authors' affiliation with Spanish and American institutions, which had the largest number of first authors in our sample. We noted that the papers written for American first authors were predominant in the early period, being the precursors on the topic. Beyond the high scientific level of the USA, the regulation of American freedom of information dates from 1966, one of the oldest in the world, which may explain the early interest in transparency. Also, in our sample there is one specific paper published by Spanish authors until 2012 (Benito & Bastida, 2009), and a considerable increase of them after 2013. This year coincides with the publication of the FOIA in this country, which may have been a motivating factor for the rise of research on the subject.

Besides, also about the affiliation, we can infer that although some Spanish researchers are always publishing papers on the subject, the research has been more diffuse in the USA, in line with Dragos & Dragos (2013), since USA has researchers from several institutions, while in Spain it has been concentrated on the same researchers. In addition, English-speaking first authors were the ones who published earlier on the topic and usually tend to publish papers with higher average citations, even if they don't publish in high impact journals.

Regarding the externality FOIA, the growth in the number of regulations shows that the concern with social control from the opening of data has been increasing worldwide (Mueller, 2019). Thus, we concluded that the increase in the publications is correlated whit the increase of the laws in the last 20 years, which indicates that the publication of new FOIA also arouses the interest of researchers on fiscal transparency national governments.

Nevertheless, a low number of papers analyzed specifically the FOIA. We assume that the increase in the number of papers is correlated to the larger number of FOIA because their publication aroused the authors' interest in researching general aspects of the subject, not specifically the laws. Therefore, for future lines it is important that the literature directs research to the analysis of the FOIA at the national government level, as well as its evaluation, enforcement and implementation results in the countries.

About another externality, we noted the rise in publications using the Open Budget Index (OBI) database in this period. The publication of a global database on national government openness was important for general and standardized evaluation, allowing comparisons between them and advances in their transparency policies (Seifert et al., 2013). For the academic literature it was also important because it allowed the use of data for various studies.

However, the use of indexes to measure fiscal transparency is considered limited by literature, considering that they "incorporate the presumptions of index creators, assume that transparency indicators are additive, and do not handle well the potential interactive effect" (Heald, 2012, p. 36). Even so, the predominant use of the OBI can be explained by the fact that it fills in the gaps left by other indexes (Ríos et al., 2016) and represent almost all regions around the world, including in the sample countries with widely varying institutional characteristics (Wehner & De Renzio, 2013).

Besides, considering the authors' dependence on the publication of this type of index, which is added to the times of paper writing, submission, acceptance, review and publication in the journals (Tondolo et al., 2019), we identify a lack of recent data used by most papers, which makes them almost always refer to outdated databases. Moreover, many papers that used OBI did not obtain the expected scientific impact, considering the decrease in the average of citations over time and the publications in journals with lower Journal Impact Factor (JIF).

To solve this problem, along with that of time gap, research in which the investigator uses primary data to collect data could be a good option, since it could have a higher scientific impact with more up to date data. Besides, a future research agenda on government transparency may contain studies with varying methodologies, such as qualitative, critical and evaluation research, such as Piotrowski (2017), for example, who analyzed the American transparency policies and the Open Government Partnership (OGP).

Also, more case studies at the national level would be important, with in-depth discussions of their internal situations. Beyond Piotrowski (2017) in the USA, the only examples of case studies on countries' fiscal transparency in our sample include: Heald (2003) and Heald & Georgiou (2011) in the UK; Berliner et al. (2018) in Mexico; and Yang et al. (2015) in Taiwan.

Therefore in line with Cucciniello et al. (2017), more studies focused on developing countries are needed, specifically in Latin America, Africa and Asia, and the reason for having few of them may be the language barrier for researchers from other language-speaking countries, mainly developing ones.

Still, in some countries the language barrier may be even worse by using different alphabets and dialects, making it difficult to access the financial information of national government and its scientific production. Usually, papers that analyze fiscal transparency in a specific national government are written by local authors, which are not always published in English or another language of the Roman alphabet.

The literature is interested in knowing about fiscal transparency in Latin America, Africa and Asia, but the papers on these countries are not always accessible to researchers around the world (Cucciniello et al., 2017). To address this, researchers from these countries could be in contact with those from other countries, through collaborations of research centers from distinct continents. Also, they could publish more frequently in JCR journals, for greater outreach across countries, as Yang et al. (2015) did, for example.

Finally, future scientometric research on fiscal transparency should consider this paper as a reference for the discussions. As future approach, we suggest analyzing how scientific output has been influenced by IMF provisions, such as the *Code of Good Practices on Fiscal Transparency* (International Monetary Fund, 1998, 2007, 2014, 2019), considering that this institution evaluates, among other requirements, the compliance of countries with good fiscal transparency practices for granting financial resources. We also suggest analyzing the effect of the FOIA publication by each country on their scientific production in transparency, checking whether the regulation of freedom of information in countries influences local researchers to investigate the issue further. So, such investigations would contribute to fill in the gap of scientometric research on fiscal transparency, specifically about the role of the IMF and the FOIA in the scientific progress of countries' fiscal transparency.

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References

Alcaide-Muñoz, L., Rodríguez-Bolívar, M. P., & Garde-Sánchez, R. (2014). A scientometric approach on research in information transparency, citizens' participation and public services delivery under e-Government implementation. *Spanish Accounting Review*, 17(2), 130-142. https://doi.org/10.1016/j.rcsar.2014.05.001

Alcaide Muñoz, L., Rodríguez Bolívar, M. P., & López Hernández, A. M. (2017). Transparency in governments: A meta-analytic review of incentives for digital versus hard-copy public financial disclosures. *American Review of Public Administration*, 47(5), 550-573. https://doi.org/10.1177/0275074016629008

Alt, J. E. (2019). Twenty years of transparency research. *Public Sector Economics*, 43(1), 5-13. https://doi.org/10.3326/pse.43.1.2

Alt, J. E., & Lassen, D. D. (2006a). Fiscal transparency, political parties, and debt in OECD countries. *EUROPEAN ECO-*

NOMIC REVIEW, *50*(6), 1403-1439. https://doi.org/10.1016/j.euroecorev.2005.04.001

Alt, J. E., & Lassen, D. D. (2006b). Transparency, political polarization, and political budget cycles in OECD countries. *American Journal of Political Science*, *50*(3), 530-550. https://doi.org/10.1111/j.1540-5907.2006.00200.x

Alt, J. E., Lassen, D. D., & Wehner, J. (2014). It Isn't Just about Greece: Domestic Politics, Transparency and Fiscal Gimmickry in Europe. *British Journal of Political Science*, *44*(4), 707-716. https://doi.org/10.1017/S0007123414000064

Alves, A. D., Yanasse, H. H., & Soma, N. Y. (2016). An analysis of bibliometric indicators to JCR according to Benford's law. *Scientometrics*, *107*(3), 1489-1499. https://doi.org/10.1007/s11192-016-1908-3

Andreula, N., & Chong, A. (2016). Do good institutions improve fiscal transparency? *Economics of Governance*, *17*(3), 241-263. https://doi.org/10.1007/s10101-015-0175-8

Arapis, T., & Reitano, V. (2018). Examining the evolution of cross-national fiscal transparency. *American Review of Public Administration*, *48*(6), 550-564. https://doi.org/10.1177/0275074017706740

Arbatli, E., & Escolano, J. (2015). Fiscal transparency, fiscal performance and credit ratings. *Fiscal Studies*, *36*(2), 237-270. https://doi.org/10.1111/1475-5890.12051

Atkins, S. E. (1988). Subject Trends in Library and Information Science Research, 1975-1984. *Library and Information Science Research*, *36*(4), 633-658. http://eric.ed.gov/?id=EJ380514

Attard, J., Orlandi, F., Scerri, S., & Auer, S. (2015). A systematic review of open government data initiatives. *Government Information Quarterly*, *32*(4), 399-418. https://doi.org/10.1016/j.giq.2015.07.006

Barjak, F., Li, X., & Thelwall, M. (2007). Which factors explain the Web impact of scientists' personal homepages? *Journal of the American Society for Information Science and Technology*, *58*(2), 200-211. https://doi.org/10.1002/asi.20476

Bastida, F., Guillamon, M.-D., & Benito, B. (2017). Fiscal transparency and the cost of sovereign debt. *International Review of Administrative Sciences*, *83*(1), 106-128. https://doi.org/10.1177/0020852315574999

Benito B. (2016). Accountability and Corruption, Europe. In Farazmand A. (Ed.), Global Encyclopedia of Public Administration, Public Policy, and Governance. Berlin, Germany: Springer. https://doi.org/10.1007/978-3-319-31816-5/_2291-1

Benito, B., Bastida, F., & Moreno, M.R. (2006). A proposal for a budget transparency index in the central governments. In Evelyne Lande & Jean-Claude Scheid (Eds.), Accounting Reform in the Public Sector: Mimicry, Fad or Necessity (101-114). Paris: Experts Comptables Média.

Benito, B., & Bastida, F. (2009). Budget Transparency, Fiscal Performance, and Political Turnout: An International Approach. *Public Administration Review*, *69*(3), 403-417. https://doi.org/10.1111/j.1540-6210.2009.01988.x

Berliner, D., Bagozzi, B. E., & Palmer-Rubin, B. (2018). What information do citizens want? Evidence from one million information requests in Mexico. *World Development*, *109*, 222-235. https://doi.org/10.1016/j.worlddev.2018.04.016

Bornmann, L. (2015). Alternative metrics in scientometrics: a meta-analysis of research into three altmetrics. *Scientometrics*, *103*(3), 1123-1144. https://doi.org/10.1007/s11192-015-1565-y

Braadbaart, O., & Yusnandarshah, B. (2008). Public sector benchmarking: a survey of scientific articles, 1990-2005. *International Review of Administrative Sciences*, *74*(3), 421-433. https://doi.org/10.1177/0020852308095311

Brusca, I., Manes Rossi, F., & Aversano, N. (2018). Accountability and transparency to fight against corruption: An international comparative analysis. *Journal of Comparative Policy Analysis: Research and Practice*, *20*(5), 486-504. https://doi.org/10.1080/13876988.2017.1393951

Christensen, R. K., & Gazley, B. (2008). Capacity for public administration: Analysis of meaning and measurement. *Public Administration and Development*, *28*(4), 265-279. https://doi.org/10.1002/pad.500

Citro, F., Cuadrado-Ballesteros, B., & Bisogno, M. (2021). Explaining budget transparency through political factors. *International Review of Administrative Sciences*, 87(1), 115-134. https://doi.org/10.1177/0020852319847511

Clarivate Analytics. (2019a). *Category Profile: Economics*. http://jcr.clarivate.com/JCRCategoryProfileAction.action?year=2018&categoryName=ECONOMICS&edition=SSCI&category=GY

Clarivate Analytics. (2019b). *Category Profile: Public Administration*. http://jcr.clarivate.com/JCRCategoryProfileAction.action?year=2018&categoryName=PUBLIC ADMINISTRATION&edition=SSCI&category=VM

Confraria, H., Godinho, M. M., & Wang, L. (2017). Determinants of citation impact: A comparative analysis of the Global South versus the Global North. *Research Policy*, *46*(1), 265-279. https://doi.org/10.1016/j.respol.2016.11.004

Copelovitch, M., Gandrud, C., & Hallerberg, M. (2018). Financial Data Transparency, International Institutions, and Sovereign Borrowing Costs. *International Studies Quarterly*, *62*(1), 23-41. https://doi.org/10.1093/isq/sqx082

Cucciniello, M., Porumbescu, G. A., & Grimmelikhuijsen, S. G. (2017). 25 years of transparency research: evidence and future directions. *Public Administration Review*, *77*(1), 32-44. https://doi.org/10.1111/puar.12685

De Renzio, P., & Angemi, D. (2012). Comrades or culprits? Donor engagement and budget transparency in aid-dependet countries. *Public Administration and Development*, *32*(2), 167-180. https://doi.org/10.1002/pad.1603

De Renzio, P, & Wehner, J. (2017). The Impacts of Fiscal Openness. *World Bank Research Observer*, *32*(2), 185-210. https://doi.org/10.1093/wbro/lkx004

De Simone, E., Gaeta, G. L., & Mourão, P. R. (2017). The impact of fiscal transparency on corruption: An empirical analysis based on longitudinal data. *The B.E. Journal of Economic Analysis & Policy*, *17*(4). https://doi.org/10.1515/bejeap-2017-0021

Debackere, K., & Glänzel, W. (2004). Using a bibliometric approach to support research policy making: The case of the Flemish BOF-key. *Scientometrics*, *59*(2), 253-276. https://doi.org/10.1023/B:SCIE.0000018532.70146.02

Dragos, C. M., & Dragos, S. L. (2013). Bibliometric approach of factors affecting scientific productivity in environmental sciences and ecology. *Science of The Total Environment*, *449*, 184-188. https://doi.org/10.1016/j.scitotenv.2013.01.057

Forrester, J. P., & Watson, S. S. (1994). An assessment of public administration journals: the perspective of editors

and editorial board members. *Public Administration Review*, *54*(5), 474-482. https://doi.org/10.2307/976433

Freeman, C. (1967). Research Comparisons: Some limitations of international comparisons of research and development expenditures are considered. *Science*, *158*(3800), 463-468. https://doi.org/10.1126/science.158.3800.463

García-Tabuyo, M., Sáez-Martín, A., & Caba-Pérez, C. (2017). Proactive disclosure of public information: legislative choice worldwide. *Online Information Review*, *41*(3), 354-377. https://doi.org/10.1108/OIR-02-2016-0054

Garcia-Tabuyo, M., Sáez-Martín, A., & Caba-Perez, M. D. C. (2016). Mandatory versus voluntary disclosures: Drivers of proactive information provision by local governments in Central America. *Information Development*, *32*(4), 1199-1215. https://doi.org/10.1177/0266666915595260

Gelos, G., & Wei, S.-J. (2005). Transparency and International Portfolio Holdings. *The Journal of Finance*, *LX*(6), 2987-3020. https://doi.org/10.1111/j.1540-6261.2005.00823.x

Glänzel, W., & Schoepflin, U. (1994). Little scientometrics, big scientometrics ... and beyond? *Scientometrics*, *30*(2-3), 375-384. https://doi.org/10.1007/BF02018107

Haghdoost, A., Zare, M., & Bazrafshan, A. (2014). How variable are the journal impact measures? *Online Information Review*, *38*(6), 723-737. https://doi.org/10.1108/OIR-05-2014-0102

Harrison, T. M., & Sayogo, D. S. (2014). Transparency, participation, and accountability practices in open government: A comparative study. *Government Information Quarterly*, *31*(4), 513-525. https://doi.org/10.1016/j.giq.2014.08.002

Heald, D. (2003). Fiscal transparency: Concepts, measurement and UK practice. *Public Administration*, *81*(4), 723-759. https://doi.org/10.1111/j.0033-3298.2003.00369.x

Heald, D. (2012). Why is transparency about public expenditure so elusive? *International Review of Administrative Sciences*, *78*(1), 30-49. https://doi.org/10.1177/0020852311429931

Heald, D., & Georgiou, G. (2011). The Macro-Fiscal Role of the UK Whole of Government Account. *Abacus-A Journal of Accounting Finance and Business Studies*, *47*(4, SI), 446-476. https://doi.org/10.1111/j.1467-6281.2011.00348.x

Heeks, R., & Bailur, S. (2007). Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice. *Government Information Quarterly*, *24*(2), 243-265. https://doi.org/10.1016/j.giq.2006.06.005

Hollyer, J. R., Rosendorff, B. P., & Vreeland, J. R. (2011). Democracy and transparency. *Journal of Politics*, *73*(4), 1191-1205. https://doi.org/10.1017/S0022381611000880

Huber, J. C., & Wagner-Döbler, R. (2003). Using the Mann-Whitney test on informetric data. *Journal of the American Society for Information Science and Technology*, *54*(8), 798-801. https://doi.org/10.1002/asi.10252

International Monetary Fund. (1998). *Code of Good Practices on Fiscal Transparency*. https://www.imf.org/external/pubs/ft/history/2012/pdf/4d.pdf

International Monetary Fund. (2007). *Code of Good Practices on Fiscal Transparency*. https://doi.org/10.5089/9781498333566.007

International Monetary Fund. (2014). *The Fiscal Transparency Code*. IMF. https://www.imf.org/external/np/fad/trans/por/ft-codep.pdf

International Monetary Fund. (2016). *How does the IMF encourage greater fiscal transparency?* IMF. http://www.imf.org/external/np/exr/facts/pdf/fiscal.pdf

International Monetary Fund. (2018). *Fiscal transparency handbook* (1st ed.). https://doi.org/10.5089/9781484331859.069

International Monetary Fund. (2019). *The Fiscal Transparency Code*. https://www.imf.org/external/np/fad/trans/Code2019.pdf

Khan, G. F., Moon, J., Park, H. W., Swar, B., & Rho, J. J. (2011). A socio-technical perspective on e-government issues in developing countries: A scientometrics approach. *Scientometrics*, *87*(2), 267-286. https://doi.org/10.1007/s11192-010-0322-5

Kono, D. Y. (2006). Optimal Obfuscation: Democracy and Trade Policy Transparency. *American Political Science Review*, *100*(3), 369-384. https://doi.org/https://doi.org/10.1017/S0003055406062241

Lan, Z., & Anders, K. K. (2000). A paradigmatic view of contemporary public administration research: an empirical test. *Administration & Society*, *32*(2), 138-165. https://doi.org/10.1177/00953990022019380

López-Navarro, I., Moreno, A. I., Quintanilla, M. Á., & Rey-Rocha, J. (2015). Why do I publish research articles in English instead of my own language? Differences in Spanish researchers' motivations across scientific domains. *Scientometrics*, *103*(3), 939-976. https://doi.org/10.1007/s11192-015-1570-1

Madden, C. (2005). Cross-country comparisons of cultural statistics: Issues and good practice. *Cultural Trends*, *14*(4), 299-316. https://doi.org/10.1080/09548960600573559

Martí, C., & Kasperskaya, Y. (2015). Public Financial Management Systems and Countries' Governance: A Cross-Country Study. *Public Administration and Development*, *35*(3), 165-178. https://doi.org/10.1002/pad.1711

McNab, R. M., & Wilson, S. D. (2018). Culture matters: what cultural values influence budget transparency? *Applied Economics*, *50*(43), 4593-4605. https://doi.org/10.1080/00036846.2018.1458197

Michener, G. (2015). Assessing freedom of information in Latin America a decade later: illuminating a transparency causal mechanism. *Latin American Politics and Society*, *57*(3), 77-99. https://doi.org/10.1111/j.1548-2456.2015.00275.x

Mingers, J., & Leydesdorff, L. (2015). A review of theory and practice in scientometrics. *European Journal of Operational Research*, *246*(1), 1-19. https://doi.org/10.1016/j.ejor.2015.04.002

Montes, G. C., Bastos, J. C. A., & Oliveira, A. J. de. (2019). Fiscal transparency, government effectiveness and government spending efficiency: Some international evidence based on panel data approach. *Economic Modelling*, *79*(November 2018), 211-225. https://doi.org/10.1016/j.econmod.2018.10.013

Mueller, C. E. (2019). Evaluating Freedom of Information Laws: Objectives, Approaches, and Practical Considerations. *International Journal of Public Administration*, *42*(12), 1020-1030. https://doi.org/10.1080/01900692.2019.1575663

OECD (2002). OECD Best Practices for Budget Transparency. In *The Organisation for Economic Co-operation and Development*. https://www.oecd.org/dataoecd/33/13/1905258.pdf

OECD (2017). *OECD Budget Transparency Toolkit*.

OECD Publishing. https://doi.org/10.1787/9789264282070-en

Persson, O. (2001). All author citations versus first author citations. *Scientometrics*, *50*(2), 339-344. https://doi.org/10.1023/A:1010534009428

Piotrowski, S. J. (2017). The "Open Government Reform" movement: the case of the open government partnership and U.S. transparency policies. *American Review of Public Administration*, *47*(2), 155-171. https://doi.org/10.1177/0275074016676575

Puron-Cid, G., & Rodríguez Bolívar, M. P. (2018). The effects of contextual factors into different features of financial transparency at the municipal level. *Government Information Quarterly*, *35*(1), 135-150. https://doi.org/10.1016/j.giq.2017.10.005

Ríos, A.-M., Bastida, F., & Benito, B. (2016). Budget Transparency and Legislative Budgetary Oversight: An International Approach. *American Review of Public Administration*, *46*(5), 546-568. https://doi.org/10.1177/0275074014565020

Ríos, A.-M., Bastida, F., & Benito, B. (2018). Risks and Benefits of Legislative Budgetary Oversight. *Administration & Society*, *50*(6), 856-883. https://doi.org/10.1177/0095399715602733

Ríos, A.-M., Benito, B., & Bastida, F. (2013). Determinants of Central Government Budget Disclosure: An International Comparative Analysis. *Journal of Comparative Policy Analysis*, *15*(3), 235-254. https://doi.org/10.1080/13876988.2013.798449

Ríos, A.-M., Benito, B., & Bastida, F. (2017). Factors Explaining Public Participation in the Central Government Budget Process. *Australian Journal of Public Administration*, *76*(1), 48-64. https://doi.org/10.1111/1467-8500.12197

Rodríguez Bolívar, M. P., Alcaide Muñoz, L., & López Hernández, A. M. (2012). Studying e-government: Research methodologies, data compilation techniques and future outlook. *Academia. Revista Latinoamericana de Administración*, *51*, 79-95.

Rodríguez Bolívar, M. P., Alcaide Muñoz, L., & López Hernández, A. M. (2013). Determinants of financial transparency in government. *International Public Management Journal*, *16*(4), 557-602. https://doi.org/10.1080/10967494.2013.849169

Rodríguez Bolívar, M. P., Alcaide Muñoz, L., & López Hernández, A. M. (2016). Scientometric Study of the Progress and Development of e-Government Research During the Period 2000-2012. *Information Technology for Development*, *22*(1), 36-74. https://doi.org/10.1080/02681102.2014.927340

Sáez-Martín, A., Caba-Perez, C., & Lopez-Hernandez, A. (2017). Freedom of information in local government: rhetoric or reality? *Local Government Studies*, *43*(2), 245-273. https://doi.org/10.1080/03003930.2016.1269757

Sáez-Martín, A., López-Hernandez, A. M., & Caba-Pérez, C. (2017). Access to public information: a scientometric study of legal versus voluntary transparency in the public sector. *Scientometrics*, *113*(3), 1697-1720. https://doi.org/10.1007/s11192-017-2541-5

Seifert, J., Carlitz, R., & Mondo, E. (2013). The Open Budget Index (OBI) as a comparative statistical tool. *Journal of Comparative Policy Analysis*, *15*(1), 87-101. https://doi.org/10.1080/13876988.2012.748586

Small, H. (2018). Characterizing highly cited method and non-method papers using citation contexts: The role of uncertainty. *Journal of Informetrics*, *12*(2), 461-480. https://doi.org/10.1016/j.joi.2018.03.007

Tondolo, R. da R. P., Tondolo, V. A. G., Longaray, A. A., Camargo, M. E., Bitencourt, C. C., & Zanandrea, G. (2019). Transparency and resource mobilization in times of crisis: an analysis of the Brazilian nonprofit sector. In A. Ferreira, R. Marques, G. Azevedo, H. Inácio, & C. Santos (Eds.), *Modernization and Accountability in the Social Economy Sector* (pp. 57-75). Hershey, PA, USA: IGI Global. https://doi.org/10.4018/978-1-5225-8482-7.ch004

Valderrama, P., Escabias, M., Jiménez-Contreras, E., Rodríguez-Archilla, A., & Valderrama, M. J. (2018). Proposal of a stochastic model to determine the bibliometric variables influencing the quality of a journal: application to the field of Dentistry. *Scientometrics*, *115*(2), 1087-1095. https://doi.org/10.1007/s11192-018-2707-9

Van Raan, A. F. J. (1997). Scientometrics: State-of-the-art. *Scientometrics*, *38*(1), 205-218. https://doi.org/10.1007/BF02461131

Vanclay, J. K. (2013). Factors affecting citation rates in environmental science. *Journal of Informetrics*, *7*(2), 265-271. https://doi.org/10.1016/j.joi.2012.11.009

Wang, R., Irwin, T., & Murara, L. (2015). Trends in fiscal transparency: evidence from a new database of the coverage of fiscal reporting. In *IMF Working Paper* (Vol. 15, Issue 188). https://doi.org/10.5089/9781513523965.001

Wang, X. (2002). Assessing administrative accountability: Results from a national survey. *American Review of Public Administration*, *32*(3), 350-370. https://doi.org/10.1177/0275074002032003005

Wehner, J., & De Renzio, P. (2013). Citizens, legislators, and executive disclosure: The political determinants of fiscal transparency. *World Development*, *41*(1), 96-108. https://doi.org/10.1016/j.worlddev.2012.06.005

Yang, T. M., Lo, J., & Shiang, J. (2015). To open or not to open? Determinants of open government data. *Journal of Information Science*, *41*(5), 596-612. https://doi.org/10.1177/0165551515586715

Yildiz, M. (2007). E-government research: Reviewing the literature, limitations, and ways forward. *Government Information Quarterly*, *24*(3), 646-665. https://doi.org/10.1016/j.giq.2007.01.002

Zuccolotto, R., & Teixeira, M. A. C. (2014). Budgetary transparency and democracy: The effectiveness of control institutions. *International Business Research*, *7*(6), 83-96. https://doi.org/10.5539/ibr.v7n6p83

Appendix
Papers on fiscal transparency published in JCR Journals (1999-2019) and its inherent characteristics

No.	Year	Author	AGE	AFF*	ENG**	Journal	Area	IF	CIT
1	2003	Heald	2003	UK	1	Public Administration	PA/PS	2.6	15.1
2	2005	Gelos & Wei	2000	USA	1	The Journal of Finance	BF/E	6.201	32.4
3	2006	Alt & Lassen	1998	USA	1	American Journal of Political Science	PS	4.354	35
4	2006	Kono	2000	USA	1	American Political Science Review	PS	3.895	29
5	2006	Alt & Lassen	1998	USA	1	European Economic Review	E	1.711	38.2
6	2009	Siau & Long	2003	USA	1	Journal of Computer Information Systems	CS	1.1	12.3
7	2009	Benito & Bastida	2003	Spain	0	Public Administration Review	PA	4.659	20.2
8	2011	Heald & Georgiou	2010	UK	1	Abacus-A Journal of Accounting Finance and Business Studies	BF	2.2	4.7
9	2011	Hollyer, Rosendorff & Vreeland	2008	USA	1	Journal of Politics	PS	2.487	33
10	2012	De Renzio & Angemi	2008	USA	1	Public Administration and Development	PA/DS	0.918	1.9
11	2013	Wehner & De Renzio	2008	UK	1	World Development	E/DS	3.905	20.1
12	2013	Rodríguez-Bolívar, Alcaide-Muñoz & López-Hernández	2011	Spain	0	International Public Management Journal	PA	1.915	10.3
13	2013	Seifert, Carlitz & Mondo	2012	Singapore	1	Journal of Comparative Policy Analysis	PS	1.963	4.9
14	2013	Rios, Benito & Bastida	2010	Spain	1	Journal of Comparative Policy Analysis	PA	1.963	2.9
15	2014	Alt, Lassen & Wehner	2007	USA	0	British Journal of Political Science	PA	4.292	12
16	2014	Caba-Pérez, Rodríguez-Bolívar & López-Hernández	2013	Spain	0	Transylvanian Review of Administrative Sciences	PA	0.757	6.8
17	2014	Harrison & Sayogo	2012	USA	1	Government Information Quarterly	IS	4.311	22.8
18	2014	Puron-Cid	2011	Mexico	0	Government Information Quarterly	IS	4.311	6.2
19	2015	Rodríguez-Bolívar, Caba-Pérez & López-Hernández	2007	Spain	0	Administration and Society	PA	1.698	3.6
20	2015	Arbatli & Escolano	2010	USA	1	Fiscal Studies	BF/E	1.185	6.2
21	2015	Martí & Kasperskaya	2008	Spain	0	Public Administration and Development	PA/DS	0.918	1.4
22	2015	Williams	2010	Australia	1	Journal of Comparative Economics	E	1.708	13.6
23	2015	Jesus & Jorge	2010	Portugal	0	International Review of Administrative Sciences	PA	2.174	4.2
24	2015	Yang, Lo & Shiang	2014	Taiwan	0	Journal of Information Science	IS/CS	2.327	10.2
25	2015	Rodríguez-Bolívar, Navarro-Galera & Alcaide-Muñoz	2011	Spain	0	Journal of Policy Modeling	E	1.254	3.4
26	2015	Lourenço	2014	Portugal	0	Government Information Quarterly	IS	4.311	27.2
27	2016	Ríos, Bastida & Benito	2010	Spain	0	American Review of Public Administration	PA	2.602	6.5
28	2016	Sáez-Martín, Rosario & Caba-Pérez	2014	Spain	0	Social Science Computer Review	IS/CS /SS	2.922	7
29	2016	Aaskoven	2010	Denmark	0	Economics & Politics	PS	1.036	2.2
30	2016	Andreula & Chong	2008	UK	1	Economics of Governance	E	0.467	2.2
31	2017	Alcaide-Muñoz, Rodríguez-Bolívar & López-Hernández	2015	Spain	0	American Review of Public Administration	PA	2.602	12
32	2017	Piotrowski	2013	USA	1	American Review of Public Administration	PA	2.602	8.7
33	2017	Bauhr & Grimes	2014	Sweden	0	Crime, Law and Social Change	SS	0.951	1.7
34	2017	Cicatiello, De Simone & Gaeta	2013	Italy	0	Economics of Governance	E	0.467	3
35	2017	De Simone, Gaeta & Mourão	2012	Italy	0	B E Journal of Economic Analysis & Policy	E	0.52	0.7
36	2017	Veiga, Veiga & Morozumi	2010	Portugal	0	Electoral Studies	PS	1.817	5
37	2017	Bastida, Guillamon & Benito	2008	Spain	0	International Review of Administrative Sciences	PA	2.174	4.3
38	2017	Rios, Benito & Bastida	2012	Spain	0	Australian Journal of Public Administration	PA	1.311	4.3
39	2017	García-Tabuyo, Sáez-Martin & Caba-Pérez	2016	Spain	0	Online Information Review	IS/CS	1.928	0.3
40	2018	Arapis & Reitano	2012	USA	1	American Review of Public Administration	PA	2.602	1
41	2018	Brusca, Manes-Rossi & Aversano	2012	Spain	0	Journal of Comparative Policy Analysis	PA	1.963	3
42	2018	McNab & Wilson	2015	USA	1	Applied Economics	E	0.968	-
43	2018	Rios, Bastida & Benito	2009	Spain	0	Administration and Society	PA	1.698	0.5
44	2018	Copelovitch, Gandrud & Hallerberg	2011	USA	1	International Studies Quarterly	PS/IR	2.172	4.5
45	2018	Berliner, Bagozzi & Palmer-Rubin	2015	UK	1	World Development	E/DS	3.905	2.5
46	2021	Citro et al.	2015	Italy	0	International Review of Administrative Sciences	PA	2.174	-
47	2019	Montes, Bastos & Oliveira	2014	Brazil	0	Journal of Computer Information Systems	CS	2.056	3
48	2019	Schnell & Jo	2015	USA	1	American Review of Public Administration	PA	2.602	-

AGE year of more recent data used on the papers; AFF affiliation country of 1st author's; ENG if English is the official language of 1st author's institution; IF impact factor of each journal (JCR 2018); CIT annual average of citations.
Areas: BF business, finance; CS computer science, information systems; E economics; DS development studies; IS information science & library science; SS social sciences, interdisciplinary; PA public administration; PS political science; IR international relations.
* jointly considered the affiliation of all authors, the most frequent countries are USA (27), Spain (15), UK (9), Portugal (6) and Italy (5). ** ENG is a binary variable, 1 represents "yes" and 0 represents "no".