



# Assessing Priorities of Transparency During COVID-19 Pandemic in Brazil

## Special Issue on Corruption, Lack of Transparency and the Misuse of Public Funds in Times of Crisis

Maria Paula Almada<sup>1</sup> · Camilo Aggio<sup>2</sup> · Paula Karini Amorim<sup>3</sup> · Nina Santos<sup>1</sup> · Maria Dominguez Costa Pinho<sup>1</sup>

Accepted: 2 June 2022 / Published online: 4 July 2022

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

### Abstract

This article assesses the level of transparency of epidemiological and financial budgetary information on the COVID-19 pandemic in Brazilian state governments and the Federal District. State government web portals were assessed. A methodological instrument was developed to categorize and collect the data. We also assessed whether socioeconomic and epidemiological variables can explain state government transparency indices on pandemic information. According to our results, half of Brazilian states have advanced transparency, half have moderate transparency, and one has opaque transparency. HDI and monthly income are variables that better explain the level of transparency.

**Keywords** Transparency · Brazil · State governments · COVID-19 Pandemic

---

✉ Maria Paula Almada  
Mariapaula.almada@gmail.com

Camilo Aggio  
camiloaggio@gmail.com

Paula Karini Amorim  
paula.karini@gmail.com

Nina Santos  
ninocasan@gmail.com

Maria Dominguez Costa Pinho  
mariadominguezcp@gmail.com

<sup>1</sup> National Institute of Science and Technology in Digital Democracy, Salvador, Brazil

<sup>2</sup> Federal University of Minas Gerais, Belo Horizonte, Brazil

<sup>3</sup> Federal Institute of Education, Science and Technology of Tocantins, Palmas, Brazil

## Introduction

Just like many other countries, Brazil has been dealing with the challenges posed by the circulation of fake news, content disconnected from facts and scientific evidence, primarily via digital media. The phenomenon, commonly known as (processes of) disinformation, which emerged in the context of political and ideological disputes in digital environments with emphasis on electoral periods, has spread and contaminated the dynamics of information production and consumption and social interactions related to the COVID-19 pandemic.

In this context, Brazil is unique from other countries for two interdependent reasons: (1) the Brazilian Federal Government has become denialist and a supporter of the unscientific theses on the COVID-19 pandemic and its effects, having direct implications on measures taken to face the health crisis and social cooperation by clarifying the population; and (2) this same government, through the Ministry of Health and other agencies, has adopted measures that call into question the transparency on essential and updated information about the progress and consequences of the pandemic. This has led six national media outlets to form an unprecedented consortium in order to interpret and disseminate information about the coronavirus crisis to combat the opaque policies adopted by the Federal Government.

This media consortium (which includes media organizations such as Folha de São Paulo, Universo Online, O Estado de São Paulo, Jornal Extra, Jornal O Globo and G1) has publicly taken on what should be the responsibility of the Federal Executive regarding the current health crisis: to produce transparency on what is of interest to the political community, to public interest, and to the country. The six media vehicles adopted a strategy for collecting, organizing, interpreting, and disseminating data and information on the pandemic, which was disclosed by the state governments' health departments.

The information sources chosen by the media consortium also have an explanatory function in the Brazilian context: the vast majority of federal bodies are at odds with the Federal Government and the President of the Republic over measures taken to combat the coronavirus, such as unrestricted social distancing. These clashes have led to legal disputes where the Federal Supreme Court ruled that federal bodies have autonomy over the Federal Power to determine which policies they deem appropriate for their populations. State governments, therefore, are seen as centers of inflection and resistance to the denialist and anti-scientific measures and speeches of the president, which includes how data and information about the coronavirus crisis is disclosed.

As a result, most state governments play an important role in the crisis in Brazil. In addition to the majority being in opposition to the Federal Government, which represents this opposition as protagonists and exponents of a scientific rationality to fight the pandemic, these federal bodies became a lifeline, or literally, a safer and more reliable reference for accessing data and information on the coronavirus crisis in the country. They adopted the role of generating transparency about the COVID-19 pandemic.

The Brazilian political and public health context described above makes Brazil an important case of study for two reasons: (1) it shows how state governments, civil society, and independent state branches can counterattack the opaque policies of the Federal Government (2) mainly using digital communication.

It is, therefore, within this complex and controversial scenario that the proposal of this article is set. Considering that public transparency is an indispensable element to provide social control actions, detect irregularities in public procurement, and guide better policies to face a pandemic and health crisis of this proportion, it becomes even more essential to help contain damage that may be irreparable. We propose to investigate, based on a theoretical-methodological model we developed, *the level of publicity of epidemiological and fiscal information of the state governments and the Federal District (DF) regarding the COVID-19 crisis*.

This article begins with a literature review that addresses the online public transparency and the context of the COVID-19 pandemic in Brazil. We then introduce the study objective, the research question, and the guiding hypotheses. We present the methodological instrument for assessing the level of transparency of the Brazilian states and the Federal District, which is comprised of two dimensions: (1) epidemiological cases and information for decision-making; and (2) financial-budgetary information on Covid-19 governmental actions. It also assesses whether socioeconomic variables (Human Development Index (HDI), Gross Domestic Product (GDP), monthly income and population density) and epidemiological variables (deaths, cases per 100,000 inhabitants, tests per 100,000 inhabitants, and fatality) of the state governments help explain the transparency indices on the COVID-19 pandemic data and information verified.

## Online Transparency and the COVID-19 in Brazil

With the popularization of the Internet, environments, tools and digital initiatives began to offer new forms for producing transparency about public business. In this sense, digital transparency refers to the use of information and communication technologies and digital environments to optimize the provision and access to public information.

In this context, not only is the volume of public information offered to citizens relevant, but also the format in which this data is published, so that it is freely shared and analyzed, and thus repurposed. Even for analysis and evaluation of public policies and services, it was generally accepted that these data would follow the open format. Government open data are then public data, produced from administrative and governmental functions, available in specific standards and licenses that allow its reuse. These data, of value and public interest, have become one of the main tools for producing more transparency by governments around the world.

For at least the last two decades in Brazil, the provision of public information has been regulated by legal frameworks that also consider the online environment as one of the main mediums for disclosing government information. We have, within the scope of tax transparency, Complementary Law No. 101 of May 4, 2000 (Fiscal Responsibility Law – LRF) (Brasil, 2000) and Complementary Law

No. 131 of May 27, 2009 (known as the Transparency Law, an addition to the LRF) (Brasil, 2009), both of which deal with active transparency, that is, transparency arising from the disclosure of information by the government's own initiative. A few years after the enactment of the Transparency Law, we saw the approval and enactment of the Law on Access to Information (LAI) (Law No. 12,527, of November 18, 2011) (Brasil, 2011), which refers to information on how the government works and allows citizens or any interested parties to request information (via the eSIC systems), in addition to providing access to information on citizens and government institutions under the power of agencies. More recently, Decree No. 8,777 of May 11, 2016 (Brasil, 2016) was published, which issued the Federal Executive Power's Open Data Policy and forced federal public agencies to publish, biannually, Open Data Plans (PDA) that express the main strategies these agencies adopt for open data.

Since March 11, 2020, when the World Health Organization (WHO) declared that the contamination stage of COVID-19, a disease caused by the new coronavirus (Sars-CoV-2), had been raised to the level of pandemic, local and national governments worldwide have made combating COVID-19 a priority on their agendas (Cheng & Shan, 2020). Public transparency and providing citizens with information on the pandemic became as important as ever to governments for disclosing, in as much detail as possible, both epidemiological information (number of infected, deaths, tests) and information on decisions made by public administrators (hospital bed occupancy rates, for example), in addition to financial-budgetary (donations, emergency acquisitions, and transfers of assets) related to COVID-19 (Henke et al., 2011).

We argue that the following points render public transparency particularly relevant in this context: (1) for guiding future public management actions to face the pandemic and develop evidence-based public policies (Gao & Yu, 2020; O'Malley et al., 2009; Rajan et al., 2020); (2) for identifying the populations and locations most affected and most vulnerable to the virus (Rahimi & Abadi, 2020); (3) to make citizens aware of both how the government is handling the situation and how it is applying its resources toward the pandemic, thereby not only assessing the government's actions, but also understanding the real gravity of the situation and take preventive measures such as social distancing (Barton et al., 2020; Ojiagu et al., 2020); (4) for control bodies to monitor emergency purchases and acquisitions aimed at combating the pandemic and avoiding any misappropriation or irregularities in public procurement (Sridhar & Batniji, 2008); (5) for journalists, researchers and civil society organizations to appropriate this data and promote social control, scientific research, and extensive publication of information about the pandemic (La et al., 2020); and finally, (6) for public administrators to implement strategies for resuming activities and ending quarantine measures (Alwan et al., 2020). In addition to all the benefits and importance that transparency provides in an emergency such as COVID-19, it is also known that many risks can come from government transparency, which should be taken in account in crisis contexts: the misinterpretation and misunderstanding of government data leading to inadequate information; releasing sensitive personal data, threatening public privacy; and the political risk of losing the public's trust when government actions are disclosed.

In addition to providing epidemiological and financial-budgetary information, it is essential that such information be available to citizens with frequent updates. The so-called “real-time transparency” implies continuous disclosure of internal processes, data, and government accountability as they happen (Amorim, 2012) and is the type of transparency that governments must adopt in situations such as the pandemic, as it impacts decision-making, especially when it comes to emergency situations where information needs to be accessible so that the government can act appropriately and promptly on behalf of its citizens. It is different from “retrospective transparency,” which refers to *ex post* accountability by the public administration and which, although important for evaluating government actions, brings no advantages for rapid decision-making in emergency contexts (Alwan et al., 2020).

In normative terms, Federal Law No. 13,979 of February 6, 2020 (Brasil, 2020a) regulated the emergency contracts for goods and services to fight COVID-19. More specifically, this law established exceptional rules for these acquisitions, both with waiver from auction and by express reverse auctions, which was also followed by states and municipalities. This legislation also provides, in article 4 § 2, that the transparency of information relating to contracts carried out in this exceptional scenario be promoted.

Despite the importance of transparency in this context, the Brazilian Federal Government points to setbacks. At the beginning of the crisis, in March, President Jair Bolsonaro issued Provisional Measure (MP) 928, of March 23, 2020 (Brasil, 2020b), which provided for the suspension of deadlines for responding to requests via LAI by all Federal Public Administration bodies, in areas without face-to-face service, due to the employees’ telework regime, in addition to suspending the possibility of appeal. The Federal Supreme Court (STF), however, suspended the MP. And, when assessing the arguments on this MP, Fonseca et al. (2020) conclude that the suspension of deadlines for responding to requests for access to information via LAI due to telework would be an inconceivable measure, since 99% of these responses are already provided remotely.

Over time, even with the increase in the number of deaths and infected, the federal administration has increasingly undermined transparency until it reached the point of withholding data, delaying daily updates of epidemiological information,<sup>1</sup> removing information and failing to disclose the total number of infected and deaths.<sup>2</sup> The Ministry of Health’s website (data on the pandemic) went off-line on June 5<sup>th</sup><sup>3</sup> and only became accessible the following day, yet with no aggregated data on the total number of COVID-19-related deaths and infections. The aggregated data on the coronavirus were only released after the STF ruling. Of note, however, is an initiative launched by the General Controller’s Office (CGU) in favor of transparency. The

<sup>1</sup> See: <https://www.nexojournal.com.br/expresso/2020/06/04/Qual-o-impacto-dos-atrasos-nos-dados-di%C3%A1rios-da-COVID-19>.

<sup>2</sup> See: <https://brasil.elpais.com/brasil/2020-06-06/governo-bolsonaro-impoe-apagao-de-dados-sobre-a-COVID-19-no-brasil-em-meio-a-disparada-das-mortes.html>.

<sup>3</sup> See: <https://noticias.uol.com.br/ultimas-noticias/ansa/2020/06/06/ministerio-da-saude-tira-portal-com-dados-sobre-COVID-do-ar.htm>.

management panel “Contracts Related to COVID-19,”<sup>4</sup> launched on July 3, 2020, allows monitoring costs incurred by the Union, states, DF, and municipalities for acquiring goods, inputs and contracting services for fighting the pandemic.<sup>5</sup>

With the unpredictability of the Federal Government to provide detailed and updated information about the pandemic, it becomes even more important that other government levels publish data on the pandemic in their websites. In this sense, the Federal Supreme Court understood that each state and municipality should have the autonomy to legislate measures to face the pandemic, thus no longer depending on the Union to make decisions to manage the crisis.<sup>6</sup> In addition to the aforementioned and unprecedented press media consortium,<sup>7</sup> there are also initiatives such as Lagom Data<sup>8</sup> and Brasil.IO,<sup>9</sup> which aggregate and improve the quality of data from health departments to better inform citizens. We have also seen initiatives by non-governmental organizations aimed at assessing the transparency of states and the Federal Government, such as Open Knowledge,<sup>10</sup> which publishes a weekly ranking of the most transparent states based on assessment of information on epidemiological data from states and Federal Government; and Transparency International,<sup>11</sup> which assesses the level of transparency in emergency contracts and suggests a guide of good practices to ensure transparency in procurement processes; and Article 19,<sup>12</sup> which analyzes passive transparency, in other words, requests for access to information on the pandemic.

### Study Objective, Research Question and Hypotheses

We understand the extreme importance of information transparency for better governance (Heald and Hood, 2006), especially in times of crisis, such as this one caused by the COVID-19 pandemic. Considering the potential role state governments have played in providing transparency on Covid-19 issues in Brazil in the face of the Federal Government’s refusal to shed light on data and information on the

<sup>4</sup> See: <https://app.powerbi.com/view?r=eyJrIjoiYTE0Nzc4NDctMTI0OC00OWVjLTljMmQtM2U3MTFkY2U2MTU2fiwidCI6IjY2NzhkOWZILTA5MjEtNDE3ZC04NDExLTVmMWMxOGRlZmJiYiJ9>.

<sup>5</sup> See: <https://www.gov.br/cgu/pt-br/assuntos/noticias/2020/07/cgu-lanca-painel-para-dar-transparencia-a-contratacoes-relacionadas-a-COVID-19>.

<sup>6</sup> See: <https://www.poder360.com.br/coronavirus/stf-decide-que-estados-e-municipios-tem-autonomia-para-impor-isolamento/>.

<sup>7</sup> See: <https://g1.globo.com/politica/noticia/2020/06/08/veiculos-de-comunicacao-formam-parceria-para-dar-transparencia-a-dados-de-COVID-19.ghtml>.

<sup>8</sup> See: <https://www.lagomdata.com.br/coronavirus>.

<sup>9</sup> See: <https://brasil.io/home/>.

<sup>10</sup> See: <https://transparenciaCOVID19.ok.org.br>.

<sup>11</sup> See: <https://transparenciainternacional.org.br/ranking/> and <https://comunidade.transparenciainternacional.org.br/asset/86:tibr-recomendacoes-de-contratacoes-emergenciais-COVID19?stream=1>.

<sup>12</sup> See: <https://artigo19.org/blog/2020/05/30/relatorio-lancado-pela-artigo-19-revela-dificuldade-para-acesso-a-informacoes-sobre-COVID-19/>.

pandemic, this study analyzes the information available on the state web portals of all Brazilian governments, in addition to the Federal District (DF).<sup>13</sup>

We evaluated, based on a methodological model developed for this study, the quality of epidemiological information, information for decision-making, and financial-budgetary information available on these websites in order to assess the level of transparency of state governments and the Federal District during the COVID-19 pandemic. Our guiding research question asks:

### **What are the Levels of Publicity of Epidemiological and Fiscal Information of State Governments and the DF Regarding the COVID-19 Crisis?**

Brazil has legal regulations to ensure fiscal transparency (such as the LAI, LRF and the Transparency Law) which require governments (federal, state and municipal) to publish, in real time, financial-budgetary information on public administration spending on their websites. Thus, states assumedly already have an organization and structure for providing this type of information, which would include the training of qualified personnel for this function and the internal organization itself. Thus, *HI assumes that the score of financial-budgetary information (subdimension 1.3) has an average higher than that of epidemiological information and decision-making (subdimensions 1.1 and 1.2).*

In addition, we sought to assess whether, and in what way, socioeconomic (HDI,<sup>14</sup> GDP,<sup>15</sup> monthly income<sup>16</sup> and population density<sup>17</sup>) and epidemiological (deaths, cases per 100,000 inhabitants, tests per 100,000 inhabitants and mortality) variables can explain the transparency index of epidemiological and financial-budgetary information on the COVID-19 pandemic from state governments and the DF.

Amorim (2012) cross-checked the levels of digital transparency in Brazilian municipal governments with socioeconomic variables, reaching positive correlations in some cases, such as HDI, GDP and population density. The author concludes that the indicators that measure the quality of life in municipalities also indicate a greater probability of these municipalities having a better level of digital

<sup>13</sup> Given the specific political context of this study, some could ask if it would make sense to highlight the political position of state governments—whether in line with or opposed to the Federal Administration—in order to test it as a research variable. Despite the relevance of this question, state governments which are politically affiliated with the federal government were not seen to follow federal health policies concerning the pandemic. Thus, we did not proceed with this line of analysis.

<sup>14</sup> HDI—The index measures four major indicators: life expectancy, expected years of schooling and mean years of schooling completed upon entering the education system, and Gross National Income per capita for standard of living.

<sup>15</sup> GDP—Gross domestic product (GDP) is the standard measure of the monetary value of all goods and services made in a country over a certain time period. It also measures the income earned from that production, or the total amount spent on finished goods and services (not including imports).

<sup>16</sup> Monthly income—Gross monthly income is the widest measure of employment income, covering both employees and the self-employed.

<sup>17</sup> Population density—Population density is population divided by total land area in square kilometers. This ratio can be calculated for any land unit for any point in time, depending on the source of the population data.

transparency. Income, on the other hand, was tested in Baldissera et al. (2020) and showed positive correlations with the active and passive transparency of Brazilian municipalities. Other studies have tested different variables to understand the drivers of transparency. Sol (2013) discovered a positive correlation between the size of municipalities (larger cities), the government leader's ideology (left-wing governors) and whether the city is a capital with higher transparency indices, when studying government transparency in Spain. Tavares and Da Cruz (2020), however, tested a few "demand-side" variables to predict transparency and found that Portuguese municipalities with higher rates of unemployment and higher proportions of elderly citizens were associated with lower transparency.

In this article, we test whether this set of socioeconomic indicators also presents significant correlations with digital transparency in the states under the exceptional context of a pandemic. Thus, we have:

- H2: The transparency index of state government epidemiological and financial-budgetary information on the COVID-19 pandemic can be explained by socioeconomic variables (HDI, GDP, monthly income and population density); and
- H3: The transparency index of state government epidemiological and financial-budgetary information on the COVID-19 pandemic can be explained by epidemiological variables (deaths, cases per 100,000 inhabitants, tests per 100,000 inhabitants and lethality).

## Methodology

Here we present the methodological aspects of the research in two dimensions: (1) the choice of the dimensions, indicators, and concepts for the methodological instrument; and (2) the time and record of findings from browsing government websites.

### On the Methodological Instrument: Choice of Dimensions, Indicators and Concepts

In this study, the indicators and criteria of the methodological instrument were organized in two dimensions: 1) epidemiological information and 2) financial-budgetary information. The first dimension includes information monitored by the states' Health Surveillance Secretariats and the Ministry of Health's DATASUS, which includes the number of confirmed cases, cases under investigation, deaths, and cases recovered by municipalities, as well as information on prevention measures, campaigns, and legislation published by the states and the federal government. The other dimension includes information established in Brazilian legislation which is mandatory for public transparency, such as the Fiscal Responsibility Law, the Transparency Law, and the Law 13.979/2020. We understand information to be the raw material of publicity and transparency. Thus, the quality of the information published is fundamental to achieving effective digital transparency by governments.

There are some attributes that we consider essential for information to be a quality input and therefore produce more and better transparency. They are time, content, and form and involves as preconized by Justice et al. (2015): "It involves ready



access to reliable, comprehensive timely, understandable and intentionally comparable information on government activities” (p. 4).

### Time

Public information must be made available in a timely manner, be up to date, be provided about past, present and future periods. Thus, for this study, we consider the following information on the main or secondary page needs to be updated: in *real time* for the expense and revenue indicators, every *24 h* for the epidemiological information and health information for decision making, and every *7 days* for the indicators of emergency contracts and donations.

### Content

The information must be accurate and error-free, be complete, have scope, and performance to allow measuring its progress. Thus, for this study we consider information to meet the “**content**” requirement when it shows, together with its publication, the main source, the date of publication, and daily and accumulated values and progress (or results) achieved.

### Form

Information must be provided in a comprehensible manner, with volume and detail, in a predetermined order, be disclosed in a narrative, numerical, graphical, or audio format, among others. For this study, we consider that the information meets the standard of presenting a plain and clear language – whenever technical terms are needed, glossaries or subtitles should be used – and organized in a logical sequence, with at least two display formats (texts/numbers, graphics, infographics, dashboards, panel, maps, or audio). Finally, epidemiological and financial-budgetary data were evaluated in open formats.

### Calculation of the Transparency Index

Transparency on both epidemiological and decision-making information (dimension 1) and on financial-budgetary information (dimension 2) are equally important for assessing the level of transparency of a given state about the COVID-19 pandemic. As such, we decided to assign equal weights to those dimensions. Calculation was carried out by the weighted average of the indicators. After calculating the results from the points attributed to the dimensions, we considered the following concepts:

In terms of the process for evaluating the indicators through guided navigation, this was conducted by two individuals called coders. Each coder first attributed the concepts according to his or her judgment. After this individual evaluation, the scores were tabulated side by side. The total number of the scores attributed by the coders was 1,026 (19 questions × 27 states). Only 14 items were identified with disagreement when comparing the scores attributed by the coders. Thus, there were a total of 27 disagreements, against 999 concordances. Following the technique of the percentage of agreement, we verified that the degree of reliability of the evaluation was 97.37%. Therefore, this percentage demonstrates a high degree of reliability for the results in this study.

## Brazilian States' Digital Transparency about COVID-19

### Epidemiological Dimension (Dimension 1) (Chart 1)

**Chart 1** Epidemiological information

Indicators	Concept and description
Confirmed cases	4 – Information found on the home or secondary page, updated every 24 h 2 – Information found on a tertiary page or outdated 0 – Information not found
Cases under investigation	4 – Information found on the home or secondary page, updated every 24 h 2 – Information found on a tertiary page or outdated 0 – Information not found
Recovered	4 – Information on recovered patients or medical discharge found on the home or secondary page, updated every 24 h 2 – Information found on a tertiary page or outdated 0 – Information not found
Deaths	4 – Information found on the secondary page, updated every 24 h 2 – Information found on a tertiary page or outdated 0 – Information not found
Open data	4 – Data on confirmed cases, deaths and location are in open format 2 – Only data on confirmed caes are in open format 0 – No open data was found

Legend: 0 = “not found” 2 = “partially found” 4 = “found”

## Health Information for Decision Making (Chart 2)

**Chart 2** Health information for decision-making

Indicators	Concept and description
Occupancy of hospital beds	4 – Information about normal or Intensive Care Unit (ICU) beds found on the home or secondary page, updated every 24 h 2 – Information about normal or Intensive Care Unit (ICU) beds found on a tertiary or outdated 0 – information not found
Tests conducted	4 – Information about rapid test and C-reactive protein tests (CRP) found on the home or secondary page, updated every 24 h 2 – Information about normal or Intensive Care Unit (ICU) beds found on a tertiary or outdated 0 – information not found
Primary health care	4 – Information on primary health founds on the home or secondary page, updated every 24 h 2 – Information on primary health founds on a tertiary page or outdated 0 – information not found
Microdata of infected patients	4 – Includes information on three or four items: age; gender; ethnicity; comorbidity of infected patients which meet all time, content, and form attributes 2 – Includes information on itmes; age; gender; ethnicity; comorbidity of infected patients which meet all time, content, and form attributes 0 – information not found
Government measures	4 – Information on laws, acts, ordinances, and decrees that establish quarantine page. Information meet all attributes (time, content, form) 2 – Partial information found on a tertiary page 0 – information not found
Historical evolution	4 – Information on the number of cases and deaths is disclosed since the beginning of the pandemic (time) and displayed on dashboards, graphs, pannels or maps (format) 2 – Information on the number of cases and deaths meets at least one attribute (time or format) 0 – information not found
Daily notices	4 – Information meets all attributes (time, content and form) 2 – Information meets at least the time attribute 0 – information not found
Pandemic communication channels (ombudsman)	4 – There is a direct link to the pandemic communication channel (chat, e-mail, contact, ombudsman etc.) on the home or secondary page 0 – There is no link to the pandemic communication channel
Open data	4 – Information on microdata (age, gender, ethnicity) and tests is in open format 0 – Neither

Legend: 0 = “not found” 2 = “partially found” 4 = “found”

## Financial-Budgetary Dimension (Dimension 2) (Chart 3)

**Chart 3** Financial-budgetary information

Indicators	Concept and description
Contracts (unenforceability, waiver from bids, auctions)	4 – Information on contracts (unenforceability, waiver from bids, auctions) founds on the home or secondary page, updated every 24 h 2 – Incomplete information found on tertiary page or outdated 0 – Information not found
Expenses/Spending	4 – Information (values raised specifically to combat COVID-19 in the state) founds on the home or secondary page, updated every 24 h 2 – Information found on tertiary page or outdated 0 – Information not found
Transfers of federative programs or donations	4 – Information (values raised specifically to combat COVID-19 in the state) founds on the home or secondary page, updated every 24 h 2 – Information found on tertiary page or outdated 0 – Information not found
Open data	4 – Data from the previous four indicators are in open format 2 – Data from at least three of the previous indicators are in open format 0 – Data from at two or less of the previous indicators are in open format

Legend: 0 = “not found” 2 = “partially found” 4 = “found”

## General Dimension (Chart 4)

**Chart 4** Socioeconomic and epidemiological variables

Socioeconomic variables	HDI	PIB	Monthly income	Population density	Epidemiological variables	Deaths	Cases per 100,000 inhabitants	Tests per 100,000 inhabitants	Mortality

## Results

In this section, we present the results from: (1) the transparency index (general and dimension); (2) data analysis (indicators); (3) the level of transparency and its correlation with socioeconomic and epidemiological variables; and (4) the explanatory capacity of the level of transparency in light of the indicators. As we present the results, we will also discuss the search hypotheses and their results.

### About the Transparency Index

Browsing the state and DF web portals for applying the methodological instrument and assessing the information disclosed on the epidemic (epidemiological data that

helps managers in decision-making and financial-budgetary decisions) gives us the level of transparency per state, classified from the score and percentage scales, ranging from advanced opacity to advanced transparency (Table 1).

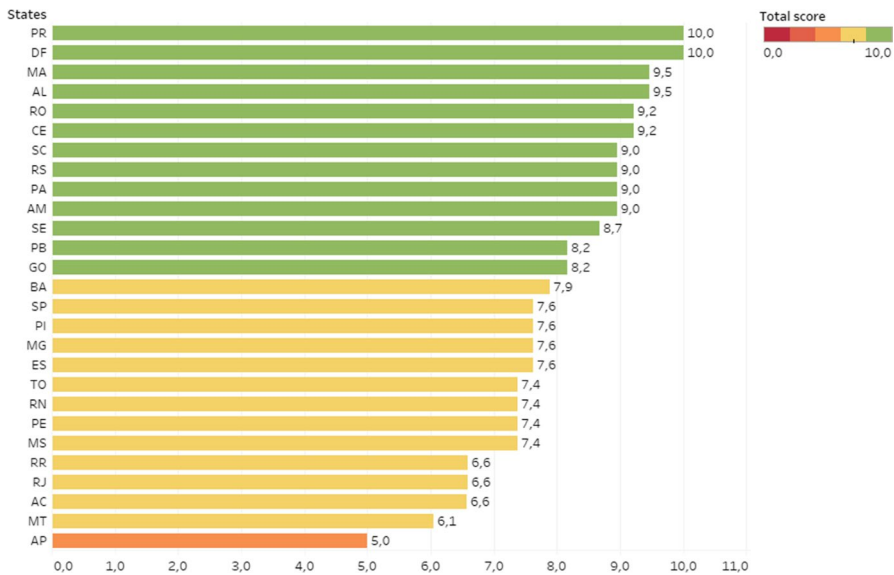
According to the results of the analyses carried out on the methodological instrument, Brazil is divided between states with *advanced* or *moderate* levels of transparency on information about the coronavirus pandemic. The only exception is the state of Amapá, which had an opaque level of transparency, as shown in Graph 1 and the third map in Fig. 1. Thus, thirteen states presented advanced levels of transparency, thirteen states presented moderate levels of transparency, and only one state presented an opaque level of transparency.

Of the thirteen states with advanced levels of transparency, five are from the Northeast (MA, AL, CE, SE and PB), three are from the South (PR, SC and RS), three from the North (RO, PA and AM) and two from the Midwest (DF and GO).

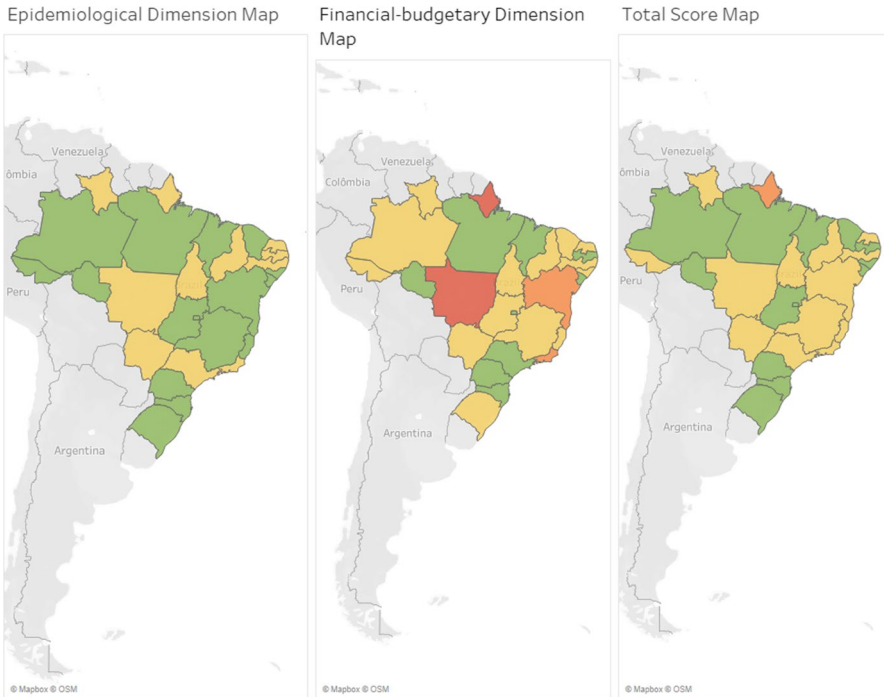
**Table 1** Classification of transparency using scoring and percentage scales

Overall concept	Scoring scale	Percentage scale
Advanced Transparency (AT)	4 to 3.2	100% to 80%
Moderate Transparency (MT)	3.1 to 2.4	79.9% to 60%
Opaque Transparency (OT)	2.3 to 1.6	59.9% to 40%
Significant Opacity (SO)	1.5 to 0.8	39.9% to 20%
Advanced Opacity (AO)	Below 0.7	Below 19.9%

Source: Adapted from Amorim (2012) and Almada (2017)



**Graph 1** Transparency Scores for States and the Federal District

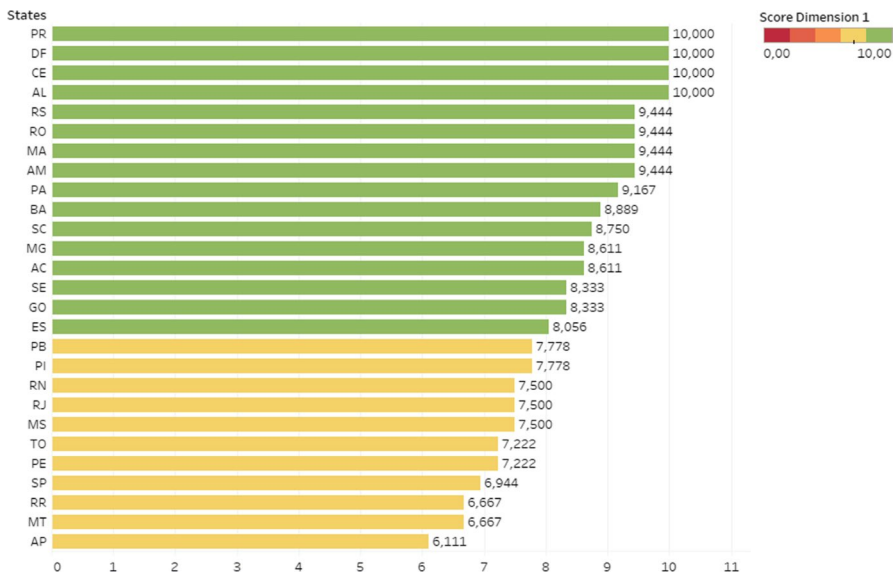


**Figure 1** Level of Transparency for States and the Federal District based on the Scoring Scale by Dimension and Overall Average

We observe that no state in the Southeast has this level of transparency, while all three states in the Southern region are at the most advanced level of transparency. Of the thirteen states with moderate levels of transparency, four are from the Northeast (BA, PI, RN and PE), four are from the Southeast (SP, MG, ES and RJ), three from the North (TO, RR and AC) and two from the Midwest (MT and MS). The only state with opaque level of transparency is in the North region (AP).

As we built the transparency indices based on the aggregated scores, we also conducted comparative analyses by dissociating these two dimensions to be able to see more clearly the weight that each of these dimensions. This procedure allows us to verify both the degrees of importance and priority given by these federative units in producing transparency about the pandemic (for example, whether there is more fiscal transparency or more transparency of epidemiological data) and the levels of general discrepancy between the transparency of one dimension and the other (Graph 2).

When considering the first dimension, only five states remain in the same position: the first two positions (PR and DF), the two states with the lowest overall transparency index (MT, AP) and the states of AL and PA, which remain in the fourth and ninth positions, respectively. We have, therefore, ascending and descending



**Graph 2** Epidemiological dimension transparency scores obtained by the states and the Federal District

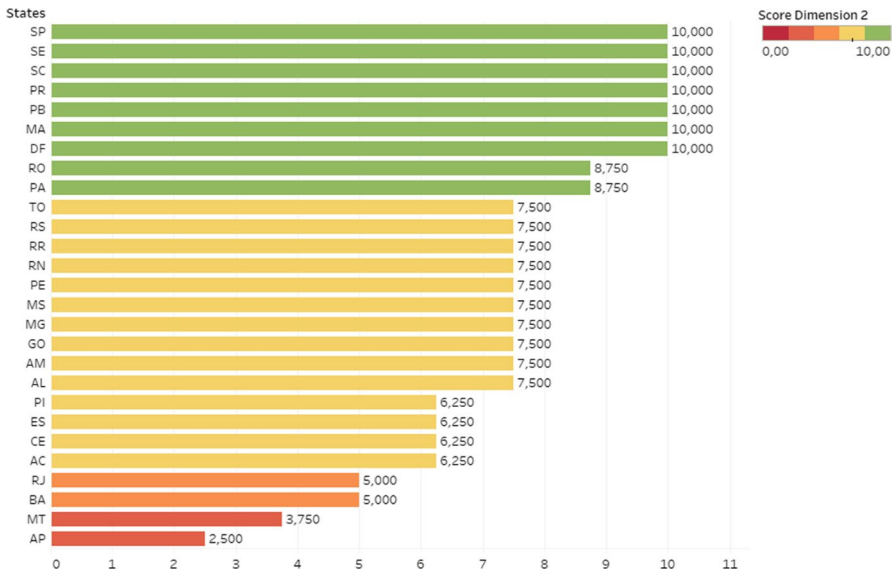
fluctuations when changing from the general aggregate result to the scores for the first dimension.

A total of eleven states dropped and ten states rose in the classification when considering only the first dimension. Among the states that dropped the most positions, SP stands out having dropped ten positions, suggesting that this position the state occupies in the general aggregated result may be a result from its performance in the second dimension (Graph 3). The fastest growing state in this comparative relationship is Acre, which rose twelve positions, showing the significant weight of its performance in the first dimension when compared to the second dimension.

When considering only dimension 2, we observed even more change. Only four states maintained their positions: once again, the two states with the lowest overall transparency index (MT and AP) and also the states of PA and RJ, which maintained the ninth and twenty-fourth positions, respectively. Thus, twelve states dropped, and eleven states rose in position, in relation to aggregate scores.

Among those with the greatest change in position compared with the overall ranking, SP stands out as expected, rising fourteen positions. A clear sign that the weight of the state's financial-budgetary transparency strongly influences its overall ranking. Conversely, the states of CE, AL and BA stand out which drop, respectively, sixteen and fifteen positions in relation to their total scores, showing a great discrepancy between the levels of transparency obtained in dimensions 1 and 2.

Comparing the isolated scores of both dimensions, we observe that only three states remain in the same position, thus equating their epidemiological and financial-budgetary levels of transparency: PA, MT and AM; 9th, 26th and 27th places, respectively, both in the aggregate result and in the scores of the two isolated dimensions. The greatest fluctuation observed is SP, which occupies the 24th place in



**Graph 3** Financial-budgetary dimension transparency scores obtained by states and the Federal District

transparency of epidemiological information and the first in financial-budgetary transparency. Opposite to this, Ceará stands out, which occupies the third place in epidemiological transparency index and the 22nd in financial-budgetary transparency. Bahia also stands out here, falling fifteen positions.

Figure 1 shows, from the scoring scale (from advanced opacity to advanced transparency), the level of transparency of each state and DF by dimension, as well as the overall level of transparency of the states. The general table shows a symmetrical distribution, in which thirteen states appear with advanced levels of transparency, thirteen states with moderate transparency, and only one with opaque transparency. When looking at the two dimensions separately, however, we see important discrepancies.

Regarding epidemiological information (only dimension 1), the number of states in the advanced transparency range jumps to sixteen, the number of states in the moderate transparency range drop from thirteen to eleven, and AP, the only state classified with opaque transparency in the overall score, rises to the moderate transparency range. On the other hand, when considering financial-budgetary transparency (dimension 2), the number of states in the advanced transparency range falls from thirteen to nine, the number of states in moderate transparency increases from thirteen to fourteen, the opaque transparency rises from one to two states, and one state appears in the significant opacity range when compared with the overall ranking.

With exceptions of expressiveness, such as SP, what the comparison between aggregated data and data segmented by dimensions shows is that the general transparency index of states and DF suffers a greater influence, in a positive and increasing sense, of the levels of transparency for epidemiological information achieved by



**Table 2** Average score of subdimensions

Epidemiological information	3.5185	87.96%
Information for decision-making	3.1605	79.01%
Financial-budgetary information	3.0185	75.46%

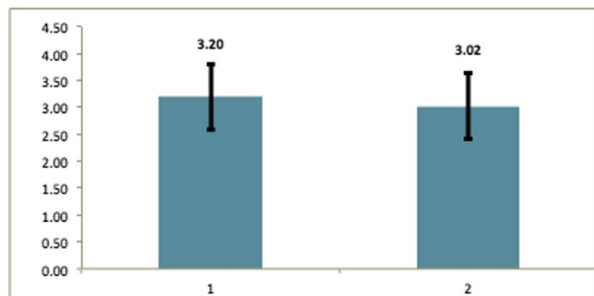
federative units than those registered in dimension 2. Given these data and comparisons, we can conclude that, overall, the federal units in our analysis present a greater investment in the production and updated disclosure of epidemiological information than in the production of financial transparency regarding the pandemic.

## Data Analysis

The analysis of the average score of the subdimensions shows that epidemiological information and decision-making achieved better results than the financial-budgetary information (Table 2). However, to test the hypothesis that the score of financial-budgetary information (subdimension 1.3) has a higher average than that of epidemiological information and decision-making (subdimensions 1.1 and 1.2) (H1), we carried out a variance analysis (Anova); a statistical technique that assesses whether there is a significant difference between the averages (Graph 4).

According to the results of the Anova test, there is no statistically relevant difference between the averages, which rejects H1. According to Table 3,  $f_{\text{calculated}}$  is lower than  $f_{\text{distributed}}$ , showing no significant difference between them. Therefore,

**Graph 4** Level of difference between the averages of dimensions 1 and 2

**Table 3** Anova test

Variation source	SQ	gl	MQ	f calculated	f_critical
Between groups	0.442816667	1	0.442816667	0.867965657	4.0266314
Within groups	26.52923704	52	0.510177635		
Total	26.9720537	53			

**Table 4** Average score of indicators

Confirmed cases	4.000	100%
Deaths	4.000	100%
Location (municipality)	4.000	100%
Microdata of infected patients	4.000	100%
Daily notices	4.000	100%
Expenses/Spending	3.852	96%
Occupancy of hospital beds	3.778	94%
Contracts	3.778	94%
Historical evolution	3.702	93%
Government measures	3.630	91%
Recovered patients	3.556	89%
Tests conducted	3.407	85%
Pandemic communication channels	2.963	74%
Open data – subdimension 1.1	2.889	72%
Cases under investigation	2.667	67%
Open data – subdimension 2.1	2.444	61%
Open data – subdimension 1.2	2.074	52%
Transfers of federal programs and donations	2.000	50%
Primary health care	0.889	22%

<b>Legend</b>
Epidemiological information
Information for decision-making
Financial-budgetary information

the analysis shows that the financial-budgetary information obtained averages equal to those of epidemiological information and information for decision-making.

**Table 5** Performance of states on the indicator transfers of federal programs and donations

AM, DF, MA, PB, PE, PR, RR, SC, SE, SP, TO	4	100.00%
ES, PA, RO	2	50.00%
AC, AL, AP, BA, CE, GO, MG, MS, MT, PI, RJ	0	0.00%

Although they show no significant statistical differences, we must consider, as previously discussed, that the epidemiological information and information for decision-making found in the web portals showed differences in quality and volume. This shows that, although there have been legal standards in Brazil since the 2000s that provide for the fiscal transparency of municipalities, states and federation, the same is not verified for financial-budgetary information related to the COVID-19. Contrary to expectations, Brazilian states publish more information on pandemic data (epidemiological information, such as confirmed cases, deaths, etc.) and data that help public administrators in decision-making (hospital bed occupancy, daily notices, etc.) than financial-budgetary information. This result leads to the conclusion that the existing legal framework for regulating transparency in Brazil—mainly financial-budgetary transparency—still faces barriers to their implementation in Brazilian states in an emergency context. Also, in response to the COVID-19 emergency, Brazilian states were allowed to purchase goods and services through emergency procurement, what may have led to less financial transparency.

All states presented updated data on confirmed cases, number of deaths, location of cases (distribution by municipalities), microdata of infected patients and daily notices updated every 24 h during the analysis period (Table 4). It is worth mentioning, however, that in terms of the microdata for infected patients, the lack of information on race was noted in several states. Although this absence alone does not imply a decrease in the score, the lack of this information hinders analyses on different impacts of the disease in specific sectors of the population.

Three of these indicators, namely “confirmed cases”, “deaths” and “location of cases,” make up part of subdimension 1.1, related to epidemiological information. The fact that these indicators had a maximum score caused this subdimension to obtain the highest average when compared with 1.2 (information for decision-making) and 2.1 (financial-budgetary information). Subdimension 1.1 averaged 87.96%, an average of eight out of ten states had maximum scores in its constitutive indicators.

Part of the explanation for this outstanding average is correlated with an indicator of subdimension 1.2: *daily notices*. Almost all states presented information regarding these three indicators through daily notices, which had an absolute presence in the analyzed initiatives of all federal units (Table 4). The same can be verified with the information related to the indicator “microdata of infected patients” in subdimension 1.2, which also features in all states and is usually disclosed in the daily notices. We can therefore state that daily notices are the instrument holding the greatest weight and informative importance for dimension 1.

The data also show open data averages for the three subdimensions to be relatively low. The percentage of states that provide open data on epidemiological information (subdimension 1.1) is 72%, while the percentages of states that offer open data on health information for decision making (subdimension 1.2) and financial-budgetary information (sub-dimension 2.1) are even lower: 52% and 61%, respectively.

Regarding financial-budgetary information, although the averages of states that disclose expenditures/spending and contracts carried out are high (96% and 94%, respectively), few of them disclose information about the allocation of federal programs and donations. The low presence of this type of data highlights an important blind spot in the states' budgetary transparency for the pandemic (Table 5).

Although our data and analyses do not allow to hypothesize causal links, it is noteworthy that many of these federal units do not produce transparency on the allocation and application of funds transferred by the Federal Government to fight the pandemic and the appearance of suspected corruption in how these funds are applied, which are being investigated by the Federal Police and disclosed by the press<sup>18</sup> in some of these Brazilian states. The very opacity of this information may point to a lack of greater care in managing these resources.

It is also worth mentioning the low degree of transparency of information for the indicator "*primary health care*," explained by the low investment of the states in disclosing information on hospital bed occupancy and treatment in Emergency Care Units and other primary care units. The absence of this information points to a lack of centrality of the low complexity health system when facing the pandemic in Brazil, which privileged investments in high complexity and temporary operating units (field hospitals). Difficult access to accurate information also appeared in the item "tests," given that many states do not differentiate the types of tests they perform and their respective numbers.

It is also worth mentioning that 74% of the federation units created specific communication channels for issues related to COVID-19. These channels vary widely in format, from emails and online forms to apps where citizens can report symptoms and receive instructions. On the other hand, the publication of government measures related to the pandemic appears in almost all cases (91%), although not always easily accessible. A small business owner, for example, in many states may find it difficult to know whether his business can open in a given period due to the multiple decrees that are not always clearly organized.

### **Level of Transparency and its Correlation with Socioeconomic and Epidemiological Variables**

We sought to assess whether, and in what way, socioeconomic (HDI, GDP, monthly income, population density) and epidemiological (deaths, cases per 100,000 inhabitants, tests per 100,000 inhabitants and mortality) variables can explain the

---

<sup>18</sup> See: <https://oglobo.globo.com/sociedade/mais-de-6-mil-processos-no-mpf-investigam-fraudes-em-repasses-de-combate-ao-coronavirus-1-24582409>.

**Table 6** Correlation coefficient of variables. Field survey conducted between June 1st and 12, 2020

(ρ) COVID Transparency	HDI	PIB	Monthly income	Population density	Deaths	Cases per 100.000	Tests per 100.000	Mortality
	0.9763	0.7148	0.4676	0.3576	0.4245	0.1315	0.8542	0.5783

transparency index. To do this, we discuss here the results of H2 and H3, achieved using simple (Pearson correlation) and multiple linear regression analyses.

To do the Pearson correlation test of the dependent variable we found the overall COVID transparency index by calculating the weighted average of the transparency indexes of each state. Then we calculated Pearson's correlation coefficient to verify how strong the correlation between the variables was. HDI, tests per 100,000 inhabitants, and GDP showed a higher correlation over the dependent variable "COVID transparency" (Table 6).

To improve the ability to predict and simultaneously understand the effects of two or more variables on a dependent variable, we conducted a multiple linear regression to identify the model that best explained the behavior of "COVID transparency" and allowed testing H2 and H3. After performing tests using several combinations of the independent variables (Table 7), the equation that presented the best explanatory condition was:

$$I_{transparencyCOVID} = 28.5161 + (-35.93xIDH) + (0.003xincome) + \epsilon$$

This suggests that H2, according to the explanatory model, is partially confirmed since only two of the four socioeconomic indicators (HDI, GDP, monthly income and population density) were able to explain the dependent variable (COVID transparency), being HDI and monthly income. HDI was the independent variable with higher predictive power and a greater sensitivity in terms of influencing the transparency index in -35.93% and the variable monthly income with incremental predictive power (0.0039%).<sup>19</sup>

It is worth mentioning that, although the value found for the monthly income variable is numerically small, it is statistically significant (95% confidence level). The significance, even with a low magnitude, is explained by the size of the research sample (n=28). The other variables did not present any significance and, as a result, in the case that this study is replicated, the equation found is the one that will have explanatory capacity.

Regarding the monthly income variable, the analysis results follow a trend observed in other studies on the relationship between public transparency and economic development (Amorim, 2012): the increase in monthly income points positively to the improvement of state government transparency rates. In principle, there

<sup>19</sup> Predictive power represents the percentage of sensitivity to influence the states' COVID transparency index. Thus, with the addition of one HDI unit, we will have a decrease of 35,9399 in COVID transparency. Incremental predictive power (0.0039%) represents the percentage of sensitivity to influence the states' COVID transparency index. Thus, with the addition of one unit of monthly income, we will have an increase of 0,0039 in COVID transparency.

**Table 7** Summary of the multiple linear regression analysis results. Field survey conducted between June 2 and 20, 2020

lm(formula = trans ~ hdi + Income)				
Residuals:				
Min: -1.93222	1Q: -0.71710	Median: -0.05606	3Q: 0.87011	Max: 2.07530
Coefficients:				
	Estimative	Std. Error	T value	Pr (>  t )
(Intercept)	28.516141	8.327870	3.424	0.00222**
HDI	-35.939866	14.241583	-2.524	0.01865*
Income	0.003903	0.001472	2.651	0.01398*
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				
Residual standard error: 1.14 on 24 degrees of freedom				

may be some relationship between income and public transparency, that is, one assumes that states with higher average monthly income, which represents better economic development, receive more demand for public transparency. In this study, there was an incremental power between monthly income and transparency of the federal units regarding information about the COVID-19 pandemic.

However, according to the explanatory model, the higher the state's HDI, the lower its level of transparency. This is an intriguing scenario that can raise many questions about its clarification power – after all, it can be argued in favor of the improbability of a low human development rate to allow and/or stimulate greater state transparency on the pandemic – as more favorable speculations to its explanatory power, since both public administrators and the bureaucratic structure of poorer and unequal states may face the crisis more seriously and, consequently, produce more and better information about its situation in relation to the pandemic.

H3, in turn, is not confirmed, because the analyses conducted with the other chosen variables (including epidemiological variables) for this study did not present significant values that would allow them to be considered in the construction of the explanatory model.

## Discussion and Conclusion

This study aimed to evaluate the levels of data and information transparency of state governments and the Federal District regarding the COVID-19 crisis. We conclude that, except for AP, which presents opaque transparency, the states were divided into advanced transparency (level of transparency between 80 and 100%) and moderate transparency (level of transparency between 60% and 79.99%). To be more specific, sixteen out of 27 Brazilian states and the Federal District scored at the upper level of transparency.

These findings support two conclusions when considering this specific Brazilian political, social and health care context. The first conclusion lies with the importance of the federal system to protect basic civil rights and to preserve an important

level of federal unit independence from the Federal Government. Democracy and its protection are the core issues here. One of the many undemocratic decisions that define Jair Bolsonaro's presidency are the past and current attempts to leave Brazilian citizens and institutions in a state of opacity and darkness regarding essential information about the pandemic. Despite everything he did to reach this goal, the autonomy of Brazilian federal states has helped the country to better fight the pandemic with valuable, accurate, and updated information on the pandemic, regardless of the middle age mentality and attitudes of the president.

In this sense, one could say that the different efforts of the state governments were responses to uncoordinated actions by the federal government, which at times omitted information and at others produced disinformation. A paper published in April 2022 (Carvalho et al., 2022) on which the objective was to present an analysis of the evolution of the actions developed by the governors of eleven Brazilian states to face the Covid-19 pandemic, and also to identify the tendency of their actions in face of the pressures generated in the dynamics of intergovernmental relations had analyzed a total of 701 decrees published from February to October 2020, considered the first wave of the pandemic. The results show the existence of a leading role of governors in face of the lack of coordination of the federal government, with emphasis on the exercise of constitutional competences through measures of horizontal cooperation, regional and associative learning practice, and organization of social intervention measures that played an important role in the fight against the pandemic (Carvalho et al., 2022).

The second conclusion refers to the essential logic of digital communication, where State governments can produce transparency on their own without having to send that information to the press, which used to be the main link between politics and the mass public. On the other hand, digital communication expands public and legal demands for public transparency, making political authorities more susceptible to public constraints. The level of public transparency presented in our study shows that Brazilian state governments had the opportunity to resist authoritarian impetus from the Federal Government and the digital tools to guarantee state transparency in a context of political and sanitary crisis.

We have, in general, "high" and significant offers of transparency on COVID-19-related information, raising the question of why a health crisis leads states to produce more information, resulting in greater transparency. As Brazil already has legal standards to ensure the provision of transparency on financial-budgetary information, including in the pandemic context (Federal Law No. 13,979/2020 (Brasil, 2020a), we assumed that the analysis comprising this type of information would have a higher score than those referring to epidemiological information and decision-making (H1). However, that was not what the study showed. Although the hypothesis test revealed no significant score difference between dimensions, the segregated analysis of dimensions, subdimensions and indicators showed that federal units invest more in the production and updated disclosure of epidemiological information than in the production of financial transparency regarding the pandemic. This result points to the states' greater concern to provide citizens and media with updated information on epidemiological data of the pandemic, such as numbers of cases and deaths. Another possible explanation for this result is the fact that

transparency is not on the Brazilian Federal Government's agenda, or among its priorities, and that a media consortium began collecting data from state health departments daily to inform the Brazilian population about the stage of the pandemic.

We also investigated whether socioeconomic variables such as HDI, GDP, monthly income, population density (H2), and epidemiological variables such as deaths, cases per 100,000 inhabitants, tests per 100,000 inhabitants and mortality (H3), can explain the transparency index for state governments. In this case, only HDI and monthly income showed an explanatory capacity for state level of transparency for what we believe is essential information about COVID-19. The HDI result is intriguing as it revealed that the higher the state's HDI, the lower its level of transparency. This leads us to question whether, given the pandemic context, public administrators and the bureaucratic structure of states with fewer resources have produced more and better information about their respective states' situations due to how they view the crisis more seriously. This is an issue that should be considered and, therefore, we recommend the further application of this methodological instrument (or others with the same purpose), so that the relationship between HDI and transparency of federal units can be more accurately assessed (longitudinally, for example).

If the indicator that assesses the state degree of transparency on transfers of federal programs and donations obtained the second worst score, then we know that transparency of data and information is the first step towards accountability, which can be considered the maximum degree of transparency, characterized by the possibility of constraint caused by transparency, added to the prospect of sanction on the agent. Nonetheless, we cannot disregard the opacity of information at the federal level, which might be a variable in this case. In the context of the COVID-19 pandemic in Brazil, there are ongoing investigations and surveys about how state managers have managed federal funds for combating the pandemic, which has led these actors to go public or report to state bodies. These cases show the importance of disclosing financial-budgetary data and information related to the pandemic by the states, although this study does not suggest a association between state transparency of information on the pandemic and the ongoing investigations into corruption in emergency purchases and acquisitions.

Moreover, the methodological model, analyses and results presented in this study may be useful for developing longitudinal research to assess the maintenance of the behavior of variables, or future research aimed at evaluating other aspects that help understand the relationship between public transparency and COVID-19.

## Declarations

**Ethical Approval** The Authors comply with all ethical matters.

**Consent** The Author and coauthors consent to the content of this manuscript.

**Conflict of Interest** The Authors declare that they have no conflict of interest.



## References

- Alwan, N. A., et al. (2020). Evidence informing the UK's COVID-19 public health response must be transparent. *The Lancet*, 395(10229), 1036–1037.
- Amorim, P. K. (2012). Democracia e Internet: A Transparência de Gestão Nos Portais Eletrônicos Das Capitais Brasileiras (PhD Thesis, Federal University of Bahia). Available at: <https://repositorio.ufba.br/ri/bitstream/ri/7157/1/PaulaKariniDiasFerreira.pdf>
- Baldissera, J. F., et al. (2020). Influência dos aspectos socioeconômicos, financeiro-orçamentários e político-eleitorais na transparência dos governos locais. *Revista De Administração Pública*, 54, 340–359.
- Barton, C. M., et al. (2020). Call for transparency of COVID-19 models. *Science*, 368(6490), 482–483.
- Brasil (2000). *Lei Complementar nº 101, de 4 de Maio de 2000*. [http://www.planalto.gov.br/ccivil\\_03/leis/LCP/Lcp101.htm](http://www.planalto.gov.br/ccivil_03/leis/LCP/Lcp101.htm). Accessed 21 July 2020.
- Brasil (2009). *Lei Complementar nº 131, de 27 de Maio de 2009*. [http://www.planalto.gov.br/ccivil\\_03/leis/LCP/Lcp131.htm](http://www.planalto.gov.br/ccivil_03/leis/LCP/Lcp131.htm). Accessed 21 July 2020.
- Brasil (2020b). *Medida Provisória nº 928, de 23 de Março de 2020b*. <http://www.in.gov.br/en/web/dou/-/medida-provisoria-n-928-de-23-de-marco-de-2020b-249317429>. Accessed 21 July 2020.
- Brasil (2011). *Lei nº 12.527, de 18 de Novembro de 2011*. [http://www.planalto.gov.br/ccivil\\_03/\\_Ato2011-2014/2011/Lei/L12527.htm](http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2011/Lei/L12527.htm). Accessed 21 July 2020.
- Brasil (2016). *Decreto nº 8.777, de 11 de Maio de 2016*. [http://www.planalto.gov.br/ccivil\\_03/\\_Ato2015-2018/2016/Decreto/D8777.htm](http://www.planalto.gov.br/ccivil_03/_Ato2015-2018/2016/Decreto/D8777.htm). Accessed 21 July 2020.
- Brasil (2020a). *Lei nº 13.979, de 6 de Fevereiro de 2020a*. [http://www.planalto.gov.br/ccivil\\_03/\\_ato2019-2022/2020a/lei/l13979.htm](http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2020a/lei/l13979.htm). Accessed 21 July 2020.
- Carvalho, A. L. B., Rocha, E., Sampaio, R. F., & Ouverney, A. L. M. (2022). Os governos estaduais no enfrentamento da Covid-19: Um novo protagonismo no federalismo brasileiro? *Saúde Debate*, 46(spe1), 62–77. <https://doi.org/10.1590/0103-11042022E104>
- Cheng, Z. J., & Shan, J. (2020). 2019 Novel coronavirus: Where we are and what we know. *Infection*, 48(2), 155–163.
- Fonseca, I. F. D., et al. (2020). Transparência governamental e a questão do Covid-19: uma análise da suspensão dos prazos de resposta a pedidos por meio da Lei de Acesso À Informação (LAI). Nota Técnica, IPEA. Available at: [http://repositorio.ipea.gov.br/bitstream/11058/9827/1/NT\\_29\\_Diast\\_Transpar%c3%aancia%20governamental%20e%20a%20quest%c3%a3o%20do%20Covid-19.pdf](http://repositorio.ipea.gov.br/bitstream/11058/9827/1/NT_29_Diast_Transpar%c3%aancia%20governamental%20e%20a%20quest%c3%a3o%20do%20Covid-19.pdf)
- Gao, X., & Yu, J. (2020). Public governance mechanism in the prevention and control of the COVID-19: Information, decision-making and execution. *Journal of Chinese Governance*, 5(2), 178–197.
- Heald, D., & Hood, C. (2006). *Transparency: The key to better governance?* Oxford University Press.
- Henke, N., et al. (2011). Transparency: The most powerful driver of healthcare improvement. *Health International*, 11, 64–73.
- Justice, Jonathan B., McNutt, John G., Jr., Edward S. Smith (2015) Understanding and Measuring Online Fiscal Transparency. In: Manohoran, Aroon (Ed.) *E-Government and Websites: A Public Solution Handbook*. NY: M.E Sharpe
- La, V. P., et al. (2020). Policy response, social media and science journalism for the sustainability of the public health system amid the COVID-19 outbreak: The Vietnam lessons. *Sustainability*, 12(7), 2931.
- Ojiagu, N. C., Nzewi, H. N., & Archie, A. E. (2020). Accountability and transparency in nation building: A covid-19 experience in sub-Saharan Africa. *International Journal of Public Policy and Administration Research*, 7(1), 23–33.
- O'Malley, P., Rainford, J., & Thompson, A. (2009). Transparency during public health emergencies: From rhetoric to reality. *Bulletin of the World Health Organization*, 87, 614–618.
- Rahimi, F., & Abadi, A. T. B. (2020). Transparency and information sharing could help abate the COVID-19 pandemic. *Infection Control & Hospital Epidemiology*, 41(11), 1366–1367.
- Rajan, D., et al. (2020). Governance of the Covid-19 response: A call for more inclusive and transparent decision-making. *BMJ Global Health*, 5(5), e002655.
- Sol, D. A. D. (2013). The institutional, economic and social determinants of local government transparency. *Journal of Economic Policy Reform*, 16(1), 90–107.
- Sridhar, D., & Batniji, R. (2008). Misfinancing global health: A case for transparency in disbursements and decision making. *The Lancet*, 372(9644), 1185–1191.

---

Tavares, A. F., & da Cruz, N. F. (2020). Explaining the transparency of local government websites through a political market framework. *Government Information Quarterly*, 37(3), 101249.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.