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Government actions against the new coronavirus: evidence from the Brazilian states

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Since the declaration of the global pandemic due to the new coronavirus (Sars-CoV-2) by the World Health Organization (WHO), on March 11, 2020, several measures have been taken by governments around the world regarding social distancing. In Brazil, state governments took the lead in decreeing measures to close schools, suspend public events, and restrict businesses. This article aims to analyze the differences between the Brazilian state governments regarding implementing non-pharmaceutical interventions (NPIs) to combat the coronavirus, based on the calculation of a government action index. Analysis of 367 decrees of 25 state executives was conducted in the first two months of the pandemic in the country. The preliminary results of this analysis suggest different levels of rigor in measures to confront COVID-19 by Brazilian governments. Some states stood out for their proactive adoption of stricter social distancing policies, even before confirming the first case of the disease.
Keywords: COVID-19; coronavirus; federalism; social distancing.

Ações governamentais contra o novo coronavírus: evidências dos estados brasileiros

Desde a declaração do estado pandêmico global em decorrência do novo coronavírus (Sars-CoV-2) pela Organização Mundial de Saúde (OMS), em 11 de março de 2020, diversas têm sido as medidas tomadas por governos ao redor do mundo em relação ao distanciamento social. No caso brasileiro, os governos estaduais anteciparam-se com a decretação de medidas de fechamento de escolas, suspensão de eventos públicos e restrição do comércio. O objetivo deste *paper* é analisar as diferenças entre os governos estaduais do Brasil relativamente à implementação de intervenções não farmacêuticas (NPIs) para o enfrentamento ao coronavírus, com base no cálculo de um índice de ação governamental. Tendo em vista a consecução deste objetivo geral, foram analisados 367 decretos de 25 executivos estaduais brasileiros nos dois primeiros meses da pandemia no país (final de fevereiro e final de abril). Os resultados preliminares desta análise sugerem diferentes níveis de rigor das medidas para o enfrentamento à COVID-19 por parte dos governos estaduais brasileiros, destacando-se a adoção proativa de políticas mais rigorosas de distanciamento social por alguns estados, antes mesmo da confirmação do primeiro caso da doença em seus domínios.
Palavras-chave: COVID-19; coronavírus; Brasil; federalismo; distanciamento social.

Acciones gubernamentales contra el nuevo coronavirus: evidencia de los estados brasileños

Desde la declaración del estado pandémico mundial por el nuevo coronavirus (Sars-CoV-2) por parte de la Organización Mundial de la Salud (OMS), el 11 de marzo de 2020, los gobiernos de todo el mundo han tomado diversas medidas con respecto al distanciamiento social. En el caso brasileño, los gobiernos estatales tomaron la iniciativa de decretar el cierre de escuelas, la suspención de eventos públicos y la restricción del comercio. El propósito de este artículo es analizar las diferencias entre los gobiernos estatales brasileños en lo que respecta a la implementación de intervenciones no farmacéuticas (NPI) para combatir el coronavirus, en base al cálculo de un índice de acción gubernamental. Se analizaron 367 decretos de 25 ejecutivos estatales en los primeros dos meses de pandemia en el país. Los resultados preliminares de este análisis sugieren diferentes niveles de rigor en las medidas para enfrentar la COVID-19 por parte de los gobiernos estatales brasileños. Hay estados que se destacaron por su adopción proactiva de políticas de distanciamiento social más estrictas, incluso antes de la confirmación del primer caso de la enfermedad.
Palabras clave: COVID-19; coronavirus; Brasil; federalismo; distanciamiento social.

1. INTRODUCTION

On March 11, 2020, the World Health Organization (WHO) declared the new coronavirus (Sars-CoV-2) as a global pandemic. The virus, which had its initial epicenter in Hubei province, China, in December 2019. To date, June 24, 2020, the world accounts for more than 9 million infected people and about 500 thousand deaths (Retrieved from https://covid19.who.int). In Brazil, at the end of June, there were more than one million confirmed cases and almost 60 thousand deaths, occupying the second place in the global ranking, second only to the United States, which, in an earlier stage of the pandemic, surpassed the mark of 2.3 million infected and more than 120 thousand deaths.

The lack of a vaccine against COVID-19 so far has encouraged the adoption of non-pharmaceutical interventions (NPIs) – that can be understood as strategies to control diseases, injuries and exposure –, such as: social isolation, closing non-essential services, quarantine and lockdown (Jernigan, 2020; Qualls, Levitt, & Kanade, 2017). As demonstrated in several studies (Ferguson et al., 2005; Ishola & Phin, 2011; Markel, Lipman, & Navarro, 2007), NPIs are effective measures for both reducing the number of contagions, preserving national health systems, decrease in the rate of lives lost, as well as for the economic recovery after controlling the disease (Barro, Ursúa, & Weng, 2020; Correia, Luck, & Verner, 2020).

The main purpose of containment measures commonly recognized as "old fashioned", as they do not require state-of-the-art technological resources, is to prevent the spread of disease from person to person, by separating individuals to stop transmission (Wilder-Smith & Freedman, 2020). However, putting this more traditional prescription into practice is not easy and raises some questions: what criteria should be used to consider a particular service as essential? In general, the common answer is that we need health and safety workers as well as essential public services. However, we need certain services to keep these people in office[1] (Mortimer, 2020). Thus, the definition of essential services is relative and depends on more or less objective criteria, derived from this common response or "consensus", and also from subjective criteria, which can be influenced, for example, from political, ideological and cultural perspectives.

The political response to the pandemic varied according to the institutional design, the autonomy of the political actors involved, and even according to the effective belief in the lethality of the virus. In recent months, according to the literature dedicated to the analysis of the effects of COVID-19, it is said, for example, that American federalism allowed for more fragmented responses when compared to centralized systems of government (Weible et al., 2020). Until the beginning of March, the central government of the United States had not declared a state of national emergency, and after the declaration, on March 13, the Trump administration focused on economic measures to try to alleviate the effects of the pandemic and guidelines to keep schools and communities safe. Governors and mayors, in turn, acted more forcefully in the development of policies based on NPIs (Cockerham & Crew, 2020).

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[1] Gary Mortimer (2020) uses the military expression tooth-to-tail ratio (T3R) – number of military personnel needed to supply and support each combat soldier – to exemplify the dilemma about essential services.

In Brazil, it was the state governors, and also the mayors, who anticipated the issuance of decrees and propositions of laws establishing NPIs[2]. This fact can be explained by at least two factors: on the one hand, the reaction of the President of the Republic minimizing or even denying the seriousness of the pandemic (Retrieved from https://www.dw.com/pt-br/em-pronunciamento-bolsonaro-minimiza-novo-coronav%C3%ADrus/a-52906298), and on the other, the strong federalism of the country that allows heads of executive at the state level to control the political agenda (Abrucio, 1998; Abrucio & Samuels, 2000; Santos, 2001; Souza, 1999). However, due to significant economic discrepancies, the ability to propose and execute robust public policies is linked to effective action by the federal executive.

The general objective of this work is to analyze the differences between Brazilian states in relation to the implementation of NPIs for coping with coronavirus, based on the calculation of a government action index. The measures that lead to the complete closure of establishments and the radical shutdown of activities were considered strict. Under this reasoning, the least stringent measures are those less extreme in relation to the closing of establishments, allowing, for example, its operation with reduced hours.

In order to achieve the general objective of this work, firstly, an index of actions related to the adoption of NPIs (Barberia et al., 2020; Hale et al., 2020; Markel et al., 2007) by state governments, which allowed the formulation of two specific objects: 1) identify the profiles of states with respect to the speed and rigor of NPIs, and 2) find out if states are more economically dependent on the federal executive, with fewer ICU beds in the Unified Health System (SUS), and lower levels of GDP per capita adopted restrictive measures more quickly and more rigorously. The decrees of 25 state executives regarding measures to combat the pandemic were analyzed, published in an official diary between February 26 and April 26, 2020, making up an empirical universe composed of 367 decrees dealing with NPIs.

The work is organized in four parts, in addition to this introduction. First, the literature on federalism in Brazil and its relationship with the case of COVID-19 is briefly presented. Then, the research design is exposed. Following, the initial results and final considerations are presented. This research is ongoing, so that some findings will be explored later.

2. BRAZILIAN FEDERALISM AND THE ANSWERS TO COVID-19

The process of democratization and decentralization of political power in Brazil, started in the 1980s, having acquired more precise contours with the promulgation of the 1988 Federal Constitution, increased the importance of subnational governments. Local authorities have become the main state reference for citizens, since most social policies and elementary functions of the State, such as education and health, was left to the states or municipalities. Among the various challenges evidenced in the modernization process of the Brazilian public administration, one in particular has been recurrent, the articulation between federative entities: in actions between state governments, which would contribute to learning and mutual assistance; and the federal government with subnational units, which would assist in the coordination of reform actions, obviously respecting the federative autonomy acquired with the Constitution (Abrucio, 2005; Conti, 2004).

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[2] The Brazilian Association of Political Science (ABCP), published on June 8, a special section on its website called "State governments and actions to combat the pandemic in Brazil", with analysis of the actions organized by the country's regions (Retrieved from https://cienciapolitica.org.br/noticias/2020/06/especial-abcp-governos-estaduais-e-acoes-enfrentamento).

Socioeconomic inequalities between regions and states in Brazil result in different administrative capacities. In most federations, less developed states are more likely to receive help from the federal government and at the same time, to establish agreements with other states, fearing greater federal centralization in face of the autonomy of subnational governments (Zimmerman, 1992).

The transfer of constitutional and voluntary resources from the federal government to subnational units is of fundamental importance for them to implement their projects and policies. The scarcity of national instruments for regional development policies contributed to the transfer of the Union to states and municipalities to play an important role in the economic dynamics in certain regions of Brazil, constituting, in several cases, the main source of resources of the subnational unit (Lima & Ramos, 2010). At the state level, the State and Federal District Participation Fund (FPE) constitutes a fundamental constitutional provision for transfers from the Union, because it aims to alleviate regional inequalities and promote socioeconomic balance between states. In 2019[3], 52.13% of the total resources went to the Northeast, 25.65% to the North, 8.75% to the Southeast, 7.16% to the Midwest, and 6.32% to the South.

According to constitutional dictates, health care is a common competence of the Union, states, Federal District and municipalities. Which means that such federal entities can and should act on the matter (Article 23, item II, of the Federal Constitution[4]), for example, through the publication of decrees establishing health protection measures. Recalling that state and municipal decrees are not exactly laws, since they are not drafted and/or voted on by the respective legislative powers (City Council and Legislative Assembly), City Council and Legislative Assembly but are normative acts, that is, "laws" in the broadest sense, as they innovate in the municipal or state legal system. Decrees, therefore, are an atypical exercise of Executive Power.

However, health protection and defense are also competing competences of the Union, states and the Federal District (in this regard, the municipalities are left out), which means to say that such entities of the federation can legislate about the protection and defense of health, provided that hierarchies between entities are respected, that is, state legislative measures – whether in the form of decrees or laws themselves – must be in harmony with the federal (Article 24, item XII, Federal Constitution[5]). Otherwise, in order to follow the parameters of the political charter, it is necessary to adapt the states to the Union's measures. Regarding actions to confront COVID-19, in practice, in face of the Union's inaction, the Federal Supreme Court (STF) decided that the states define the essential services, regarding the application of NPIs, which will be explained later.

Still regarding the competences of the Union and the states, the constitutional text states that the Union hold the responsibility to "[...] plan and promote permanent defense against public calamities"[6], as is the case with the new coronavirus pandemic. The states, in turn, "[...]are reserved [...] competences that are not prohibited by this Constitution"[7], having such entities, therefore, a great

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[3] According to data available on the National Treasury website, the total FPE resources in 2019 were BRL 77.9 billion (Retrieved from http://tesouro.gov.br/).

[4] Constitutional text: "Art.23 It is the common competence of the Union, the States, the Federal District and the Municipalities: (...) II – take care of public health and assistance, protection and guarantee of people with disabilities".

[5] "Art. 24. It is up to the Union, the States and the Federal District to legislate concurrently on: [...] XII - social security, health protection and defense".

[6] Article 21, item XVIII of the Constitution: "It is up to the Union: (...) XVIII – plan and promote defense against public calamities, especially droughts and floods".

[7] Article 25, *caput*, and first paragraph of the Constitution: "States are organized and governed by the constitutions and laws they adopt, subject to the principles of this constitution. § 1º The powers reserved to States that are not prohibited by this Constitution".

margin of independence and action, a key characteristic of federative models of State organization. This complex relationship between the states and the Union has been strained in the context of confronting COVID-19. The edition of the Provisional Measure (PM) nº 926, March 20, 2020, which "[...]provides for measures to deal with the public health emergency of international importance due to the coronavirus" determines, among other aspects, that it is up to the Union to define essential services and activities. This PM was questioned for violating the principle of autonomy of federated entities. Caused by a Direct Action of Unconstitutionality (DAU), presented by the Democratic Labor Party (DLP), the STF unanimously decided which states would be competent to act on the definition of protocols to combat the pandemic, provided that guided by technical and scientific criteria. The result of this dispute is the variation in responses and action protocols presented by the states.

3. RESEARCH DESIGN

The Brazilian federal government decreed a state of emergency, given the severity of the new coronavirus, on February 4, 2020 (Law nº 13.979). The first officially registered virus infection case was confirmed on February 25. Since then, the disease has been evolving rapidly across the country, threatening to collapse public health systems in states like Amazonas, Pará, Rio de Janeiro and São Paulo. As shown in Graph 1, until June 24, 2020, Brazil had more than 1 million and 300 thousand confirmed cases of COVID-19 and almost 60 thousand deaths. However, it is worth considering that there are reasons to suspect that the real rate of confirmed cases and deaths may be higher than those provided by government entities, especially due to the limited number of tests available in each state (Li et al., 2020).

GRAPH 1   CONFIRMED CASES OF COVID-19 AND NUMBER OF DEATHS IN BRAZIL
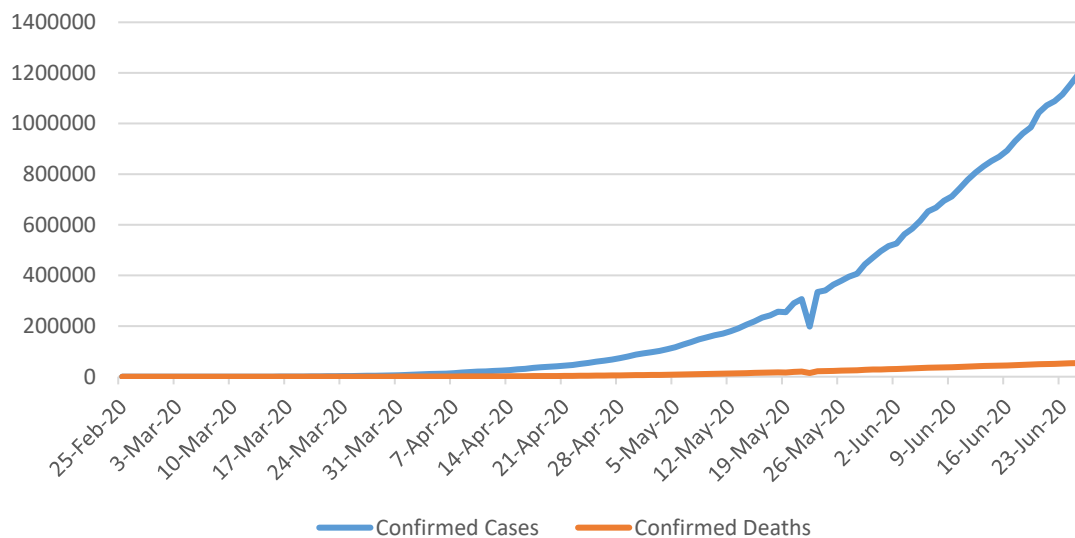
Source: State Health Secretariats (based on Justen, 2020).

The analysis of research documents from Task Force Rio Doce 263 (COVID-19). This work focuses on the analysis of executive decrees of 25 states and not of the 27 existing ones, since in Bahia and Minas Gerais the measures were not taken by decree, as explained later. The adoption of this legal-administrative instrument by the governments is justified by the fact that the decrees do not necessarily pass, by the Legislative Power – in the case of state governments, by the Legislative Assemblies –, which speeds up its deliberation and application, a necessary condition in a pandemic moment.

As the objective of this work is to analyze the initial responses of the governors regarding the implementation of NPIs to fight the coronavirus, the time frame was limited to the two-month period between 26 February and 26 April. During this period, 367 decrees dealing with NPIs were issued by the 25 state governors. However, the states of Bahia and Minas Gerais have adopted different procedures: in the first state, the state government made it possible for municipalities to take measures such as closing trade; and in the second, it was created, on March 15, the COVID-19 Health Prevention and Contingency Plan Steering Committee, which was responsible for defining measures to prevent and combat the spread of the disease. Such Committee issues normative/decision-making administrative acts formulated by collegiate decisions, but these instruments are not strictly decrees of the state executive, and, for having different legal nature and formulation, were, for now, excluded from the research. We collected data from official journals and official websites of state governments.

Based on the work by Markel et al. (2007) and Hale et al. (2020), we elaborated an index of the actions of the state governments concerning the NPIs, similar to that exposed by Barberia et al. (2020). Markel et al. (2007) analyze social isolation measures in 43 cities in the United States during the Spanish flu period (1918-1919). The authors consider the closure of schools, the adoption of mandatory quarantine and the ban on public events as measures of social isolation that have had an impact on reducing the number of deaths from the influenza virus. These three measures are analyzed according to the time they were in effect and the speed with which they were taken, in order to consider its possible effects.

Hale et al. (2020), under analysis on national government measures in relation to Sars-CoV-2, build an index related to the rigor of government actions with nine variables. In the calculation we have: (1) the closing of schools; (2) closing of non-essential trade; (3) cancellation of public events; (4) ban on agglomerations; (5) closure of public transport; (6) restriction on leaving home; (7) restrictions on travel within the country; (8) the closure of borders for citizens of other countries; and (9) provision of public population awareness campaigns. Each measure is analyzed on two scales: (a) between no action is taken > the government recommends actions to citizens and > the government demands the actions; (b) the actions have specific focuses or > are widespread. The accuracy index is calculated by adding and dividing the values of each measure taken and its scope over time.

As the central objective of this paper – analyze the responses of state governments, issued in decrees, during the initial stage of the pandemic in Brazil – three dimensions of analysis are considered: speed, type and scope of actions. Speed refers to the time between the date of the first confirmed case of the new coronavirus and the date of the first state decree dealing with NPIs. The type of action refers to the set of measures composed of: (1) closure of state schools; (2) closure non-essential trade; (3) restriction and/or prohibition of public events; (4) temporary suspension of payment of electricity and water bills; (5) provision of school lunches for students in the state public school system; and (6) permission for state tax arrears. The first three variables directly operationalize the movement of people and social isolation; the last three are economic measures to reinforce isolation, given that

they reduce the expenses of individuals and legal entities. Finally, the scope of the action refers to the direction of the measure: whether restricted or generalized. Table 1 shows the operationalization of the variables in detail.

TABLE 1   **VARIABLES AND OPERATIONALIZATION**

Dimension	ID	Measure Type	Value	Scope Value	Speed
Closure	F1	Closure of state schools	0 – No measure 1 – Recommended 2 - Required	0 – No measure 1 – Specific 2 – General	Number of days between taking the measure and the first confirmed case in the state.
	F2	Closure of non-essential trade	0 – No measure 1 – Recommended 2 - Required	0 – No measure 1 – Specific 2 – General	Number of days between taking the measure and the first confirmed case in the state.
	F3	Restriction of public events	0 – No measure 1 – Recommended 2 - Required	0 – No measure 1 – Specific 2 – General	Number of days between taking the measure and the first confirmed case in the state.
Economics	E1	Suspension of electricity and water bills	0 – No measure 1 – Accomplished	0 – No measure 1 – Specific 2 – General	
	E2	School lunch	0 – No measure 1 – Accomplished	0 – No measure 1 – Specific 2 – General	
	E3	Late payment of state taxes	0 – No measure 1 – Accomplished	0 – No measure 1 – Specific 2 – General	

Source: Elaborated by the authors.

When calculating the index, the values of the types and scopes of the measures are considered, ranging from 0 to 100, as in the example of Table 2 (Hale et al., 2020). In this hypothetical case, the average index of closing measures is 75.00 and that of economic measures is 22.23, which makes it possible to infer an overall average of 48.6. We performed this calculation for all the decrees analyzed, considering that the values of the relaxation or intensification measures change over time. We follow the model of Barberia et al. (2020), considering the days as instances of the database. In this way, it is possible to observe the variation of the measures over time starting from a common point.

TABLE 2   HYPOTHETICAL CASE FOR CALCULATING THE INDEX

Variable	Value Type	Scope Value	Achieved Value	Maximum value	Index
F1	1	1	2	4	50.00
F2	2	2	4	4	100.00
F3	2	1	3	4	75.00
				Mean	75.00
E1	0	0	0	3	0.00
E2	1	1	2	3	66.67
E3	0	0	0	3	0.00
				Mean	22.23

Source: Elaborated by the authors based on Hale et al. (2020).

The presentation of the research design follows the analysis of the results.

4. PRELIMINARY RESULTS

Given the general analysis of the action indices of the state governments, Graph 2 shows the variation of the measures over time. On March 22, when Brazil registered 1584 confirmed coronavirus cases and 63 deaths accumulated since the beginning of the pandemic, the average government action index with regard to restricting the movement of people, edited on the same day or maintained in previous days, was 100 points. Since that day, the index values have remained above 90 points, which demonstrates the homogeneous behavior of the analyzed states. Regarding economic measures, the variation in the index was greater over the period analyzed, reaching a "peak" at the end of April.

GRAPH 2   STATE GOVERNMENT ACTION INDICES
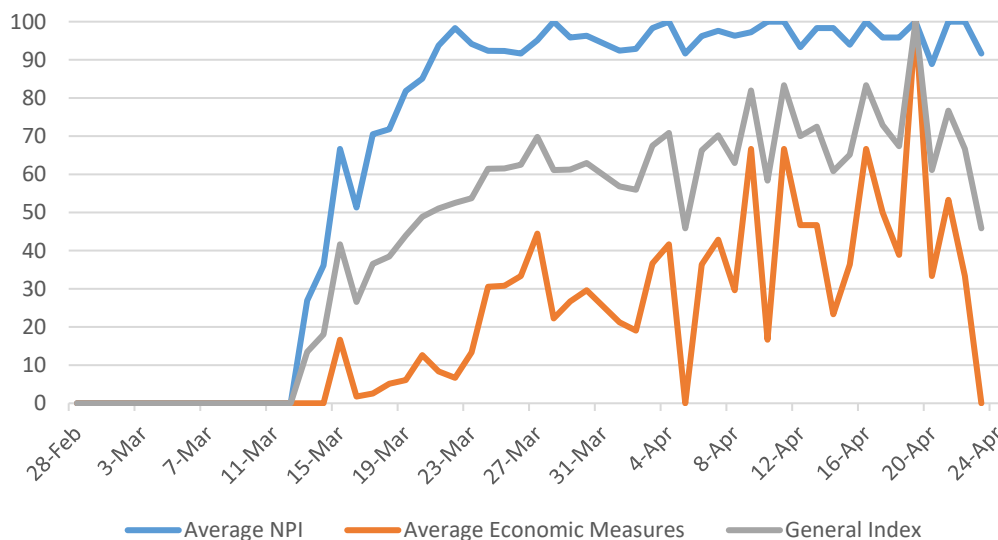
Source: Elaborated by the authors.

Governors' decision-making processes via decrees, however, varied in length and speed. In Graph 3, it is possible to observe that in ten states (all located in the North and Northeast regions), the chief executive demanded that schools be closed before confirmation of the first case of the disease in their state, or concomitantly. The states of São Paulo and Espírito Santo took more than ten days to implement this measure. It is important to explain the cases of Acre, Ceará and Rondônia in Graph 3: the three states decided to close the schools on the same day as the confirmation of the first case of COVID-19, and this is the reason why the variation is equal to zero[8].

GRAPH 3   DIFFERENCE IN NUMBER OF DAYS BETWEEN FIRST CASE AND CLOSURE OF SCHOOLS
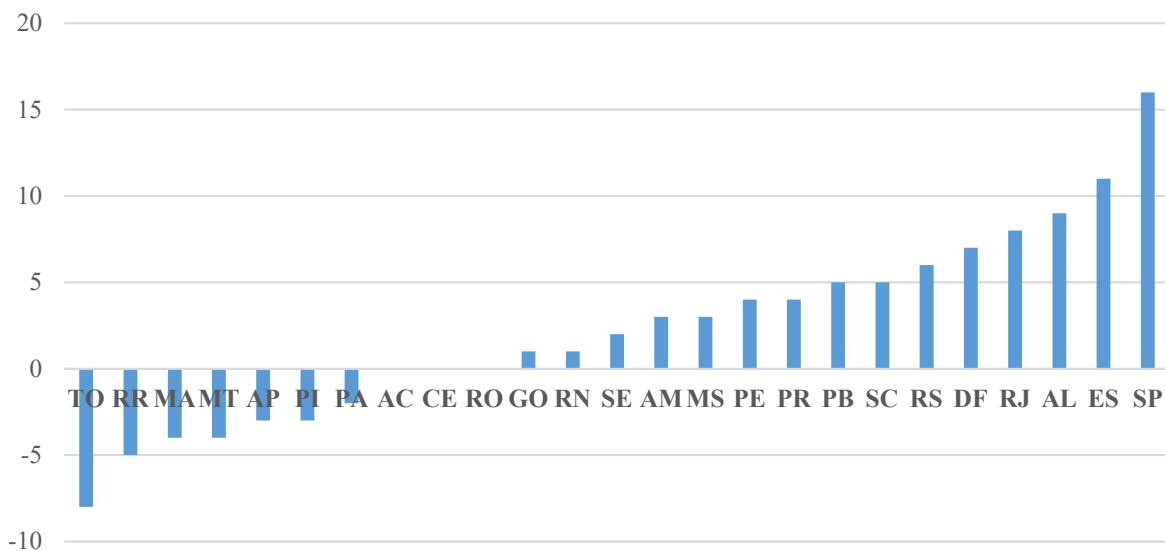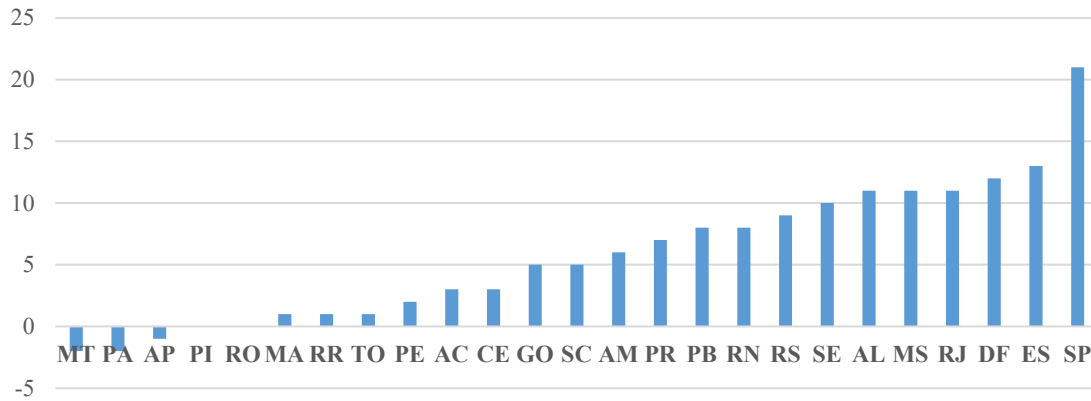

Source: Elaborated by the authors.

As regards the closure of non-essential trade (Graph 4), practically the same states in the North and Northeast regions also took the first initiatives to close this area of activity (all with a period of less than ten days in relation to the first case). However, it should be noted that, unlike the closure of state schools, the restriction on opening up trade took longer to be implemented in all states, having been the measure criticized by the president of the Republic several times.

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[8] The same interpretative logic applies to the states of Piauí and Rondônia in Graph 4, and Acre, Ceará and Rondônia in Graph 5.

GRAPH 4   DIFFERENCE IN NUMBER OF DAYS BETWEEN THE FIRST CASE AND THE CLOSURE OF TRADE

Source: Elaborated by the authors.

In Graph 5, it is possible to observe the number of days between the first confirmed case of the disease and the suspension of public events. We note again, that the ten states in the North and Northeast regions that first decided to close schools (Graph 3) also anticipated the suspension of these events (these governors made the decision before confirming the first case of the disease or concomitantly with the diagnosis).

GRAPH 5   DIFFERENCE IN NUMBER OF DAYS BETWEEN THE FIRST CASE AND THE SUSPENSION OF PUBLIC EVENTS
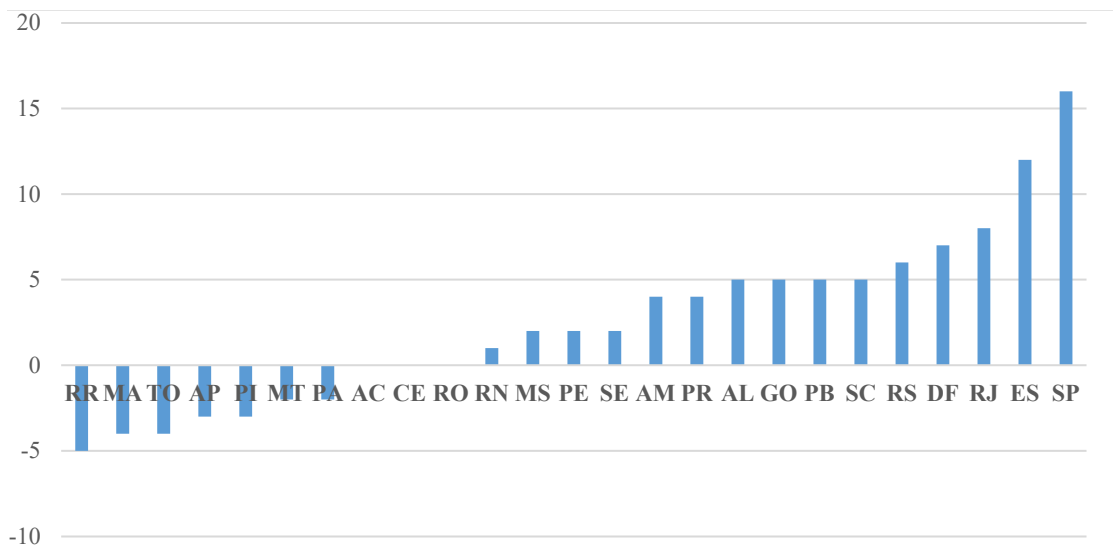
Source: Elaborated by the authors.

Observing the growth in the number of deaths and the intensity of the NPI measures (F1, F2 and F3) Graph 6 shows that, at the aggregate level, from mid-March onwards, Brazilian states maintained values of almost 100% of the isolation index. The rigor of the measures, from this period, was the rule in practically all states, as highlighted by Barberia et al. (2020). The correlation between the number of confirmed deaths and the average government action index was r² = 0.836, significant at the level of 5%. In the following months, with the increase in the contamination and death curve by COVID-19, it is necessary to equate the index of measures by the states with the various pressures suffered, especially the pressure for the reopening of trade.

GRAPH 6   NUMBER OF DEATHS AND NPI MEASURES
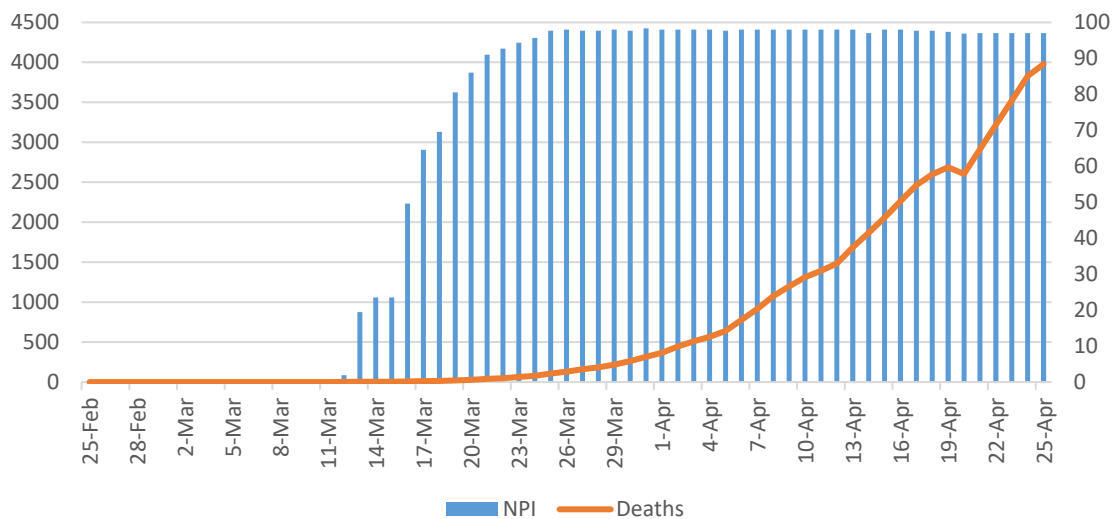
Source: Elaborated by the authors.

The surveyed indexes indicate differences in government actions according to their political and structural conditions. In this sense, the rigor and speed of the actions vary according to: (1) political support for President Jair Bolsonaro by the state; (2) the proportion of ICU beds in SUS; (3) GDP per capita (IBGE, 2020) ; and (4) the transfers received by the states via FPE. The first variable leads to the indication of the possible political influence of the federal government in the state in question, due to the vote in the then candidate by PSL in the second round of the 2018 presidential election (TSE, s.d.). As pointed out by Ajzenman, Cavalcanti, and Mata (2020), social isolation measures tend to be less adopted in cities where Bolsonaro had the most votes in 2018, which is demonstrated by the low rate of adoption of NPIs by the state governments that supported the candidacy of the current President of the Republic.

The second, third and fourth variables considered refer to the structural conditions of the state: first, the number of ICU beds in the SUS (Brazilian Intensive Care Association [AMIB], 2017). It is assumed that the governors of states with fewer available beds have acted faster and more rigorously

with regard to NPIs. Second, GDP per capita, as a measure of the wealth produced in the state, can be an indicator of the type of action of state governments; thus, it is assumed that it changes in the same direction as the previous variable. Finally, the value of the FPE is also a proxy for the economic condition of the state, since it is about transferring money from the Union to the states, whose objective is to equalize the financial capacity of those who have less capacity to collect taxes with those who have more intense economic activity and therefore, greater possibility of obtaining revenue. Therefore, this fund is distributed unevenly among the states, so that the least developed states receive the largest amounts. According to the above, it should be noted that FPE represents, for most of these states, the main source of funds. It is presumed, therefore, that these states acted more quickly and more rigorously with regard to NPIs, and the more developed states have acted in the opposite way, since the fund has little influence on their accounts.

TABLE 3   PEARSON'S CORRELATION TEST

	NPI stiffness	NPI speed	Votes Bolsonaro second round	SUS beds	GDP per capita
Votes Bolsonaro second round	-0.327	0.327	1.000		
SUS beds	-0.402*	0.345	0.247	1.000	
GDP per capita	-0.649**	0.572**	0.621**	0.381	1.000
FPE	0.596**	-0.582**	-0.810**	-0.520**	-0.725**

** The correlation is significant at the 0.01 level (bilateral). * The correlation is significant at the 0.05 level (bilateral).
**Source:** Authors' own elaboration.

Table 3 shows the Pearson's correlation data between the selected variables. The values refer to the 25 states analyzed, considering the average of the governmental rigor index and the speed with which the measures were taken during the two months in which the information was collected. The test does not aim to infer causality, but to observe the relationship between the variables. In this case, it is possible to conclude that the average government action index is, in a statistically significant way, associated with: (a) lower proportion of SUS beds, which indicates that the governors of the states whose public health networks are more precarious took tougher NPI measures at the start of the pandemic; (b) lower GDP per capita; and (c) biggest transfers from FPE. Therefore, the rigor and speed in taking measures seem to be associated with the structural conditions of the states: governors of states with lower GDP per capita and greater access to FPE resources have taken action in advance.

Two aspects highlighted would deserve specific studies in themselves. However, given the scope of the present research, it is limited to observe that, preliminarily, on the one hand, the data show that governors from poorer states and more dependent on the federal government acted faster and more strictly when observing executive decrees. On the other hand, it is noted that support for Bolsonaro, expressed by the vote for the then candidate in the second round, is not statistically significant in the relationship between speed or rigidity in adopting NPIs. In view of a possible development of

the current research, hypothetically, these two aspects denote a "mismatch" between the observable behavior of supporters of the president – such as the social isolation indices treated by Ajzenman, Cavalcanti, & Mata (2020) – and the political elites who supported him in the 2018 election.

Preliminary data from the current survey indicate two groups of states with respect to the speed and rigor of NPI measures: (1) those with faster and more rigorous measures and (2) those with less rapid and less stringent measures. These groups were formed based on the analysis of clusters (Figure 1), an effective device for creating groups with maximum internal similarity and maximum external differentiation (Figueiredo et al., 2014).

FIGURE 1   CLUSTER ANALYSIS
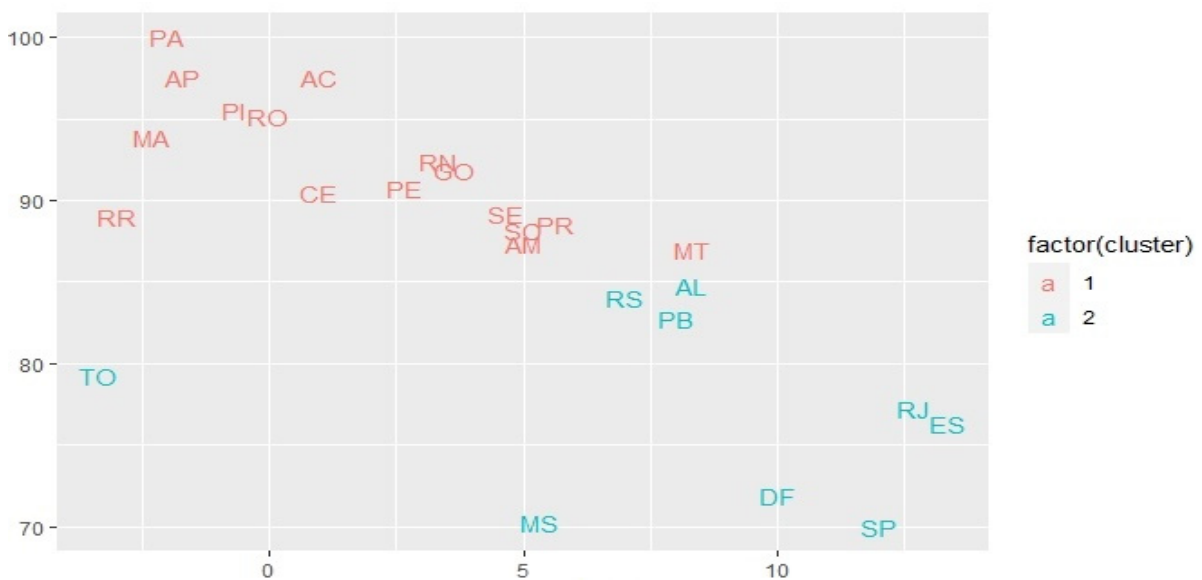
Source: Elaborated by the authors.

Considering the data analyzed in the first two months of the pandemic in Brazil, the first group has 16 states: Pará, Acre, Amapá, Piauí, Rondônia, Maranhão, Roraima, Ceará, Pernambuco, Rio Grande do Norte, Goiás, Sergipe, Paraná, Mato Grosso, Amazonas, Santa Catarina; and the second group, nine states: Tocantins, Mato Grosso do Sul, Paraíba, Rio Grande do Sul, Alagoas, São Paulo, Rio de Janeiro, Distrito Federal and Espírito Santo. Note that most states in the first group, with faster and more restrictive measures, belongs to the North and Northeast regions, states with more precarious public health structures, lower GDP per capita and greater transfers from FPE.

5. FINAL CONSIDERATIONS

The objective of this work was to analyze the differences between Brazilian states in relation to the implementation of non-pharmaceutical interventions (NPIs) for coping with coronavirus, based on the calculation of a government action index. This is an initial effort to provide a comparable measure of social distancing policies adopted by Brazilian state governments and to contribute to the understanding of their actions in an attempt to reduce the rates of transmission of coronavirus and deaths from the pandemic, in the context of federalism.

367 decrees of 25 state executives were analyzed in the first two months of the pandemic in the country. We found that most of the governors of the states belonging to the North and Northeast regions decided more quickly to close schools, to restrict trade and to suspend public events. Such regulations sometimes occurred even before the confirmation of the first case of the disease in the state. However, the rigor of the measures, even in mid-March, was the rule in practically all states (the correlation between the number of confirmed deaths and the average government action index was $r^2 = 0.836$). When aggregating socioeconomic and public health structure variables, it was observed that the states with the lowest GDP per capita, fewer ICU beds in the SUS, and more dependent on Union resources (measured through FPE) were faster and more rigorous in adopting NPI measures.

In the next steps, we intend to update the data of this research, of a preliminary character, as well as reevaluating the states' position in the face of the rise in the contamination and death curve by COVID-19, and pressure from interest groups. In this sense, the indicator built may change, depending on the dynamics of the response to the pandemic, with the incorporation of other variables to the socioeconomic, political and institutional dimensions.

The use of decrees as an object of analysis consists, on the one hand, in an important support to map the positioning of political actors in unprecedented critical moments, such as the current one. On the other hand, the fragility of such a document mainly affects two aspects: first, because the decrees do not represent a reliable expression of political practice, that is, they can only consist of a letter of intent without practical consequences; second, because decrees are almost always ambiguous instruments to be analyzed quantitatively, since they presuppose the construction of analytical categories and the interpretation of their contents. However, it was the universe available for the analysis of the theme: government actions in the context of an ongoing global pandemic.

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