

State capacity and performance from the perception of Brazilian bureaucrats: development and validation of a structural equation model

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Abstract

The study specified and validated a model derived from theoretical approaches in the literature to measure state capacities. Survey data were analyzed using structural equation modeling (SEM). The findings indicate that bureaucracy's Weberian features are still a valuable reference for state capacity studies since bureaucrats' professionalization and skills presented a positive and statistically significant effect on the state's perceived performance. Concerning bureaucratic autonomy, the findings indicate that its effect on state performance is indirect, mediated by professionalization. Unlike theoretical predictions, we found no significant direct effects of bureaucracy relationships with non-state actors and of organizational resources for state performance. The article contributes to the literature by using data obtained directly from bureaucrats, developing and validating a replicable model that relates the different dimensions of the concept, and using SEM to estimate the effects of each of the concept's dimensions of state capacity on the outcomes of State action.

Keywords: Bureaucracy. Autonomy. State capacity. Structural equation modeling. State performance.

Capacidade estatal e desempenho na percepção dos burocratas brasileiros: desenvolvimento e validação de um modelo de equações estruturais

Resumo

Este artigo especifica e valida um modelo derivado de abordagens teóricas na literatura para mensurar as capacidades do Estado, especificamente do governo federal brasileiro. Dados coletados por Survey foram analisados usando a técnica de modelagem de equações estruturais (MEE). Os achados indicam que as características weberianas da burocracia ainda são uma referência útil para estudos sobre a capacidade estatal, uma vez que o nível de profissionalização e de habilidades dos burocratas apresentaram efeito positivo e estatisticamente significativo sobre o desempenho percebido do Estado. No que diz respeito à autonomia burocrática, os achados indicam que seu efeito no desempenho do Estado é indireto, mediado pela profissionalização. Ao contrário das previsões teóricas, não encontramos efeitos diretos significativos entre os relacionamentos da burocracia com atores não estatais e desempenho do Estado nem entre este e a dotação de recursos organizacionais. O artigo contribui para a literatura ao utilizar dados obtidos diretamente dos burocratas, ao desenvolver e validar um modelo replicável que relaciona as diferentes dimensões do conceito de capacidades estatais e ao utilizar a MEE para estimar os efeitos das dimensões do conceito sobre os resultados da ação estatal.

Palavras-chave: Burocracia. Autonomia. Capacidade estatal. Modelagem de equações estruturais. Desempenho do Estado.

Capacidad estatal y desempeño en la percepción de los burócratas brasileños: desarrollo y validación de un modelo de ecuaciones estructurales

Resumen

Este artículo especifica y valida un modelo derivado de enfoques teóricos en la literatura para medir la capacidad estatal, específicamente del Gobierno Federal brasileño. Se analizaron los datos recopilados mediante encuestas utilizando la técnica de modelado de ecuaciones estructurales (MEE). Los resultados indican que los criterios weberianos de burocracia siguen siendo una referencia útil para los estudios sobre la capacidad del Estado, ya que la profesionalización, las habilidades y la autonomía individual de los burócratas tienen un efecto positivo y estadísticamente significativo sobre el desempeño percibido del Estado. Sin embargo, a diferencia de las predicciones teóricas, no encontramos efectos directos significativos de las relaciones de la burocracia con los actores no estatales, así como de los recursos organizacionales para el desempeño percibido de los Estados. El artículo contribuye a la literatura al desarrollar y validar un modelo replicable que relaciona y mide diferentes dimensiones del concepto de capacidad estatal y también al utilizar la técnica MEE para estimar los efectos de cada una de las dimensiones del concepto sobre los resultados de la acción estatal.

Palabras clave: Burocracia. Autonomía. Capacidad estatal. Modelo de ecuaciones estructurales. Desempeño del Estado.

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INTRODUCTION

The resurgence of interest in state capacity in the political science and public policy literature recognizes its analytical importance in understanding the state operation and explaining various policy results. Thus, we can observe efforts to define, operationalize and measure the concept (Cingolani, 2018; Hanson & Sigman, 2019; Savoia & Sen, 2012). Recent publications, such as Centeno, Kohli and Yashar (2017), discuss the concept of state capacity at the center of the theoretical debate from the perspective of development and operation of the current government. We have also observed efforts by authors in administration and public policy (Wu, Ramesh & Howlett, 2015) and political science fields (Fukuyama, 2013) in operationalizing and measuring the concept. Such developments were in addition to the seminal elaborations of the historic neoinstitutionalists (Evans, 1995) when they explained the effectiveness of the structural transformation policies implemented by the East Asian developmental states.

In Brazil, the published works point to the status of the concept in the debate about the country's public administration. Research projects coordinated by Gomide and Boschi (2016) used the concept to analyze the state's role in socio-economic development. Similarly, Pires and Gomide (2016) assessed the effect of institutional arrangements on state capacities and policy outcomes, while Bersh, Praça and Taylor (2017) used the concept to analyze the federal bureaucracy's effect on agencies politicization and corruption. At the subnational level, we can mention the works of Marengo, Strohschoen and Joner (2017), which examine to what extent municipalities with professionalized bureaucracies were more efficient to take advantage of political and administrative authority to tax and implementing policies. Grin, Nascimento, Abrucio and Fernandes (2018) also analyze the relationship between public management and municipal fiscal performance considering four dimensions of local capacities: administrative, technical, institutional, and political. Still, at the subnational level, Satyro and Cunha (2018) assessed the capacity of the federal government to build a bureaucracy for social assistance policy in Brazilian municipalities.

Since it is an unobservable and multidimensional concept, authors such as Souza and Fontanelli (2020) and Gomide, Machado and Pereira (2019) discussed the importance of its decomposition into attributes and indicators to measure them. In a groundbreaking work in Brazil, Souza (2016) calculated a Brazilian bureaucracy quality index (BQI) in the federal government agencies responsible for the following areas of public policy: environment, infrastructure, innovation, and industrial.

This study aims to develop a model for measuring state capacities in the Brazilian federal government informed by different theoretical approaches and to verify it empirically based on data obtained directly from bureaucrats through a survey. We apply structural equation modeling (SEM), a multivariate data analysis technique, to test the theories and the relationships between observable and latent (unobserved) variables. Based on the evidence, we attempt to evaluate the empirical validity of different theoretical approaches, confirming if the constitutive dimensions of the concept informed by them are empirically corroborated, if there are relationships between them, and if they present effects on the state action.

The article contributes to the literature in three ways: empirically, by using data obtained directly from bureaucrats; theoretically, by developing and validating a replicable model that relates the different dimensions of the concept of state capacity; and methodologically, by using the SEM to estimate the effects of each dimension of the concept on the perceived results of the Brazilian federal government action.

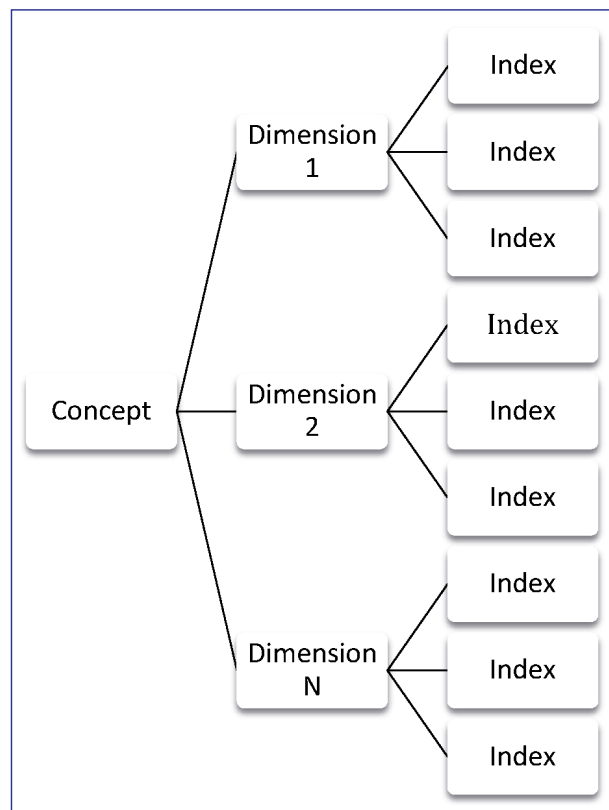
The following section discusses the theoretical approaches that underlie the theoretical model. Section 3 presents the Survey strategy applied for data collection. Section 4 explains how the constitutive dimensions of the concept were operationalized and measured. Section 5 presents the hypothesized model, followed by the presentation of the results, in section 6. Finally, section 7 concludes the article, highlighting the main findings and limitations of the study.

STATE CAPACITY: APPROACHES AND DIMENSIONS

There are several meanings to the concept of state capacity. Still, its broader definition is related to the state's ability to achieve its own goals, that is, to implement its decisions, despite opposition from interest groups and social classes (Skocpol, 1985). In this perspective, the concept is related to bureaucracies' organizational characteristics, such as their competence, autonomy, and resources. This idea is associated with the ideal type of Weberian bureaucracy: professional and merit-based.

State capacity cannot be observed directly, as it is a theoretical construct. Thus, like any social concept, it needs to be defined on a theoretical basis and measured empirically. In other words, it is necessary to be operationalized in its attributes or constitutive dimensions (Beach & Pedersen, 2016). For Goertz (2006), a social concept can be decomposed into three levels: basic (ontological or theoretical), constitutive (secondary or dimensional), and indicative (realistic or observable). The first level focuses on what is cognitively central to the phenomenon, and the second identifies the attributes or dimensions that play a role in explanations and their causal mechanisms. The third operationalizes the attributes mobilized at the previous level through observable indicators. Figure 1 below exemplifies the explanation.

Figure 1
Conceptualization in three levels



Source: Elaborated by the authors.

Several theoretical approaches inform the definition and operationalization of state capacity (Cingolani, 2013). Given this study's objective, we will review some of them to search for their constitutive dimensions. The association of state capacity with the bureaucracy's competencies and resources was the criterion for selecting the approaches discussed in this section.

The historical neoinstitutionalists relate state capacity with the ideal Weberian type of bureaucracy (Evans, 1995). For Weber, bureaucracy is the most efficient means by which the state can be organized. Thus, the bureaucratic organization is associated with the rational-legal type of domination, a necessary condition for capitalism development. Characteristics of the ideal Weberian type of bureaucracy, such as recruitment and promotions based on merit, would create an ethos and esprit de corps for the institution, endowing it with greater autonomy, cohesion, and coherence in action (Evans & Rauch, 1999). The autonomy of bureaucracy to social classes and interest groups is central to Evans' (1995) explanation of East Asian developmental states' capacity. However, he also argues that relations between the state and society, or between bureaucrats and private actors, are equally crucial to the effectiveness of the state action, as they provide the necessary information for bureaucrats to formulate consistent policies and ensure the effectiveness of their implementation by a dense network of connections (Evans, 1995, 2010). Thus, the concept of "embedded autonomy" comes to reconcile such perspectives, that is, the need for a professional and autonomous bureaucracy embedded in the surrounding social environment.

Recently, Fukuyama (2013) discussed the concept of governance as the government's ability to make and apply laws and deliver public goods to society. His discussion dialogues directly with the Weberian approach to bureaucracy. In Fukuyama's conceptualization, he favors the autonomy that professional bureaucrats (agents) have to implement politicians' (principals) orders. For Fukuyama, professionalization means recruitment and promotion based on merit. According to him, autonomy does not mean that bureaucrats must establish their own goals: politicians must determine policy objectives but not how to implement them. Therefore, the opposite of autonomy would be the complete subordination of bureaucrats to politicians (or their actions' micromanagement by them). As a merit-based bureaucracy is necessary for such autonomy to exist, Fukuyama breaks down the concept of governance into two dimensions: professionalization and individual autonomy.

A distinction should be made here between the meaning of bureaucratic autonomy for Evans and Fukuyama. For the former, autonomy (or bureaucratic insulation) is concerning interest groups and economic classes, while for the latter, autonomy (or operational discretionarily) would be about the procedures adopted by the bureaucrats for implementing the goals defined in the political sphere.

Finally, Wu et al. (2015, 2018) elaborated the concept of policy capacity at a different level of abstraction through a conceptual structure based on the skills and resources necessary for policymaking in public organizations. The authors point out that the usual approach to the concept is geared to the macro-level analysis. For this reason, they center their approach on issues concerning the internal structure of public bureaucracies at the individual, organizational and systemic levels. Therefore, they operationalize the policy capacity concept by decomposing the dimensions related to skills and resources for policymaking into three types: analytical, operational, and political. The relationship between the analytical levels and skills and resources results in a 3x3 matrix with nine groups of indicators. At the individual level, capacity can be measured by bureaucrats' technical, managerial, and political skills.

In contrast, the organizational level can be measured by the availability of human, financial, and information resources necessary for an agency to perform its functions properly. Finally, at the systemic level, the support that a public organ enjoys among politicians and society, in general, stands out as a key to the state capacity to produce public policies. Given this work's focus on the state bureaucracy, we will privilege the individual and organizational levels of Wu et al. (2015, 2018). Based on the theoretical approaches reviewed in this section, Box 1 summarizes the constitutive dimensions of the concept.

Box 1
Constitutive dimensions of state capacity

Concept	Constitutive dimensions	Theoretical references
Embedded Autonomy	Bureaucratic “weberianess” State-society relationships	Evans (1995)
Governance	Bureaucratic professionalization Individual autonomy	Fukuyama (2013)
Policy capacity	Skills Resources	Wu et al. (2015)

Source: Elaborated by the authors.

It worth to mention the three reviewed approaches are not rivals but complementary. While the concepts of “embedded autonomy” and “governance” adopt a higher level of abstraction, the “policy capacity” conceptualization adopts an organizational and individual level one. The complementarity between the different abstraction levels of the approaches is compatible with the measurement instrument applied discussed below.

THE SURVEY OF BRAZILIAN BUREAUCRATS

The data used in the study analysis were collected from a survey applied by the Institute for Economic and Applied Research (Ipea) to the Brazilian federal bureaucrats between May and July 2018 (Pereira et al., 2019). The survey was prepared in partnership with the Governance Project, conducted by the Center on Democracy, Development, and The Rule of Law (CDDRL), from Stanford University. The questionnaire was based on the Federal Employee Viewpoint Survey (FEVS), which seeks to measure US federal bureaucrats’ perceptions about the characteristics and conditions of work present in their organizations. Some questions derived from Ramesh, Howlett and Saguin (2016) work to measure public bureaucracies’ policy capacities. Other questions were suggested by IPEA’s researchers considering the specificities of the Brazilian case. The complete questionnaire and descriptive statistics of the collected data are found in Pereira et al. (2019).

The research sample was composed of Brazilian federal civil servants with tenure and commissioned positions from the direct and indirect administration, such as ministries, autarchies, foundations, and regulatory agencies. The so-called street-level bureaucrats, such as police officers, doctors, nurses, and teachers, were excluded from the sample. The exclusion of this group had the objective of avoiding distortions in the sample due to the significant number of these civil servants compared to other careers. Besides, we seek to focus our analysis on bureaucrats with policymaking functions, getting an accurate picture of the endowments of competencies, resources, and relationships within that group.

The sample was delimited based on three criteria: positions, careers, and legal-organizational model of the agency in which the bureaucrat is located. The sample was subdivided into three groups: employees with tenured, commissioned employees (*cargos de confiança*), and others, including outsourced workers, temporary contracts, among others. The federal public administration organizations were subdivided into direct administration (which encompasses the president’s cabinet and the ministries), autarchies or public foundations under a public regime, and regulatory agencies. We found a sample population of 3,200 civil servants out of a universe of 263,498. 14,704 questionnaires were sent, and the response rate was 21%. Details on the sampling formulas, the composition of the sample’ layers, and the organizations selected to compose the sample can also be found in Pereira et al. (2019).

It worth mentioning that the quality of the Brazilian federal bureaucracy is well evaluated in international rankings, surpassing other Latin American nations in a variety of international indices, such as Economist Intelligence Unit; Political Risk Services of the International Monetary Fund (IMF); World Bank’s Worldwide Governance Indicators; and the Quality of Government index, from the University of Gothenburg. The Brazilian federal bureaucracy gained its first contours of professionalization as early as the 1930s, combining meritocratic selection for the state’s essential careers with patronage in indirect administration careers and bureaucratic insulation elements from developmental agencies (Sikkink, 1991). After re-democratization, the 1988 Constitution required selection by civil services examination as the primary means of entering the federal public service (Souza, 2016), a factor that explains the high rates of professionalization observed today.

OPERATIONALIZATION AND MEASUREMENT

This section explains how the constitutive dimensions of the concept informed by the theoretical approaches reviewed in section 2 were operationalized. Bearing in mind that the study also aims to verify the effects of the constitutive dimensions on the state’s performance, we also discuss this issue.

State capacity as a construct

As discussed, state capacity is a construct formed by dimensions that can only be observed indirectly through indicators. Therefore, based on the revised literature, some questionnaire questions were selected to measure the concept’s constitutive dimensions (see Box 2). The survey answers followed the Likert scale, varying from 1 to 5, with 1 meaning total disagreement with the statement and 5 a total agreement. The selected questions reflect the theoretical approaches reviewed in section 2.

Box 2
Dimensions and its indicators

Dimension	Indicators (Questions)
Professionalization	QB1 – My unit of work is able to recruit people with the right skills. QB2 – Career promotions in my unit of work are based on merit. QB5 – Technical competence is essential for appointment to a commissioned position.
Autonomy	QC1 – My perception is that the government makes the most of my skills. QC2 – In my current position, I am encouraged to bring new and better ways of working. QC3 – I have the conditions to make my own decisions when carrying out my work.
Resources	The following items are obstacles to the good performance of your unit of work: QE1- Human resources; QE2- Budgetary resources; QE3- Technological resources.
Skills	Your organization’s civil servants have the skills described below: QG1- Knowledge of public policies in the sector in which it operates; QG3- Skills for analyzing public policies; QG7- Communication skills.
Relationships with non-state actors	In the past 12 months, how often have you interacted with: QF8- Private companies; QF10- Civil society organizations.

Source: Elaborated by the authors.

Based on Fukuyama (2013) and Boittin et al. (2016), recruitment criteria, career promotions, and nominations for commissioned positions were selected as indicators of the dimension of bureaucratic professionalization. The operationalization of the autonomy dimension also followed Fukuyama and Boittin et al. (2016). The selected questions indicate that work routines limit public bureaucracies' autonomy, discouraging professional knowledge and creativity in achieving the functions of bureaucracy.

Following Ramesh et al. (2016), we selected six questions to measure the dimensions corresponding to the existing stocks of resources and skills in bureaucracies. The questions are related to human, budgetary, and technological resources in the organizations to which the respondents belong. They also express the perception of bureaucrats about the knowledge that their peers have about the sector's policies in which they work.

Finally, we selected questions about the frequency of bureaucrats' interaction with private companies and civil society organizations to measure the relationship between the state bureaucracy and society. Although such frequencies do not necessarily clarify the content and the meaning of such relationships, they were considered indicators of that dimension.

State performance

State performance and its measurement are discussed in the literature (Andrews, Boyne & Walker, 2011; Fernandez & Moldogaziev, 2013, 2015; March & Sutton, 1997). Faced with the challenge of finding standardized performance measures for organizations belonging to different policy sectors, we opted for the data collected by the survey, as they are common to all sectors - despite the limitations of this option. We are aware of the subjectivity of the respondents' interpretation of the questions and of the possible bias caused by the respondents' sympathy for the organization to which they belong (the so-called "Halo effect").

Fernandez and Moldogaziev (2013) observed that measures of perception of organizational performance correlate positively and significantly with objective measures. Furthermore, Andrews et al.'s (2011) analysis of a wide range of studies on state performance found no evidence that assessments based on public servants' perceptions would tend to inflate assessments of the positive impact of their actions. Thus, the assumption that perceptual measures, such as those collected by survey, can serve as substitutes for objective external organizational performance measures.

A set of questions related to bureaucrats' perceptions about the organization's effectiveness to which they belong were chosen as performance indicators. Therefore, a requirement proposed by Andrews et al. (2011, p. 229) is accomplished, i.e., that performance measurement should be done through a "set of measures" instead of just a single one. The Survey questions selected to compose the construct related to state performance were as follows:

- QH2 - The policies produced by the organization to which I belong reached the expected results;
- QH1 - Currently, your organization has achieved more or fewer results compared to five years ago;
- QD4 - My organization's performance is well evaluated by society.

Like the other questions, the answers to these three statements followed the Likert scale, ranging from 1 to 5, with 1 meaning total disagreement and 5 meaning total agreement.

The first question seeks to measure the bureaucrat's perception of the organization's achievement of the expected results. The second, measure the bureaucrat's perception regarding his or her organization's effectiveness in a more extended period, five years, aiming to indicate advances or setbacks over time. Finally, the respondent's perception of society's assessment of the organization's performance to which it belongs was selected as the third indicator.

Table 1 shows the descriptive statistics for the selected questions.

METHOD

Structural equation modeling (SEM) is a statistical technique used to examine relationships between observable variables constructs. The technique allows testing theoretical propositions about how constructs (or concepts) are formed, the relationships between them, and the directionality of such relationships in an assumption between causes and effects. Therefore, SEM allows measuring the direct, indirect, and total effects between the constructs as predicted by the theory (Hair, Black, Babin, Anderson & Tatham, 2009). In the study, SEM was used as a confirmatory technique, testing hypotheses underlying the approaches mentioned above, especially if the indicators are related to each constitutive dimension of the concept, correlated with each other, and correlated with the state performance.

For Codes (2008), SEM also allows the relationships between variables and constructs to be represented graphically by a path diagram. This characteristic allows a clear representation of the hypothetical model (which, in this work, was based on the five constructs derived from the theoretical approaches discussed in the second section and operationalized through the indicators or research questions previously presented).

Figure 2 shows the model tested. Rectangles represent observed variables (Survey questions). Latent variables (or constructs) are represented with ovals. The straight line pointing from a latent variable to the observed variables indicates the latent variable's hypothetical effect on the observed variables. Since structural modeling focuses on estimating relations between latent constructions, straight lines show the estimated effect of each constitutive dimension of the concept on the state performance construct. The curved arrow between the constitutive dimensions indicates the relationship between them.

Table 1
Descriptive statistics

Construct	Question	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know/ Don't want to answ
Professionalization	B1	240	814	538	1037	252	23
		8,30%	28,00%	18,50%	35,70%	8,70%	0,80%
	B2	562	990	597	576	112	67
		19,40%	34,10%	20,60%	19,80%	3,90%	2,30%
B5*	56	117	–	578	2136	17	
	1,90%	4,00%	–	19,90%	73,60%	0,60%	
Autonomy	C1	405	1101	640	612	124	22
		13,90%	37,90%	22,00%	21,10%	4,30%	0,80%
	C2	268	640	584	1058	332	22
		9,20%	22,00%	20,10%	36,40%	11,40%	0,80%
C3	136	515	469	1343	426	15	
	4,70%	17,70%	16,20%	46,20%	14,70%	0,50%	
Resources	E1	650	1102	319	683	121	29
		22,40%	37,90%	11,00%	23,50%	4,20%	1,00%
	E2	805	1251	286	443	75	44
		27,70%	43,10%	9,80%	15,30%	2,60%	1,50%
E3	663	1159	305	645	103	29	
	22,80%	39,90%	10,50%	22,20%	3,50%	1,00%	

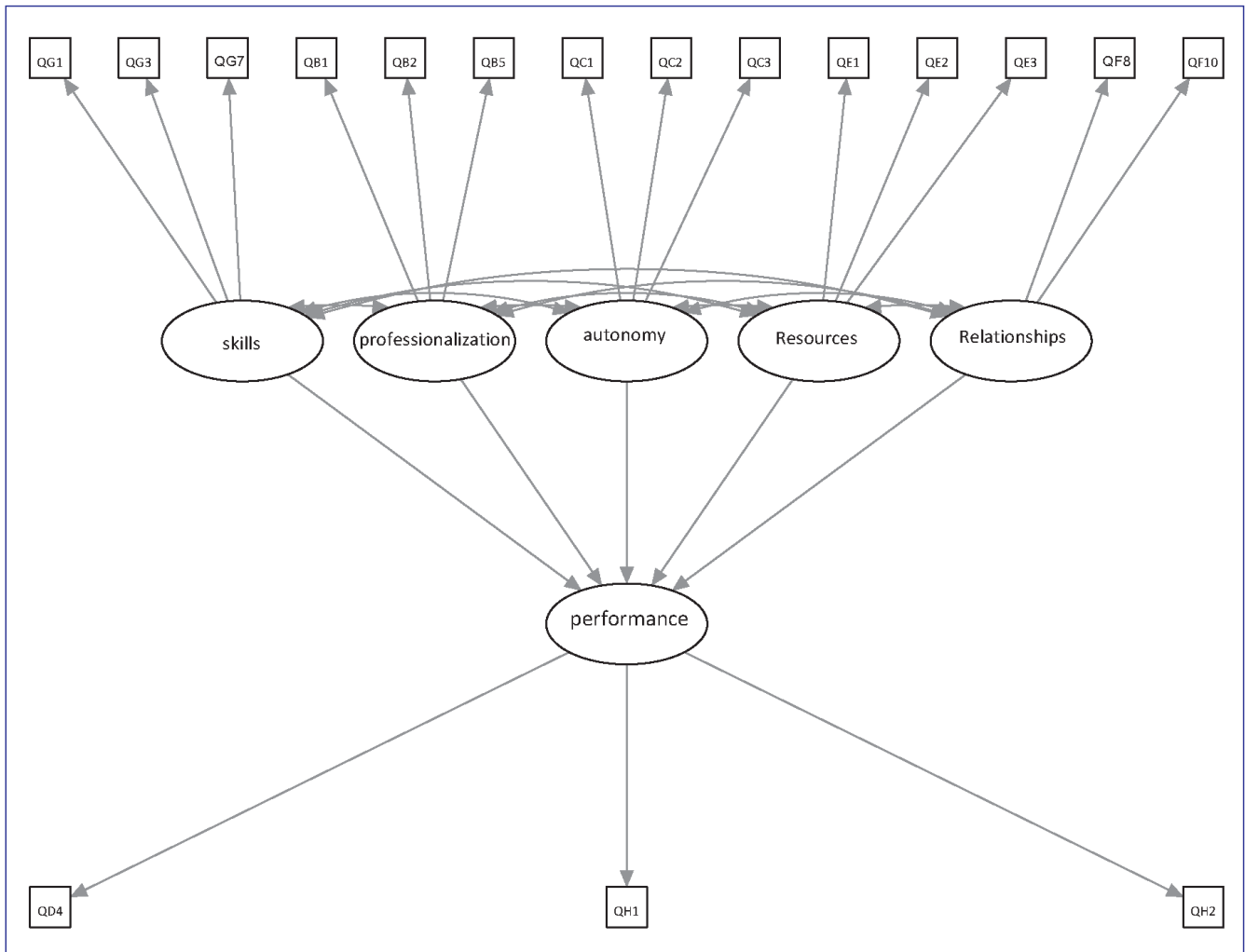
Continuation

Construct	Question	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know/ Don't want to answ
Skills	G1	99	548	477	1383	329	68
		3,40%	18,90%	16,40%	47,60%	11,30%	2,30%
	G3	148	721	721	1005	228	81
		5,10%	24,80%	24,80%	34,60%	7,90%	2,80%
	G7	151	582	632	1290	213	36
		5,20%	20,00%	21,80%	44,40%	7,30%	1,20%
Relationships	F8	968	279	260	537	746	114
		33,30%	9,60%	9,00%	18,50%	25,70%	3,90%
	F10	1624	391	287	304	150	148
		55,90%	13,50%	9,90%	10,50%	5,20%	5,10%
Performance	H1	180	418	451	1162	395	298
		6,20%	14,40%	15,50%	40,00%	13,60%	10,30%
	H2	118	673	691	1101	185	136
		4,10%	23,20%	23,80%	37,90%	6,40%	4,70%
	D4	169	653	669	999	309	105
		5,80%	22,50%	23,00%	34,40%	10,60%	3,60%

Note: (*) The alternatives for QB5 were: Not important; Little important; Important; Very important; I don't know / I don't want to answer.

Source: Elaborated by the authors based on Pereira et al. (2019).

Figure 2
Path diagram



Source: Elaborated by the authors.

RESULTS

The R package (Lavaan program) with maximum likelihood estimation was used in the analysis. The hypothesized model presented a good fit for the data (Meade, Johnson & Braddy, 2008). Thus, no post-hoc modifications were made. The CFI (comparative fit index) indicated that the sample data are well adjusted to the model (0.93). This index's cutoff criterion is $CFI \geq 0.90$, preventing ill-specified models from being accepted (Hu & Bentler, 1999).

The RMSEA (root mean square error of approximation) was 0.052, being within limits indicated as a good fit of the model. According to Hu and Bentler (1999), a cutoff point for this index would be close to 0.06, with a limit of 0.07 (cf. also Steiger, 2007). For Hooper, Coughlan and Mullen (2008), this is the authors' consensus about the index.

The other adjustment index, the SRMR (standardized root mean square residual), which is the square root of the difference between the sample residuals of the covariance matrix and the hypothetical covariance model, was 0.044. These index values range from 0 to 1, with good adjustments to less than .05 (Byrne, 2013; Diamantopoulos & Sigauw, 2000). Thus, the SRMR index of the analysis also indicated a good fit for the model.

Manifest and latent variables

Concerning latent variables or constructs, we could corroborate the theoretical expectations for most of the selected indicators. With some exceptions, discussed below, the factor loads of the selected indicators were high (> 0.50) and statistically significant using the p -value < 0.05 as the cutoff point.

For “professionalization,” we found a low factor load (0.141) for the question about the degree of importance of technical competence for the appointment of commissioned positions. According to the respondents, technical competence has little influence on senior management or advisory positions in the Brazilian federal bureaucracy. One explanation for the found result is that commissioned positions in the Brazilian federal bureaucracy are freely appointed; that is, they can be given to people outside the public service careers following political or personal relations criteria. The dynamics of appointments to commissioned positions are closely linked to the institutional structure of Brazilian coalitional presidentialism (Lopez, 2015, 2021).

Regarding the “autonomy” construct, all paths towards the selected indicators were statistically significant and characterized by high factor loads (> 0.6), except for the question regarding the agreement with the statement that bureaucrats would be able to take own decisions in carrying out their work, which had a low factor load (< 0.5). Such a result may indicate that, in general terms, there is a limitation on the autonomy of bureaucrats to carry out their mandates via micromanagement or political interference in the execution of the tasks delegated to them.

In turn, statistically significant relationships and high factor loads were found in the paths between the “skills” and “resources” constructs and their respective indicators. This result indicates that the observed variables are explained by the constructs since the greater the factor load, the more the construct explains the indicators’ variability.

About the “relationship” construct, both selected questions presented statistically significant paths, and the indicator of the frequency of bureaucrats’ interaction with private companies showed a low factor load (< 0.5) compared to the indicator related to the frequency of interaction with civil society (> 0.7). This may indicate that, in general, bureaucrats interact less with private companies than with civil society. However, this can vary depending on the public policy sector or type of organization.

Finally, the paths between “performance” and the three selected indicators were statistically significant and had high factor loads (> 0.5), except for the question regarding the respondents’ perception of society’s assessment regarding the performance of their respective organizations, which had a low factor load (< 0.5). This indicates that, according to bureaucrats’ perception, society’s assessment of their respective organizations’ performance has little relation to what is perceived by them.

Relationships between constructs

Using $p < 0.05$ as the cutoff point for statistical significance, Table 2 shows a strong positive (> 0.50) and significant correlation between the “professionalization” and “autonomy” and between “skills” and “Professionalization”. This indicates that, for the Brazilian case, professionalization and bureaucratic autonomy go together, and the recruitment of bureaucrats is related to their skills.

Evoking the concept of embedded autonomy (Evans, 1995), the covariance between “autonomy” and “relationships” was statistically significant but not strong (< 0.50). Likewise, we found weak but significant covariance among the other constructs – except for “autonomy” and “resources”, and between “resources” and “relationships”. We emphasize, however, that such relationships were not theoretically expected.

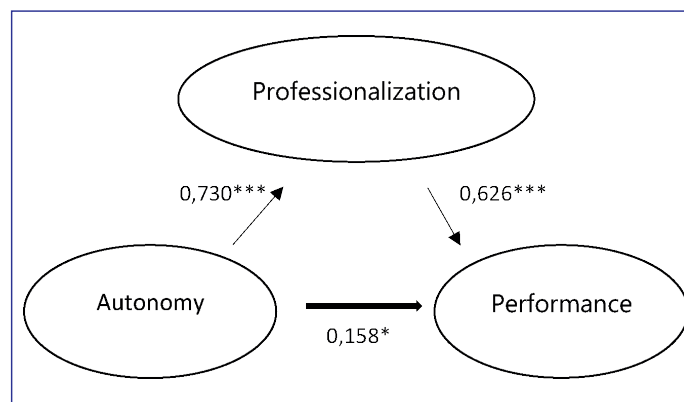
Table 2
Covariance between constructs

	Estimate	Std.Err	z-value	P(> z)
Skills				
Professionalization	0,569	0,031	18,255	0,000
Autonomy	0,420	0,032	13,332	0,000
Resources	0,089	0,038	2,331	0,020
Relationships	0,178	0,040	4,479	0,000
Professionalization				
Autonomy	0,730	0,026	27,922	0,000
Resources	0,208	0,041	5,046	0,000
Relationships	0,094	0,041	2,315	0,021
Autonomy				
Resources	0,040	0,039	1,022	0,307
Relationships	0,218	0,042	5,219	0,000
Resources				
Relationships	-0,062	0,037	-1,645	0,100

Source: Elaborated by the authors.

Regarding the hypothesized effects of each dimension of the concept and the state performance (see Table 3, below), we found positive and statistically significant relations for the path coefficients of “professionalization” and “skills”. In addition, the path coefficient between “professionalization” and “performance” was the only one greater than 0.50. Such finding corroborates the theoretical expectation that professionalization is a predictor variable of state performance.

Figure 3
Professionalization as a mediating variable between autonomy and performance



Note: ***p < 0,001; ** p < 0,05; *p < 0,10.

Source: Elaborated by the authors.

Notice that the path coefficient between the dimensions “autonomy” and “performance” was significant only for $p < 0.10$. Nevertheless, given that the covariance between professionalization and autonomy is strong (0.730) and statistically significant ($p < 0.001$), we can claim that the effects of autonomy on performance are mediated by professionalization (Figure 3). In other words, professionalization is in the path between “autonomy” and “performance”, with professionalization being significantly associated with performance and autonomy associated with professionalization. Thus, this variable mediates the effect of bureaucratic autonomy on state performance (Holmebeck, 1997), as shown in Figure 3. Contrary to theoretical expectations, no significant effects of the “resources” on the “performance” construct were found.

Table 3
Correlation between performance and concept dimensions

	Estimate	STD.ERR	z-value	P(> z)
Performance				
Autonomy	0,158	0,089	1,775	0,076
Professionalization	0,626	0,118	5,288	0,000
Relationships	-0,022	0,043	-0,524	0,600
Resources	-0,037	0,044	-0,830	0,406
Skills	0,225	0,064	3,514	0,000

Source: Elaborated by the authors.

CONCLUSION

The article specified and tested a model derived from the political science and public policy literature on the concept of state capacity. Data collected directly with the Brazilian federal bureaucracy via survey were analyzed using structural equation modeling (SEM). It was possible to measure the constitutive dimensions of the concept, examine the relationships between them, and verify their “effects” on the state’s perceived performance.

Following Fukuyama (2013) and Evans (1995), we operationalized the constructs of professionalization and bureaucratic autonomy and measured the existing interactions between public bureaucrats and non-state actors. Based on Wu et al. (2018), we measure individual skills and organizational resources in federal public organizations. SEM was used as a confirmatory technique to test the hypothesized model and estimate the relations of the concept’s dimensions on the state’s performance. In doing so, we avoid the circular reasoning problems present in attempts to measure the concept.

Our findings indicate that the Weberian features of bureaucracy are still a valuable reference for studies on the state capacity since bureaucrats’ professionalization and competencies are directly related to state perceived performance. Concerning bureaucratic autonomy, the findings indicate that its effects on performance are not direct but mediated by professionalization. In other words, autonomy and professionalization go together, and the higher the level of bureaucratic professionalization, the greater the effect of autonomy on performance. This finding corroborates Fukuyama’s claim that more or less autonomy can be a good or bad thing depending on how much underlying professionalization a bureaucracy has.

It worth remembering that a competent and autonomous bureaucracy is just a potential that needs to be adequately mobilized by political actors in order to become effective. Hence, capacity is a type of potential that must be politically deployed to be realized.

The study findings also corroborate the literature by stating that technical competence has little influence on appointment to senior positions in the Brazilian federal bureaucracy, thanks to the existence of freely appointed positions and the institutional structure of the country’s coalitional presidentialism. This feature also results in bureaucrats’ perception about

limiting autonomy to carry out their mandates via micromanagement or political interference in executing their functions. Contrary to theoretical predictions, we did not find any significant direct associations between the bureaucracy's relations with non-state actors and state performance. Perhaps the effects of this dimension are significant only for specific organizations or political sectors. However, this article did not aim to test this hypothesis.

The limitations of this study point to the need for further research. First, the cross-sectional nature of the data implies difficulties in providing robust conclusions about associations or causal relationships. Therefore, research based on longitudinal data is necessary to strengthen this type of inference. Second, aware of the limitations of survey research for measuring state capacity and performance, it would be desirable to use objective indicators to give more consistency to the findings and combine and complement the analysis with data and qualitative analyses in a multimethod approach. Finally, as state capacity is not a generalized and fixed attribute, more research is needed to verify and compare variations between policy sectors, public organizations, and subnational governments.

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