

# **Do State capacity dimensions differently affect policy areas performance? An analysis of a federal government<sup>1</sup>**

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## **Introduction**

The idea of state capacity involves the concept of effectiveness, i.e., translating the ability of governments to mobilize multiple resources to achieve organizational goals (Christensen and Gazley, 2008). In this sense, a key question in the agenda is: what are the state capacities needed for governments to accomplish their organizational missions and policy proposals. To answer it is not an easy task, especially, in a complex context of public governance, which may refer to the redefinition and expansion of the forms of relationship between State and society or between government, private agents and society. The concept of state capacity has evolved to encompass multiple dimensions, such as the quality of bureaucracy, structures of governmental coordination and networks between actors located inside and outside public administration (Gomide, Pereira e Machado, 2017).

Although recent studies have pointed out that state capacity is crucial to explain performance in public governance, other issues also emerge. First, which are the state capacity dimensions or factors that governments mobilize and combine in order to affect organizational goals? Is the organizational performance among policy sectors in the public administration equally perceived? Do these dimensions or factors of state capacity affect policy performance in the same way? To explore these questions, this paper's main goal is to analyze the determinants of governmental performance. More specifically, we intend to map which dimensions of state capacity are critical for successful governmental performance; and, in the cases of poor performance, we plan to investigate which dimensions were absent. This analysis applies to multiple policy areas of the Brazilian public administration.

The inquiry assumes that policy sectors (government core; infrastructure; productive development; security/citizenship and social/environmental) present different state capacities and,

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therefore, produce heterogeneous effects on outputs and outcomes. This hypothesis is based on previous researches that investigated the process of State building in Brazil and the quality of its bureaucracy (Geddes, 1994; Evans, 1993). Historically, public administration in Brazil was organized in the context of the development agenda (which took place from 1930 to 1980) and it was based on the idea of “pockets of efficiency” (Schneider, 1991; Sikkink, 1991; Nunes, 1997). Hence, the Brazilian bureaucracy was built in a very asymmetric pattern since the agencies responsible for the development agenda concentrated state capacity (meaning professionalization and political autonomy) whilst the majority of the public administration was mostly ineffective and unprofessional. In the recent decades, however, an expansion of State capacity happened throughout the Brazilian public administration, although some asymmetries still persists, especially in the case of social area.

In order to investigate this phenomenon, we use a survey applied to over three thousand civil servants of the Brazilian federal public administration that covered, in addition to performance questions, the following state capacity dimensions: meritocracy, autonomy, relationship, skills, resources and, accountability (Pereira *et al.*, 2019). Initially, we employed principal components analysis for creating composite variables, based on the bureaucrat’s perceptions, of organizational performance and governance dimensions above mentioned. Then, the paper displays descriptive statistics to explore these synthetic indexes in four different policy areas of government (government core; infrastructure; productive development; security/citizenship and social/environmental). Lastly, we run a multivariate regression to test the effect of state capacities on policy performance.

In sum, the paper presents interesting findings. First, the degree of state capacity development impacts the perception of performance and, secondly, these effects are quite diverse on the organizations outputs and outcomes. Although they vary, another unexpected result is that the state capacity dimensions are not so difference among the policy sectors, which may be an effect of more homogenous strategy of strengthening the public administration in Brazil. Regarding the effects of state capacity on performance, relationship seems to be indifferent, the usual dimensions of state capacity – resources and meritocracy, present variable impacts, while autonomy, accountability and skills are stubbornly affecting better performance in the public organizations.

The outline of the paper is as follows. The next section discusses the theoretical debates regarding state capacity, its dimensions and applications in the Brazilian case. The third section explores the descriptive statistics of the performance and the governance dimensions: meritocracy, autonomy, relationship, skills, resources and, external environment. In the fourth, we detail the multivariate model and its estimation. Finally, some inquiry's conclusions and future research agenda are presented.

### **Theoretical Debate on State Capacities**

The concept of state capacity is usually related to the idea of performance, meaning the mobilization of resources necessary to achieve governmental effectiveness and to implement official goals (Christensen and Gazley, 2008; Skocpol, 1985). Even though the literature on state capacity became quite popular in social sciences and public administration fields over the recent years, its theoretical origin dates back to the “statist” movement of the 70s and 80s (Cingolani, Thomsson and Crombrugghe, 2015). At that time, in contrast to society-centered theories (such as Marxism and Pluralism), it was claimed that state held autonomy to influence political and social processes through their policies. Several studies about economic structural transformations, such as late industrialization, investigated the role of state in that process; in other words, as the protagonist at explaining social and political outcomes (Skocpol and Finegold, 1982; Evans and Rauch, 1999). Since then, the debates about state capacity have experienced movements of conceptual expansion and new thematic applications (Cingolani, 2013; Fukuyama, 2013; Wu, Ramesh and Howlett, 2015; Gomide, Pereira, Machado, 2017).

Within the statist movement, whereas the state was considered as a weighty actor that held autonomy, researchers investigated a new question: what conditions strengthen state capacity? In other words, what factors increase state effectiveness? Following the Weberian tradition, the first answers understood state capacity as something intrinsically linked to the quality of public bureaucracies (Cingolani, Thomsson and Crombrugghe, 2015). This perspective led to the administrative approach of state capacity, which is understood as the set of capabilities of state agencies to implement their policies, and to produce coordinated actions oriented to the production of results (Gomide and Pires, 2014).

The dimensions of the administrative state capacity were based on the features of the Weberian bureaucracy model, such as professionalization, meritocracy, and autonomy from social

influences. Professionalization refers to “intellectual activities of civil administrators engaged in diagnosis societal problems and framing policy alternatives to deal with them” (Skocpol, 1985, p. 11). In other words, it means a form of collective puzzlement on society’s behalf that entails both deciding and knowing. Meritocracy is related to a specific model of recruitment based on impersonal requisites, usually knowledge level proved upon exams and certificates. It is argued that merit-based selection of public employees has a positive effect on bureaucratic output through the increased expertise of administrators, their greater cohesion and commitment to the goals of their organization (Nistotskaya and Cingolani, 2015).

Broadly, autonomy is understood as the formulation of policies by state bureaucracies that are not simple reflective of the demands of social groups or classes (Skocpol, 1985). According to this perspective, administrators are capable of formulating long-term goals transcending partial and short-sighted demands from specific groups (Skocpol, 1985). The lack of state autonomy, on the other hand, is associated to the transformation of public bureaucracies into an arena of bitterly politicized and inconclusive conflicts (Skocpol and Finegold, 1982; Rueschmeyer and Evans, 1985). Whereas state bureaucracies should be independent from social forces, the Weberian approach claims that they should be subordinated to political principals, who hold the legitimacy of formulating the political agenda (Fukuyama, 2013).

The first applications of this state capacity approach were focused on the elaboration of indexes of bureaucratic quality based on the features of the Weberian model. The classic example of this perspective is Evans and Rauch (1999) analysis of the effects of the Weberian state structures on economic growth, which compared the “weberianess scale” among 35 developing countries for the 1970-1990 period. Even though these studies contributed to the development of scales of quality of bureaucracy, they considered state capacity as homogenous inside the countries.

Recently, there has been a new academic manifesto that calls for a more in-depth analysis of the executive branches of states and their bureaucracies. In this sense, Fukuyama (2013) claims that although there are several studies about political institutions that limit power, there are still little advances in the analysis of the institutions that accumulate and use power. Therefore, the past years are marked by a new proliferation of studies that mobilize state capacity concepts to explain state action. Part of this studies follow the Weberian perspective that understand state capacity as the quality of bureaucracy. However, while the state capacity agenda from the 1980’s and 1990’s

was mainly concerned in understanding state role in economic development processes, recently, the Weberian approach is used to explain state performance in several fields – such as public security (Hendrix, 2010); social development (Cingolani, Thomsson and Crombrugghe, 2015); environmental sustainability (Abers, Oliveira and Pereira, 2016) and levels of corruption (Bersch, Taylor and Praça, 2017). Besides that, the analysis of professionalization and meritocracy is updated to encompass analytical and managerial competences mobilized by individuals and organizations (Wu, Ramesh and Howlett, 2015).

In this sense, recent studies claim that state capacity is the product of the combination between competences and resources. Ramesh and Howlett (2015) describe three types of competences – analytical, managerial and political – that interact to three levels of resources – individual, organizational and systemic. Individual resources refer to the existence of a structure of technical knowledge; organizational resources mean the tools for informational, financial and human resources management; systemic resources refer to conditions located outside the state, such as the levels of social and political thrust on the public bureaucracies.

Another state capacity approach has shed light in the relationship pattern between state bureaucracies and social actors. For them, it's also important to analyze civil society since the policies formulated by state bureaucracies are often contested by social groups, what might hinder state capacity due to judicialization and interruptions in the implementation process (Midgal, 2001; Abers, Oliveira e Pereira, 2016). Thus, the legitimacy of state action is considered as an important factor for state capacity (Mann, 2008). Besides that, the relationship between state bureaucracies and social groups leads to the exchange of information necessary for the formulation of coherent policies (Evans, 2010; 2011). Also, some studies have emphasized the advantages of social control and accountability to correct policies scope and impacts (Pires and Gomide, 2016). In this context, the initial focus on administrative capacities is complemented by concerns about political capabilities, which is understood as the abilities of state actors to negotiate and process conflicts (Gomide and Pires, 2014). More specifically, the political capacity approach involves understanding the needs and positions of different stakeholders, communication skills and effective civil service bargain (Wu, Ramesh and Howlett, 2015).

In the Brazilian case, debates about state capacity were first mobilized to study the asymmetric results of the developmentalist agenda that took place from the 1930's to 1970's. By that time, the main inspiration to apply state capacity concepts on the Brazilian case was the

Weberian approach since it was believed that the quality of state bureaucracy – meaning especially professionalization and meritocracy – was essential for the developmentalist agenda success. However, in the case of Brazil, the state was not able to modernize the whole public administrative at the same time (Streek and Thelen, 2005). One reason for that is a consequence of the “politician’s dilemma”, described by Geddes (1994, pg. 281) as a situation which “the presidents as well as his coalition partners faced a wrenching conflict between their own need for immediate political survival and longer-run collective interests in economic performance and regime stability”. While the first need is associated to political support and weakening of state capacity since professionalization and meritocracy are set apart from the requisites to reformulate bureaucracy in a context where appointments in the public administration are used as an exchange for political support, the second is related to the existence of an effective bureaucratic organizations.

During the developmentalist era in Brazil, politicians chose a dual strategy in order to solve this dilemma: state bureaucracies responsible for the implementation of the economic projects were modernized and professionalized, what led to the creation of “island of excellence” or “pockets of efficiency”; non priority bureaucracies for the economic agenda were used for patronage to reach political support (Schneider, 1991; Sikkink, 1991). In this sense, priorities technical bureaucracies were insulated from political influences and pressures from social groups (Nunes, 1997). Therefore, the initial application of state capacity literature on the Brazilian context shed light in the Weberian approach and also emphasized the heterogeneous organization of bureaucratic capabilities.

In the 1980’s, Brazil experienced deep social and political transformations as a consequence of the democratization process that culminated in the approval of a new Constitution, in 1988. The new institutional framework of the Brazilian state is characterized by territorial decentralization since municipalities became important actors in the supply of social services; the creation of participatory institutions, what led to the inclusion of civil society actors in the decision making process of public policies; and the strengthened of horizontal accountabilities agencies and mechanisms (Cavalcante, Lotta and Oliveira, 2018; Pires and Gomide, 2016). Besides that, the democratization process also led to the commitment of the Brazilian state to new roles, such as the supply of universal social policies and infrastructure projects (Cavalcante, Lotta and Oliveira, 2018). In face of these transformations, new researches emerged to understand if the Brazilian

state was able to deliver the new policies required within the democratic scenario and to investigate which capabilities were necessary to the Brazilian state to act in an effective way in this new complex context.

Parts of the answers to these questions were still based on the Weberian perspective, focusing on the administrative approach. In this sense, Marengo, Strohschoen and Joner (2017) found that municipalities with professionalized bureaucracies are more capable to expand its potential for tax and implement public policies. Souza (2017) also mobilized the Weberian approach to investigate the process of state capacity building in Brazil, between the years of 1995 and 2010, having as reference the variables of professionalization and meritocracy of bureaucracy. She claims that the asymmetric capacity of the Brazilian public administration remained until the 1990's since only the agencies responsible for the priority agenda were fully professionalized.

This historical tendency was interrupted during the Working Party administration (2003-2016), when there were several public contests and the consequence increase of the number of public employees that hold a graduate level of education. Souza concludes that today the Brazilian public administration holds the main features of the Weberian bureaucracy. The study of Cavalcante, Lotta and Oliveira (2018) reinforces this conclusion: according to them, from 2003 to 2014, there was an increase in the number of public employees from 480.000 to 615.000 in diversified areas – including, for example, the areas of infrastructure, social policy and regulation. This was followed by significant increases in the public service salaries. Other researches have questioned if the Weberian approach is enough to explain the contemporary performance of the Brazilian state. In this context, Satyro, Cunha and Campos (2016) concluded that, in Brazil, the municipalities with the Weberian features deliver less social assistance services, whereas the municipalities that do not have a Weberian bureaucracy are more capable to supply these kinds of services. This kind of conclusions raise the question of what other approaches are necessary to understand state capacity in the case of Brazil.

In this context, Gomide and Pires (2016) claims that, besides the administrative capacity, policy capability is essential as well to understand the Brazilian performance in implementing public policies in a democratic context. More specifically, while the administrative capacity is associated to the implementation of the policy goals, policy capability is responsible for innovation and improvements in governmental initiatives. In a similar way, when studying the contemporary actions of the Brazilian state in the area of rural development, Grisa *et al.* (2017) states that the

democratic capacities, i.e., the formal and informal structures of interactions between the state, the market and social organizations – provide legitimacy, and also make it possible to adapt policies to the demands of local stakeholders.

Finally, scholars have investigated if the distribution of state capacity remains heterogeneous in the Brazilian public administration. The main conclusion in this respect is that even though the recent professionalization of the Brazilian bureaucracy overcame the idea of “pockets of efficiency”, it still remains some asymmetry. In this sense, Souza (2017) claims that the fields of social policies and infrastructure are less professionalized than the areas responsible for control and accountability. This asymmetry in terms of Weberian features exist even within the same field of public policies: for instance, when studying the infrastructure sector in the contemporary Brazil, Cavalcante and Pereira (2017) and Gomide and Pereira (2018) conclude that there is some heterogeneity when comparing the transport and energy sectors. Cavalcante, Camoes and Knop (2014) also compare the profile of different Brazilian bureaucracies to verify that infrastructure is the sector with the highest percentage of postgraduate and permanent career servants occupying commissioned positions.

When investigating the Brazilian state capacity to implement large infrastructure projects in the Amazon region, Abers, Oliveira and Pereira (2016) conclude that whereas the infrastructure agencies concentrates administrative capacity, the environmental bureaucracy presents high levels of political capacity.

In short, we argue that the dimensions of state capacity has experienced an intense enlargement since the “statist” movement. Nowadays, the administrative capacity encompasses not only the classical features of the Weberian bureaucracy model, but also specific competences held by individuals and organizations. Besides that, the emphasis on the bureaucratic autonomy from social forces has lost ground to the political dimension, which claims for a close relationship between state actors and social groups and demands. In the case of Brazil, this enlargement has been mobilized to understand the contemporary Brazilian state capacity. The peculiarity in the Brazilian case is the focus on the asymmetry related to state capacity. The following section presents data regarding these state capacities dimensions and advances in the analyses of their relation with performance, in the different sectors of the Brazilian federal government.

Based on this productive and continuing theoretical debate, the paper will test two main hypothesis:



*H1: The higher the degree of state capacity the higher the perception of performance.*

*H2: The dimensions of state capacity produce heterogeneous effects on outputs and outcomes, according to the policy sector.*

## **State Capacity and Performance**

### ***Methodology***

The database used for the paper's analysis stems from the survey government quality and state capacity that is part of a joint research called *Governance Project*, between the Institute of Applied Economic Research (Ipea) and the Center on Democracy, Development and the Rule of Law (CDDRL) of the University of Stanford.

The survey target population was composed of civil servants (permanent employees and those with commissioned positions) who formulate and implement public policies in the ministries, executive agencies (autarchies/foundations) and regulatory agencies. The survey sample excluded positions and careers of the street level bureaucracy, from the state-owned enterprises and mixed-capital companies and the military. The layers that are part of this research were delimited considering three criteria: positions and careers, which relate to the type of bond established between the civil servant and the federal public administration; having or not commissioned position; and the type of organization (ministry, executive agency or regulatory agency).

According to these layers, the sampling frame was assembled based on the available data, collected between May 15 and July 17, 2018, totaling 3,226 respondents, that is, almost 70% of the sample required. In order to expand sample results to the population, the sample weights of each layer were calculated. Thus, adding all the weights in the sample of 3,226 servants, we get the total of 263,468 servers, used as basis for the selection of the sample. The confidence interval for this sample was 95%, which means that the estimates contained in this report are statistically reliable for the set of selected respondents (Ipea, 2019).

Based on the survey questionnaire and responses and theoretical grounded in the literature discussed in the previous section we formulated synthetic indicators of performance and state capacity dimensions, such as meritocracy, autonomy, relationship, skills, resources and, accountability. The research employs principal component analysis (PCA) to formulate these variables.<sup>2</sup> Generally, composite indexes aim to summarize complex and multidimensional subjects helping to interpret, classify and rank units of analysis in a particular case. After running

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<sup>2</sup> The specific breakdown of how the indexes were formed is detailed in the appendix.

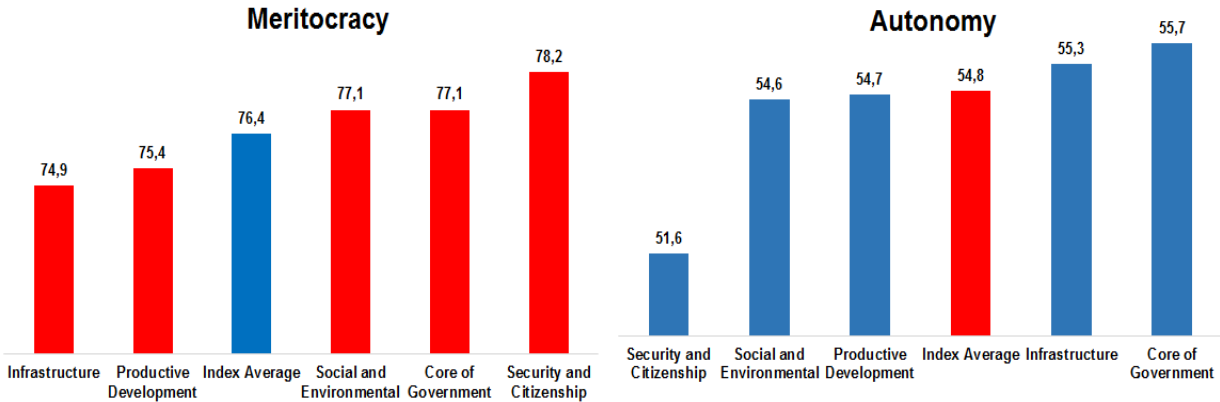
the principal component analysis, the indexes scores were normalized to range from 0 to 100, the greater the index the higher degree of each dimension. The following figures illustrate the distribution of these indicators and reinforce the assumption of heterogeneity of state capacity among the bureaucracy.

***State Capacity Dimensions***

In order to demonstrate the variety of the public servants’ perceptions about their organizations capacities and performance, this section describes the synthetic indexes means grouped by their policy sectors<sup>3</sup>. To begin with, it seems that in all dimensions, the sectors’ indexes vary from each other with different intensity and their ranks clearly oscillate as well.

The first figures below encompass the average of meritocracy and autonomy’ indexes. The graphs show differences among the sectors in both cases, however, in the first, they are higher. Other aspect that draws attention is the variation of the positions among the dimensions as, theoretically, it is expected that meritocracy and autonomy would be quite convergent as neoweberian features of bureaucracy. While in the first, security/citizenship has the higher scores, in the autonomy, this policy sector goes to lowest with a significant distant from the rest. Another interesting aspect is that core of government (CoG) holds prominent positions in both dimensions.

**Figure 1a 1b – Meritocracy and Autonomy Indexes Average, by policy sector**

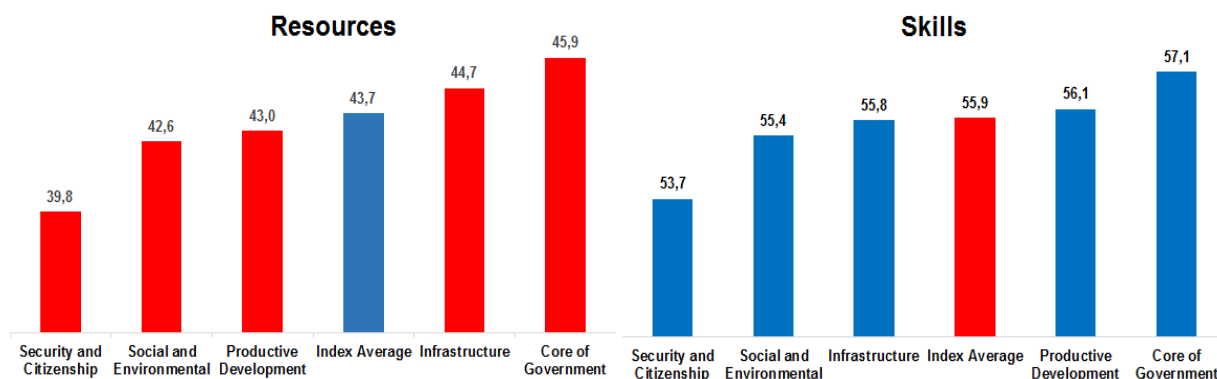


Source: Governance Project (Ipea/CDDRL)

<sup>3</sup> The Appendix presents the descriptive analysis of the indexes.

Regarding resources and skills, the indexes means are also variable among the policy sectors, especially in the resources indexes. In either cases, once again ministries of CoG show the highest score average as observed in autonomy. As expected, productive development and infrastructure are in second and third places, depending on the dimension. These findings are quite in line with the literature (Cavalcante and Lotta, 2015) that demonstrates that most of the ministries and agencies from these sectors have professionalized careers and resourceful programs, such as the finance and planning ministries and general attorney’s office that are part of core of government. Security and citizenship, once again, drops to the lowest rank, followed by social and environmental ministries in the skills and resources indexes.

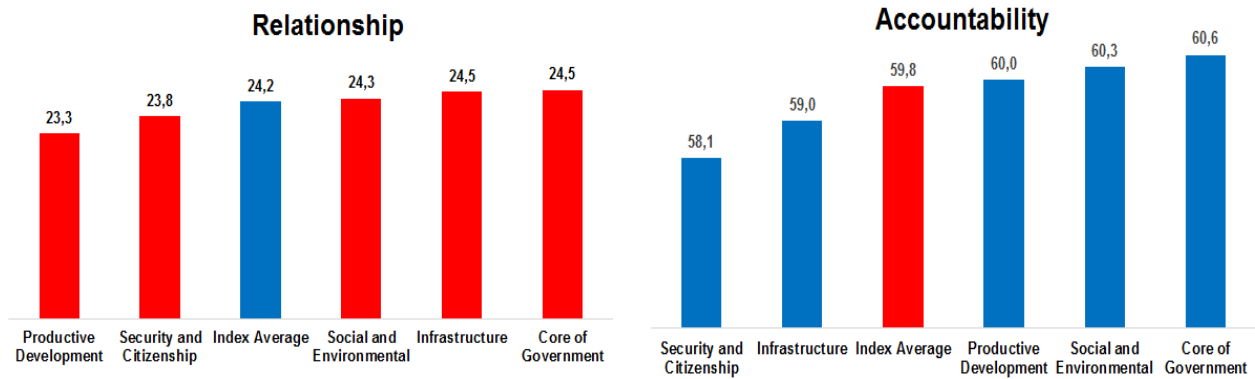
**Figures 2a 2b – Resources and Skills Indexes Average, by policy sector**



Source: Governance Project (Ipea/CDDRL).

The last state capacity described involves the complexity of the bureaucrats networking and the level their organizations are hold accountable by the society. In either case, the differences among policy sectors are quite reduced than the previous dimensions. CoG also stands out and confirms what was expected, because this sector has as crucial functions of communication and coordination of the Executive branch, which naturally demands such capacities (Cavalcante and Gomide, 2019). Besides, ssecurity/citizenship ministries continue presenting weaker capacities, under the averages, whereas social and environment is among the best in relationship and accountability, which makes sense considering their policymaking features, the first more restrictive while the second are based on institutions that foster open and participative processes.

**Figure 3a 3b – Relationship and Accountability Indexes Average, by policy sector**



Source: Governance Project (Ipea/CDDRL).

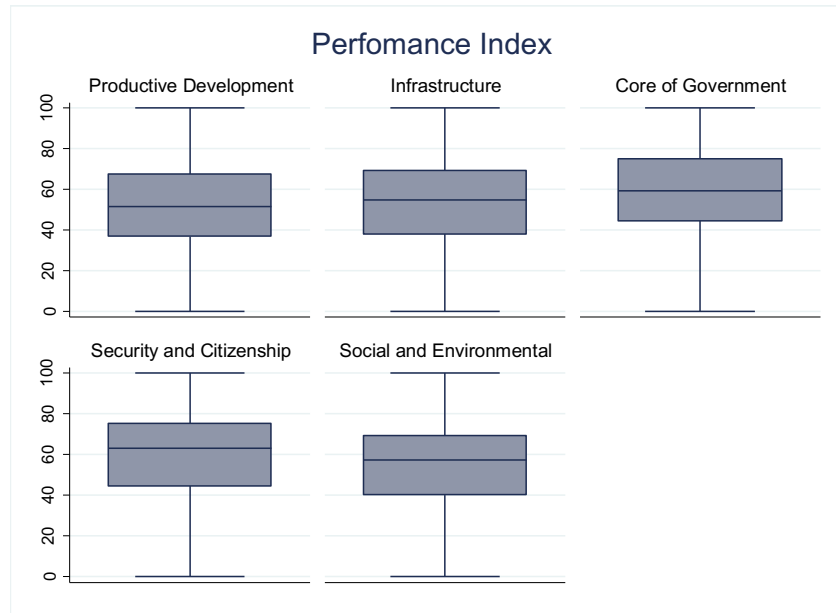
### ***Performance by sectors***

Normally, every public organizations aims at improving their performance in delivery services and/or reaching their goals with efficiency and quality. Performance can be understood as the mobilization of resources needed to achieve governmental effectiveness and to implement strategic objectives (Christensen and Gazley, 2008). However, as we all know, in the public sector, it can be a broad and ambiguous definition that, despite its apparently simple common-sense concept, involves complex and not trivial theoretical and methodological difficulties. Policy and public organizations’ performance depend largely on a variety of state capacity dimensions and, above all, on the effectiveness of their actions, meaning the actual benefits to the targeted population, which can be expensive and difficult to precisely measure.

For the purpose of this analysis, we formulated a composite index based on four questions that encompasses a broader approach of this concept, including questions regarding the organization production of expected results and if the unit has achieved more or less outputs compared to five years ago. Moreover, the performance score also covers the bureaucrat’ perception if the organization is well evaluated by society and if it is creative and innovative.

The index formulation followed the same procedure employed to the state capacity scores, discussed above. The average of the indexes grouped by policy sectors are different among them with an overall mean of 55. The scores’ standard deviations, however, are relatively high revolving around 21%, i.e., almost forty percent of the index mean. The figure 4 show the indexes distribution in the box plot graphs.

**Figure 4 – Performance Indexes Distribution, by policy sector**



Source: Governance Project (Ipea/CDDRL).

Not only the standard deviation in performance is higher than the other synthetic indexes, but, mainly, the mean and median (shown in the box plots) are the greatest among the policy sectors. After employing analysis of variance (Anova) test, the results confirmed that these differences are also statistically significant ( $F = 12.82$ ,  $p\text{-value} = 0.000$ ). Surprisingly, the best scores are found in the security and citizenship ministries, despite the fact that they presented the worse indexes in the state capacity dimensions. With the best scores in the previous analysis, the core of government shows the second highest means and medians of their employees' view of performance in the Executive branch. On the other extreme, the productive development units presents the worse perspectives about achieving their goals, improving effectiveness over the last five years and being creative and innovative.

### ***Performance Determinants***

In order to analyze if the bureaucrats' perceptions of state capacity affect their views about organization performance, in this subsection, we empirically test this possible correlation using multivariate models for all survey data and, specifically, by each policy sector. On the left side of the model, the dependent variable is the synthetic index of performance, above described, while

the right side is composed by state capacity indexes. Therefore, the basic statistic model is defined as follows:

$$Performance_i = \beta_0 + \beta_1 Meritocracy_i + \beta_2 Autonomy_i + \beta_3 Resources_i + \beta_4 Skills_i + \beta_5 Relationship_i + \beta_6 Accountability_i + u_i$$

The models results, from Ordinary Least Square regression (OLS) using cross-sectional data, are interesting in different ways. Table 1 presents the estimated coefficients, standard errors in parentheses and the models coefficients of determination for all the sample (general model) and for each of the policy sectors analyzed.

**Table 1 – The Performance Determinants**

Variables	General Model	Productive Development	Infrastructure	Core government	Security and citizenship	Social and environmental
<b>Meritocracy</b>	.097*** (.01)	.07* (.04)	.34 (.03)	.16*** (.04)	.9*** (.07)	.9*** (.03)
<b>Autonomy</b>	.16*** (.01)	.15*** (.04)	.17*** (.03)	.21*** (.03)	.21*** (.06)	.13*** (.03)
<b>Resources</b>	.11*** (.02)	.13*** (.04)	.11*** (.04)	.18*** (.04)	.01 (.07)	.07** (.03)
<b>Skills</b>	.32*** (.01)	.26*** (.04)	.32*** (.03)	.31*** (.03)	.36*** (.06)	.37*** (.03)
<b>Relationship</b>	.00 (.01)	-.00 (.036)	-.06** (.03)	.02 (.03)	-.09 (.053)	.04 (.03)
<b>Accountability</b>	.37*** (.02)	.4*** (.04)	.41*** (.043)	.36*** (.04)	.35*** (.07)	.34*** (.03)
<b>Constant</b>	-7.02*** (1.6)	-6.67 (4.0)	-4.8 (3.0)	-14.1*** (3.8)	-6.4 (6.5)	-4.6 (3.15)
N	3.226	561	744	708	251	946
Adjusted R <sup>2</sup>	0.44	0.4	0.5	0.45	0.43	0.44

**Source:** Elaborated by the authors based on survey from the Governance Project (Ipea/CDDRL).

**Note:** Standard errors in parentheses \* p<0.05, \*\* p<0.01, \*\*\* p<0.001. The sum of the sectors models' number of observations reach 3,210, because sixteen respondents avoid to inform their specific unit of work.

Importantly, due also to the large sample, T-test and F-test are valid asymptotically. Even though few variables are not statistically significant; overall, the significance of the regressions is confirmed (Wooldridge, 2006). After the regression, a check for multicollinearity was carried out

and the results proved that the degree of collinearity among the independent variables is not worrisome.

To begin with, the coefficients of determination ( $R^2$ ) in all models are relatively expressive, considering that the independent variables together explain from 40% to 50% of the performance in federal government's organizations. Secondly, it is also noticeable that most of the independent variables effect the performance index, however, with different pattern and intensity.

Overall, the regression results allow us to confirm both hypotheses of this paper. Not only in the general model, but also in every policy sector, state capacity dimensions show positive effects on the bureaucrat's perception of performance (*HI*). Moreover, while most of the variables present a significant and substantial impact on the dependent variable in all models, the other coefficients estimated or affect only some policy areas performance, primarily, relationship. Based on this empirical evidence, we can confirm the hypothesis 2, state capacity dimensions produce heterogeneous effects on the organizations results, according to the policy sector.

The first dimension is meritocracy, meaning an administrative environment that values recruitment and promotion based on impersonal requisites of skills, technical competence and expertise, in contrast to criteria political party and personal relations. In the general model and the almost all policy areas, except for infrastructure ministries, the estimates confirm the assumption that merit-based organizations have a positive effect on their performance (Rueschmeyer and Skocpol, 1985; Evans and Rauch, 1999), although in these cases, the coefficients were substantially the lowest ones in the models. Some recent findings from the Brazilian literature may help us to understand these minor effects on the performance's perception of the bureaucrats.

A reasonable explanation may come from the fact that most of the public service selection and promotion (i.e., occupation of commissioned post) are highly regulated and mostly restricted to permanent career servants. Regarding selection, since Federal Constitution of 1988, all permanent staff had to be approved in transparent, open and nondiscriminatory public tenders, which reinforces the merit as basis. Nonetheless, on the promotion side, the legislation sets many limits to appointing outsiders (professionals that are not part of the public sector careers), leaving approximately 10% of the positions in the federal government for them. Notwithstanding, Cavalcante e Carvalho (2017) have already shown that, since 1995, the majority of this percentage is also occupied by permanent civil servant. Moreover, studies on profile and performance of mid-level bureaucrats in Brazil (Cavalcante and Lotta, 2015; Cavalcante, Lotta and Kasai, 2018) have

proven that promotion in the civil service is a consequence of meritocratic mechanisms, since professional background and formal education have positive relation with commissioned position appointments.

The literature has also diminished the political partisan's relevance in this cases, in other words, the bulk of the posts (low and mid-level bureaucracy) are much less affected by partisanization than the top officials (D'Araujo and Petek, 2018; Lopez, 2015), which does not mean that other forms of politization would not be frequent inside government, however, nonpartisan political networks tend to be more difficult to measure (Praca and Lopez, 2019).

Continuing in the Weberian approach, the next dimension is autonomy, which means the relatively independence of the bureaucrats from social and political groups to decide their way of work and make decisions grounded in technical considerations and with a certain level of discretion. This state capacity would allow the separation of policy implementation from instabilities stemming from competition from the political system, making management environment more predictable and policies more resilient (Lewis, 2003; Miller, 2000). As a result, it could avoid process of capture in the State, which would negatively affect national projects and the long-term policies listed in a rational (Beazer, 2012; Cingolani, 2013).

In this case, regression models show that the autonomy indexes are more influential on organization's performance than meritocracy, including every policy areas and in the whole sample, the coefficients are statistical significant. On average, a change in the autonomy index would affect .16 in the performance scores, *ceteris paribus*. In this sense, broadly speaking, we can state that the higher the bureaucrat's sense of autonomy, the better his or her perception of performance, which is allied with the theoretical assumptions.

The third dimension of state capacity assumes that performance is achieved by the employment of resources in order to reach the governmental effectiveness and to implement official goals (Wu, Ramesh and Howlett, 2015; Ramesh and Howlett, 2015; Christensen and Gazley, 2008; Skocpol, 1985). The synthetic index encompasses a variety of factors that depict a range of management factors that may hamper the conditions for the organization to achieve its goals, such as human resources, budgeting, technology, auditing, among others. In this case, the estimates are significant in all models, but security and citizenship organizations, which indicates, as expected, the general positive correlation between organization resources and performance, keeping other variables constant.

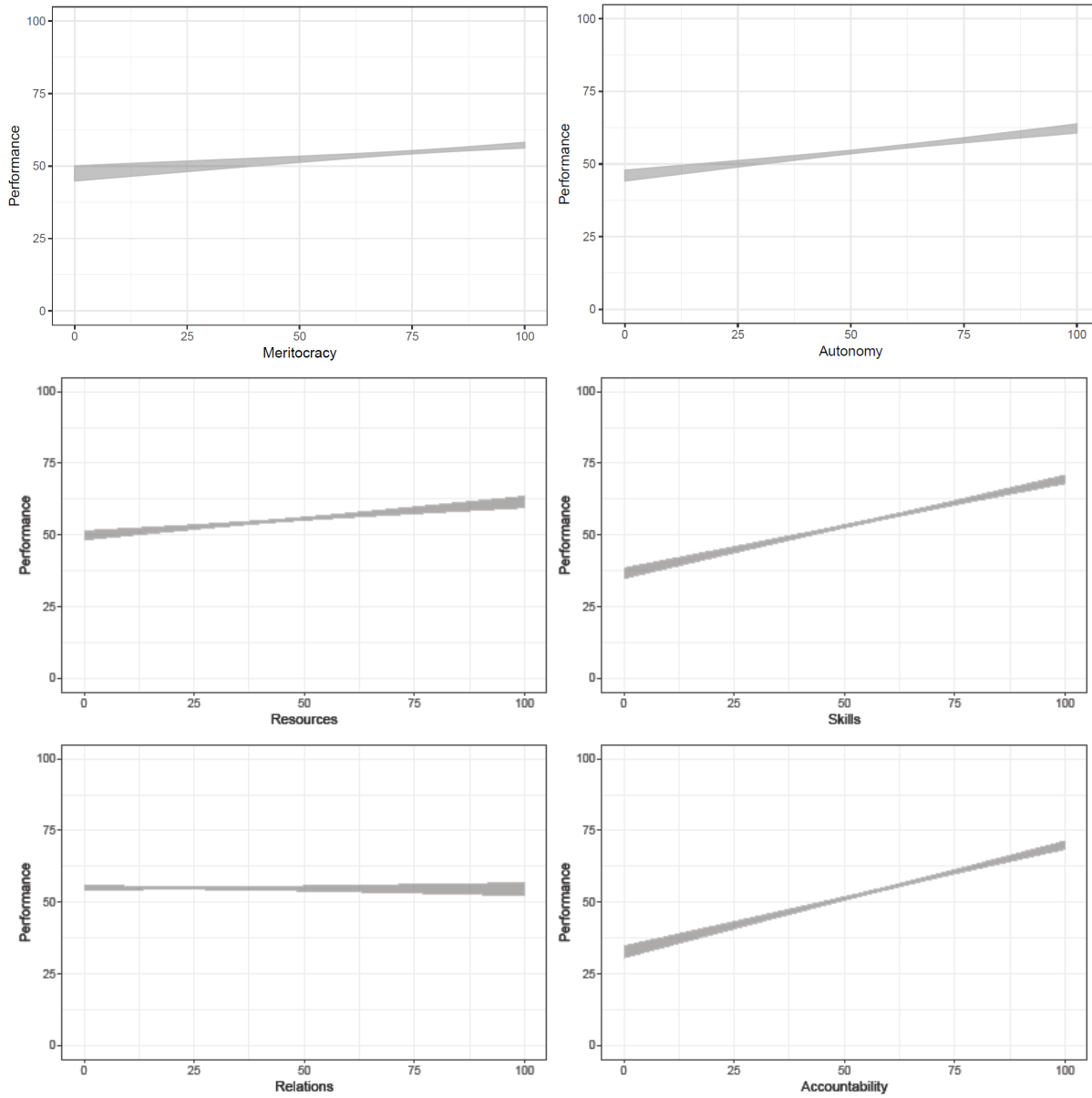


Advancing to a more comprehensive approach of administrative capacity, beyond the conventional dimensions discussed above, the regression show different results concerning relationship, skills and accountability.

The bureaucrat ability of interacting with different stakeholders has become increasingly important in the a context of complex governance arrangements (Evans, 2010; 2011; Wu, Ramesh and Howlett, 2015), in which policy implementation demands constant coordination inside the Executive branch, with other branches, private sector, subnational governments, civil society and international agencies. Unpredictably, relationship has the lowest coefficients and the variable show statistical significance only in one model (infrastructure), nonetheless, with a negative coefficient. What can we draw from it? A reasonable explanation can assume that the frequency and variety of interactions by a public servant do not reflect barriers or facilitators to the policymaking. The patterns of relationship in each policy sector naturally vary according to sector's features, independently of the impact on performance.

On the contrary, the last two state capacity dimensions confirm the previous assumption that organizations' skills and the degree of accountability affect their performance. The first variable contained different aspects of civil servant capabilities, including analytical, interpersonal and managerial competences (Wu, Ramesh and Howlett, 2015). While accountability index covers factors related to preventing corruption, social participation in the policymaking and holding the organization accountable for better results. To illustrate some of these effects, the Figure 5 presents graphs with predicted values from the general model that depicts all for independent variable on performance.

**Figure 5 – Predicted Effects on Performance**



Source: Elaborated by the authors based on survey from the Governance Project (Ipea/CDDRL).

Clearly, both coefficients estimated demonstrate considerable impacts of skills and accountability indexes in the dependent variable. In objective terms, an increase of a point in skills, on average, represent a growth of approximately .32 in the performance score (varying from .26 in productive development and .37 in social and environmental), *ceteris paribus*. While, the effect of accountability is even higher, e.g., in the general model, it positively affects performance indexes in .37, on average. In summary, organizations that are more skillful and held accountable

tend to perform better, in line with previous studies (Mann, 2008; Ramesh and Howlett, 2015; Pires and Gomide, 2016).

## **Conclusions**

An essential subject in public governance agenda is how governments can achieve their organizational missions and policy goals. To explore it, this paper aimed at investigating the effects of important state capacity's dimensions on governmental performance and if they differ from different policy sectors.

This analytical approach has become more relevant for three main reasons. First, due to the recognition of the increasing complexity of the public sector, reflected in new agencies and state responsibilities worldwide. Secondly, the field of research has evolved and, more recently, presented a comprehensive perspective about the concept of state capacities and their impacts on governance and government effectiveness. Lastly, specifically in the Brazilian case, due to the historical asymmetry among public organizations and their bureaucracy professionalization, it is worth studying if this is still producing different impacts on policy sectors performance, considering that decades of democratization may have diminished this heterogeneity.

In this sense, the paper not only presents interesting findings, but also employs a complementary research strategy on original dataset, including principal component analysis, descriptive statistics, Anova test and multivariate regression. The main empirical results help to confirm the two inquiry hypotheses, that is, the higher the degree of state capacity the higher the perception of performance and the dimensions of state capacity produce heterogeneous effects on outputs and outcomes, according to the policy sector. However, the most striking finding is that, grounded in the Brazilian case, the difference in the same state capacity dimensions among policy areas are not expressive as supposed. This might be explained by an even evolution of agencies structures and bureaucracies strengthening in the past years, which have created a more homogenous public administration compared to the historical asymmetry related to state capacity.

Another interesting finding is that policy sectors are well ranked in some state capacity dimensions, but might be poorly ranked in another dimension. It is worth highlighting, however, that core of government units lead almost all indexes averages, except for meritocracy. Finally, regarding the regression results, only dimension of relationship does not present substantial effects on the performance's perception, whereas the traditional dimensions of state capacity – resources

and meritocracy, impact differently according to the models with this with this order of importance. On the contrary, the effects of autonomy, accountability and skills indexes, these latter two encompass a broader approach of governance, are strongly associated to better performance in the public administration, including all policy sectors.

In short, the paper shows instigating insights at advancing in the study of state capacity, governance and public sector performance. Nevertheless, the composite indexes were formulated based on the bureaucrats' perceptions about the effectiveness of their actions, as such they, obviously, must be analyzed with some cautious. Since they are preliminary results in a broader research agenda, which would add more findings and insights in order to improve the scientific validity of this inquiry empirical results with complementary approaches, for instance, comparative cross nationally and qualitative detailed case studies.

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## Appendix - Composite Indexes

In this section we present the methodology employed to create the synthetic Indexes of state capacity dimensions and performance. Initially, we choose an original frame, the factors that best represent the analyzed phenomenon. In this case, the frequency of bureaucrat's perceptions of this dimensions. The second step involves the selection of the primary data that had been transformed to allow comparisons. The frequencies of responses were converted into numbers from the survey questions, described in the tables below.

In the next step, we employed Principal Component Analysis method (PCA), a type of factor analysis, which, in short, applies to the identification of factors that objectively point to the aggregation and reduction of a number of measures. The method provides less loss of explanatory power of the original data and a lesser degree of subjectivity of the researcher (Hair *et al.*, 2005). The main purpose is to create new variables that are linear combinations of the primary variables. Thus, unlike the arbitrary definition of weights, the methodology takes advantage of the correlation between indicators and creates an index corresponding to a weighted average of these variables.

Once built, the indexes were transformed, aiming at normalization of its values within a range from 0 to 100. Thus, we used the following formula:

$$IS_i^X = \left[ \frac{X_i - X_{min}}{X_{max} - X_{min}} \right] * 100 = 0...100$$

Where,

IS = Synthetic Index

X<sub>i</sub> = Observed Index

X<sub>min</sub> = Minimum value

X<sub>max</sub> = Maximum value

Finally, Table 2 and 3 also include the percentage variation of the first component and the respective factor loadings used for the calculation of indexes:



**Table 2. Meritocracy - List of variables and loadings of the first component**

Question	Frequency	Eingvalue	% Explained
<b>QB1</b> My work unit is able to recruit people with the right skills.	5- Strongly agree 4- Agree 3- Dont agree or disagree 2- Disagree 1- Strongly disagree		
<b>QB2</b> Promotions for political appointees in my work unit are based on merit.	999- Don't know / Refuse to answer		
<i>Evaluate how important each of the following items are to promotion</i>		2.19	36,5%
<b>QB5</b> Technical competence	4- Very important 3- Important 2- Moderately important 1- Not important 999- Don't know / Refuse to answer		
<b>QB6</b> Political party affiliations*			
<b>QB7</b> Career expertise			
<b>QB8</b> Personal network*			

Note: \* In these questions, the values are considered in the opposite way, e.g., the more important the less meritocratic.

Source: The Governance Project Survey (Ipea - CDDRL)

**Table 3. Autonomy - List of variables and loadings of the first component**

Question	Frequency	Eingvalue	% Explained
<b>QC2</b> In my current role, I feel empowered to come up with new and better ways of doing things.	5- Strongly agree 4- Agree 3- Dont agree or disagree 2- Disagree 1- Strongly disagree		
<b>QC3</b> I am able to make my own decisions in the performance of my work.	999- Don't know / Refuse to answer		
<b>QC4</b> The approval of a project depends on my technical considerations		1.93	48%
<b>QC6</b> How frequently do formal rules and regulations prevent you from doing your job?*	5- All of time 4- Most of the time 3- Sometimes 2- Rarely 1- Never 999- Don't know / Refuse to answer		

Note: \* In this question, the values are considered in the opposite way, e.g., the higher the frequency the less autonomous.

Source: The Governance Project Survey (Ipea - CDDRL)

**Table 4. Relationship - List of variables and loadings of the first component**

Question	Frequency	Eingvalue	% Explained
<i>How often do you interact with:</i>			
QF1	Other organizations or agencies linked to my ministry		
QF2	Other ministries or organizations in the Federal Govt.		
QF3	Members of the Legislative branch		
QF4	Members of the Judiciary branch		
QF5	Control and Audition agencies		
QF6	Local governments		
QF7	State governments		
QF8	Private companies		
QF9	International organizations		
QF10	Civil Society organizations		
QF11	Universities and Research institutes		

Source: The Governance Project Survey (Ipea - CDDRL)

**Table 5. Skills - List of variables and loadings of the first component**

Question	Frequency	Eingvalue	% Explained
<i>The civil servants in your organization have the skills described below? Please rate your level of agreement with the following:</i>			
QG1	Knowledge of the sector's public policies		
QG2	Research skills		
QG3	Policy Analysis		
QG4	Leadership		
QG5	Conflict management skills		
QG6	Interpersonal skills		
QH4	The skills required of my organization's staff are adequate to reach its goals		

Source: The Governance Project Survey (Ipea - CDDRL)

**Table 6. Resources - List of variables and loadings of the first component**

Question	Frequency	Eingvalue	% Explained
<i>In my work unit, the following itens are obstacles*</i>			
QE1	Human Resources		
QE2	Budgeting		
QE3	Technologies		
QE4	Top Official Stability		
QE5	Planning, monitoring and evaluation processes		
QE6	Legislation	5- Strongly agree 4- Agree	
QE7	Relationship with the Judiciary and the Public Prosecution Office	3- Dont agree or disagree 2- Disagree	4.54
QE8	Relationship with the Legislative branch	1- Strongly disagree 999- Don't know / Refuse to answer	32,5%
QE9	Interfederative coordination instruments with states and municipalities.		
QE10	Interfederative coordination with states and municipalities		
QE11	Audit and control processes		
QE12	Social participation		
QE13	Access to key policymakers		
QH3	The resources available are sufficient to achieve my organization's functions		

Note: \* In these questions, the values are considered in the opposite way, e.g., the greater the agreement, the fewer resources.

Source: The Governance Project Survey (Ipea - CDDRL)

**Table 7. Accountability - List of variables and loadings of the first component**

Question	Frequency	Eingvalue	% Explained
QD1	The organizational culture of my working unit hinders corruption practices	5- Strongly agree 4- Agree 3-	
QD2	Civil society organizations are able to participate in the decision-making processess of the policies of my working unit	Dont agree or disagree 2- Disagree 1- Strongly disagree 999- Don't know / Refuse to answer	1.50
QD3	My organization is hold accountable for getting better results		50%

Source: The Governance Project Survey (Ipea - CDDRL)

**Table 8. Performance - List of variables and loadings of the first component**

Question	Frequency	Eingvalue	% Explained
<b>QH1</b> Currently, your organization has achieved more or less results compared to five years ago?	5- More effective 4- Effective 3- Same 2- Less effective 1- Much worse 999- Don't know / Refuse to answer	3-	
<b>QH2</b> The policies produced by the organization have reached the expected results.	5- Strongly agree 4- Agree 3- Dont agree or disagree 2- Disagree 1- Strongly disagree 999- Don't know / Refuse to answer	2.40	60,1%
<b>QH5</b> My organization is creative and innovative.			
<b>QD4</b> The performance of my organization is well evaluated by society			

Source: The Governance Project Survey (Ipea - CDDRL)

**Table 9. Indexes' Descriptive Statistics**

State Capacity Dimension	General	Government core	Productive Development	Security and Citizenship	Infrastructure	Social and Environmental	
<b>Performance</b>	Mean	54,9	58,5	51,1	59,0	53,1	54,8
	Median	56,1	59,4	51,6	63,2	54,8	57,3
	Standard deviation	20,8	20,7	20,3	22,6	20,0	21,0
<b>Meritocracy</b>	Mean	76,4	77,2	75,4	78,2	74,9	77,1
	Median	80,7	80,5	80,7	82,4	80,1	80,8
	Standard deviation	16,6	15,1	17,2	16,0	18,2	16,1
<b>Autonomy</b>	Mean	54,8	55,7	54,7	51,7	55,3	54,6
	Median	57,1	57,3	57,1	53,7	57,2	57,0
	Standard deviation	19,5	18,9	19,4	20,6	18,8	20,2
<b>Resources</b>	Mean	43,7	45,9	43,1	39,8	44,7	42,6
	Median	43,8	45,5	42,4	40,2	44,6	43,7
	Standard deviation	15,7	15,7	15,1	16,4	14,1	16,8
<b>Skills</b>	Mean	55,9	57,1	56,1	53,8	55,8	55,4
	Median	57,0	58,9	58,3	55,4	57,2	56,1
	Standard deviation	19,8	19,5	19,1	21,2	19,1	20,4
<b>Relationship</b>	Mean	24,2	24,5	23,3	23,9	24,5	24,3
	Median	21,0	22,9	19,2	21,1	20,0	21,8
	Standard deviation	19,2	18,6	19,2	18,4	19,7	19,5
<b>Accountability</b>	Mean	59,8	60,6	60,0	58,1	59,0	60,3
	Median	60,8	60,8	60,8	60,8	59,8	60,8
	Standard deviation	18,3	17,2	19,0	17,1	19,3	18,1

Source: Governance Project (Ipea/CDDRL).

**Table 10. Policy Sectors and Departments**

<b>Sector</b>	<b>Department</b>
<b><i>SOCIAL AND ENVIRONMENTAL</i></b>	Ministry of Social development (MDS) Ministry of Culture – MinC Ministry of Education (MEC) Ministry of Health (MS) Ministry of Labour Ministry of Sports Ministry of the Environment
<b><i>INFRASTRUCTURE</i></b>	Ministry of Mines and Energy Ministries of Cities, Ministry of Transport, Ports and Civil Aviation Ministry of National Integration
<b><i>PRODUCTIVE DEVELOPMENT</i></b>	Ministry of Agriculture, Livestock and Food Supply – MAPA Ministry of Tourism Ministry of Tourism, Trade and Industry. Ministry of Science, Technology, Innovation and Communications
<b><i>CORE OF GOVERNMENT</i></b>	Presidency Vice Presidency Ministry of Planning Ministry of Finance Civil House Ministry of Foreign Affairs – MRE Ministry of Transparency and the Comptroller General
<b><i>SECURITY AND CITIZENSHIP</i></b>	Ministry of Justice and Public Security Ministry of Defense Ministry of Human Rights