MUNICIPAL STATE CAPACITIES: PERFORMANCE AND DEVELOPMENT OF MUNICIPALITIES IN THE LEGAL AMAZON

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ABSTRACT

This research aims to analyse the relationship between the state capacities of the municipalities of the Legal Amazon region and their municipal development. It used the factorial analysis technique, which indicated the intensity of the relationship between the variables and their factors, attributing weight to the analysed variables, and through the values assigned by Stata, we created a Municipal State Capacity Index (ICEM) and then a municipal ranking of state capacities. Further, using a correlation matrix, the ICEM was correlated with the Municipal Human Development Index (HDI). When testing the model, ten variables could explain about 64% of the variation in municipal state capacities. We found that the municipalities of the Legal Amazon have deficit capacity indices since the municipalities with low, very low, or very low ICEM represented 62% of the analysed municipalities. In the analysis of the intensity between the ICEM and the IDHM, the correlation matrix showed positive results, meaning that when the value of a variable grows, the other also grows.This work aimed to contribute to the enrichment of research on state capacities of municipalities in the Legal Amazon and demonstrating the fragility of its public management.

1. INTRODUCTION

The enactment of the Brazilian Federal Constitution of 1988 established a new political environment in the country, both in terms of public policies and in terms of popular participation and the consolidation of the Democratic State of Law. In this way, this new democratic environment, established after a dictatorial period, demonstrated that there was a need for a change in public administration through the search for more decentralized management (Gomide; Pires, 2014; Sátyro; Cunha; Campos, 2016).

State capacity is a multidimensional concept, encompassing several attributes that provide conditions for political entities to explore their capabilities (Grin, 2012). Thus, a municipality would have better capabilities by effectively using the greatest possible resources available to achieve its objectives. For Pires and Gomides (2014), these capabilities reflect how certain states succeed through their public policies and in providing public goods and services to society.

It is assumed that the performance of municipalities were affected by the decentralization of resources and, consequently, impacted the process of managing public resources, the implementation of public policies, and the vision of democracy and social participation during political processes. Due to this influence on several aspects of public administration, the state capacities of a municipality would be liable to interfere in its development since public policies are responsible for municipal development.

The Legal Amazon is a geopolitical area that was established seeking to incorporate the North Region into the socioeconomic fabric of Brazil, but it needs capabilities to manage resources and provide effective development; in which Mourão and Amin (2017) present IDHM data, which of the 100 best municipalities with the best development rates in the country, only two are located in the Legal Amazon, while among the 100 municipalities with the minor development, 74 of them are in the Legal Amazon. These numbers show the fragility and problems surrounding this region's development and the need to seek further studies.

Thus, the municipalities in this region need the capacity to manage all the resources that circulate, being influenced by economic, territorial and geographic, and institutional aspects, which carrying out a study on the performance and development of the municipalities included in the Legal Amazon becomes relevant, being a region that benefits from some instruments for development, being able to help in the improvement of public administration and local development.

The objective of this work is to analyse the degree of the relationship between the state capacities of the municipalities of the Legal Amazon region and their municipal development, in which few works address the subject of municipal state capacities (Grin; Abrucio, 2017; Jacob, 2019; Grin, 2021; Fontanelli, 2020), in which most studies in the area are carried out at the federal level, such as the works of Pires and Gomide (2016) and Gomide; Ax; Albuquerque (2021), even though municipalities are an essential provider of development in Brazil.

In this way, this work presents itself as unprecedented research in this area of the Legal Amazon, in which we also sought to contribute with a methodological framework by building the index of municipal state capacities, which can be applied in other municipalities and also allow the comparison of indices, enabling the realization of other researches.

The present article is structured with this introductory topic, a theoretical reference section, a methodology section explaining how we constructed the index, and a section on results and discussions, closing with final considerations.

2. THEORETICAL REFERENCE

There is no consensus in the literature on the conceptualization of capabilities; in which Cingolani (2013) states that this concept has emerged within Political Sociology when trying to understand the state's role in the development and that this concept varies depending on the view of each author on state attributions.

There is also a broad discussion about the role of the state in exercising its capabilities, in which state capacity is associated with the existence of bureaucracies in the administrative apparatus of the state, which was found by Evans, Rueschemeyer, and Skocpol (1985) when determining that a The good functioning of the state, establishing it as responsible for formulating and implementing public policies, depends on the presence of a bureaucratic body capable of implementing development policies.

With the advancement of studies, the focus has shifted to evaluating the capacity of government entities to provide public goods and services to the population through public policies involving different actors, instruments, and processes (Pires; Gomide, 2016; Matthews, 2012).

Due to the relevance of understanding state capabilities, numerous works do so in an applied way, seeking to measure or analyze capabilities, such as those carried out by Pires and Gomide (2016), Fontanelli (2020), and Braga and Martins (2023).

Braga and Martins (2023) when developing a state capacity index for Minas Gerais, report that there is a disparity in capabilities between administrative structures and that they need incentives and investments in the political, fiscal, and administrative dimensions for a better capacity to implement public policies.

For Sen (2000), development is the end of a process of expanding human freedoms, and this would happen through types of freedom that play an instrumental role: political freedoms, economic devices, social opportunities, guarantees of transparency and social protection, and Sen recognizes the fundamental role of various institutions and organizations in expanding the capabilities and freedoms of individuals, such as markets, governments, political parties, and the media, for example.

According to Iddawela, Lee, and Rodriguez-Pose (2021), most research on government institutions considers the national level, but it is necessary to consider all spheres of government in a country. Thus, they claim that analyses done at subnational levels allow researchers to understand better the spatially unequal nature of political and economic processes. In this way, there is a better ability to understand, describe and theorize about these complex processes, such as development (Iddawela; Lee; Rodriguez-Pose, 2021).

As the local government is an entity that is closer to the population, they need to be able to identify, conduct and implement local development programs so that state agents, the private sector, and the local community can be involved in this entire process (Jili; Nzimakwe, 2022). This scenario is similar in Brazil, as municipalities are mainly responsible for regional development and implementing policies in various areas.

In this way, capabilities influence the process of implementing public policies, and consequently the development of society, in which public environments with weakened capabilities present difficulty in developing (Mendes; Ferreira, 2021). This process is affected by the way each entity will conduct it, due to the context of decentralization in which the country is established in its Federal Constitution, and how many policies are implemented locally, highlighting the importance of capacity studies in subnational entities.

3. METHODOLOGY

This research was considered, based on its objectives, descriptive and explanatory, based on technical procedures, documental, and in terms of approach, quantitative.

Considering a universe formed by all the municipalities of the Federative Republic of Brazil, the sample selected in this research is composed of the 772 municipalities of the area called Legal Amazon, which is considered a geopolitical area that aims to obtain incentives for its development, formed by the states of Acre, Amazonas, Amapá, Maranhão, Mato Grosso, Rondônia, Roraima, and Tocantins.

According to IBGE (2014), the Legal Amazon covers a total of 5,015,067.749 km², about 58.9% of the Brazilian territory, formed by 772 municipalities, divided into the following states: 52 municipalities in Rondônia, 22 municipalities in Acre, 62 from Amazonas, 15 from Roraima, 144 from Pará, 16 from Amapá, 139 from the Tocantins, 141 from Mato Grosso and 181 from Maranhão, located west of the 44th meridian, with 21 of these municipalities partially integrated into the Legal Amazon.

However, the lack of data in the official sources surveyed from several municipalities proved to be a problem when trying to infer the capabilities in all 772 municipalities, with the need to exclude all those that presented this lack of information. Thus, this study considered 416 municipalities belonging to the Legal Amazon.

We used indicators based on the years available in the databases accessed, the IBGE (Brazilian Institute of Geography and Statistics), the ANA (National Water Agency), and the TSE (Superior Electoral Court). In order to carry out the analysis of the development of the municipalities, we used the Municipal Human Development Index (HDI) and its sub-indices, using Atlas Brasil as a source of data collection. The Municipal Human Development Index (HDIM) is an indicator that incorporates three dimensions of human development: longevity, education, and income; considered essential for human development, as access to these three dimensions could guarantee access to the basic needs of the human being.

We organized the data collected into spreadsheets in Microsoft Excel Software, where it was possible to operationalize the variables and obtain state capacity indicators. To obtain the Municipal State Capacity Index (ICEM), two dimensions were analysed: Technical-Administrative Dimension and Political-Relational Dimension, according to the model proposed in Pires and Gomide (2016) and

Gomide, Pereira, and Machado (2018). We chose these dimensions because they are used mainly in national surveys. In the Technical-Administrative dimension, we operationalized ten variables, as described in Table 1.

The elaboration of the Public Administration Professionalization variable (PAP) implies the understanding that a higher qualification of the servers could generate greater capacity, the variable of Servers per capita (SPC) contemplates a proportion that the higher the result, the better the level of service to the population, and the Stable Body of Public Administration (CEAP) idealizes the notion that stable servants carry out their bureaucratic activities regardless of political and party cycles. Thus, these variables seek to analyse the influence of Human Resources within the technical-administrative dimension of State Capacities.

The variable Municipal Revenues per capita (RMPC) indicates the distribution of public expenditures among the population, the variable Revenues from Own Collection (RAP) seeks to contemplate the capacity of the municipality to acquire its own revenues, the GDP per capita (PPC) considers the economic value per person, and Revenue from External Sources (RFE) assesses the municipality's dependence on external sources, so these variables include the financial influence on State Capacities.

The variables Instruments for Municipal Management (IGM) and Instruments for Urban Planning (IPU) seek to convey the notion of administrative capacity in which municipalities use instruments to improve their management and implementation of policies, encompassing the Computerized Activities (IA) variable, in a notion that technological capacity helps to carry out administrative activities, influencing State Capacities. After obtaining all the proportions, the variables RMPC (Municipal Revenue per capita) and PPC (GDP per capita) were divided by the value of the highest proportion found in order to operationalize all values between 0 and 1, standardizing the data, according to the methodology applied by Jacob (2019).

The political-relational dimension is operationalized with four variables, including the inter-institutional articulation of municipalities in the analysis of capacities, as shown in Table 2.

Table 1 | Operationalization of Technical-Administrative Variables.

Dimension of State Capacity	Variable	Definition	Scale
Administrative technician	Professionalization of Public Administration	The proportion between Direct and Indirect Administration Servants who have a Higher Level and the Total Number of Servants	It takes values between 0 and 1.
	Servers *per capita*	The proportion between the Total Number of Direct and Indirect Administration Servants and the City Population	It takes values between 0 and 1.
	Public Administration Stable	The proportion between the Number of Statutory Servants and the total number of Servants of Direct and Indirect Administration	It takes values between 0 and 1.
	Municipal Revenues *per capita*	The proportion between Municipal Revenue and Municipal Population	It takes values between 0 and 1.
	Income from own fundraising	The proportion between Gross Municipal Revenue arising from the tax burden collected and the Total Municipal Revenue	It takes values between 0 and 1.
	PIB *per capita*	The proportion between Municipal Gross Domestic Product and Municipal Population	It takes values between 0 and 1.
	Income from External Sources	The proportion between Revenues from External Sources and Total Municipal Revenue	It takes values between 0 and 1.
	Instruments for Municipal Management (Computerized Real Estate Registry, Computerized ISSQN Registry, Generic Plan of Values, Instituted Fees)	The proportion between the number of resources that assist in management that the municipality has and the total number of possible instruments addressed	It takes values between 0 and 1.
	Instruments for Urban Planning (Exclusive Urban Planning Body, Zoning Law or land use and occupation, Master Plan and Works Code)	The proportion between the amount of planning instruments that the municipality presents and the total number of possible instruments approached	It takes values between 0 and 1.
	Computerized Activities (Health registration and/or database; Education registration and/or database; Assets registration and/or database; Budget execution control; Payroll; Registration and/or employees; Digitized cartographic base; Geographic Information System.)	The proportion between the number of computerized activities adopted by the municipality and the total number of possible activities addressed	It takes values between 0 and 1.

The variables of Municipal Councils (CM), River Basin Committees (CBH), and Public Consortia (PC) seek to measure the existence of institutionalized channels to integrate society into political decisions. At the same time, the Party Ideology (IP) measures whether the political position of the mayors interferes with municipal state capacities.

Table 2 | Operationalization of Political-Relational Variables.

Dimension of State Capacity	Variable	Definition	Scale
Political-Relational	Municipal Councils	The proportion between the number of Councils that the municipality has and the total number of possible Councils	It takes values between 0 and 1.
	River Basin Committees	Dummy variable	It assumes a value of 0 if it does not participate or 1, if it does.
	Public Consortia	The proportion between the number of Consortia that the Municipality has and the total number of possible Consortia	It takes values between 0 and 1.
	Party Ideology	Scalar variable	It assumes a value of 1 if the party is from the right, 2 if the party is from the center and 3 if it is from the left.

After operationalizing the variables, we used exploratory factor analysis (EFA), which aims to group indicators according to the degree of correlation between them, scrutinizing patterns and relationships that may exist in many variables and summarizing these in a set least of factors.

We obtained the factor loading of the variables using Stata 16.0, which is the correlation that exists between the variable and the factor, so we can understand that the factor loadings will indicate the intensity of the relationship between the variables and their factors: how much the higher the factor loading, the more outstanding the contribution of this variable to the factor. Thus, it is possible to visualize how much each variable contributes to the factor, whether more or less (Matos; Rodrigues, 2019; Mendonça et al., 2018).

Through this, the factors and their characteristic root, or eigenvalue, were also obtained, in which the presented value indicates whether that factor will be retained, in which the factors with their characteristic root value above 1 were selected. The quotient between the value of the characteristic root by the number of variables used results in the proportion of the total variance explained by the factor, measuring how much that factor represents the variation of that variable (Paixão et al., 2020).

After retaining the factors, it is possible to estimate the factor scores, assigning values to each municipality analyzed. The attribution of scores for each municipality is done by multiplying the value of the variables with the coefficient of the factorial score of each observation (Paixão et al., 2020). From this obtainment of factor scores, it is possible to build indices, adapting the methodology those Paixão et al. (2020), Mendonça et al. (2018) and Melo and Parré (2007) used to create rural development indices, which they used factor analysis to build their indices.

Thus, the Gross State Capacity Index of the Municipalities was constructed according to Equation 1, in which a weighted average of the factor scores of each municipality was made since each factor presents a percentage of explanation of the total variance. This percentage is a decreasing value since factor 1 will have the highest value, factor 2 the second highest value, and so on. Using this weighted average, it is possible to give weight to the extracted factors.

$$IBC = \frac{\sum_{i=1}^{4}(W_i F_i)}{\sum_{i=1}^{4} W_i}$$

(1)

Where IBC is the raw ability index (weighted average of the factor scores), Wi is the proportion of variance explained by each factor, and Fi corresponds to the factor scores. After obtaining the raw index, an interpolation was performed, considering the highest IBC value found as 100, and the lowest value found as 0, creating the Municipal State Capacity Index (ICEM) of the 416 municipalities analysed.

The classification of the ICEM obtained was carried out according to their order, used by Melo and Parré (2007), in which extremely high (EH) was characterized by ICEM three standard deviations above the mean, the very high (VH) by ICEM between one and two standard deviations above the mean, the high (H) by ICEM between one and two standard deviations above the mean, the medium (M) by ICEM between the mean and one standard deviation, the low (L) by ICEM between the mean and one standard deviation below the mean, the very low (VL) by ICEM between one and two standard deviations below the mean, and the extremely low (EL) by ICEM two standard deviations below the mean.

To analyse the adequacy of the database used, the Barlett Test was taken into account, in which the sample needs to be statistically significant (p <0.05). In addition, the second test was the Kaiser-Meyer-Olkim (KMO), which represents the proportion of variance of the variables, in which the closer to 1,

the more adequate the data (Matos; Rodrigues, 2019).

A linear correlation analysis will be used to investigate the ICEM and its relationship with the development indices (IDHM), which will point out the intensity of the relationship between the variables. Thus, the correlation will be made with the operationalized variables and the HDI and between the obtained indices of state capacities (ICEM), which were generated from the factorial scores and development (IDHM).

The correlation results are represented within the range of -1 to 1, in which the signs indicate the direction of the relationship, the negative indicates that the growth of one variable implies the decrease of the other, and the positive indicates the growth or decrease of both variables.

4. RESULTS

4.1 FACTOR ANALYSIS OF MUNICIPAL STATE CAPACITIES

Five factors were extracted in the first run of the data to obtain an index of state capacities; however, in a first test of Kaiser Meyer Olink (KMO), four variables presented a suitability value considered impaired, presenting values between 0.5 and 0, 6. We excluded the variables SPC (Servers per capita), RMPC (Municipal Revenues per capita), CBH (Hydrographic Basins Committee), and IDEO (Ideology) that showed this low suitability, so we tested the model once more.

Thus, four factors were extracted from the new running, which presented values of the characteristic root above 1. These four factors, which concentrate the ten variables used in the model, explain about 64% of the variance of the variables, one considered adequate since the ideal is considered to be above 60% (Figueiredo Filho; Silva Júnior, 2010)

The KMO suitability test showed a value of 0.7756, considered good, and all variables also showed good adequacy. The LR value, representing Bartlett's sphericity test, was considered significant ($p < 0.0000$) for presenting a low value, indicating a correlation between the variables, not being an identity matrix.

From the extraction of factors, table 3 presents the factor loads and their respective commonalities, representing each variable's percentage of explanation. We considered the factorial loads with values above 0.5, as they demonstrate that these variables are more strongly related to their factors

(Mendonça et al., 2018).

Factor 1 was more strongly linked to the RAP, PPC, IGM, and AI variables, representing Revenues from Own Collection, GDP per capita, Municipal Management Instruments, and Computerized Activities. All these variables represent the technical-administrative capacity, a factor that is explained by 31.41% of the variance of the variables in the model, demonstrating how the economic factors (RAP and PPC), the existence of management instruments and the technology used in the municipalities (IGM and AI) have significant weight when influencing the state capacities of a municipality.

As for economic variables, GDP here was relevant to capabilities, a result also found by Grin et al. (2020), since municipalities with higher GDP have greater financial resources to spend on public policies. This resource may come from their collection since the RAP variable also has a strong connection in this factor, together with PPC. The fact that the municipality is less dependent on financial transfers from federal entities emphasizes that these have higher amounts of their collection, leading municipalities to qualify their fiscal management, whether in the collection or in the way in which they use their financial resources, developing their capacities (Grin et al., 2020; Jacob, 2019; Marenco; Strohschoen; Joner, 2017).

Table 3 | Factor Analysis and Factor Loadings.

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Commonality
PAP	0.2656	0.0838	**0.5563**	0.4248	0.4324
CEAP	0.3266	**0.6268**	0.0062	0.3611	0.3700
RAP	**0.8070**	-0.1073	0.0543	-0.3431	0.2165
PPC	**0.7240**	0.1647	-0.0331	-0.4334	0.2598
RFE	-0.8538	0.0299	-0.1141	0.1682	0.2289
IGM	**0.5959**	0.1246	-0.3481	0.2770	0.4314
PU	0.4757	-0.4145	-0.1022	**0.5241**	0.3169
AI	**0.5313**	0.2181	-0.3854	0.1139	0.5086
CP	0.0822	0.3747	**0.6445**	-0.0729	0.4321
CM	0.4345	-0.5935	0.3239	0.0795	0.3478

However, the fact that the IGM and AI variables are strongly linked in this factor reinforces the connection between municipalities with greater capacities having a high rate of own collection since the instruments for municipal management and computerized activities (taken into account

for elaboration of this variable) present several relevant practices in the fiscal management of the municipality: the existence of a computerized real estate register and ISSQN, the established rates, a generic plan of values, and a geographic information system, for example.

Concluding these results, finally, it is noted that the RFE variable, which represents Revenues from External Sources, did not show a strong relationship with any factor extracted in this analysis, despite having presented a good suitability value, being able to express how little interference there is of this variable on capacities, reinforcing that fewer dependent municipalities may have greater capacities than those that are more dependent on transfers.

Factor 2 is strongly linked only to the variable CEAP, which represents the Stable Body of Public Administration, and this factor explains 11.67% of the variation in the fact. Cardoso and Marenco (2019) found similar results when analysing municipalities' bureaucratic quality and state performance, considering a statutory bureaucratic body as significant.

Thus, it is possible to give more robustness to the theory of how stable servers are essential for a municipality to have better capabilities since the stability of a server allows for a more effective bureaucracy, which can act in favour of public organization and not by private interests, considering that it will act independently of electoral cycles, with lower corruption rates, and better policy implementation results (Jacob, 2019; Cardoso; Marenco, 2019).

Factor 3 showed a strong relationship between the Professionalization of Public Administration (PAP) and the existence of Public Consortia (PC), representing 11.27% of the variation. It is relevant to analyse that CP is the first variable of political-relational capacity to show a strong relationship with the extracted factors. In contrast, the professionalization of the bureaucratic body is the second variable that shows a strong relationship within a factor that considers public servants, demonstrating the relevance of these for state capacities.

These results corroborate with Grin et al (2018), Cardoso and Marenco (2019), and Fontanelli (2020), who found significant results regarding the professionalization of civil servants, noting that formal education is relevant because the more qualified the workforce, the better the results of the public service provided.

Accordingly, Fontanelli (2020) and Grin et al. (2018) also found adequate values in public consortia, reaffirming the importance of arrangements, channels, and instruments that connect various governmental and non-governmental actors, expressed here in consortia, emphasizing that municipalities seek cooperation to solve regional problems, strengthening capacities political-relational relations of the municipalities.

Furthermore, factor 4, which explains 10.21% of the variation, has a strong relationship only with the Urban Planning UP variable, alluding to how instruments aimed at improving the urban area through implementing public policies are relevant in the state capacities of the municipalities analyzed.

These instruments seek to consolidate urban planning practices, regulating urban development and regulating enterprises, through laws, funds, or incentives, giving municipalities greater control over the urban production process, often becoming a valuable economic activity (D'Amaral; Vaz, 2020; Fontanelli, 2020). Thus, implementing and/or managing these instruments requires capacity, demonstrating its importance, as it presents significant values in the variation of municipal capacities.

The CM (Municipal Councils) variable, despite presenting a satisfactory adequacy KMO, did not show a strong relationship with any factor extracted for this analysis and may express that it has low interference in the variation of state capacities in the analyzed municipalities.

This result may be linked to the difficulties, or lack of interest, of municipalities in obtaining more concrete results from their municipal councils, since some authors (Azevedo; Campos; Lira, 2020; Gouveia et al., 2018) report the lack of effectiveness of municipal councils, mainly due to the low adherence of political entities to the opinions and suggestions made by civil society in their meetings, in which they are heard for formality reasons, and do not influence decision-making, and often these municipal councils they are created as a bureaucratic function to ratify federal or state transfers. And yet, low accountability to board members and a lack of capacity to carry out this oversight.

Due to these results, it is worth mentioning the fact that the only political-relational variable that showed a strong relationship with the factors was that of public consortia and that the variables of ideology and river basin committees did not even fit the model, having to be excluded, which may demonstrate how political-relational capabilities still show low expression in the performance of municipalities.

In conclusion to this problem, Gomide, Machado, and Albuquerque (2021) report that the theory points to this relationship between capabilities and political-relational variables but that in practice, they also did not find significant direct effects on state performance caused by the relationship between bureaucracy and non-governmental actors state.

4.2 INDEX OF MUNICIPAL STATE CAPABILITIES

From the factorial loads, it was possible to estimate the factorial scores, which concern the new values calculated for each municipality analyzed, and construct the index from these scores. Thus, each municipality obtained its ICEM and the classification of its degree of state capacity.

The average ICEM obtained was 49.99, which can be seen in a large number of municipalities with medium and low capacity indices, representing approximately 74% of the analyzed municipalities. It is also possible to conclude that the municipalities in the Legal Amazon have poor capacity indices since municipalities with low, very low, or very low ICEM represent around 62% of the analyzed municipalities.

Obtaining this result of low capacities can be corroborated by the work of Cialdini, Afonso, and Leão (2021) pointed to the low capacity of Brazilian municipalities in municipal financial management, as well as Jacob (2019), who presents data on the municipalities of Goiás, in which these show great divergence in their capacities, where some municipalities are much more capable than others, and with Ribeiro, Macaya, and Coelho (2021), who report low capacities of municipalities to implement Information and Communication Technology (ICT) systems.

As for the low capacities of the municipalities, Grin and Abrucio (2018) consider these to be a characteristic of Brazilian federalism. CF/88 sought mechanisms to reduce inequalities between federal entities. However, this process required capabilities that local governments did not have, an issue identified in the results obtained, a scenario that makes Grin et al. (2018) highlights the need to modernize municipal administrations.

It is still possible to cut the results obtained when explaining the placement of works (Oliveira; Coelho, 2021) that highlight the difficulty of municipalities in managing and raising financial resources

and in establishing partnerships and coordination between different social actors, as these results are visible in the great importance given by the model to the variables of revenues arising from own collection and GDP per capita, while variables of a political-relational nature showed low relevance.

When observing the degree of capacity of the municipalities studied, in table 4 and 5, Mato Grosso presents around 56%, among all the municipalities analyzed, that presented a level of capacity above the average, and the only one that presented municipalities with a very high level of capacity. Within the state itself, 33.70% of municipalities have above-average capacity, 31.46% are below average, and 34.83% are average, demonstrating how Mato Grosso has more balanced rates among its municipalities.

In trying to explain why Mato Grosso has presented better results in terms of state capabilities, it is necessary to visualize that Mato Grosso is a state highly recognized for its intense agricultural activity, it has the four main soy producing municipalities in the country, and had the greatest increase in GDP per capita among Brazilian states, from 1985 to 2010, generating resources and jobs for the entire state (Castro; Lima, 2016).

Regarding the municipality of Canaã dos Carajás, the literature describes it as a place that underwent profound economic, social, territorial, and demographic transformations, through the installation of a Vale mining company there in 2002. From the 2000 census to 2010, the population increased from 10,992 to 26,716 inhabitants, and the municipal GDP went from R$27.757 million to R$2.118 billion (Vilella; Giusti, 2017). However, the authors point out that, in 2010, the mine Vale collected the equivalent of 70.86% of the municipal GDP and the majority of this collected wealth does not remain in the municipality, reflecting an unequal distribution of this wealth.

Therefore, it can be understood how the economic factor had great weight in the state capabilities index, especially when analyzing the weight that the PPP and RAP variables had as they were strongly linked to factor 1 of the factor analysis, and when visualizing that the municipalities with better placement present good economic values.

Table 4 | Ranking of the 5 best Municipal State Capacity Indexes.

City	Federation	ICEM	DC	Classification
Sinop	Mato Grosso	100	EH	1
Rondonópolis	Mato Grosso	96,37	EH	2
Lucas do Rio Verde	Mato Grosso	96,31	EH	3
Canaã dos Carajás	Pará	92,36	VH	4
Diamantino	Mato Grosso	91,93	VH	5

The negative highlight is the state of Maranhão which it was possible to attribute to two factors, according to the literature, first, according to Viana, Freitas, and Giatti (2016), Maranhão has the lowest GDP per capita in the Legal Amazon and the worst performance in the country. And second, Burnett (2014) describes Maranhão as a state that was once strongly characterized by clientelism, between municipalities and the state, which can make it difficult to identify a state bureaucracy, especially for the construction of a development project.

Table 5 | Ranking of the 5 worst Municipal State Capacity Indexes.

City	Federation	ICEM	DC	Classification
Amajari	Roraima	17,86	EL	407
Maracaçumé	Maranhão	17,70	EL	408
Presidente Sarney	Maranhão	16,62	EL	409
Alvarães	Amazonas	16,44	EL	410
Boa Vista do Gurupi	Maranhão	16,24	EL	411

4.3 MUNICIPAL CAPACITIES AND MUNICIPAL HUMAN DEVELOPMENT

A first analysis of the data obtained from Atlas Brasil shows that the municipalities studied had an average municipal human development index of 0.624, a value considered within the average range of development. Within the short development range, 10 municipalities correspond to 2.40% of those analyzed. Municipalities with low development represent 35.1% of the studied sample, 146. The average

development range covers most municipalities; there are 205, equivalent to 49.28% of the Legal Amazon. On the other hand, there is no municipality with very high human development, and only 55 municipalities have high development (13.22%).

These results demonstrate how state capacities and development can be interconnected, and the study with municipalities in the Legal Amazon presented, for the most part, low and medium state capacities, a result that is repeated with the MHDI, in which 84.38 % of municipalities are in the same development range, low and medium.

A correlation matrix, shown in Table 6, pointed to the correlation between the ICEM generated by work with the IDHM and between the variables used in constructing the ICEM and the IDHM.

The first analysis of the results obtained is a positive linear relationship between the ICEM and the IDHM and their components, indicating that when the value of one variable grows. The other also grows; that is, they move together. There is a correlation between municipal capacities and their development. Jacob (2019) when analysing the relationship between the administrative capacities of the municipalities of Goiás and the IDHM found a positive result in a similar correlation.

Table 6 Correlation Matrix.

	PAP	CEAP	RAP	PPC	RFE	IGM	PU	AI	CP	CM	ICEM	IDHM	IDHM-R	IDHM-L	IDHM-E
PAP	1														
CEAP	0,131	1													
RAP	0,121	0,127	1												
PPC	0,087	0,165	0,596	1											
RFE	-0,21	-0,227	-0,736	-0,568	1										
IGM	0,043	0,215	0,324	0,324	-0,365	1									
PU	0,091	0,064	0,257	0,11	-0,318	0,337	1								
AI	0,093	0,175	0,267	0,342	-0,327	0,334	0,175	1							
CP	0,088	0,089	0,024	0,078	-0,085	0,015	-0,028	-0,05	1						
CM	0,142	-0,025	0,312	0,17	-0,331	0,108	0,283	0,081	0,017	1					
ICEM	0,477	0,489	0,494	0,503	-0,574	0,442	0,318	0,334	0,347	0,257	1				
IDHM	0,146	0,28	0,529	0,569	-0,607	0,445	0,173	0,308	0,09	0,308	0,5	1			
IDHM-R	0,115	0,336	0,548	0,629	-0,661	0,545	0,209	0,349	0,071	0,229	0,526	**0,91**	1		
IDHM-L	0,028	0,166	0,41	0,55	-0,512	0,448	0,156	0,357	0,091	0,128	0,383	**0,738**	**0,733**	1	
IDHM-E	0,175	0,202	0,437	0,406	-0,47	0,271	0,121	0,202	0,087	0,354	0,407	**0,917**	0,693	0,507	1

The ICEM correlation value with the IDHM was 0.500, considered a moderate correlation according to Dancey and Reidy (2019), noting that municipalities in the Legal Amazon with greater capacities tend to be more developed. In work carried out with Brazilian municipalities, Fontanelli (2020) also found a positive relationship between government capacity and human development.

The RAP, PPC, and IGM variables, which in the AFE were connected to factor 1, here presented moderate correlation values with the HDI, the municipality's collection variable (RAP) presented a value of 0.529 with the IDHM, and GDP per capita (PPC) with values of 0.569 for the IDHM. The Municipal Management Instruments variable (IGM) also showed moderate correlation values with the MHDI, showing how these instruments can contribute to municipalities' capacity building and development.

On the other hand, the external collection variable (RFE) showed a negative sign in correlation with the development and capacity variables, indicating an inverse relationship and corroborating the results found in the factorial analysis, in which the greater the municipality's dependence on receiving the resources via transfers, the lower their capacity and development indices will be.

This result can also be seen in the negative correlation between the variable RAP and RFE, which also completes the idea developed, in which both present an inverse relationship, as the own collection variable (RAP) proved to be more related to better capabilities, the opposite presented by most dependent municipalities.

5. CONCLUSIONS

This work aimed to analyze the degree of the relationship between the state capacities of the municipalities in the Legal Amazon region and their municipal development. Thus, an index of municipal state capacities was elaborated, analyzing which municipal attributes constitute these capacities and, subsequently, giving weights and values to these attributes through a factorial analysis. With the weights and values assigned to each municipality analyzed, it was possible to construct the municipal ranking of state capacities in the Legal Amazon.

The variables of Income from Own Collection, GDP per capita, Municipal Management Instruments, Computerized Activities, and Stable Body of Public Administration, which are all of the technical-administrative scopes, explain about 43% of the variation in the variable, in which the

weight that this dimension has on municipal capacities was explained, as well as economic factors, the existence of management instruments and technology used in municipalities and the stability of servers have great weight in influencing the state capacities of a municipality.

When generating the ICEM, we found that the Legal Amazon municipalities have deficit capacity indices since the municipalities with low, very low, or extremely low ICEM represented 62% of the analysed municipalities. The municipalities with the best capacity indices were related to economic activities with a high municipal impact, such as agriculture and mining. In contrast, those with lower capacities are municipalities highly dependent on transfers from other federated entities.

In the analysis of the intensity between the ICEM and the IDHM, the correlation matrix showed positive results, meaning that when the value of a variable grows, the other also grows.

The variables Revenue from Own Collection, GDP per Capita, and Municipal Management Instruments were the ones that presented the best correlation values with development, demonstrating how economic variables have a great impact on development, which is an expected result, considering that municipalities with more revenues and more independent have more resources to provide development. Municipal management instruments proved relevant since they encompass mechanisms that aim to improve municipal collections, realizing how these three variables go together.

While the variable Revenues from External Sources, the only one that showed a negative sign in correlation with the variables of development and capacity, showing how both go in opposite directions, about development, due to the great dependence of municipalities on other transfers, where this dependency negatively impacts local development.

Through these results, the search for municipal development permeates the improvement of municipal collection and the use of devices aimed at improving this collection, considering the entire context of the Legal Amazon, a region with low levels of municipal development. As for the expansion of capabilities, in addition to the search for independence, it is relevant to consider the other variables studied as they enunciated efficiency in interfering with capabilities.

In contrast to the result obtained, it is necessary to dialogue with the existing relationship between capacities and development: better capacity indices generate more development, or does

high development generate municipalities with better capacities? To understand this relationship as a cycle, the work sought to incorporate all the multidimensionality of capacities and development components, applying the matrix not only with the calculated capacity variable but also with the variables that compose it.

This work aimed to contribute to the enrichment of research on capacities in the municipal area, presenting an overview of the state capacities of municipalities in the Legal Amazon and demonstrating the fragility of its public management. In this way, it is understood that there is much to deepen and study in the scope of capabilities and development, primarily due to the complexity of both concepts and how many variables can be included within them. Moreover, due to the great absence of data from several municipalities, in which we could have more relevant scientific information about a geopolitical area that aims at regional development, such as the Legal Amazon.

As an agenda for future research, this methodology for creating a capacity index can be applied in other municipalities, states, and regions, with the possibility of adding other variables and different dimensions of capacity. The application allows a comparative analysis of the country's different regions since there are great geographic, economic, and social differences present in Brazil. There is still room for research at the municipal level from the perspective of other methodologies for analysing state capacities to compare results.

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