



# **Article**

The influence of organizational aspects of educational and research institutions on transaction costs in the formation of partnerships with local governments

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How do organizational aspects of education and research institutions influence transaction costs in establishing partnerships with local administrations? Based on unpublished data from an online survey of a group of 95 educational institutions this article aims to answer this question through a quantitative study seeking to verify the correlation between the characteristics of the partnerships formed and three selected organizational aspects: decentralization of campuses, the existence of a structure to welcome potential partners (gateway), and the presence of approval bodies. Based on propositions relating to transaction costs extracted from the theory of collective institutional action, hypotheses were formulated involving the effect of each organizational aspect. The results showed that the decentralization of campuses influences not only the presence but also the number of relevant experiences of partnerships with municipalities. Structuring "gateways" in training institutions more precisely affects the degree of formalization of partnerships, offering greater legal security and stability. However, the presence of approval bodies for partnerships negotiated in teaching and research institutions does not seem to affect, either positively or negatively, the establishment of these partnerships.

**Keywords:** cooperation; transaction costs; municipalities; higher education and research institutions.

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### A influência de aspectos organizacionais das instituições de ensino e pesquisa sobre os custos de transação na formação de parcerias com governos locais

De que forma aspectos organizacionais das instituições de ensino e pesquisa influenciam os custos de transação para efetivação de parcerias com administrações locais? Com base em dados inéditos de um survey online para o conjunto de 95 instituições de ensino, com respostas validadas, o presente artigo se propôs a responder a essa pergunta por meio de um estudo quantitativo buscando verificar a correlação entre características das parcerias firmadas e três aspectos organizacionais selecionados: a descentralização dos campi; existência de estrutura de acolhimento de potenciais parceiros (porta de entrada); e existência de instâncias de aprovação. Com base em proposições relativas aos custos de transação, extraídas da teoria da ação institucional coletiva, foram formuladas hipóteses envolvendo o efeito de cada aspecto organizacional. Os resultados apontaram, ao final, que a descentralização dos campi influencia não apenas na presença como também no número de experiências relevantes de parcerias com municípios. Já a estruturação de "portas de entrada" nas instituições de formação afeta mais especificamente o grau de formalização das parcerias, oferecendo maior segurança jurídica e estabilidade. A presença de instâncias de aprovação para as parcerias negociadas nas instituições de ensino e pesquisa parece não afetar, em sentido positivo ou negativo, a firmação dessas parcerias.

Palavras-chave: cooperação; custos de transação; municípios; instituições de ensino e pesquisa.

### Influencia de los aspectos organizativos de las instituciones educativas y de investigación en los costos de transacción en la formación de alianzas con gobiernos locales

¿Cómo influyen los aspectos organizativos de las instituciones de educación y de investigación en los costos de transacción para establecer alianzas con las administraciones locales? Basado en datos inéditos de una encuesta en línea realizada a un grupo de 95 instituciones educativas, con respuestas validadas, este artículo se propuso responder a esta pregunta a través de un estudio cuantitativo que busca verificar la correlación entre las características de las alianzas firmadas y tres aspectos organizacionales seleccionados: descentralización de campus; existencia de una estructura de acogida de socios potenciales (pasarela) y existencia de órganos de aprobación. A partir de proposiciones relativas a los costos de transacción, extraídas de la teoría de la acción institucional colectiva, se formularon hipótesis que involucran el efecto de cada aspecto organizacional. Los resultados mostraron, finalmente, que la descentralización de los campus influye no sólo en la presencia, sino también en el número de experiencias relevantes de alianzas con municipios. La estructuración de "pasarelas" en instituciones de formación incide más específicamente en el grado de formalización de las alianzas, ofreciendo mayor seguridad jurídica y estabilidad. La presencia de organismos de aprobación de las alianzas negociadas en instituciones de enseñanza y de investigación no parece afectar, ni positiva ni negativamente, al establecimiento de dichas alianzas.

Palabras clave: cooperación; costos de transacción; municipios; instituciones de enseñanza e investigación.

### 1. INTRODUCTION

Brazil's federative arrangement under the 1988 Constitution gave a wide set of responsibilities for public policies to municipalities. Despite the strong impact of social welfare policies such as health, education, and social assistance on this decentralization process (Arretche, 2004; Almeida, 2007), these policies also included public lighting services, maintenance and paving of urban streets, solid waste removal, and environmental conservation. In turn, decentralization showed the need to strengthen municipal capacities to serve the population (Grin & Abrucio, 2018; Linhares et al., 2017).

To deal with this range of duties, partnerships with other governments (Abrucio et al., 2013; Machado & Andrade, 2014; Rocha, 2016), international organizations (Fuga, 2014) and private and civil society organizations (Melo, 2010) have expanded the possibilities for providing public services. However, cooperation and the joint action of different organizations does not happen naturally. The successful formation of cooperation networks depends on several factors like cultural and institutional legacies; induction by wider levels of government, like states and the national government; action of regional political leaders; systemic rules or financial incentives; and intergovernmental advocacy, among others (Grin, 2019; Grin et al., 2016).

In the perspective of educational and research institutions<sup>1</sup>, extension activities comprise partnerships with society, including those made by local governments, as a constituent part of their operation. The mission of these organizations, especially universities, has evolved to adapt to social changes and the demands of students, professors, and the community where they operate (Paleari et al., 2014). From the standpoint of partner municipalities, partnerships with educational and research institutions are an opportunity to develop their capabilities and use available social technologies to make their public policies. Understanding the work of these organizations and their connections with society, as well as the barriers for establishing these partnerships, is in line with this broader research agenda (Rueda et al., 2020).

This article was developed within a specific framework, seeking to analyze the relevance of organizational aspects of educational and research institutions (universities, research institutes, and government schools) for building partnerships with Brazilian municipalities. Specifically, we sought to answer the following question: how do these organizational features of educational and research institutions influence the transaction costs of establishing partnerships with local administrations?

Consistent with the Collective Institutional Action (CIA) approach, we considered transaction costs as a category that includes the resources spent, so that two or more collective entities can produce and implement a contract or agreement. Three organizational factors were addressed for analyzing these partnerships: a) the decentralization of campuses; b) the existence of specialized structures to welcome municipalities, potential partners (as a "gateway"2); and c) the existence of approval bodies for the partnerships negotiated at the educational and research institutions.

In this paper, the exploratory statistical analysis aimed to identify correlations between these factors and attributes of the partnerships signed with municipalities. Data were generated as part of the UniverCidades Project, conducted by the National Confederation of Municipalities (CNM) and funded by the European Union, which addressed partnerships between local governments and educational and research institutions. There were two main initiatives in that project. The first took place at the end of 2017, with the purpose of identifying the demands for knowledge and information from municipalities and the sources most searched by local managers. The second initiative sought to map existing partnerships and their institutional arrangements. The discussion in this article relates to the latter study, whose empirical survey was carried out in partnership with the National School of Public Administration (Enap).

The contribution of this study, although restricted to the supply side of the partnership (educational and research institutions), is innovative for going beyond the descriptive nature of most studies on the subject. Its findings, which correlate its success with precise and theoretically justified variables, provide opportunities to advance the literature on the topic.

After this introduction, next section discusses some of the theoretical dilemmas of partnerships involving organizations, in particular the factors that can reduce transaction costs that exist in institutional partnerships. The third section looks at the Brazilian institutional context for partnerships

<sup>&</sup>lt;sup>1</sup> In this article, educational and research institutions include higher education organizations and research centers (centers, institutes, and foundations), in addition to government schools and similar.

<sup>&</sup>lt;sup>2</sup> "Gateways" refer to the existence of specialized structures, routines, and bureaucracy for establishing partnerships with municipalities. Next, this concept will be revisited as a hypothesis and applied to empirical tests.

between educational and research institutions and local governments, for establishing extension activities. The fourth section addresses the methodology used in the research and explains the hypotheses. The fifth section analyzes and discusses the empirical data. Finally, in the sixth section, we outline some conclusions and recommend the necessary steps to deepen our understanding of the organizational issues involved in these partnerships.

#### 2. COOPERATION AND TRANSACTION COSTS INVOLVING ORGANIZATIONS

Transaction costs are a key category for understanding the success and failure of inter-institutional partnerships. In this paper, we consider this category in the sense attributed by the Collective Institutional Action (CIA), an approach originally created as a field of studies to analyze cooperation problems in North American regional organizations, especially regional and government councils, metropolitan planning organizations, and inter-municipal partnerships (Kim et al., 2022). In these regional organizations, local governments act cooperatively, but without giving up their autonomy and independence throughout the bargaining process, creating associations with limited authority (Kwon, 2007), with which they do not relate hierarchically.

CIA participates in the discussion of the strategic dilemma between adhering or not to cooperation, originally described in the classic 'The logic of collective action', by Mancur Olson Junior (1968), but extending it to problems of cooperation between organizations, such as local governments (Skuzinski, 2015). It is a framework originally built on an extensive literature that addresses those situations where individual incentives would lead to collective results not desired by anyone. However, by supporting Ostrom's contributions (1990, 2005), it assumed extending these situations to contexts where such individuals are composite governments, defined from institutional positions, authorities, or rules for aggregating preferences. Like Ostrom, CIA recognized the strategic capacity of these actors, but linked the expected benefits and costs to shared norms and the discount rates spent during the bargaining process (Ostrom, 1990), in addition to contextual factors involving the nature of the cooperative problem, the actors' preferences, and the institutions where they act and interact (Kim et al., 2022).

Cooperative arrangements are a strategy to maximize the resources available to local managers, thus increasing their chances of a successful political career (Kwon, 2008). However, the cooperative solution involves overcoming a basic social dilemma, since each local government has to choose between giving up power to a regional authority in order to achieve benefits, and losing the conditions to process certain issues autonomously; or, on the contrary, renouncing these benefits to avoid losing control over decisions relating to these same issues. In the first choice, it sacrifices part of its autonomy to receive regional benefits; in the second choice, it gives up these benefits for keeping the former.

Overcoming this dilemma depends on the risks of collaboration present in the specific context: they can be risks of defection or betrayal; risks of coordination; and also risks of disagreement, which typically exist when potential partners have different preferences on the future situation to reach through cooperation (Feiock, 2013). The institutional solution to overcome these collaboration risks can be integration mechanisms between local governments, covering from less institutionalized forms of interlocal integration - such as informal networks based on trust between partners -, passing through formal voluntary contracts between the interested governments, until reaching regional entities,

which are given delegated power to act, regardless of prior authorization from these governments (Feiock, 2013; Kim et al., 2022).

However, such integration mechanisms imply different costs in two dimensions. In the first (vertical), decision-making costs grow with the size of the group of participants or with the number of tasks or issues involved in the cooperation; in the second (horizontal), decision-making costs grow as local governments give up their autonomy in favor of a regional organization (Feiock, 2013; Kim et al., 2022). Decision costs tend to be lower, for example, in associations that only take care of part of the goods or services in a public policy, or involve a limited number of municipalities - this would be the case of the partnerships discussed in this paper.

Nevertheless, if they are part of transaction costs, they are not limited to decision and autonomy costs. They comprise all the resources spent to identify parties interested in carrying out a transaction, negotiating, and reaching an agreement, as well as formalizing a contract and applying the necessary measures to ensure its compliance (Coase, 1960). Their magnitude is a key element for explaining the adhesion or not to cooperation, and it is important that they are outweighed by the magnitude of the benefits achieved through cooperation (Feiock, 2007). Transaction costs are inversely related to the likelihood of cooperation – the higher they are, the less probable.

Having considered these issues, the research agenda of the theory of collective institutional action has addressed efforts to identify and measure the weight of the factors that can affect it, in order to motivate local governments to adhere or not to cooperation for solving collective problems (Hawkins, 2010; Kwon, 2008). At this point, we revisit Ostrom's (2005) contribution to a second generation of Rational Choice studies, especially by considering the iterative nature of the interactions between the agents involved - which added reputational, reciprocity, and trust variables to the solution of the cooperation dilemma - as well as topics related to information failures or asymmetries, making the problem of shaping actors' expectations or informational imbalance relevant at the explanatory level.

Therefore, the factors that explain the success or failure of cooperation should include attributes of government agents perceived by the stakeholders involved in the transaction, such as the degree of homogeneity or heterogeneity between them (Gerber & Gibson, 2005; Feiock, 2005, 2007; Kwon, 2007; Tavares & Feiock, 2013), so that the more unequal or heterogeneous they are, the higher the expected transaction costs to identify a common agenda for cooperation. Other factors relate to the characteristics of the goods or services shared in a common cooperative agenda, like their fractioning and measurability. Such attributes, if absent, can invalidate the trust in sharing benefits between members, according to their contributions (Feiock, 2005, 2007; Kwon, 2007; Tavares & Feiock, 2013).

The very rules of the decision-making process, adopted in a regional or inter-municipal organization created to support cooperation, can increase transaction costs – for example, by involving a large number of participants or requiring supermajorities – (Gerber & Gibson, 2005, 2009), attributes that make it difficult to overcome participants' veto power. Factors like reputation and developing trust between speakers, by reducing uncertainty in bargains between face to face conversation partners (Carr, 2013), can reduce transaction costs. It can also occur by the previous existence of social ties between managers or experts working in the different government structures involved (Kim et al., 2022; Zeemering, 2019). On this last point, Aldag and Warner (2018) mention that over the duration of partnerships, these networks can replace formal agreements between the parties, due to their ability to generate trust in keeping the cooperation process.

In this study, which does not involve local governments around a collective action problem, but rather partnerships between players of different kinds - local governments and educational and research organizations -, we chose as a variable of interest not exactly those mentioned above, but instead certain organizational attributes of those institutions. Municipalities and teaching and research organizations may pursue different goals (the former, adding new technical and knowledge resources; the latter, a field for developing extension or research actions), but they share a common interest in building feasible cooperative projects. Our interest concerns how these organizational attributes influence transaction costs, in order to foster or hinder partnerships with local governments.

But before presenting and exploring some of these hypotheses, we describe the institutional context where cooperative arrangements or partnerships that are the subject of this paper were developed, that is, educational and research centers or universities, on one side, and Brazilian municipalities, on the other.

## 3. PARTNERSHIPS BETWEEN EDUCATIONAL AND RESEARCH INSTITUTIONS AND LOCAL **GOVERNMENTS FOR EXTENSION ACTIVITIES**

The number of educational and research institutions in Brazil has grown significantly since the mid-2000s, through the creation of several federal universities and institutes, and enrollment in undergraduate courses grew by around 58% between 2007 and 2017 (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira [INEP], 2018). Along with this expansion, there was also an increase in initiatives to connect these establishments to the community, including those broadly classified as "social actions" and "continuing education", as well as "graduate follow-up" activities, whose connection with society is less clear (Rueda et al., 2020).

Historically, Brazilian education and research establishments are institutional spaces for knowledge creation and dissemination. Article 207 of the 1988 Federal Constitution made the "inseparability between teaching, research, and extension" a principle to guide Brazilian universities, despite their didactic-scientific, administrative, and management autonomy. Hence, extension has become one of the three pillars supporting the work of these organizations in the country, defined as "an interdisciplinary, educational, cultural, scientific, and political process that promotes a transforming interaction between the University and other sectors of society" (Fórum de Pró-Reitores de Extensão das Universidades Públicas Brasileiras [ForProex], 2012, p. 15). Extension projects enable passing on this knowledge to the communities where these institutions are located, while building new knowledge from field learning.

Among the "communities" included, city halls have a strong demand for knowledge and problem solution, thus increasing the challenges for extension activities to "strengthen the autonomous and critical-propositional relationship [...] with public policies, through structuring programs capable of generating social impact" (ForProex, 2012, p. 22). While universities concentrate most of the knowledge generated from teaching and research, "Brazilian municipalities, in general, have little state capacity to respond to the set of duties that have increasingly become their responsibility" (Grin et al., 2021, p. 674). The absence or presence of professionals with higher education explains the performance of urban policies, especially in the functions of government planning and regulation, in Brazilian municipalities (Marenco, 2017).

International studies on very different realities have shown quite similar situations regarding the lack of local capacities and gaps in partnership relations with teaching and research institutions. Lundberg and Andresen (2012) addressed the barriers to cooperation between public authorities, universities, and the business sector in Sweden, highlighting the importance of project funders for overcoming them. Peasle et al. (2011), based on an online survey with 95 local managers in the United States, found a significant gap in the collaboration between universities and local governments, and the greatest unmet needs were the support to strategic planning activities and training of civil servants. Finally, Lis (2021) also found, in a survey with 66 representatives of local governments in Poland, a great difference between expectations and the need for cooperation with universities, with a low level of satisfaction of the latter. In Brazil, the few available studies report successful extension experiences (Cassemiro, 2020; Silva et al., 2020), but there is a lack of more comprehensive studies on this type of partnership.

In the same direction, debates held by CNM at the Seminar on Innovative Municipal Management Initiatives, in December 2015, highlighted the distance that still exists between universities and society. Despite the evolution of university extension, the degree of articulation between teaching and research centers and society actors, and of municipal governments, was still low. Aware of the need to develop capacities in municipalities and seek partnerships, in March 2017 CNM signed an agreement with the European Union to carry out the project "UniverCidades: Platform for Municipal Development and Governance". Its overall purpose was to help strengthen local capacities for implementing public policies, by identifying, promoting, exchanging practices, and reapplying innovative and successful initiatives to improve management performance, especially in places with limited capacities and resources (low Human Development Index - HDI).

At the onset, two baseline studies were carried out. The first was a survey on demand, to provide CNM with a more accurate view of the priorities and needs of Brazilian municipalities, in terms of knowledge and information. The second was a national mapping of existing partnerships between education and research centers of various kinds, including universities, and municipalities, as well as their institutional spaces where municipal demands could be directed.

The survey on the demand for knowledge and information was carried out with 898 representatives of 628 Brazilian municipalities (around 11% of the total), from 25 states. The results showed that only 16% of respondents consider educational and research centers as sources of knowledge or information, a choice that ranked seventh out of eleven options regarding accessible sources. One plausible explanation relates to the institutional incentives arising from the policies established by the Coordination for the Improvement of Higher Education Personnel (Capes) in recent decades, with direct effects on the motivation of professors and researchers to prioritize research and postgraduate programs, to the detriment of university extension. However, extension projects are the ones that open up the main opportunities for partnerships between university professors and students, on one side, and communities, including municipal technical teams, on the other. The second survey sought to map partnerships between teaching and research centers and municipalities. It was done together with the National School of Public Administration (Enap) and the Forum of Extension Pro-Rectors of Brazilian Higher Education Institutions (ForProex). Next, we detail the methodology used in this second survey, which was the data source for this article,

### 4. RESEARCH METHOD

This was an exploratory research that used a quantitative methodology to identify educational and research institutions, their organizational aspects, and the correlations with partnership experiences with city halls.

For data collection, we carried out an online survey with educational institutions present on the lists of the National Network of Government Schools, provided by Enap, and on the National Network of University Extension, managed by ForProex. The survey was specially designed for our research, in workshops with Enap and CNM representatives. We applied it through the LimeSurvey platform.

We contacted 406 institutions, by email and telephone, between November 07 and December 15, 2017<sup>3</sup>. In the end, we received 326 answers (80.3%). After analyzing the database, we withdrew questionnaires without respondents or institutions' identification, as well as those repeated, which were found by checking the answers provided by the same respondent of the same organization. After this stage, 95 valid responses remained (23%), distributed among the 26 states and the Federal District, except for three states - Acre, Amapá, and Piauí.

Of the 95 educational and research institutions investigated, there were 64 federal or state public institutes and universities<sup>4</sup> (67.37%) and 31 government schools or government training centers, linked to direct or indirect administrations (32.63%). Of this group, 42 institutions do not have decentralized campuses<sup>5</sup> (44.21%). In the 53 institutions with decentralized campuses (55.79%), the number of additional campuses ranges from 1 to 24 decentralized units, with an average of 5.6 campuses per teaching and research institution with this organizational format. In 40 institutions (42.1%), the host city is the state capital. In the others, host cities are medium-sized towns or regional hubs in the countryside. The only information available for size - the estimated number of undergraduate students enrolled - was not filled in or did not apply to 30 institutions (31.57%). For the others, the approximate number of registrations ranged from 200 to 50 thousand students. There were no additional data on the size (budget, number of professors, etc.), nor the foundation date of these teaching and research institutions<sup>6</sup>.

The survey had four main sections: i) identification of the institution; ii) identification of the respondents; iii) mapping of partnerships between educational institutions and city halls; and iv) registers of relevant experiences involving the educational institution and Brazilian city halls.

In the iii section (mapping of partnerships), the following aspects were addressed:

- If there was a partnership between the institution and city halls.
- Management areas with partnerships.
- Thematic areas of the partnerships.

<sup>&</sup>lt;sup>3</sup> Authors are unaware of more recent collections done in this period, which makes our analyses unprecedented.

<sup>&</sup>lt;sup>4</sup> There is only one case of partnership with a private for-profit education and research institution. There were no respondents from community or non-governmental non-profit institutions.

<sup>&</sup>lt;sup>5</sup> The research questionnaire asked for separate identification of decentralized campuses and the identification of municipalities where these campuses were located. For a formal definition of decentralized universities or university centers, see the annex of MEC Normative Ordinance no. 21, of December 21, 2017.

<sup>&</sup>lt;sup>6</sup> The descriptive research report is available at the CNM website, under the title "Catalog of partnerships between Teaching and Research Centers and Municipalities" (2018): https://cnm.org.br/storage/biblioteca/Catálogo%20UniverCidades%20CNM%20ENAP.pdf

- How partnerships started (personal or institutional contact).
- Institutional arrangements (gateway, way of registering demands, process for drawing partnership terms, approval bodies, formalization procedure).
- Success factors and main barriers for partnership achievement.

As previously stated, data analysis was exploratory, and presents the results of association measures between variables. We assumed the statistical validity of the correlations for confirming the hypotheses as  $p \le 0.05$ . In some hypothesis tests, N was below 95, due to missing answers.

### 4.1 Hypotheses

The hypotheses defined in this paper were grouped into three axes of analysis, referring to the organizational attributes of the education institutions involved in the partnerships: decentralization of campuses; structuring of "gateways" for processing partnerships; and the existence of formal approval bodies.

# a) Relationship between campuses decentralization in education and research institutions and partnerships

In theory, decentralization of campuses brings the structure of the education institution physically closer to the municipalities that are potential partners, reducing transaction costs for identifying those interested in building partnerships.

According to Coase's theory (1960), these costs include the resources used to find interested parties to carry out a transaction, negotiate with them, reach an agreement, formalize a contract, and implement the necessary measures to ensure compliance. On the one hand, they are an important factor in assessing the individual cost-benefit involved in promoting the collective action (Feiock, 2007).

On the other hand, in the process of repeated interactions, a positive reputation and developing trust between players are important aspects for reducing uncertainty in negotiations (Feiock, 2013; Kim et al., 2022), hence the transaction costs, opening up a field for exploring variables, such as the previous existence of informal and interpersonal networks between managers or bureaucrats (Hawkins, 2010; Kwon, 2007). This trust is favored by physical closeness and repeated networking of relevant actors, making it interesting to check if decentralization could encourage its development.

From these considerations, we explored the following hypotheses:

- I. Having decentralized campuses increases capillarity; therefore, the potential to establish partnerships with municipalities.
- II. Having decentralized campuses increases capillarity; therefore, the number of relevant experiences through partnerships with municipalities.
- III. The more decentralized campuses, the more partner municipalities.
- IV. Having decentralized campuses increases capillarity, but creates more informality in partnerships with municipalities.

# b) Relationship between "gateway" (a specialized structure to welcome municipalities) at education and research institutions and partnerships

As the scale of partnerships increases, education institutions can develop specialized structures that leverage routines and bureaucracy to formalize cooperation arrangements. It is assumed that these structures generate information economy and reduce the necessary transaction costs. With this in mind, we proposed the following hypotheses:

- Having a "gateway" affects the number of relevant experiences through partnerships with municipalities.
- VI. Having a "gateway" affects the number of partner municipalities.
- VII. Having a "gateway" generates more formality in partnerships with municipalities.

## c) Relationship between the existence of approval bodies for partnerships negotiated at education and research institutions and partnerships

Theoretically, the presence of approval bodies increases transaction costs, as they require technical justification and often political articulation, but it deserves checking if this would affect the establishment of partnerships. Decision-making processes, depending on the rules used (consensus or super-majoritarian rules, for example), can increase the transaction costs for reaching a solution, given the potential for vetoes (Gerber & Gibson, 2005, 2009). Hence, we proposed the following hypotheses:

- VIII. Having approval bodies for negotiated partnerships generates more formality in partnerships with municipalities.
- IX. Having approval bodies for negotiated partnerships makes them more difficult, by including a smaller number of partner municipalities for the institution.
- X. Having approval bodies for negotiated partnerships affects the number of relevant experiences through partnerships with municipalities.

### **5. DATA ANALYSIS**

Data analysis was guided by the set of hypotheses presented, which derive from the discussion on transaction costs and information economy, based on the theory of collective institutional action.

<sup>&</sup>lt;sup>7</sup> The expression "approval bodies" regards different stages or departments, administrative or legal, within the education and research institution, for analysis and approval of the partnership with municipalities.

# a) Relationship between the decentralization of campuses at educational and research institutions and partnerships

The first set of hypotheses on the formation of partnerships between education institutions and city halls concerned the relationship between them and the existence of decentralized campuses. When analyzing the number of institutions with decentralized campuses, we see that most of the organizations in our survey (53 or 55.8%) are in that situation.

We aimed to understand the correlation between the existence of decentralized campuses and: a) the potential to establish partnerships with municipalities; b) the existence of relevant partnership experiences; c) the number of associated municipalities; and d) the incentives for more informal partnerships.

The first two hypotheses were supported by data. The existence of decentralized campuses is associated with a greater potential to build partnerships ( $\Phi = 0.359$ , p < 0.01). As seen in Table 18, almost all education institutions with decentralized campuses have some relevant partnership with city halls.

Similarly, decentralized campuses are associated with more relevant experiences ( $\Phi = 0.339$ , p < 0.05). Table 2 shows that education institutions with decentralized campuses have more than one relevant experience of partnership with city halls.

On the other hand, the last two hypotheses raised were not confirmed by empirical data. When comparing the number of decentralized campuses with the number of municipalities participating in the partnership, there is no clear correlation pattern (r = 0.001; p = 0.996). This can be seen in Graph 1, which resembles a cloud of dots.

Finally, there was no clear correlation between the existence of decentralized campuses and more informal partnerships. As Table 3 shows, although there is a higher number of informal experiences in teaching and research institutions with decentralized campuses, this difference for the set of collected data was not statistically significant ( $\Phi = 0.126$ , p = 0.279).

### b) Relationship between "gateway" at education and research institutions and partnerships

The second set of hypotheses aimed to understand the associated effects of the existence or not of specialized structures for welcoming municipalities within education institutions. First, we highlight that most respondents to this question have a "gateway" (49 out of 65 respondents answered this question, or 75.38%). Therefore, this structure is quite common in the institutions surveyed.

The purpose of the analysis was to contrast the existence of a "gateway" and: a) the existence of relevant experiences with city halls; b) the number of partner municipalities; and c) the degree of partnership formality.

The first hypothesis was not supported by the collected data. There is no significant association between the existence of specialized structures for welcoming municipalities and the number of relevant partnership experiences ( $\Phi = 0.063$ , p = 0.979). As Table 4 shows, having a "gateway" does not significantly change the amount of relevant experiences between the groups.

To test the second hypothesis, which contrasts a dummy variable (having or not a "gateway") with a continuous variable (number of partner municipalities), we used the effect size measure of the

<sup>&</sup>lt;sup>8</sup> The mentioned tables and graphs are available in the annex.

association between these dimensions (squared Eta or  $\eta^2$ ). According to the values commonly used in the literature (Cohen, 1988), the existence of a "gateway" is weakly associated with the variation in the number of municipalities ( $\eta^2 = 0.019208$ , or less than 2%). Hence, the second hypothesis was also not supported by data.

The last hypothesis regarding the "gateway" referred to potential associations with the degree of partnership formalization. Unlike the two previous hypotheses, data confirmed the hypothesis of higher formality associated with the existence of specialized structures to welcome municipalities within education institutions ( $\Phi = 0.452$ , p < 0.01). As seen in Table 5, the "gateway" is a relevant variable for observing differences in the formality of partnerships. While 75% of the partnerships without a "gateway" are associated with a more informal nature, 75% of the initiatives with a "gateway" are linked to more formal rites of partnership institutionalization.

# c) Relationship between the presence of approval bodies for partnerships negotiated at education and research institutions and partnerships

The last set of hypotheses focused on the consequences of having approval bodies for partnerships. Initially, we observed that the vast majority of cases have them (55 out of 64 respondents to this item, or 85.93%). The research aimed to compare the presence of partnership approval bodies with: a) higher formality of the established partnerships; b) the number of partner municipalities per institution; and c) the number of relevant experiences identified.

The first hypothesis analyzed referred to the existence of approval bodies and higher formality in partnerships with municipalities. There is a weak association between these two dimensions, which is not statistically significant by conventional standards ( $\Phi = 0.232$ , p = 0.104). In Table 6, we see the lack of a pattern that could associate the existence of an instance of agreement with more formality. Therefore, the first hypothesis was discarded.

The second hypothesis referred to a nominal variable (existence or not of an approval body) and a continuous variable (number of partner municipalities). As with the previous set of hypotheses tested, it was necessary to measure the size of the effect by using squared Eta. The results of this statistical analysis showed a practically non-existent association between the two variables ( $\eta^2 = 0.000005$ , or less than 0.00001%). Therefore, the second hypothesis was also rejected.

The third and final hypothesis investigated if there was any association between the existence of approval bodies and one or more relevant experiences. Data analysis did not allow making this association ( $\Phi = 0.273$ , p = 0.301). Table 7 shows a concentration of the few cases where there are no approval bodies, with no relevant experiences or just one. For the cases where there are these formal instances, the distribution is relatively homogeneous across all categories. Thus, the existence of one or more relevant experiences seems to be determined by factors other than approval bodies.

### 5.1 Discussion

The institutionalization of routines and procedures within organizations refers to various aspects such as the history of these organizations, the executives' profile, and the composition of the workforce, as well as aspects of organizational culture. This article sought to explore, more strictly, attributes related to the structure of education and research institutions and their consequences for the institutionalization of partnerships with local governments, considering their influence on the transaction costs involved.

In terms of the organizational structure observed in education institutions, the existence of decentralized campuses is the dimension most clearly associated with the development of partnerships and relevant experiences with city halls. The capillarity of the campuses seems to affect positively the establishment of trust bonds and identification between organizations and municipalities' agents. In addition, we can argue that there was a decrease in the transaction costs associated with organizing these partnerships.

Another organizational trait associated with some correlation in partnerships with educational and research institutions is the establishment of "gateways" to speed up the formalization or institutionalization of partnerships. The existence of professional spaces for welcoming partnerships seems to be associated with standardized and impersonal routines that not only facilitate contact between parties' representatives, but also shorten negotiations regarding the terms of the partnership and its formalization. Similar to what was observed for decentralized campuses, the "gateways" reduce the transactional costs for formalizing partnerships, fostering an institutional practice of interaction with municipal managers, which increases legal certainty by enabling either party - if offended - to claim, in some instance, for compliance with the assumed commitments.

A last organizational aspect addressed refers to the approval bodies. It is natural to expect that education and research institutions have their own bodies or instances for approving partnerships with municipal entities, as observed in the study. However, they did not have any consequences or implications, positive or negative, for the partnerships. Anyway, the existence of such instances did not seem to increase the transactional costs of establishing partnerships.

#### **6. FINAL REMARKS**

In this paper, we used basic assumptions on transaction costs for building partnerships, from the Collective Institutional Action approach, to analyze cooperation schemes involving different organizational actors: on one side, local governments; on the other, educational and research institutions, such as universities and government schools. Although they have different purposes, both types of players benefit from carrying out cooperative projects. Our goal was to assess the extent to which organizational attributes of the education institutions involved - the decentralization of campuses; structuring "gateways" for making partnerships; and the presence of formal approval bodies - affect the results for establishing cooperation networks.

First, the study innovates by adopting this approach, often used to study cooperation problems between collective entities of the same institutional nature. A second innovation is the effort to go beyond the descriptive nature of most studies on this type of partnership. We sought to identify correlations between their success and variables theoretically justified, based on their expected impact on transaction costs between the parties, thus providing new opportunities to advance knowledge on the subject.

Our results bring some lessons for education institutions and can foster decisions on university extension policies and understanding their links with society (Paleari et al., 2015; Rueda et al., 2020). We found evidence that the decentralization of campuses influences not only the presence but also the number of relevant partnership experiences with municipalities. On the other hand, structuring "gateways" in education institutions affects more specifically partnerships' degree of formalization, providing greater legal certainty and stability. The presence of approval bodies in these institutions for

the partnerships negotiated does not seem to have a negative or positive effect on building partnerships, meaning that they do not lead to higher transaction costs.

At last, as limitations of this paper, the adopted cut-off did not include exploring the attributes of local governments and their influence on the aforementioned transaction costs, or even the more general conditions for establishing partnerships with educational and research institutions. This is a necessary activity, but would go far beyond the scope of this article; hence, it was left for a future research agenda. In addition, we must acknowledge the risks of bias produced by the sampling method, such as the self-selection of organizations to answer the questionnaire. In any case, the percentage of responses obtained by the online survey was around 23% of the cases, or 95 of the 406 institutions contacted.

Furthermore, the results stem from the analysis of public educational and research institutions. In the case of private and non-governmental institutions, new studies should be carried out. Finally, we only used measures of association, which restricted the scope of this study to its exploratory nature. In any case, this is a contribution for future studies to advance the phenomenon approach, applying other quantitative techniques, as well as qualitative studies, considering the most theoretically interesting cases - such as those for which the hypotheses of the Collective Institutional Action predict results in a direction opposite to that actually seen. Hence, we realize that there is a large horizon to be unveiled.

In the future, it would be interesting to explore other factors that affect the implementation of partnerships; for example, organizational changes in educational institutions regarding greater or lesser appreciation of extension activities among professors and researchers, considering the prevalence of the incentive system in academic institutions oriented towards research and postgraduate studies. Other future aspects to explore could regard the factors that affect the success of established partnerships, as well as understanding, with the use of qualitative methods, the perceptions of teaching and research institutions, municipalities, and municipal associations on the benefits of these partnerships and how to deal with transaction costs inherent to these social interactions.

On March 12, 2024, the federal government announced the creation of 100 new campuses of federal institutes, resuming the expansion of the federal scientific and technological education network, as part of the New Growth Acceleration Program (New PAC)9. In addition to the expected benefits of this expansion, like impacts on the economy and on the possibilities for training young people and adults, based on the results of this article, we hope that the decentralized distribution of campuses will not only increase the number of partnerships, but also affect positively the recurrence of substantive partnerships between these institutions and Brazilian municipalities.

<sup>9</sup> See: https://www.gov.br/mec/pt-br/assuntos/noticias/2024/marco/governo-federal-anuncia-100-novos-campi-de-institutos-federais

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José Angelo Machado: Conceptualization (Equal); Formal analysis (Equal); Visualization (Equal); Writing original draft (Equal); Writing - review & editing (Equal).

#### **DATA AVAILABILITY**

The entire dataset supporting the results of this study is available upon request to the National Confederation of Municipalities (CNM). The dataset is not publicly available due to a commitment made to the organizations participating in the research.

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### **ANNEX**

TABLE 1 EXISTENCE OF ANY PARTNERSHIP BETWEEN THE INSTITUTION AND THE CITY HALL, DUE TO THE PRESENCE OF DECENTRALIZED CAMPUSES

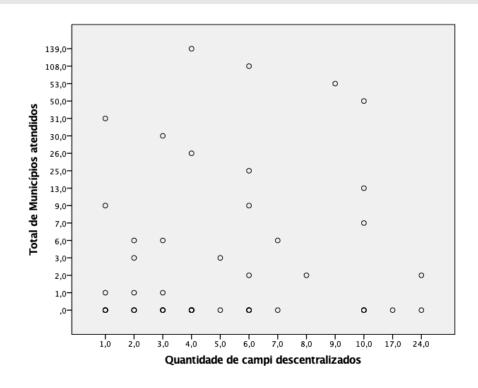
		Is there any partnership (or	Is there any partnership (or more than one) between the institution and city hall(s)?			
		No Yes Total				
Does the institution have decentralized campuses?	No	14	28	42		
	(%)	33.30% 66.70%		100.00%		
	Yes	3	50	53		
	(%)	5.70%	94.30%	100.00%		
Total		17	78	95		
(%)		17.90%	82.10%	100.00%		

**Source:** Elaborated by the authors based on data collected by the CNM/Enap research.

TABLE 2 RELEVANT EXPERIENCES DUE TO DECENTRALIZED CAMPUSES

	Were there relevant experiences in the last four years s?					
		No	One experience	Two experiences	Three experiences	Total
Does the institution have decentralized campuses??	No	7	14	2	4	27
	(%)	25.90%	51.90%	7.40%	14.80%	100.00%
	Yes	13	10	9	15	47
	(%)	27.70%	21.30%	19.10%	31.90%	100.00%
Total		20	24	11	19	74
(%)		27.00%	32.40%	14.90%	25.70%	100.00%

**GRAPH 1** NUMBER OF MUNICIPALITIES ATTENDED BY THE AMOUNT OF DECENTRALIZED CAMPUSES



**Source:** Elaborated by the authors based on data collected by the CNM/Enap research.

TABLE 3 TYPES OF PARTNERSHIPS DUE TO THE EXISTENCE OF DECENTRALIZED CAMPUSES

		If there are partnerships between the institution and city halls, they are, in general:				
		Personal initiatives Institutional initiatives Total				
Are there decentralized campuses?	No	7	20	27		
	(%)	25.90%	74.10%	100.00%		
	Yes	18	29	47		
	(%)	38.30%	61.70%	100.00%		
Total		49 25		74		
(%)		66.20%	33.80%	100.00%		

TABLE 4 RELEVANT EXPERIENCES DUE TO THE EXISTENCE OF A "GATEWAY"

Were there relevant experiences in the last four years?							
		No, none	One experience	Two experiences	Three experiences	Total	
Is there a	No	5	3	2	2	12	
	(%)	41.70%	25.00%	16.70%	16.70%	100.00%	
	Yes	14	11	5	7	37	
	(%)	37.80%	29.70%	13.50%	18.90%	100.00%	
Total		19	14	7	9	49	
(%)		38.80%	28.60%	14.30%	18.40%	100.00%	

**Source**: Elaborated by the authors based on data collected by the CNM/Enap research.

TABLE 5 TYPE OF PARTNERSHIP DUE TO THE EXISTENCE OF A "GATEWAY"

		If there are partne	If there are partnerships between the institution and city halls, they are, in general:				
		Personal initiatives	Personal initiatives Institutional initiatives Total				
No	No	9	3	12			
Is there a	(%)	75.00%	25.00%	100.00%			
"gateway"?	Yes	9	28	37			
	(%)	24.30%	75.70%	100.00%			
Total		18	31	49			
(%)		36.70%	63.30%	100.00%			

TABLE 6 TYPE OF PARTNERSHIP DUE TO THE EXISTENCE OF APPROVAL BODIES

		If there are partne	If there are partnerships between the institution and city halls, they are, in general:			
		Personal initiatives	Personal initiatives Institutional initiatives Total			
	No	4	2	6		
Are there approval bodies for	(%)	66.70%	33.30%	100.00%		
this type of partnership?	Yes	14	29	43		
	(%)	32.60%	67.40%	100.00%		
Total		18	31	49		
(%)		36.70%	63.30%	100.00%		

**Source:** Elaborated by the authors based on data collected by the CNM/Enap research.

TABLE 7 RELEVANT EXPERIENCES DUE TO THE EXISTENCE OF APPROVAL BODIES

		V	Were there relevant experiences in the last four years?				
		No, none	One experience	Two experiences	Three experiences	Total	
Are there approval bodies for this type of partnership?	No	4	2	0	0	6	
	(%)	66.70%	33.30%	0.00%	0.00%	100.00%	
	Yes	15	12	7	9	43	
	(%)	34.90%	27.90%	16.30%	20.90%	100.00%	
Total		19	14	7	9	49	
(%)		38.80%	28.60%	14.30%	18.40%	100.00%	