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CONFLICT AND FEDERATIVE COORDINATION IN FEDERAL INVESTMENTS EXECUTED BY MUNICIPALITIES

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Abstract

This text deals with the economic consequences of the institutional formatting of the Brazilian federative state under the Federal Constitution of 1988 (CF/1988), in the context of vertical coordination of urban infrastructure investments by municipalities, with financing from federal resources. Previous studies have shown that, between 2013 and 2015, the gains obtained in terms of economic efficiency of this type of investment - made possible by the intermediation of resources from the Caixa Econômica Federal (CEF) - were associated with institutional characteristics dependent on the state of federative coordination, with direct reflections on the scales of municipal capacities and advanced levels of counterpart of own resources. Based on new evidence, the text examines the state of municipal execution of federal investment projects in terms of economic efficiency, in the period between 2015 and 2019. For this analysis, data gathered by the Federal Audit Court (TCU) on the status of works financed by the federal government were used. The most recent performance of these projects is then evaluated vis-à-vis the performance of federal investments as a whole - and those included in the Growth Acceleration Program (PAC). Thus, the extent of the effect of the alternating state of federal coordination on the determinants of efficiency observed in the municipal execution of federal investments is inferred for the period. We conclude that technical difficulties and budgetary restrictions strongly impacted (in a comprehensive but differentiated way) the performance of investments executed with federal resources, as a reflection of the change in the state of federal coordination. Finally, it is recommended to regularize (case by case) the financing of recoverable works and to seek improvements in vertical coordination for the successful execution of projects financed with federal resources.

Keywords: federalism; federative coordination; public investment; municipal governments.

JEL: E61; E65; H11; H54; H60; H70; H73; H77.

SUMMARY

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1 INTRODUCTION

The functional organization of the State according to the diversities of its unitary and federative forms has profound and varied implications, also for the design, implementation, and operation in all aspects of public actions. Traditionally, the pure distinction between unitary or federative forms of organization of the State is the main aspect of the differences observed in the concrete results, in terms of distributive equity and economic efficiency, of the application of public policies (Weingast, 1995; Keman, 2000).

However, despite general theoretical considerations derived essentially from the elaboration of abstract models and arguments, in the comparative investigation of historical cases the purity of this distinction is concretely subverted.

Historically, for example, there are records of reforms in unitary European states (Spain, France, Italy), aimed at the territorial redistribution of central power, through the absorption of federative principles aimed at the creation of regional governments. And this is not a peculiarity of western Europe. As an illustration, in Latin America there are also historical records of cases in which the constitutional decentralization of the unitary state was achieved through the absorption of a combination of federative institutions (Linhares, 2014).

On the other hand, in the case of federal nation-states, their historical constitution has resulted in a wide range of situations, associated, in turn, with institutional specificities that determine public actions (Anderson and Erk, 2009). Thus, in the framework of a given federative institutional framework, the actions, and interactions of public actors (also with private actors) at various levels of governance¹ should occur according to the regulations derived from a comprehensive set of laws and administrative rules, even if this profusion of institutional elements results in significant difficulties in coordinating the actions of federal entities, even in situations that concretely demand relatively simple initiatives.

In the understanding of this broadly complex framework for the investigative approach, the search for explanations of the differences in the concrete results of public policy actions requires, within the scope of the investigation, the analytical incorporation of institutional aspects of its own, peculiar, and very different from those delimited according to the usual purist categorization, typifying the unitary and federative organizations of the State.

In this sense, it is also understood that the ability to coordinate the actions and interactions of public entities at various levels of governance is not inherent or automatic to the establishment per se of a given federative arrangement. On the contrary, the autonomy of the federated entities makes the achievement of coordination by the Union a result of arrangements implemented through successful cooperation. Thus, for the Union to achieve general coordination of the actions of the federated entities,

1 For a discussion of the term governance, see Bovaird and Loeffler (2016).

the existence of “institutional mechanisms that allow central governments to obtain the cooperation of subnational governments to carry out policies of common interest (...) is more relevant than the form of state” (Arretche, Vazquez and Gomes, 2012).

Particularly in the case of the Brazilian State resulting from the formatting given by the Federal Constitution of 1988 (CF/1988), the comparative analysis indicates that the existence of common competencies of the federated entities in several areas of public policies establishes its *differentia specifica*, entailing from it - with more intensity than in the cases of other federations considered - the need for central action in the construction of institutional mechanisms of cooperation capable of ensuring the successful coordination of general actions evaluated in terms of effectiveness, economic efficiency, efficacy and greater distributive equity.

From this perspective, this paper aims to study the federative coordination of a particular public action, amid the variety of prevailing levels of federative governance in Brazil. More precisely, its object of study is federative coordination through the monitoring of public investments in urban infrastructure executed by Brazilian municipalities, based on resources from voluntary transfers from the Union. In this sense, the central research question addressed in the paper is whether the degree of federative coordination achieved was able to maintain the standard of efficiency in the local execution of federal investments, given the prevailing levels of federative governance in Brazil and the prioritization conferred by the municipalities to the allocation of transfers of Union resources.

It is also worth noting that this study is a development of a broader research area developed over the last few years at Ipea, which aims to understand how national federalism operates, particularly regarding cooperation and coordination among its constituent entities, both horizontally and vertically. Therefore, some results previously obtained in this same investigative effort are explored here and combined with more recent findings.

In addition to this introduction and the conclusions at the end, the text has three sections. Section 2 initially analyzes the theoretical-conceptual arguments that support the activity of federal public investment with a view to promoting vertical federative coordination, in the terms described above. It then proceeds to a brief description of the main characteristics of the Brazilian federative arrangement, in search of the general conditioning factors for the central coordination of the actions of its members in relation to the activity of investing.

Having contemplated the delimitations of the theoretical-conceptual and institutional frameworks involved in the Brazilian federative arrangement after CF/1988, section 3 undertakes a logical-theoretical analysis applied to the empirical evidence of the aspects of regional distributive equity and economic efficiency, provided by investments executed with federal resources in municipalities between 2013 and 2015.

Section 4, in turn, examines the state of municipal execution of federal investment projects, in terms of economic efficiency, between 2015 and 2019. The intent here is an assessment of the most

recent performance of these projects in light of their share in overall federally-funded investment spending—that is, vis-à-vis the most recently observed performance of federal investments as a whole. In this way, we seek to infer the scope of changes - associated with the changing state of federal cooperation - on the general conditioning factors and the specific determinants of the efficiency achieved in the municipal execution of federal investments.

Finally, a section with Conclusions closes the text indicating its main messages, as results of the logical sequence present in its organization along the three main sections briefly commented above.

2 THE BRAZILIAN FEDERATIVE ARRANGEMENT

Since the end of the 20th century, decentralized nation-states have been seen as desirable models for democratic governments characterized by higher levels of accountability and, consequently, of efficiency and effectiveness in the development of public policies (Bardhan, 2002). The main theoretical arguments supporting this view lie in the informational advantages and the superiority of positive incentives of local governance (states and municipalities) over central government (Manin, Przeworski, and Stokes, 1999). On the one hand, in the dimension of informational advantages, local governments have a higher level of knowledge of crucial aspects of the regional reality. Among the latter, residents' preferences for locally focused public policies stand out. On the other hand, in the dimension of superiority of incentives, local managers are seen from the perspective of confronting a structure of rewards and punishments that induces them (in a relatively more intense way than in the case of central government managers) to guide their actions according to the most immediate preferences of (local) citizen-electors, either through rewards or punishments for (good or bad) performance in the electoral process. Thus, in principle, municipalities would be more efficient and effective in the (locally determined) supply of public policies.²

From this point of view, therefore, the elevation of the status of the municipality to federated entity was the most significant practical and symbolic element in the federal decentralization promoted in Brazil with CF/1988. This movement was also characterized by a greater municipal participation in aspects of the general distribution of tax revenues and its own constitutional competence in matters of local interests. With this, in addition to greater decentralization, the model of federalism adopted in the country also began to present two characteristics of significant relevance: symmetry and cooperativism.

The symmetry (or asymmetry) between entities of a federation is one of the main features to distinguish the existing federated states (Watts, 2000). In federations characterized by symmetry

2 Although these expectations and assumptions were present in the historical movements for the expansion of decentralization in different countries, it is important to emphasize that the desired ends have not necessarily materialized. As Arretche (1996) points out, decentralization does not ensure more democratic, less corrupt, or more efficient governments. There is a set of conditions for achieving more satisfactory results, from the broader functioning of democratic rules to intergovernmental coordination arrangements.

of federated entities, such as the Brazilian federation, there is no differentiation between regional states and (or between) municipalities from a legal point of view (Zuber, 2011), regardless of their population or territorial size, or their stage of economic and social development. In this sense, the symmetry of the federation implies that only isolated variations in the infra-constitutional level can occur in the treatment of its constituent entities. This is the case, for example, of some Brazilian states that are favorably discriminated in the regional distribution of the resources of the States Participation Fund (FPE) or, similarly, of some Brazilian municipalities (state capitals) that are also favorably differentiated in the distribution of the Municipalities Participation Fund (FPM).

Thus, the general symmetry between municipal and state entities has consequences of extreme relevance in the implementation of public policies, as will be seen, for a country still characterized by deep inter-regional and intra-regional differences in all aspects.

From a comparative historical perspective at the international level, most countries organized in the federative form ended up adopting the pattern currently in force in the United States (Stepan, 1999), with attributions and competencies of municipal governments determined by the state entities. This, in turn, explains the emergence of significant variations, at the national level, from most federations at the international level (Elazar, 1991). The case of the Argentine federation, for example, illustrates this well. There, each province defines what its municipal entities are, from the typification of their respective attributions to the determination of their territorial extension. In this sense, some provinces ended up defining their municipal units as strictly urban entities, thus relegating large rural areas of their territory to a vacuum of municipal belonging (Müller, 2014).

In turn, even when federations adopt national models of local governance, municipal units can be typified according to some main categories. In this sense, also by way of illustration, it is worth mentioning the case of the Indian federation, with its three municipal categories, each of which has different attributions and sources of resources according to the nature of the tasks distributed and the rules established in the Federal Constitution.³

Back to the Brazilian case, as observed, the symmetry conferred to municipal units as entities of the federative arrangement constitutes the most salient feature of its specificity. But, besides decentralization and symmetry, the Brazilian federation is also characterized by a cooperative feature defined by the existence of multiple areas of public policies with common competencies; that is, in which distinct spheres of the federation can act with concurrent competencies, based on a general legislation constitutionally provided (Souza, 2005).

This raises a fundamental question for understanding the dynamics of federative relations in the different areas of public policies in Brazil, namely, what would be the implications of the operation of a decentralized, symmetric, and cooperative federative state.⁴

3 For a general understanding of the Indian federative arrangement, see Tillin (2019).

4 The cooperative federation is characterized by the existence of numerous common and shared competencies among its

The search for the answer, however, requires first an examination of the implications of combining the main aspects of the previous question.

Given the high degree of socioeconomic heterogeneity prevailing in the country, it should be noted that the cooperative characteristic of the federative arrangement provided flexibility so that solutions in the search for greater coordination could be made possible. Thus, the cooperative characteristic also favored the required adaptation of the actions of each sphere of government (and even of municipalities with very different conditions), depending on the specificities of the public policy areas and the contingencies imposed at each moment. A notorious example of the advantage obtained with the cooperative characteristic in Brazilian federalism is given by the organization of the Unified Health System (SUS), through which the municipalities successfully started to play differentiated roles in the health care network. Naturally, the institutional construction of the SUS is not free of problematic aspects and, therefore, subject to criticism, but its executive merits derived from the coordination of the federated entities' actions are exemplary (Ribeiro and Moreira, 2016).

In most cases, however, the lack of objectivity in the establishment of exclusive competencies for each entity of the federation in the most diverse areas of public policy ends up causing significant coordination problems,⁵ as overlapping actions, lacking rationality and efficiency, or even in disagreement with the real social needs focused on, resulting in damage to the maximization of the supply of public services for the population.

In general, the lack of coordination of actions in the Brazilian federation reflects the fact that each entity has - according to its characteristics and expectations about the eventual actions of the others - the incentives for the omission of its own action in specific areas. Thus, the positive use of the flexibility potential provided by the cooperative characteristic in the general coordination of municipal actions requires the institution of an agreement among the federative entities that can effectively establish to what extent (what, how, when, and how much) each one of them will be involved in the execution of the public policy in question.

Without an agreement of this type, the risk of coordination problems between the federative entities is aggravated because of the high degree of autonomy of local governments. Decentralization has created a greater need for coordination, precisely because it has given municipalities resources and autonomy, decision-making power, to adhere or not to proposals about what they should or should not execute in many areas of public policy. In this same sense, by encouraging (in an uncoordinated

entities. This type of federalism differs from the dual federalism, in which the competencies among the federated entities are not shared. Therefore, the functioning of a cooperative federal state should not be confused with the existence of cooperation among the federated entities. In this second sense, cooperation is a condition for achieving the general coordination of the actions of the federated entities, a process through which the actors involved seek to adjust their behavior to the present and future behavioral expectations of the others. In this sense, see Axelrod and Keohane (1985) and Machado and Palotti, (2015).

⁵ Besides the aspects related to coordination difficulties, there are broader criticisms in the literature of the cooperative model. Among the latter is the lack of accountability and transparency, since citizens are not able to easily identify which entity of the federation is effectively responsible for the provision of each service. In this line of argument, see Greve (2000).

way) the search by local administrators to improve the welfare of citizens in their jurisdiction, the combination of decentralization and autonomy can lead to the generation of negative externalities in the local economy and, consequently, to inefficient results from the point of view of the overall provision of public policies.

Decentralization thus involves an intensification of the need to establish agreements between the federative entities, by means of a transparent pact of common goals and objectives, as well as reciprocal obligations. Without an agreement with such attributes, that is, without the clear specification of the executive model adopted in a certain area of public policy, there is no guarantee of its enforcement. In this case, federal relations will be characterized by tensions and conflicts, both vertically (between spheres of government) and horizontally (between governments of the same sphere).

3 FEDERATIVE ARRANGEMENTS FOR VERTICAL COOPERATION

The capacity to produce coordination in the actions and interactions of public actors at various levels of governance is not inherent or automatic to the establishment per se of a given arrangement. On the contrary, the autonomy of the federated entities makes coordination in a federation the result of arrangements implemented through successful cooperation. In this sense, with a view to the Union achieving coordination of the actions of federated entities (object of analysis of this text, federative coordination in the case of federal investments made by municipalities), the existence “of institutional mechanisms that allow central governments to obtain the cooperation of subnational governments to carry out policies of common interest (...) is more relevant than the form of state” (Arretche, Vazquez and Gomes, 2012).

Thus, obtaining the cooperation of subnational governments by the central government requires considerations about general and constituent aspects of public policies. The latter are shaped by constitutional and infra-constitutional regulations, with the action of epistemic communities,⁶ in addition to the participation of different governmental (and non-governmental) actors involved in shaping their relationship and cooperation actions. During such actions, therefore, the operations of public policy systems and other norms associated with very distinct patterns of operation and achievement of concrete results prevail.

In the Brazilian case, the first (constituent) aspect of public policies to be highlighted is the fact that the Constitution of 1988 was designed with the redemption of the Brazilian social debt as one of its pillars, from which a fundamental set of individual and social rights is explicit. In this sense, in a federation marked by profound regional inequalities, the need to provide a set of public services of universal character through the implementation of investments in urban infrastructure takes priority

⁶ “The term ‘epistemic community’ designates a network of experts in specific areas of knowledge, who, endowed with authority, share not only notions of validity and a pattern of reasoning and discursive practices, but also a commitment to the production and application of knowledge, in the terms of a political project directed at specific problems and founded on these common understandings.” (Miniuci; 2011). In this sense, also, see Soares and Vitelli (2016) and Haas (1992).

(Arretche, 2004; 2010).

Secondly, given the requirement of public investments in services of universal character, the proximity of the nature of the coordination problems faced in the actions of the various areas of social policies and federal investments in urban infrastructure by the municipalities draws attention. In both cases, there are many public actors with autonomy and, therefore, with veto power over the execution of public policies, which is a potential obstacle to the overall coordination of actions at the federative level (Tsebelis, 2009). It is also noteworthy that this type of problem has greater potential severity in Brazil, due to the historical diachrony observed between the movements of political and fiscal decentralization, on the one hand, and administrative decentralization, on the other (Falleti, 2006).

As observed, in this scenario, the resolution of the dilemmas posed by the constitutional autonomy of the federal entities requires the strengthening of central coordination mechanisms and the modeling of infra-constitutional instruments of intergovernmental cooperation.

In this sense, for example, one can understand how the strengthening of central coordination mechanisms that occurred in Brazil during the 1990s and 2000s contributed to a greater assumption of responsibilities by subnational entities in the general provision of public services. The application of minimum budget amounts (constitutionally defined) and the organization of single or national systems in the period made it possible to increase the general mobilization of the federated entities around the production of social policies in the country - at the same time that the development of horizontal coordination instruments (such as public consortia, for example) strengthened the autonomy (provided for in the Constitution) necessary for the organization of subnational entities with a view to the joint provision of public services.

Theoretically, based on the contributions of rational choice and the description of joint decision arrangements made by Scharpf (1988) for the German case, Machado (2014) outlines two types of vertical coordination. The first refers to a unilateral articulation of the central entity in relation to its agents, the subnational entities. This is the management contract format, in which “the Union unilaterally defines the ends, what will be provided, in what way, and who will benefit” (Machado, 2014, p. 199). In the language of rational choice, the Union represents the principal that, through contractual means, decentralizes the execution of the policy by mobilizing subnational states and municipalities (its agents).

The second ideal type of vertical coordination represents the opposite of a unilateral contract. It corresponds, in fact, to a more cooperative and horizontal coordination format, known as shared management. In general, it is characterized by an assembly or committee format and by the need for subnational entities' consent in relation to the Union through unanimous deliberation (Machado, 2014).

It is important to note that, even within the scope of the same policy, there is always the possibility that different government programs end up requiring forms of interaction between the

Union and the subnational entities, although, depending on the case, some public policies may entail the need for arrangements with determined levels of hierarchization or cooperation. Table 1 summarizes these elements in a schematic way.

TABLE 1 - Comparison of ideal types of vertical coordination

	Contract for execution	Shared management
Agenda power and incentive design	Union Centered	Diffuse, with veto power to subnational governments
Regulating the behavior of subnational governments	Sub-national governments must strictly execute what has been defined by the Union (sanctions and control)	Multilateral control and audit (Union do not have exclusive domain)
Pattern of relations between the Union and subnational governments	Verticalized and fragmented relations between the Union and subnational governments	Horizontal and multilateral relationship (negotiation arenas)

Source: Machado (2014). Elaboration by the Authors.

Thus, ideally, federative coordination is an agreement that determines what, where, how much, and when each entity of the federation should participate, whether in the design or in the implementation of each specific public policy. Such coordination can occur horizontally and/or vertically, but its intent will always be the implementation of public policies in search of regional distributive equity and economic efficiency, through investments with calculated impacts on the set of actions of the federative entities.

Specifically, in the case of Brazilian municipalities, the relevance of such actions occurs: i) exactly because the Constitution of 1988 established the municipality as a federative entity, making it legally responsible from the point of view of accountability; ii) also because the labor force to be mobilized (in the public sector) is already allocated there; and iii) finally, with regard to the execution of the projects themselves, because the municipal government has a clear advantage over the federal government in terms of information capacity.

From a historical point of view, besides the factors previously mentioned, two other elements that followed CF/1988 with relevant implications for the organization of the supply of public services by Brazilian municipalities also deserve to be highlighted.⁷

On one hand, the approval of Law #11.107/2005, known as the Law of Public Consortia, offered a set of more solid legal instruments for credible agreements in the search for inter-municipal cooperation (North, 1993). One of the most important aspects of the new legal instrument refers to the possibility of a contractual form of agreements between municipalities, replacing the covenant, implying guarantees for the development of joint actions. On the other hand, throughout the 1990s,

⁷ For further discussion, see Linhares, Messenberg, and Ferreira (2017).

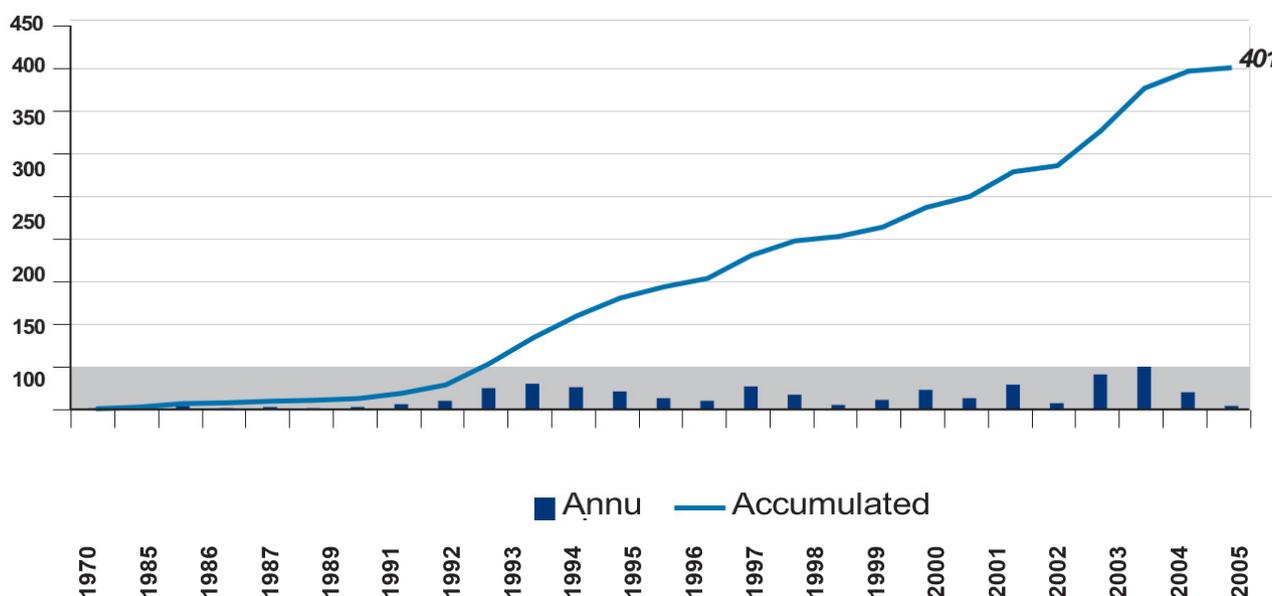
an intense process of municipal subdivision was observed, especially in municipalities with smaller populations.

Thus, the scenario observed in Brazil during the first decade of the new millennium in relation to subnational units is that of local governments: i) legally responsible for the execution of several areas of public policy; ii) with more and better information in relation to the central government about their own investment needs and the means to meet them; and iii) with a significant concentration of the public sector labor force - even though most of the municipalities involved here were demographically small units.

Thus, because of the aforementioned factors, a significant increase in municipal consortia is observed in Brazil between 2005 and 2012 in all areas of public policy (graph 1).

CHART 1 - Active public consortiums, according to the opening of CNPJ - Brazil

(In absolute numbers)



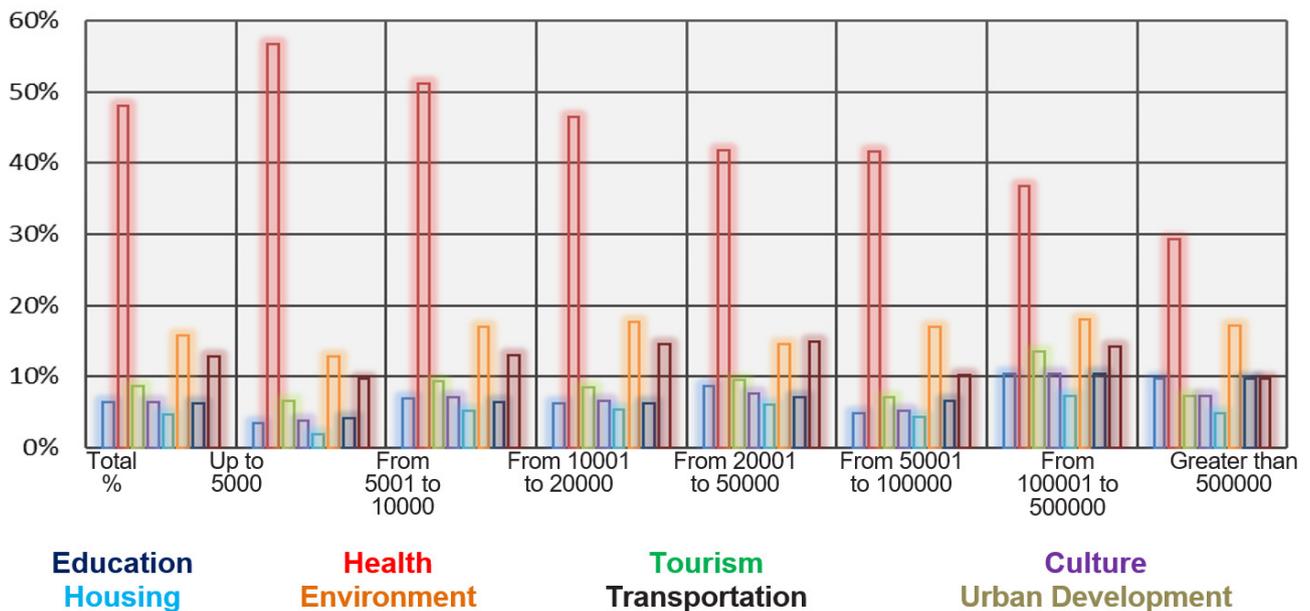
Source: Cherubine and Trevas (2013). Elaboration by the Authors.

It is worth noting that, taking population density into account, this movement has resulted in a peculiar distribution of the number of consortia (graph 2); that is to say: the number of consortia has generally grown in relation to the population in the various areas (except in the case of health, where exactly the opposite occurs).⁸

⁸ For a detailed exposition in qualitative and quantitative terms of this movement, see Cherubine and Trevas (2013) and Linhares, Messenberg, and Ferreira (2017).

CHART 2 - Intermunicipal Consortia, by size of municipality - Brazil (2015)

(In %)



Source: Cherubine and Trevas (2013). Elaboration by the Authors.

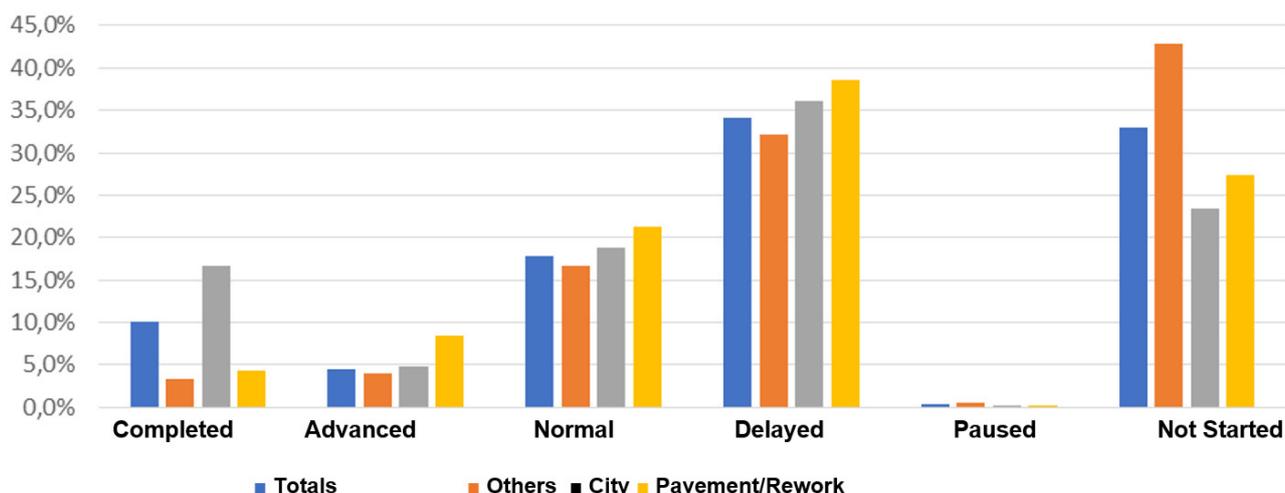
As for the evaluation criteria for federal programs executed by municipalities, it should be mentioned here that two of them have been previously employed as critical monitoring tools in surveys (sample data regarding contracts signed in 2013 and the executive status of works in 2015): the criteria of distributive equity and relative efficiency (Linhares et al., 2016).

From the equity point of view, the researched data showed that the values (in per capita terms) of federal investments exhibit positive correlation with the magnitudes (per capita) of current revenues captured by the municipalities. It is worth saying, in general, that municipalities with lower funding constraints are, paradoxically, those who benefit most from the execution of values in investment projects (Linhares et al., 2016).

In turn, regarding the actual executive efficiency of the projects, the data for the mentioned periods (contracts signed in 2013 and executive status of the projects in 2015) can be examined by inspecting chart 3.

CHART 3 - Service status (2013 contracts executed in 2015)

(As % of total category quantity)



Source: Caixa Econômica Federal (CEF). Prepared by the authors.

Thus, according to graph 3, the data inform a reasonable percentage of delayed works and another negligible percentage of stopped works, in any of the selected grouping areas (categories): total; municipal; paving and resurfacing; and others (other).

The econometric analysis of these data in previous studies (Linhares and Messenberg, 2020) revealed the following: on the one hand, with respect to equity, there is evidence that the political system would contribute positively to a desirable regional (municipal) distribution of budget resources, on the other hand, with respect to the executive efficiency of projects, there are significant indications that, given the state of federative cooperation between central government and municipalities, only the characteristics of the latter (in particular, those reflected in the scales of the municipal capacity indicator⁹ and in their own levels of counterpart resources) would contribute positively to the chance of successful project execution.

9 “To measure the importance of municipal capacity for the efficiency of municipalities in the execution of federal projects, the Municipal Capacity Indicator (MCI) was developed. The elaboration of the MCI, in turn, reflected the composition of four partial indexes: i) Planning Capacity Index (PCI); ii) Organizational Capacity Index (ICO); iii) Financial Capacity Index (ICF); and iv) Social Organization Capacity Index for Monitoring (ICSM). The data sources for the construction of these partial indexes were: Municipal Basic Information Survey (Munic) 2013 of the Brazilian Institute of Geography and Statistics (IBGE), Munic 2014/IBGE and Private Foundations and Non-Profit Associations (Fasfil) 2010/IBGE. Each partial index had its value normalized on a scale between 0 and 1, where zero indicates the worst possible situation, and the unitary value is associated with an ideal situation. To obtain the partial indexes (PCI, ICO, ICF, and ICSM), a composition given by the arithmetic average of selected variables was calculated in each case. In addition, the MCI construction involved two alternative calculations. In the first option, the geometric mean of the partial indexes was used and, in the second, an arithmetic mean weighted according to the following weights: i) ICP: weight 1; ii) ICSM: weight 1; iii) ICO: weight 2; and iv) ICF: weight 6. Finally, the influence of the MCI on the implementation of paving and resurfacing projects was estimated through a logistic regression (logit), in which the outcome is evaluated in terms of the presence or absence of project delays or stoppages. Thus, an attempt was made to identify the degree of influence of the MCI (together with other variables) in cases of delays (greater than expected) in the execution of the works (according to their initial schedule), or stoppages, at the time of the last inspection - as reported by CEF in November 2015. “ (Linhares et al. 2016).

In this sense, however, two orders of considerations naturally emerge that must be taken into account for the general validity of the results obtained. First of all, it must be questioned how the passage of time and, consequently, the continuous production of new data in the series used (or in others more closely associated to them) could alter the general content of the previous conclusions. Secondly, still in the same sense, one should also consider the possibility of changes in the data of such series due to a discontinuity in the general state of the external conditioning factors of the mentioned municipal factors (in particular, of the municipal capacity indicator).

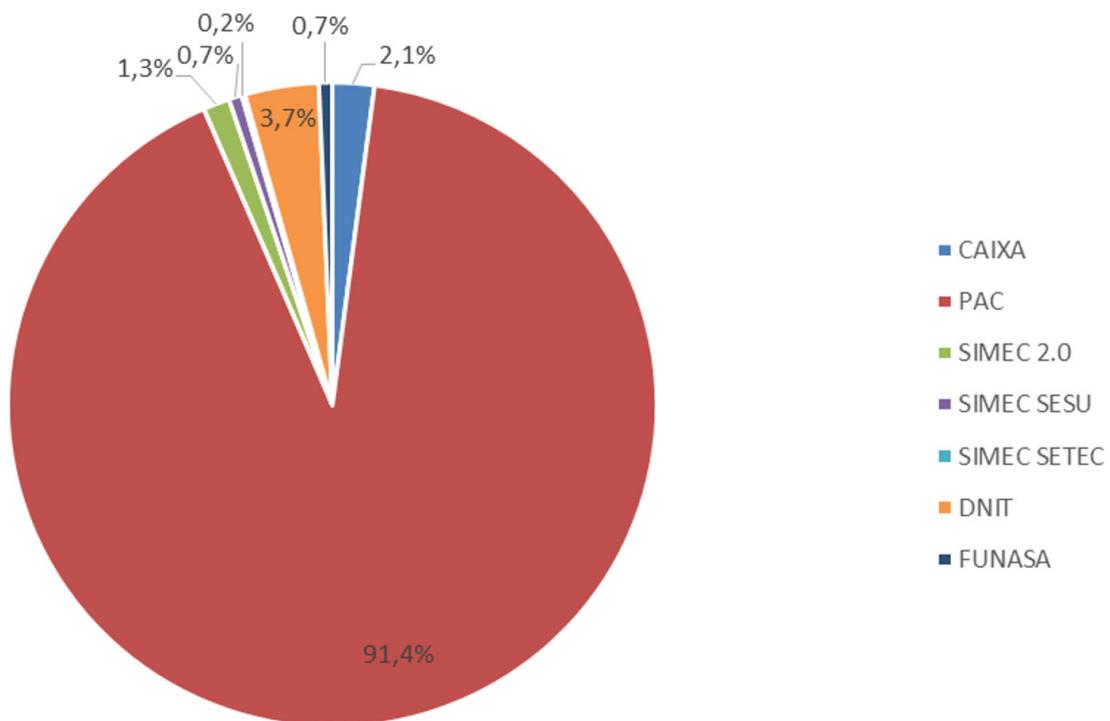
4 WORKS WITH FEDERAL FUNDS: RECENT DIAGNOSIS

More recent general information on the progress of public works indicates significant changes (quantitative and qualitative) that occurred between 2015 and 2019 in the state of execution of federal investments in Brazil.¹⁰ Thus, in the absence of specific detailed information and with the intention, still, of making an assessment of the evolutionary trajectory of municipal execution of federal projects, this section seeks to examine the behavior of their efficiency in light of their participation in the set of investment expenditures financed with federal resources - that is, vis-à-vis the performance of federal investments globally considered. Thus, in an innovative and complementary manner to previous research (Linhares et al., 2016; Linhares and Messenberg, 2020), it seeks to infer the scope of recent changes (associated with the alternation of the state of federative cooperation) on the general conditioning factors and the specific determinants of the most recently estimated efficiency (2015-2019) in the execution of federal investments by municipalities. This research effort, therefore, advances the comparison of the execution of federal investments for the recent period, developing a dialogue with the findings of previous studies.

Graphs 4 and 5 show the relative shares of values and quantities, respectively, of public investment works in Brazil financed with federal resources between 2015 and 2019, according to the various programmatic institutional modalities. It is observed, then, that the share of federal resources corresponding to works executed by municipalities with CEF intermediation represents only 2.08% of the total volume of federal resources programmed as investments for execution between 2015 and 2019. However, when the numerical quantity of projects is taken into account, the relative participation of investments executed by municipalities with CEF intermediation amounts to 37% of the total (higher relative concentration).

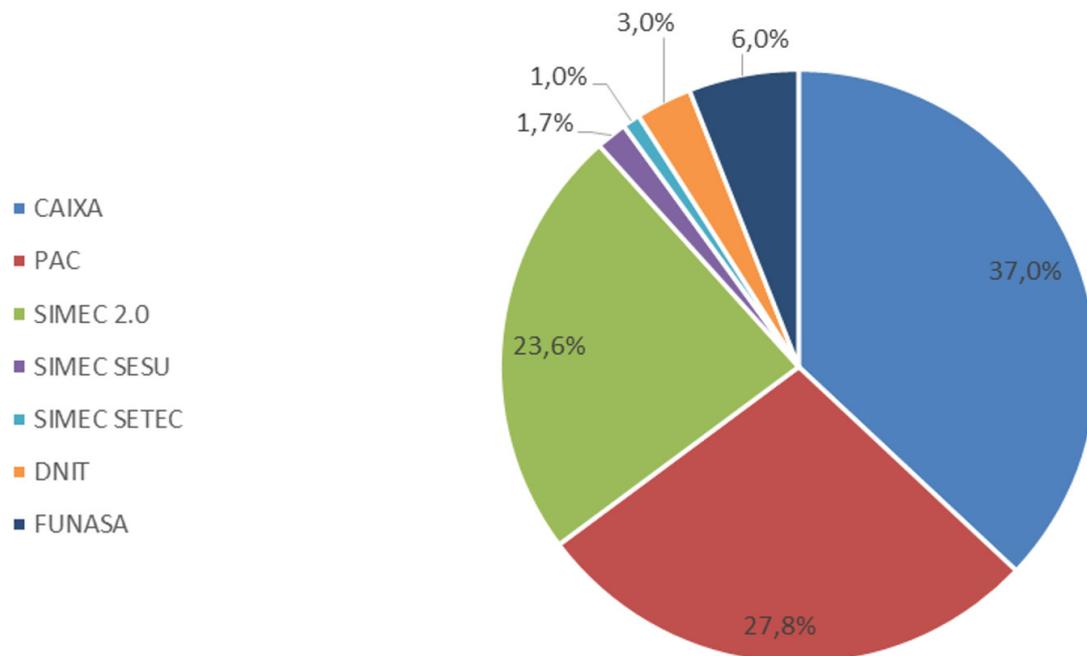
¹⁰ This section undertakes an analysis of the investment situation with federal funds between 2015 and 2019, based on a survey of information from more than 38,000 public works contracts with records spread across five federal government databases -- Caixa Econômica Federal (CEF), Growth Acceleration Program (PAC), Ministry of Education (MEC), National Department of Transportation Infrastructure (DNIT), and National Health Foundation (Funasa) --, audited by the TCU. In this sense, it is worth noting here that a work can encompass more than one contract, just as a contract can encompass more than one work. See more in Brasil (2019) and Khoury (2019).

CHART 4 - Public investment: values of projects financed with federal resources
(As % of total value of contracted projects)



Source: Brazil (2019). Elaboration by the Authors.

CHART 5 - Public investment: number of projects financed with federal resources
(As % of the total amount of contracted works)



Source: Brazil (2019). Elaboration by the authors.

Comparatively, in terms of value, the PAC accounted for the largest share of federal investment projects between 2015 and 2019 (graph 4).¹¹ Its relative share reaches something like 91.44% of the total federal investments contracted in the period. However, when the numerical quantity of projects in the same period is considered, the relative share of PAC investments is reduced to 28% of the total (chart 5). In these terms, therefore, the subset of investments contracted in the PAC between 2015 and 2019 presents a relative participation in the totality of federal investments (28%) lower than that registered, in the same period, by the subset of federal programs executed in the municipalities, through the intermediation of CEF (37%).¹²

From the point of view of the quantitative dimension, that is, the quantity (number) of public works financed with federal resources, the prominence of the subset of programs executed through the intermediation of the CEF - expressed by the significant magnitude of its relative participation - indicates a high degree of capillarity in the regional distribution of federal investments. For this reason, the CEF constitutes the main primary data base referring to federal programs executed by municipalities in previous research mentioned above.

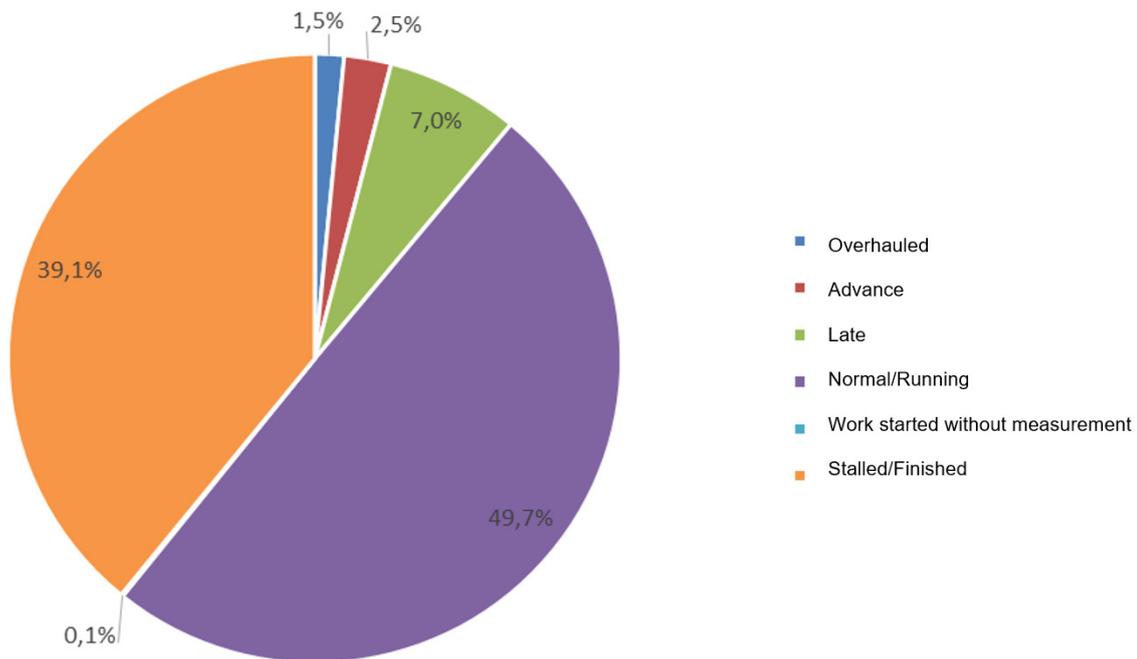
Graph 6 shows the records of the situations regarding the progress of federal investment projects contracted between 2015 and 2019. It can be seen, then, that only 52.2% of the total (2.5% of advances and 49.7% of normality) of the scheduled federal public investment works in the period enjoy good situations in relation to their progress. What is more, it is seen that 47.8% of the total works of ongoing federal investment face execution problems in relation to the original programming.

11 The PAC used to be the competence of the former Ministry of Planning. Currently, it has been discontinued, and executions are decentralized in the ministries. See Alves and Tavares (2019).

12 With this separation, an eventual overlapping of data related to the PAC programs financed by CEF is avoided.

CHART 6 - Public investment status: progress of works

(As % of the total amount of works in progress)



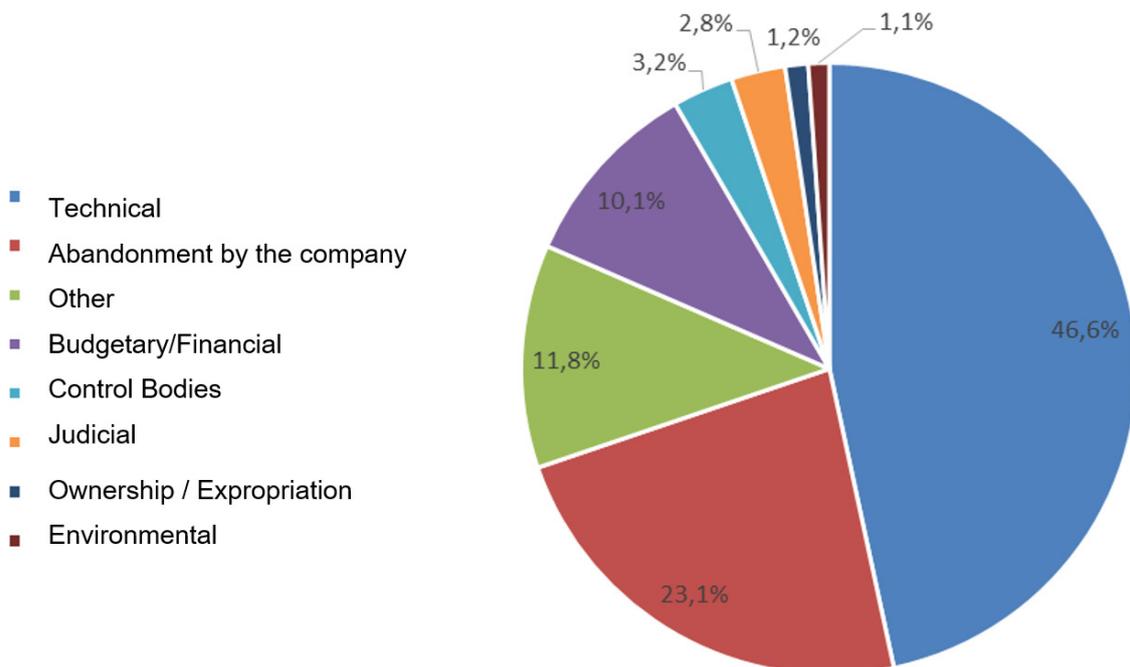
Sources: Brazil (2019) and Khoury (2019). Elaboration by the Authors.

From the point of view of the diagnosis of such situations, that is, of the reasons that between 2015 and 2019 led to the low performance in the execution of works associated with federal investment in Brazil, the technical difficulties involved in the social organization of the projects, in the contracting of basic projects, in the articulation of the development plans, and in the discontinuities in the administrative and resource managements of the undertakings stand out (Brasil, 2019; Khoury, 2019; Alves and Tavares, 2019).

According to records regarding the execution of PAC projects, difficulties such as those mentioned above are the main reasons for obstacles to project execution, accounting for some 46.6% of the explanations in cases of work stoppage (Chart 7). In this sense, it is also worth highlighting the fact that, contrary to the perception usually disseminated among the population, something like only 10.1% of the total number of works associated with the PAC investment program between 2015 and 2019 was most recently halted due to rigidities deriving from budget constraints.

CHART 7 - Reasons for the stoppage of works with federal funds

(In %)



Sources: Brazil (2019) and Khoury (2019). Elaboration by the Authors.

However, table 1 indicates that the contract value of PAC projects halted only due to budget constraints (or lack of funding) reaches 47.6% of the total contract value of the halted projects. That is, the lack of resources is responsible for only 10.1% of the stopped works, but the contractual values of this portion reach something like 47.6% of the total stopped works.

Therefore, we have here a relevant indication that the budget constraint may be acting more effectively (negatively) in the country today, precisely on the performance of the works of higher unit value.

TABLE 1 - Stopped public works - PAC

Sources: Brazil (2019) and Khoury (2019). Elaboration by the Authors.

Reason for stoppage	Qty.	Total (R\$ 1 million)	% Qty.	% Resources
Technical	1.359	25.540,58	46,6%	19,3%
Abandonment by the company	674	5.842,71	23,1%	4,4%
Other	344	21.678,22	11,8%	16,4%
Budgetary/Financial	294	62.960,61	10,1%	47,6%
Control Organs	93	4.506,36	3,2%	3,4%
Judicial	83	6.120,61	2,8%	4,6%
Ownership/Expropriation	35	3.432,52	1,2%	2,6%
Environmental	32	2.145,38	1,1%	1,6%
General Total	2.914	132.226,99	100,0%	100,0%

The relative weights of contract values and quantities of PAC projects in the totality of federal public investments allow, in a first approximation, the use of some of the previous records as a proxy variable for the analysis of that totality. Thus, table 2 provides an overview of the dimension of the problems currently faced in the execution of federal investments in Brazil, whether in terms of quantities or in terms of the value of contracted works.

Table 2 shows that: of a total of 15,025 stopped works - representing 39.1% of a grand total of 38,412 public works financed with federal funds in the most diverse situations currently underway in the country - only 1,516 works - some 4% of the total number of works financed with federal funds - would be stopped due to current budget or financing restrictions. This means a contract value of R\$ 71.004 billion - or 9.8% of a total value of R\$ 725.457 billion in federal public investments already contracted.

TABLE 2 - Stopped public works

Reason for stoppage	Qty.	Total (R\$ 1 Milhão)	% Qty.	% Resources
Technical	7.007	28.803,46	46,6%	19,3%
Abandonment by the company	3.475	6.589, 13	23,1%	4,4%
Other	1.774	24.447,67	11,8%	16,4%
Budgetary/Financial	1.516	71.004,00	10,1%	47,6%
Control Organs	480	5.082,06	3,2%	3,4%
Judicial	428	6.902,53	2,8%	4,6%
Ownership/Expropriation	180	3.871 ,03	1,2%	2,6%
Environmental	165	2.419,46	1,1%	1,6%
General Total	15.025	149.119,34	100,0%	100,0%

Sources: Brazil (2019). Elaboration by the Authors.

Given this picture, it is not difficult to realize that an eventual easing of the budget restriction on ongoing projects, with a view to accelerating public investments in the country, would be powerless to unblock something like 13,510 stopped works, whose sum of current contract values is around R\$ 78.116 billion, i.e., more than 50% of the total value of stopped public works (contracted with financing from federal resources).

Table 3 also shows estimates of the various types of obstacles to projects directly supported by vertical federal cooperation, that is, with municipal execution of investments financed by federal funds intermediated by the CEF.¹³ In this sense, one should highlight the conservatism of the estimates

¹³ According to the TCU database, municipalities represent something over 91% of the final borrowers of credits obtained with onlending resources by CEF (Brazil, 2019).

related to the technical and budgetary reasons for the work stoppages, whether from the point of view of the amounts involved, or from the perspective of the number of works affected. In both cases, the works financed by CEF have percentages of stoppages much higher than those of other categories of federal investments; that is: 50.8% against the average of 22.7% of the others, in terms of the total value of the planned investment, and 61.7% against the average of 23.5% of the others, in terms of total number of works.

TABLE 3 - Stopped Works – CEF

Motivo da paralisação	Qtd.	Total (R\$ 1 Milhão)	% Qtd.	% Recursos
Técnico	4.091	1.481,67	46,6%	19,3%
Abandono pela empresa	2.029	338,95	23,1%	4,4%
Outros	1.035	1.257,60	11,8%	16,4%
Orçamentário/Financeiro	885	3.652,49	10,1%	47,6%
Órgãos de Controle	280	261,42	3,2%	3,4%
Judicial	250	355,07	2,8%	4,6%
Titularidade/Desapropriação	105	199,13	1,2%	2,6%
Ambiental	96	124,46	1,1%	1,6%
Total Geral	8.771	7.670,80	100,0%	100,0%

Sources: Brazil (2019). Elaboration by the Authors.

In this case, therefore, there are also relevant indications that technical restrictions are now acting in a more effective and negative way on the performance of lower unit value projects - cases in programs managed by CEF.

In this sense, it is worth highlighting the fact that between the 2013-2015 and 2015-2019 periods, the works financed by CEF showed an alarming percentage increase in the number of stoppages: from 0.6% to 61.7% of the total works in progress (table 4) -- a result fundamentally due to the drops in the percentages of works in normal execution (from 31.3% to 12.4% of the total in execution) and in delay (from 60.3% to 19.3% of the total in execution).

TABLE 4 - Change in construction progress: 2013-2015 and 2015-2019 - CEF

CEF - Quantity of Works	%Total (in execution)		
	2013-2015	2015-2019	Variation
Ahead of schedule	7,8%	6,7%	-1,2%
Normal	31,3%	12,4%	-18,9%
Delayed	60,3%	19,3%	-41,0%
Stopped	0,6%	61,7%	61,1%
TOTAL (in execution)	100,0%	100,0%	

Source: CEF/TCU. Own elaboration.

In fact, the low executive performance that led public works in normal, advanced and delayed situations in the 2013-2015 period to migrate to a situation of virtual paralysis in the 2015-2019 period indicates the occurrence of a structural break in the pattern of cooperation and federative coordination of investments in Brazil. That is, the data point to a general shakeup in the pattern of federal coordination of public investments with alarming negative effects on their executive performance.

One can also note, in this same sense, the harmony of the above inferences with the results of econometric exercises presented in previous studies, in which municipal capacity (MC) is pointed out as the main determinant of the efficiency of federal investments made by municipalities - with the support of resources intermediated by CEF (Linhares and Messenberg, 2020). More precisely, in terms of econometric modeling, the municipal capacity index (MCI) alone accounts for the percentage variation of something like 603% because of its odds ratio regarding the success in the municipal execution of public works.¹⁴

The significant incidence of technical reasons as a cause for the paralysis of works carried out by municipalities corroborates the importance of municipal characteristics, such as the MCI, for the adequate achievement of federal cooperation between municipalities and the federal government. Fluctuations in the state of this cooperation impact the level of coordination prevailing among the federated entities and, consequently, the adequacy of municipal characteristics to achieve successful results with the local execution of federal investments.

¹⁴ See Linhares and Messenberg (2020). The above calculation is based on the logit model for efficiency in table 3 (hypothesis test h-2) of that text. In this case, the dependent variable is the chance of efficient execution of the projects, explained by the independent variables (besides the constant): MCI (municipal capacity index); Counterpart (percentage of municipal counterpart in the total investment); INN (municipal needs index); Dinam. Municipal (dynamism of municipal demographic growth); "Mayor Reelected" (mayor in second term); and Em. Parlamentar (occurrence of parliamentary amendment). Thus, this calculation means that for an increase of one unit in the MCI, one can expect a 6.03 times greater increase in the chances of completing the work.

5 CONCLUSIONS

Various theoretical arguments sustain that states organized in federative form are relatively more capable than those organized in unitary form to provide positive economic and social results (Weingast, 1995; Keman, 2000). Nevertheless, empirical inference reveals that the distinction between unitary and federative state forms dissolves into a continuum of cases whose specificities compromise any kind of abstract comparison based on the criterion of that pure formal distinction. In this sense, it is even more revealing that the advantages (in theory) usually attributed to the federative option constitute, in truth, variables dependent on concrete institutional aspects, decisive in determining the degrees of cooperation and coordination prevailing between autonomous federated entities.

In the Brazilian case, analyzed throughout this text, the degree of cooperation between the federal government and the municipalities is crucial to the coordination of the federated entities in the search for the successful implementation of public policies, from the point of view of their economic and social results.

The distinctive features of the Brazilian federative arrangement formatted by CF/1988 involve decentralization, symmetry, and the cooperative characteristic¹⁵ of the federated entities. The combination of these elements makes Brazilian federalism unique, in an international comparative perspective, and the understanding of its dynamics especially challenging with respect to the considerations on how to obtain a satisfactory degree of coordination of the public policy actions of its constituent entities.

Given this scenario, it is recognized that the best use of the Brazilian federative arrangement will depend on the establishment of agreements between its entities to effectively define to what extent (what, how, when, and how much) each of them would be involved in the execution of certain public policies.

Historically, among the institutional arrangements conducive to greater federative coordination in the Brazilian case, the one governed under Law #11.107/2005 (or Law of Public Consortia) deserves to be highlighted, providing a legal framework for the promotion of credible cooperation agreements between federated entities (North, 1993), especially in the case of inter-municipal cooperation. From an empirical point of view, its use fluctuates over time among the various areas of public policy, but it is also noted that this use shows a growing trend as an instrument of coordination of the executive in all areas of public policy.

From an analytical point of view, evidence of a similar nature implies the absolute need to consider the particularities of public policies (in addition to their general governing rules) in the search for effective coordination of the actions of the federated entities. Such particularities, in turn, involve all sorts of constitutional and infra-constitutional regulations, with the performance of

15 See footnote 4

epistemic communities¹⁶ and the participation of various governmental actors (besides other non-governmental) according to the case.

In this way, in the formatting of the cooperative actions of the federal entities that aim to establish central coordination, public policy systems and several other normatives coexist, associated, furthermore, with very distinct patterns of operation and of achievement of results that depend on each case considered.

Therefore, it is within the scope of each public policy area that the formatting of central coordination mechanisms in the country should be understood. Historically, in the case of Brazil, this format intensified during the 1990s and 2000s, leading to an expansion of the responsibility of subnational entities in the general provision of public services. Throughout this period, federative coordination developed in Brazil because of specific agreements that determined the form and intensity of participation of each federation entity, whether in the design or implementation of public policies.

From the point of view of the empirical evaluation of the results of such policies, the work concentrated on those aimed at promoting urban infrastructure, focusing on the execution by the municipalities of paving and resurfacing projects financed by voluntary transfers of federal funds through the CEF.

The results of the execution of the works were then initially evaluated from the perspectives of regional equity and the achievement of economic efficiency. In the first case, data from 2013 to 2015 (CEF, 2013-2015) showed that, in general, municipalities with lower financing restrictions are those that, paradoxically, also end up benefiting more from the higher magnitudes of investment project values. In this regard, it was also observed the evidence of a positive redistributive effect, derived from the operation of the political system (by means of parliamentary amendments), acting towards a more equitable municipal (re)allocation of the budget resources involved in the transfers (Linhares et al., 2016).

In the case related to the execution efficiency of projects, the available data series for the same period (2013-2015) reveal a reasonable percentage of delayed works and another negligible percentage of stalled works. In such a case, the econometric analysis of the series also revealed that, in the absence of changes in the state of federative coordination between central government and municipalities, the characteristics of the latter - in particular, those reflected in the MCI scales - contribute positively and decisively to the greater chance of successful project execution.

That said, the possibility of changes in the state of federal coordination and the continuous generation of relevant information of all types demand an evaluation of the evolution of the state of municipal execution of these projects. Thus, to carry out this evaluation, section 4 is dedicated to answering the original research question posed in the introduction: whether the degree of federal

16 See footnote 6.

coordination achieved was able to maintain the standard of efficiency in the local execution of federal investments, given the prevailing levels of federal governance in Brazil and the prioritization given by municipalities to the allocation of federal transfers.

Thus, in section 4, we sought to infer the economic efficiency of such projects in the 2015-2019 period considering their participation in the set of investment expenditures financed with federal resources - that is, vis-à-vis the performance observed more recently of federal investments considered as a whole (Brazil, 2019; Khoury, 2019). In this sense, we sought to dimension the scope of recent changes - associated with fluctuations in the state of federative cooperation - on the general conditioning factors and the specific determinants of the estimated efficiency (between 2015 and 2019) in the execution of federal investments by municipalities.

In this search, it is noted, first, that the portion of federal resources corresponding to works executed by municipalities with CEF intermediation corresponds to only 2.08% of the total volume of federal resources programmed as investments between 2015 and 2019. Second, it is noted that the scale of this dimension changes significantly when the numerical quantity of projects in the period is considered. That is, in terms of the number of works, the relative participation of investments executed by municipalities with CEF intermediation rises to something like 37% of the total between 2015 and 2019.

As a result, there is evidence of a quantitative protagonism of the subset of programs executed with the intermediation of resources by CEF, within the scope of the total set of federal public investments. This protagonism, in turn, indicates the presence of a high degree of capillarity in the regional distribution of federal investments executed by municipalities.¹⁷

Regarding the state of progress of federal investment projects, it is observed that only 52.2% of the total works contracted between 2015 and 2019 enjoy recently good situations (with 2.5% of this total of advances and another 49.7% of normality). What is more, it is noted that 47.8% of the total works in progress face execution problems in relation to the original established programming.

In the same sense, it is also noted the record of percentages of work stoppages of the works financed by CEF much higher than those of the other categories of federal investments, either from the point of view of the amounts involved, or from the perspective of the number of works affected; that is, 50.8% against the average of 22.7% of the others, in terms of the total value of the planned investment, and 61.7% against the average of 23.5% of the others, in terms of the total number of works. Furthermore, between 2013-2015 and 2015-2019, there was an alarming percentage increase in the number of work stoppages in progress financed by CEF: from 0.6% to 61.7% of the total number of works in progress.

Finally, from the point of view of the diagnosis of such situations, that is, of the reasons that between 2015 and 2019 led to the low performance in the execution of works associated with federal

¹⁷ See footnote 13.

investment in Brazil, the technical difficulties involved in several aspects stand out: social organization of the projects, contracting of basic projects, articulation of development plans, and discontinuities in the administrative and resource managements of the undertakings (Brasil, 2019; Houry, 2019; Alves and Tavares, 2019).

Thus, in the Brazilian case, based on the registry of PAC contracted works, it is estimated that public investments financed with federal funds and interrupted only due to budget constraints (or lack of funding) are responsible, more recently, for something like 47.6% of the total recorded stoppages, in terms of contracted amounts, and for something like only 10.1% of this total, in terms of the number of works.

Therefore, in general, and regardless of the category of federal public investment, there is relevant evidence that budget constraints are acting more effectively (negatively) today in Brazil, precisely on the performance of projects with higher unit value. On the other hand, at the same time, there are also relevant indications that technical restrictions are acting more effectively and negatively today on the performance of projects with lower unit value (cases included in the programs administered by CEF).

In this sense, from the point of view of federative coordination and particularly the role that the Union should play in the latter, there is a twofold need. Firstly, the regularization of the financing of the works that have been started is urgent for the temporal continuity of the execution of the projects. In the absence of the Union here, without the substitution of its action by equivalent actions of other federated entities, federative relations would be weakened, significantly raising the levels of difficulty for the general achievement of successful results.

Secondly - and complementary to its required action in the previous case - the Union should increasingly undertake effective actions to achieve effective vertical coordination in the execution of projects funded by federal resources. In contrast to this, however - with the notable exceptions of the technical-administrative support provided by CEF in the execution of projects and their financing from a minimum administration fee provided for in the onlending contracts - the mobilization of the political-institutional apparatus created over the last thirty years to increasingly strengthen the central governance of infrastructure investments in the country has not been observed.

In the Brazilian case, examples of mechanisms conducive to this governance can be found, either at the level of horizontal cooperation - as in the cases of public consortia and instances of federative pacts - or at the vertical cooperative level - as in the cases of monitoring the actions of subnational governments and the establishment of technical-operational support strategies. As recent academic literature points out (Bouckaert, Peters, and Verhoest 2010; Cejudo and Michel, 2017; Peters, 2018), strengthening governmental governance (and, consequently, coordination) can promote substantive improvements in observed outcomes. These are public policy instruments present in the Brazilian federative arrangement but remain without sufficient mobilization to incrementally expand the institutional capacity of its subnational constituent entities in the execution of infrastructure projects with federal resources in the country.

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