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Author	Janine Mello
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CHAPTER 14

STATE PRODUCTION OF EVIDENCE AND USE OF ADMINISTRATIVE DATA IN PUBLIC POLICIES[1]

Janine Mello[2]

1 INTRODUCTION

The debate over the use (or non-use) of evidence to support government action, although not new as a practice aimed at organizing and legitimizing State action, has been increasingly incorporated into the literature of the policy field. In recent decades, the defense of the need for more and better evidence to be produced as instruments to guide the production[3] of policies has intensified. But on the other hand, different authors have called attention to the analytical and conceptual limits of restricted notions of evidence understood fundamentally as representations of truth, based on assumptions of technical-instrumental rationality present at the heart of the role attributed to scientific knowledge in modernity (Parkhurst, 2017; Cairney, 2019; Nutley, Walter and Davies, 2007; Jasanoff, 2012).

Simultaneously, public information and official statistics production have assumed contours of greater amplitude, scope, and complexity. Here also lies the dual character of the interpretations of the phenomenon. There are arguments focused on the potential use of these data to improve State interventions and, consequently, on the welfare conditions of the populations. Also, there are reflections on the ethical limits linked to the use of this information by governments (such as issues of consent and privacy), in addition to the role effectively played by these records in the configuration of elements that delimit specific themes or social problems, in the definition of which portions of the population will or will not be served by particular policies, or even in evaluations on the performance of government strategies from implementation data of programs and policies (Penner and Dodge, 2019; Poel, Meyer and Schroeder, 2018; Silveira, 2017).

1. The author is grateful for the thoughtful and generous comments made by Paulo Jannuzzi and Isabele Bachtold on this chapter. Any errors and omissions are the sole responsibility of the author.

2. Specialist in public policies and government management at the Department of Studies and Policies of the State, Institutions and Democracy of the Institute for Applied Economic Research (Diest/Ipea). E-mail: janine.mello@ipea.gov.br.

3. The use of the term *production* encompasses the phases of policy formulation, implementation, monitoring, and evaluation.

The most apparent dialogue between the two debates is centered on how the State uses these data in planning its interventions and broader policy production processes. Despite recognizing the relevance of this dimension of analysis, this text proposes to approach the discussion of evidence based on the role assumed by the State as a *producer of evidence capable of guiding governmental action on certain themes/agendas/policies*, and not only as a user of data and information that may support its activity.

Recognizing the heterogeneity[4] that characterizes the different existing administrative records, their different origins, specificities, and especially their function for policies, the objectives of this chapter are: i) to map the main sources of data, in the form of administrative records, existing in the federal government; ii) to categorize the different administrative records, according to possible functions to be performed; and iii) to evaluate their articulation as a potential source of evidence to support policies. Methodologically, the analysis will be exploratory and qualitative in nature and will be supported by categorizing the cases selected due to their specificities and multiple uses in the stages of policy.

Administrative records under the responsibility of the federal government[5] that meet the following criteria will be mapped:

- national coverage;
- availability of data for consultation;
- the role of the Federal Executive in managing the registries;
- degree of consolidation of the database (time of existence, official character of the database, database management mechanisms, periodic updates, among others); and
- thematic diversity among governmental areas.

Once the main characteristics of the selected cases have been mapped and identified, the databases will be classified according to their uses and functions in the following categories: i) support for formulating policies; ii) instrument to guide implementation; iii) mechanism for following up and monitoring actions; iv) support for inspection actions and control of physical and financial execution; and v) mechanisms for accountability, transparency, and social control.

4. Despite the multiplicity of information generated by the State apparatus, we chose to limit the analysis to the set of data from administrative records managed at the federal level, such as, for example: Unified Registry for Social Programs of the Federal Government (Cadastro Único); Department of Informatics of the Unified Health System (Datasus); School Census; Annual Social Information Report (Rais), and General Registry of Employed and Unemployed People (Caged); Information System of Agrarian Reform Projects (Sipra); Declaration of Aptitude to the National Program for Strengthening Family Agriculture (DAP); among others.

5. This does not mean that the other subnational entities do not participate or have specific functions in the processes of registration, updating, and qualification of information, among others.

Finally, we will analyze the administrative records and their different forms of articulation with the production of policies, allowing for a deeper understanding of how the federal government uses this information as evidence.

As a result of the analysis, we hope to increase our understanding of the roles played by administrative records in the different stages of policy production and their potential and limitations. In addition, we seek to raise hypotheses and possible explanations for the use and non-use of information of this nature as helpful evidence to improve the design, execution, and delivery of services essential to improving the welfare conditions of the Brazilian population.

With these objectives in mind, the text is divided into four sections in addition to this introduction. Section 2 is dedicated to discussing the concept of evidence beginning with the problematization of notions supported by rational-positivist assumptions about the role played by evidence in policies. Section 3 outlines the theoretical frameworks adopted to understand the notions of State and policies mobilized in the text and their relations with the production of evidence. Section 4 discusses administrative records and their different uses in policies and the results obtained from the proposed categorization. Section 5 brings the final remarks, reviewing the results and their connections with the topics mentioned in the theoretical discussion.

2 BRIEF NOTES ON THE CONCEPT OF EVIDENCE

In the last decades, the defense of the need for more and better evidence to be produced as instruments capable of guiding the production of policies has intensified. In the scope of the debates on evidence-based policies, there have been recurrent studies on how governmental instances make (or should make) use of evidence – generically defined as something that can be scientifically proven – to support or improve their actions regarding population groups.

However, different authors have problematized key elements of this debate, such as the very notion of what constitutes *evidence* and the need to understand how the political dimension permeates the adoption or not of sets of evidence to guide government action. The discussion also incorporates questions about how values, assumptions, worldviews, and interests affect the definition of what does or does not constitute valid input for public action and strategies for using this information.

The understanding of what constitutes evidence is polysemic and multifaceted, and this paper will assume as a premise an *expanded* knowledge of *evidence in policy* based on the discussions held in works such as Pinheiro (2019), Nutley, Walter and Davies (2007), and Oliver, Lorenc and Innvær (2014), among others. In general, these studies approach evidence as one among several informational sources mobilized to support decision-making processes pointing to the need for

a conceptual broadening of what could be understood as valid evidence within the policy production debate. Moreover, the contingent and unfinished nature of evidence assume a central explanatory position as a key to understanding the relationship between power configurations, interests, worldviews, and shared values in a given socio-historical time and the processes of production and meaning of what is classified as evidence.

According to this perspective, evidence can be understood as data generated in the scope of scientific research conducted by universities and research institutes. It also can result from internal evaluations made by governments themselves about their own policies. They can also be found in audits by control agencies, in reports and technical notes produced by the State bureaucracy, or even as a result of external evaluations by specialized consultants hired by the public power.

Evidence is produced both inside and outside the State scope. Within the State, they can be compiled as reports on the follow-up of execution, performance evaluations, registers, population census, and administrative records, among others. Outside the State, they are produced by research centers, universities, and think tanks; they may be dispersed in media materials or be the empirical result of the professional experience of people involved with a certain theme.[6] Evidence may take on a more scientific or technical bias, depending on how, by whom, and for what purpose it is produced.

What differentiates scientific and technical evidence from values, beliefs, and convictions that people have about a given issue? To what extent the notions we have of *science* and technique are not themselves ways of interpreting the world and the reality that surrounds us as well as ethical and moral values or religious beliefs? What is the difference between using these different sources of information (if we consider them all legitimate from an epistemological point of view) insofar as they express attempts to construct explanations for the events that fill human life? In the limit, why would scientific and technical evidence be more adequate than personal beliefs and convictions to guide the production of policies?

The contemporary *comprehension* of the functions and meanings of technical and scientific knowledge is based on Enlightenment assumptions typical of the Western modernity period about the conditions of possibility of knowledge, the potential, and limits of human rationality, and the role of different knowledge (mythical, cultural, local) mobilized by other societies over time. As Susanne Langer (2004, p. 270) summarizes well:

6. For more details on how personal experiences acquire the status of knowledge and/or evidence in policy production processes, see Mazanderani et al. (2020) and Smith-Merry (2020).

> we have inherited the realistic outlook and its intellectual ideal, science. We have inherited a naive faith in the substantiality and ultimacy of facts, and are convinced that human life, to have any value, must be not only casually and opportunely adapted to their exigencies (...), but must be intellectually filled with an appreciation of "things as they are." Facts are our very measure of value. They are the framework of our lives; thinking that leads to the discovery of observable fact takes us "down to reality"; Wittgenstein has really caught and recorded the modern man's intellectual attitude, in his metaphysical aphorisms. (...) Our world "divides into facts" because we so divide it. Facts are our guarantees of truth.

In this sense, what is placed outside rationality is discarded as fact, as a given of reality, as evidence. However, it is worth noting that the notion of instrumental rationality, central to *the project of modernity*, has long been questioned and replaced by contextual and situational notions of rationality (Kay, 2011; Nugroho, Carden and Antlov, 2018; Jasanoff, 2012; Jasanoff and Kim, 2015). The reason, consequently, comes to be understood from its multiplicity and contingency as a critical factor in understanding human action and its ways of meaning the world; not just one reason, but different rationalities, no longer a universal and unique knowledge, but other types of epistemologically valid knowledge as attempts to understand the phenomena of human life and its events.

Evidence, in this sense, is no longer understood as a pure, neutral, or ahistorical element capable of revealing the world and – embracing the unfinished character of knowledge postulated in the 1920s by Bachelard (2004) – begins to be perceived, as well as other social phenomena, as the result of constructed processes of the meaning of reality permeated by power relations, interests, values, and worldviews that affect how informational data are produced, received, and interpreted by individuals and social groups. Evidence does not emerge in institutional vacuums and carries within it situational elements that should not be overlooked in efforts to understand its potential and limits in producing policies.

In this chapter, the use of evidence is addressed as a tool for designing and implementing policies, understood in its most basic sense as structured responses to solve problems faced by a society that aims to achieve a change in reality. The focus is restricted to the use of evidence (of different types) capable of providing information that contributes to the understanding of collective problems that exist in society, such as the collective ones as increasing social inequality, high crime rates, lack of teachers or hospital beds, among many others.

In these cases, evidence should ideally contribute to support decisions capable of increasing well-being and improving the living conditions of different segments of the population. That does not imply a naïve assumption that decision-making processes will necessarily be informed by evidence or that, when incorporated into decision-making, evidence will produce better policies. Evidence

is one other element that can contribute to problem-solving. They do not contain answers in themselves, nor do they provide ready-made solutions for government action. As "data relative to culture, (...) necessarily embedded in a construction" (Bachelard, 2004, p. 18), they depend on interpretation, opening a wide range of possibilities for the use of evidence as a support for State action.

Considering the above premises, *evidence in policies* would be all those data and information capable of broadening the understanding of phenomena of different orders (economic, social, cultural, political) and their repercussion (positive or not) on various publics, regions, contexts, or life situations. Paradoxically, the same movement that enables a broader understanding of what can be considered a source of knowledge in policies allows distinguishing evidence from other sets of arguments used to justify public action in a particular direction and to the detriment of different possibilities. Unlike personal beliefs and convictions, evidence, whether technical, scientific, professional, or local (Nugroho, Carden and Antlov, 2018), should be responsive to isonomic and republican criteria.

That does not mean that justifications based on personal beliefs and convictions are not endowed with rationality or are not valid as constructed knowledge about the world. However, if we admit that the coexistence of different forms of knowledge is correct, it would make more sense to consider their specificities, differences, and similarities to understand how multiple pieces of knowledge related to different dimensions of human life. If, on the one hand, this does not presuppose that there is a hierarchy among the different types of knowledge, on the other hand, it is not reasonable to assume that they are indistinguishable and interchangeable bits of knowledge. In this sense, understanding how the different types of knowledge are constructed, their various epistemological statutes, and their internal logics of constitution and legitimation tend to be a crucial effort to make explicit the role attributed to each of these discursive regimes in the Foucaultian sense, their possibilities and limitations as instruments of justification for the interventions continuously operated on social reality.

Far from adopting a posture of reification of technical-scientific knowledge or of attributing a sacralized place to evidence, the production of technical-scientific knowledge should itself be understood as part of constructed processes of understanding the world that surrounds us and, for this very reason, subject to error, incompleteness, and permeated by values, interests, and force correlations.[7] And it is precisely because they are not flawless and do not constitute "unquestionable truths" that evidence is an object of dispute and can be submitted to scrutiny and

7. This issue is widely discussed in studies of philosophy of science and sociology of knowledge, among other areas. For more details, see, for example, Latour (1994), Bachelard (2004), and Langer (2004).

questioning by different sectors of society, be they groups of researchers or "experts" on a given theme, opinion formers, and other actors in civil society.

Evidence should meet minimum publicity elements capable of ensuring, to some extent, transparency to the methods and theories that led to the achievement of certain results via wide and periodic dissemination. The regular dissemination of statistics, reports, and studies allows data sets and effects on countless themes to be followed up and questioned, as indicated by various examples in recent history.[8] While the evidence is produced from hypothetical-deductive systems constituted by concepts, paradigms, and methodological and conceptual choices legitimated by epistemic communities, values and beliefs derive from other matrices of meaning.

Despite the array of arguments in favor of the use of evidence in policy, its adoption as an informational element for formulating and implementing government policies is eminently a political decision. As discussed in section 3, policies are not only made of data, information, and statistics. They are also permeated by commitments, interests, values, and a greater or lesser degree of adhesion to worldviews shared by different sectors of society.

In this sense, the mere existence of evidence and its abundant production, or the defense that scientific data are better than beliefs and convictions, or even that evidence should override the agreements between different political and economic interests, does not imply the automatic adoption of evidence by governments.[9] The literature on evidence has focused on the reasons that would lead governors and public managers to make or not use evidence. Factors pointed out range from the lack of adequate evidence to support the policies under discussion to the difference in logic, languages, and timing of evidence production, and the urgency to respond to problems taking place right now. Other studies see the lack of knowledge by public managers of evidence produced by research institutions as one of the main barriers to its use or highlight the difficulty of translating evidence into information capable of guiding policy design or implementation and the need to build bridges between producers and users of evidence[10] (Hall and Battaglio, 2019; Weiss, 1977).

8. Disputes over deforestation data released by the National Institute for Space Research (Inpe), the ways of counting deaths resulting from covid-19 and the unemployment metrics adopted by the Brazilian Institute of Geography and Statistics (IBGE). In line with this, the increase in requests for access to government data via the Access to Information Law (LAI) or the questions about the attribution of secrecy to documents that provide support for reforms, as in the cases of social security and administrative reforms more recently, among other examples.

9. Different studies argue that the best alternative to increase the use of evidence would be the adoption of specific strategies for knowledge dissemination (Dias et al., 2015). However, works such as that of Hall and Battaglio (2019) problematize explanations centered only on the barriers and difficulties of access to evidence by public managers.

10. More recent studies have proposed the adoption of co-creation or co-production as more adequate terms to encompass the strategies of approach between research and practice. For more information, see Metz, Boaz and Robert (2019).

It is worth noting that the non-use of evidence can take on a strategic character and constitute a decision in itself. That is, not using evidence is not always due to some barrier to access or understanding of that data. Instead, evidence can be deliberately discarded for several reasons. For example, more tangible cases occur when evidence points to results contrary to the interests or narratives adopted by governments on particular issues or when, in the face of a multiplicity of the available evidence, the set of evidence mobilized is selected as a way to corroborate decisions previously made to the detriment of other evidence related to the same theme.

The political dimension is not outside the game of production and use of evidence. Nevertheless, it does not mean that data and information used as evidence should be invalidated or discarded as part of the decision-making process. Assuming the constructed nature of different types of knowledge does not allow us to claim that there is no difference between them. Different kinds of knowledge have different purposes, carry different assumptions and origins, and have multiple uses and meanings depending on the context in which they are found.

For this study, which is concerned with discussing the relationship between evidence and policies, evidence must be understood as one element among other possible elements that, ideally, should be distinguished from other types of knowledge when it comes to public issues, protection of the rights of different segments of the population, and issues that are subject to government intervention. This is so because evidence must respond to responsiveness criteria, which is greater than personal beliefs and convictions.

3 STATE, POLICIES, AND THE PRODUCTION OF EVIDENCE

As part of the broader institutional context, it would not be possible to understand the processes of production of policies and instruments mobilized to organize governmental action, including the construction of evidence, without considering the central role played by discourses, ideas, groups, values or hegemonic structures in the creation of benchmarks for action and behavior of organizations and individuals, as well as in the recognition or questioning of rules and limits for the inclusion and exclusion of specific positions.

These assumptions establish a dialogue with studies that, more markedly from the 1980s and 1990s on, have questioned the notion of policy as a technical-rational result of linear actions, organized separately in sequential processes. Analyses centered on rational choice theory (Shepsle, 2006; Shepsle and Bonchek, 1997) and policy cycle approaches (Ball, 1993; Cairney, 2012; Howlett et al., 2013), and studies focused on the political dimension of policies and on aspects such as language, argumentation, representations, ideas, and meanings – hitherto little explored as variables to understand the processes of policy production of their ef-

fects – come into play as a result of the growth/strengthening of analytical perspectives associated with post-positivist, argumentative or critical studies[11] strands in the Anglo-Saxon literature on policy (Yanow, 2015; Cairney, 2012; Fischer et al., 2015; Bacchi, 1999) or in the French stream of sociology of public action studies (Halpern, Lascoumes and Le Galès, 2021).

Similarly, studies focusing on the role played by evidence in state action have taken on a critical bias toward the almost axiomatic ideas that "the more evidence, the better the policy" or of "what works?" as a way to recommend paths to be pursued by public management in search of more effective and efficient solutions by looking only at a part of the elements that make up the complex and intricate arena of policy production.

Elements such as power, conflict, context, social construction, ideas, and representation become central to understanding the use of evidence in policy. They are defined not only as government tools but also as windows that allow us to observe the intricacies of political processes in which actors, concepts, and instruments interact in different ways, creating or consolidating "new rationalities of governance and regimes of knowledge and power" (Shore, Wright and Però, 2011, p. 2).

The conceptual definition of policies adopted in this study is based on the blending of theoretical elements present in different interpretative matrices to establish a broader framework capable of embodying different dimensions and the complexity inherent in public action. To this end, three premises were established that, in my opinion, address fundamental issues for understanding policies from the theoretical framework adopted.

The first is that *policies, as materializations of state action, are constituted by rules, standards, requirements, and/or criteria with the potential to guide, define, restrict, or encourage the behavior*. In general, the development of a policy is defined as a process of technical-political nature, configured by a set of decisions taken by actors/organizations based on the possibilities and limitations produced by the context in which they are inserted (Steinmo, 2016; Immergut, 2007). Considering that "the effects of policies are shaped at the core of the structures in which these actors operate, and according to ideas they hold" (Howlett et al., 2013, p. 20), it is reasonable to assume that both the policy design and its forms of implementation are influenced by widespread and socially accepted perceptions and expectations about what is defined as the object of public intervention, as well as about what is indicated as public demand to be met by government action.

11. Also known as interpretive, ideational, cognitive, constructivist, among other related terms. See more in Fischer et al. (2015).

Under this perspective, it is central to understand how rules, representations, and expectations that implicitly or explicitly configure the content of a policy influence the dynamics of reinforcement or deconstruction of practices with the potential to perpetuate conditions of inequality among social subjects.

In other words, this brings to the core of the discussion about policies the notion that preferences, interests, and social representations do not emerge from institutional vacuums. They are, on the other hand, the result of social constructions based on a given institutional context in which sets of perceptions and beliefs influence the ways used by social actors to build images and perceptions about social reality, as well as to guide their actions and behaviors according to these references (Castoriadis, 2007; Stone, 1988; Muller and Surel, 2002; Ingram and Schneider, 2015).

It makes no sense, under this perspective, to characterize the production of policies as the result of logical-rational processes guided by an alleged technical impartiality free of values and ideological components. The understanding of the reasons why a policy assumes a certain content, scope, reach, or objective to the detriment of other possible ones requires that the emphasis of the analysis is not limited only to the formal and material processes that stand out to the eye, but also that it is shifted to the explicitness of symbolic or informational elements that permeate the logics, the meanings, the contents, the texts, and the discourses associated with the action by the heterogeneous list of actors that circulate the processes of policy production and that cannot be disconnected from the social, economic, and political conditions that constitute the historical moment to which they belong.

The second premise is that *policies could also be conceived as producers of specific referential on a given theme, problem, or group*. Understanding policies, in this way, requires that they be considered part and product of the institutional context from which they emerge, at the same time that they play a similar role by constituting cognitive matrixes[12] from which multiple actors give meaning to social reality and guide their actions and interactions with other social subjects. From this perspective, policies would be

> processes through which the representations that a society makes of itself to understand and act upon reality are elaborated. The elaboration of a policy involves first of all the construction of a representation of the reality on which one intervenes and it is through this image that the actors interpret the problem, confront possible solutions, and define their action (Grisa, 2010, p. 106).

12. Also defined as frames, referential, or frameworks, among other possibilities. For more on this, see Goffman (2007). Analyses based on the cognitive approach defend the understanding of policies as "cognitive and normative matrixes, constituting systems of interpretation of reality, within which the different public and private actors may inscribe their action" (Muller and Surel, 2002, p. 44).

Recurrently adopted by studies associated with the cognitive approach to policy (Jobert, 1989; Braun, 2015; Hajer and Laws, 2006), this notion allows for the incorporation of elements linked to the need to emphasize how relations occur between the production of policies; the actors inserted in these processes; the set of ideas mobilized during the stages of formulation and implementation; and the multiple representations that permeate these interactions and may or may not be established as benchmarks for understanding the meanings, objectives, justifications, and intentions of given government action.

Considering the focus of the analysis, assuming that policies play a relevant role in establishing the forms mobilized by individuals to conceptualize and symbolize social relations, from which they organize their lives and structure social reality, would be directly linked to the role assumed by ideas in the constitution of multiple representations or visions present in policies. Interpreted not as unequivocal or inexorable results of processes guided by power asymmetry but as a web of meanings from which sets of ideas, or representations, are mobilized, strategically, consciously, intentionally, or not, to delimit the possibilities of action at a given moment.[13]

However, it is worth emphasizing the relevance of treating the representations that prevail as guiding government action and the multiple understandings constructed by the actors affected, to a greater or lesser extent, by these policies as strategic elements for understanding the symbolic and material disputes that occur in the formulation stage, in addition to the impacts produced by these representations throughout the implementation of the action.

In this sense, ideas that shape a policy tend to constitute guiding principles for what would be understood as an adequate policy design considering the contours given to the problem at hand and its causes, as well as the criteria used to define the parameters adopted in the implementation stages and, consequently, the performance benchmarks based on which the policy will be evaluated.

As a third premise, policies are assumed as *instruments through which governments and other actors in the public sphere can classify and regulate spaces, subjects, and objects liable to be "governed"* in dialogue with conceptions adopted by authors associated with the anthropological strand of studies on policies (Shore, Wright and Però, 2011; Wedel and Feldman, 2005; Miranda, 2005; Porto, 2014).[14]

It is worth pondering, supported by an expanded meaning of power in the terms defended by Foucault (2008), that admitting the influence of policies on social reality does not presuppose affirming that restrictive content invariably guides

13. What does not mean that there are no changes in the conditions of production of these referentials and in their forms of use. For more information, see Tomazini (2021).

14. In these studies, as well as in part of the analyses that constitute the sociology of public action, the Foucauldian notion of governmentality assumes a central role as an explanatory key to the conditions of possibility for state action.

their action around classifications, delimitations, and distinctions established by the policies. On the contrary, policies would be endowed with an ambivalent nature, in which they serve as instruments of consolidation, validation, and legitimation of a particular social order, or they can contribute as devices to change reality (Lovbrand and Stripple, 2015; Luke, 2015). Understood according to these frameworks, policies

> are not simply external, generalized or constraining force, nor are they confined to texts. Rather, they are productive, performative, and continually contested. A policy finds expressional through sequences of events; it creates new social and semantic spaces, new sets of relations, new political subjects and new webs of meaning (Shore, Wright and Però, 2011, p. 1).

The general assumption is that understandings that are more compatible with the complexity inherent to the State structure and the processes of production of policies would incorporate in their interpretative horizon reflections on contextual interactions, power correlations, and factors linked to ideas, interests, and beliefs as constitutive dimensions of theoretical perspectives based on the social construction of reality as a prerogative of analysis.

The same reflection applies to understanding the dynamics of production of the different types of evidence mobilized by governmental actors in a given historical moment. In line with the arguments presented in this text, evidence, as part of the constituent elements of policy production, may affect how rules, standards, requirements, and/or criteria with potential to guide, define, restrict or encourage behaviors are incorporated into policy design. They can also contribute by strengthening certain constructed frameworks about specific issues, problems, or audiences. Finally, evidence can also play an essential role as an instrument through which governments and other actors in the public sphere can classify and regulate spaces, subjects, and objects that can be governed.

Having made these considerations, it is crucial to understand the dynamics that delimit the use of evidence by State actors, especially those that allow a wide range of evidence to be produced within government agencies, and how this information, especially for this paper, administrative records are created and adopted as valid supports in the production of policies.

4 ADMINISTRATIVE RECORDS AS EVIDENCE

Despite permeating the routine organization of governmental action daily and providing elements for decision-making at different moments in the production of policies, administrative records are still little addressed in analyses of the structuring and management of governmental actions, and they are still scarce in studies that address the production and use of evidence by the State sphere (Holt, 2008; Groves and Schoeffel, 2018). Despite efforts in different countries to foster the use

of administrative records for statistical purposes and as a source of policy evidence (United States, 2014; 2016; Wallgreen and Wallgreen, 2014),[15] the underutilization of these data can be explained by numerous reasons. Among these, and perhaps the main one is that it stems from the administrative-operational nature attributed to this type of information, almost always produced within government bodies and used chiefly by public managers and leaders responsible for conducting the policies being developed by governments.

Described very broadly as "data that derive from the operation of administrative systems, typically done by public sector agencies" (Elias, 2014, p. 103), administrative records generally have purposes related to the management of the policies themselves and are adopted for the purposes of recording and monitoring the information needed to enable the fulfillment of the legal-normative competencies and responsibilities assigned to the different sectoral bodies.

It is possible to argue, in light of the Brazilian experience, that, in addition to more operational purposes such as those listed by Woollard (2014) – recording specific information provided by individuals or organizations stored as reference (births, deaths, registration data etc.); collection of information that supports the fulfillment of governmental responsibilities (granting of benefits, tax collection etc.); and the permanent storage of information necessary for the completion of the legal and regulatory competencies and responsibilities assigned to the different sectoral agencies etc.); and also the permanent storage of information about specific events of interest to the public administration – administrative records also play other roles, more related to the production processes of policies, and repeatedly can assume the role of evidence adopted to support decisions and measures aimed at ensuring the implementation or smooth progress of these interventions.

Administrative records can easily become useful evidence to guide State action. For example, they consolidate information that can be mobilized in the preparation of diagnoses on a given situation or public problem, provide data on population groups that may or may not become beneficiaries of a given government program, or function as valid references to accompany the execution and implementation of policies and to support the monitoring and evaluation of these initiatives.

The Brazilian public administration has countless administrative records that vary enormously in scope, degree of consolidation (guided by aspects such as length of existence, the official character of the database, database management mechanisms, and periodic updates, among others), degree of transparency, availability of data for consultation, in management arrangements, as well as in purposes and thematic areas.

15. More information at: https://www.statcan.gc.ca/en/our-data.

If, on the one hand, there are areas with robust systems capable of consolidating different layers and levels of information and guiding the execution of sectorial policies (health and education, for example), on the other hand, there are some sectors that have been gradually advancing in structuring mechanisms for systematizing data and expanding the strategic use of these records for planning their interventions (environmental and social assistance areas are examples). However, there are also those areas in the early stages of managing these databases, often having only spreadsheets or isolated records mobilized by the actors involved in operationalizing their policies (for example, data on traditional peoples and communities).[16]

Recognizing the heterogeneity that characterizes these records, their origins, specificities, and mainly the functions they assume for policies, we have opted to limit the analysis to the set of data from part of the primary administrative records managed at the federal level, characterized by national coverage, with data available for consultation and a relative degree of consolidation. Accordingly, these data were collected in an exploratory and qualitative way by consulting the websites of the federal public administration agencies and the bases indicated in the Open Data platform.[17] These include, for example, the Unified Registry (Cadastro Único), the systems linked to Datasus, the School Census (Censo Escolar), the Rais and Caged data, Sipra, and DAP, as detailed in appendix A.[18]

The level of disaggregation and detail of data on specific publics (reaching, in some cases, individualized identification of information) and the low cost of access to these records, given that they are already internalized within the government structure, are among the main advantages listed for promoting the use of administrative records.

Furthermore, administrative records are characterized, in general, by a large population scale, broad territorial coverage, and long time series. Moreover, they are submitted to more regular and periodic updating routines than other information assets, such as research or surveys developed by non-governmental institutions and agencies that lack pre-established periodicities or remain focused on a restricted number of cases.

For analytical purposes, administrative records have a significant advantage over other data as they have a greater potential for articulation and dialogue with

16. Different chapters of this publication highlight the multiple uses and stages of development of these registers in the federal public administration. See, for example, chapters 7, 17, 20, 23, 26, and 27.

17. For more information, access the link: https://dados.gov.br/.

18. It is worth mentioning that there is no consolidated mapping of all administrative records under the federal government's responsibility and that, despite initiating a preliminary systematization in this sense, this study has no intention of covering all systems and databases produced within the technical-managerial structure of the federal level. Due to the dispersed and diverse nature that characterizes this information, a further study focused on deepening these databases' details and main characteristics are necessary. Most records can be identified from the federal public administration bodies' electronic sites and the Open Data platform.

the reality of policies and their various management and execution processes by seeking to systematize information on all services and public facilities or beneficiaries, resulting from a given policy.

In different cases, the administrative records can provide information about the public and regions served by specific policies, types of deliveries made, gaps in service, and overlapping efforts. They can serve as parameters for granting benefits, besides presenting data on specific situations, as occurs with labor market data, birth and mortality rates, among other demographic and socioeconomic information.

Despite the underutilized potential of administrative records, it is worth making explicit the limits to which these bases are subject, given that, substantially, this information was not collected for statistical purposes (Groves and Schoeffel, 2018; Wallgreen and Wallgreen, 2014).

Often, records are limited to the potential population or population addressed by a given policy, and their temporal coverage may be restricted to the initiative's duration. Furthermore, significant heterogeneity among the variables that make up these registries may exist. There may be differences in the update periods between information within the same registry or the instances responsible for filling out and checking consistency. There are also possible gaps in the registration of previous values. Updated fields may overwrite others without properly saving previous information, resulting in losses of temporally distributed information.

Other aspects that affect the consistency of these data and that are conditioning factors for the use of administrative records as a reliable source of evidence to support policies are heterogeneity in the methodologies for collecting and recording information over time, discontinuity in the filling out or updating of information, gaps in metadata, lack of transparency about the criteria for collecting and processing data, or even the existence of secrecy and privacy requirements that limit access to the information by third parties.

In short, the challenges aimed at improving the management of these databases and also, along the lines proposed in this work, expanding the strategic use of these records as evidence for policies require efforts in multiple directions to resolve conceptual and methodological inaccuracies in the construction, filling out, and updating of variables, as well as problems arising from the dispersion and lack of integration between administrative records with common thematic convergences and/or identification keys. In addition, there are obstacles linked to failures arising from discontinuity processes in data governance or from inconsistencies internal to the records, and, finally, aspects related to secrecy and access restrictions to information of a sensitive nature contained in the records to ensure security in data use.

Despite these caveats, the preliminary exploration of administrative records in Brazil indicates promising paths for expanding the use of these data and their possible applications, considering the different functions they perform in the organization of state action and the operationalization of policies.

Table 1 summarizes the administrative records selected in the analysis based on the previously indicated criteria of national coverage, degree of updating and consolidation, availability of data for consultation, etc., and their classification by the following uses and functions: i) support for formulating policies; ii) instrument to guide implementation; iii) mechanism for following up and monitoring actions; iv) support for inspection actions and control of physical and financial execution; and v) mechanisms for accountability, transparency, and social control.

It is worth emphasizing, once again, that this systematization does not represent the totality of administrative records produced by federal bodies but is based on examples among the records known and frequently used by the public administration.

TABLE 1
Administrative records by body and uses and functions

Number	Name	Acronym in Portuguese	Managing body	Uses and functions
1	Annual Social Information Report	Rais	MTE	i), ii), iii), iv)
2	Unified Registry for Social Programs of the Federal Government	Cadastro Único	Ministry of Citizenship	i), ii), iii)
3	General Registry of Employed and Unemployed People	Caged	MTE	i), ii), iii)
4	Integrated Planning, Budget, and Finance System	Simec	MEC	i), ii), iii), iv), v)
5	Social Security Benefits System	Sisben	MPS	ii), iii), iv)
6	National System of Civil Registry Information	Sirc	MMFDH	i), iii)
7	Unified Health System User Registration System	Cadsus	MS	i), ii), iii), iv)
8	Death Control System	Sisobi	MS	i), ii), iii), iv)
9	Information System of Agrarian Reform Projects	Sipra	Incra	i), ii)
10	Declaration of Aptitude to the National Program for Strengthening Family Agriculture	DAP	Mapa	i), ii)
11	Information System on Families in Federal Protected Areas	SISFamílias	ICMBio	i), ii), iii)
12	Management Analysis and Monitoring System	SAMGe	ICMBio	i), ii), iii)
13	National Wildlife Management System	Sisfauna	Ibama	i), ii), iii)
14	Program to Calculate Deforestation in the Amazon	Prodes	Inpe	iii), v)
15	Real-Time Deforestation Detection	Deter	Ibama	iii), iv), v)
16	Terraclass	Non-applicable	Inpe/Embrapa	iii), iv), v)
17	Registration System of the Unified Social Assistance System	Cadsuas	Ministry of Citizenship	i), ii), iii)
18	Citizen Benefits System	Sibec	Ministry of Citizenship	ii), iii), iv)
19	Bolsa Família Program Management System	SIGPBF	Ministry of Citizenship	ii), iii), iv)

(Continues)

(Continued)

Number	Name	Acronym in Portuguese	Managing body	Uses and functions
20	Conditionalities System	Sicon	Ministry of Citizenship	ii), iii), iv)
21	Food Purchase Program Information System	SIS/PAA	Ministry of Citizenship	i), ii), iii), iv)
22	Cisterns Program Management Information System	SIGCisternas	Ministry of Citizenship	ii), iii), iv)
23	Health Information System for Primary Care	Sisab	MS	i), ii), iii), iv)
24	Mortality Information System	SIM	MS	i), iii), v)
25	Hospital Information System of the Brazilian Unified Health System	SIH/SUS	MS	ii), iii)
26	Information System on Live Births	Sinasc	MS	i), iii)
27	Notifiable Diseases Information System	Sinan	MS	i), iii), iv), v)
28	National Immunization Program Information System	SI/PNI	MS	i), ii), iii)
29	Outpatient Information System of the Brazilian Unified Health System	Siasus	MS	ii), iii), iv)
30	National Registry of Health Establishments	CNES	MS	i), ii), iii)
31	Energy Information System	SIE-Brasil	MME	i), ii), iii), v)
32	Environmental Rural Registry	CAR	MMA	i), ii), iii), iv), v)
33	Indigenous Information System	Non-applicable	Funai	i), ii), v)
34	School census	Non-applicable	Inep	i), ii), iii), iv), v)
35	Brazilian Educational System	SEB	Inep/MEC	i), ii), iii), iv)
36	Higher Education Census	Non-applicable	Inep	i), ii), iii), iv), v)
37	HÓRUS	Non-applicable	Minfra	i), ii), iii)
38	National System of Environmental Information	Sinima	MMA	i), ii), iii), iv), v)
39	Certified Quilombola Communities	Non-applicable	FCP	i), ii), v)
40	National Emissions Registry System	Sirene	MCTI	i), ii), iii)

Author's elaboration.

Obs.: MTE – Ministry of Labor and Employment; MCidadania – Ministry of Citizenship; MEC - Ministry of Education; MPS – Ministry of Social Security; MMFDH – Ministry of Women, the Family, and Human Rights; MS – Ministry of Health; Incra – National Institute of Colonization and Agrarian Reform; Mapa – Ministry of Agriculture, Livestock and Supply; ICMBio – Chico Mendes Institute for Biodiversity Conservation; Ibama – Brazilian Institute of the Environment and Renewable Natural Resources; Embrapa – Brazilian Agricultural Research Corporation; MME – Ministry of Mines and Energy; MMA – Ministry of the Environment; Funai – National Indian Foundation; Inep – National Institute of Educational Studies and Research Anísio Teixeira; Minfra – Ministry of Infrastructure; FCP – Palmares Cultural Foundation; MCTI – Ministry of Science, Technology and Innovations.

4.1 Uses and functions of administrative records in Brazil

Based on the exploratory analysis of the selected list of administrative records, it was possible to identify different uses and functions attributed to these registries and bases related to the processes of public policy production.

Different situations were indicative of the potential adoption of this information as sources of evidence to support decision-making and to improve the design and implementation of actions.

It is worth noting that many of the records analyzed are multifunctional, performing simultaneous functions[19] that vary according to the purposes for which they were created or due to changes and extensions of scope incorporated into these records over time. The same occurs when systems are designed to consolidate or organize dispersed and fragmented sets of the information under a common platform.

That said, the uses and functions of the records analyzed were divided into five major groups: i) support for formulating policies; ii) instrument to guide implementation; iii) mechanism for following up and monitoring actions; iv) support for inspection actions and control of physical and financial execution; and v) mechanisms for accountability, transparency, and social control. As mentioned earlier, these categories are useful to highlight the presence and potential use of records in different stages of public policy production and better understand how they fit into these categories.

It is very common to observe, in the literature on policy design, the valorization and indication of the need for diagnoses and existing data on the object of the policy under discussion to be taken into account by policymakers when planning and delimiting the scope of government action (Weiss, 1977; Capano et al., 2019; Howlett, 2019; Howlett et al., 2013). Official statistics, census data, and surveys conducted by research institutes and universities can be mobilized to support many of these initiatives, as explained in different chapters of this publication.[20] However, the results[21] of a survey conducted with more than 2,000 federal civil servants indicate that the inputs most used by the bureaucracy derive from internal sources based on the technical production of the agency itself, or even on the experiences of civil servants on a given theme.

Along these lines, administrative records can also play and do, in many situations, play a central role as a *support for the formulation of policies* in the preparation of diagnoses that allow public authorities to plan measures and estimate the possible impacts of their policies. As guiding instruments for policy design, administrative records can be adopted as a starting point to delimit and identify the potential public to be served by a given policy; they can also work as a parameter to guide the actions in the territory and direct the delivery of services and the implementation of public equipment. In the same direction, several records also allow the identification of service gaps or assistance gaps and population or regional inequalities in access to essential services.

19. The case of Simec is a clear example of this.

20. For more information, see chapters 15, written by Paulo de Martino Jannuzzi, and 17, authored by Natália Massaco Koga, Rafael Viana, Bruno Gontyjo do Couto, Isabella de Araujo Goellner, and Ivan da Costa Marques, in this publication.

21. Described by Natália Massaco Koga, Pedro Lucas de Moura Palotti, Rafael da Silva Lins, Bruno Gontyjo do Couto, Miguel Loureiro, and Shana Nogueira Lima in chapter 9 of this book.

Another recurrent use of records comes in the form of instruments that are used to operationalize the policy implementation processes. These systems not only support policy management but also configure, in many cases, the channels for formalizing demands, submitting proposals, approving projects, and ensuring the compliance of stages and requirements foreseen in policy implementation.

The data generated during these multiple processes may become necessary supports to the extent that they allow the visualization of the subsequent stages of policy implementation and the possible gaps, difficulties, and restrictions that permeate these processes, thus serving as *instruments to guide the implementation*.

From this perspective, information on physical-financial execution, the degree of adherence of subnational or non-state actors to certain initiatives, and difficulties of access to the list of actions offered by the State become strategic evidence that can be applied to solve problems and possible course corrections during the policy execution processes.

The debate on the use of evidence has a long history of association with discussions on the relevance of strategies and tools for monitoring and evaluating policies to qualify government policies.[22] For example, data on the achievement of expected goals, impacts resulting from state interventions, and other indicators on the performance of government initiatives have been widely adopted as a tool to improve the different stages of policy production based on *mechanisms for monitoring and tracking actions* (Howlett et al., 2013).

Monitoring systems managed at the government level produce a massive amount of information used mainly for managerial purposes or to inform managers and other leaders of the current status of ongoing policies; however, information of this nature also constitutes evidence capable of improving existing policies and future interventions based on lessons learned from past experiences.

Information contained in administrative records can also be used *to support supervision and control actions* from the standpoint of internal and external control over the delivery of expected results or the proper application of public resources. They may have been systematized for inspection purposes or improved due to periodic audits and similar actions. Countless administrative records, especially those adopted for the granting of benefits or rendering accounts, for example, undergo regular rounds of audits to verify their adequacy and conformity.

When publicized and periodically disclosed, administrative records also play an essential role as inputs for rendering accounts of the results achieved by policies and the application of public resources, thus strengthening *mechanisms of*

22. For more information, see Sanderson (2002).

accountability, transparency, and social control of the population over public services by allowing the different actors involved in the issue to see the State's action in its multiple dimensions.

5 FINAL REMARKS

This chapter intended to understand the State not only as a potential user of evidence but also as a producer of evidence, observing to what extent informational resources – in this case manifested in the form of administrative records – generated during different processes that constitute the bureaucratic activity can be used in the production of policies.

The analysis was based on assumptions that broadened the scope of understanding the dynamics of the production of policies and evidence in the context of State action. The first is centered on the notion that evidence and policies are not neutral and are permeated by power relations that configure their conditions of possibility and meanings assumed inside and outside the state apparatus. The second is that informational data used to support decisions about government interventions can be understood from their multiple origins and natures, not restricted only to a certain field of knowledge production.

The adoption of these assumptions implies problematizing both the views supported by a restrictive framework about what constitutes valid evidence and those perspectives anchored by a radical relativism, unable to make room for the glimpse of the differences between the multiple forms of manifestation of knowledge and explanations about the world and, even more seriously, the multiple repercussions produced by the adoption of different types of knowledge built about the socio-historical reality.

In this sense, how evidence is understood contributes to widening or restricting the perspectives recognized as valid or apt to be pronounced as considered positions in the public debate. Accordingly, it is crucial that, when mobilizing informational sources on a given theme, public managers and leaders recognize the multiple possibilities of knowledge production without ignoring the specificities and contexts of construction of each one of these references. The argument is that it would not be appropriate to elect only one type of knowledge and subordinate all the others. This is so due to the gains of considering not only scientific knowledge but also the one produced by technical-bureaucratic instances or by the target audiences of the policies and their local knowledge and experiences as information that contributes to understanding the implementation of policies and their effects on reality.

Within this framework, administrative records were listed as a way how state agencies produce potentially helpful evidence to support their own actions. One

of the issues arising from this analysis lies in the fact that, commonly, these records are not understood as evidence because they do not meet specific requirements attributed to scientific knowledge and, consequently, their mobilization and use as a support capable of influencing the different stages of production of policies are also not read from the standpoint of public bureaucracy as the adoption of mechanisms to better inform the policies under its responsibility.

However, as explained throughout this text, these records go through different stages of public policy production, taking on diagnostic, control, operationalization, and publicity functions of public action. Moreover, their governance practices have been the subject of constant improvement and refinement. In this sense, using such information as evidence is already something that occurs in practice in different policy areas without, however, this process being recognized as such or gaining visibility from this framework.[23]

There is an enormous space for expanding these practices by recognizing the importance of administrative records as tools for internal governance of government agencies and as ways to structure the State's perception of public problems and the different possibilities for intervention on these issues. Nevertheless, to make this movement possible, administrative records need to constitute a body of tools that are known and disseminated within the public administration, reducing the risk that power transitions or management changes may result in losses related to the cost of learning about which data already exist, which ones are available, how they are created, and how governmental and non-governmental actors can use them.

If, on the one hand, there is a substantive gap in the recognition and appropriation by the political-bureaucratic body itself of the myriad of data produced by the countless processes of organization of the State action, on the other hand, there is obviously a long way to go to ensure that these records expand their possibilities of use as evidence capable of informing consistent diagnostic and decision-making processes by the managers.

As a starting point, these records lack organized actions aimed at their disclosure and dissemination within the public administration. As a result of the ignorance of the bureaucracy about the existence or characteristics of such records, there is an overlapping of efforts and rework to collect data that already exists in other databases, as well as a drastic reduction in the possibilities of articulation between sectors that could use this information to see multiple dimensions of the problems faced by the policies.

23. For further information, see chapter 9 in this publication.

Efforts in this regard would contribute to broadening the dialogue between the areas responsible for managing these records. It opens space for cooperation and collaboration among converging areas and discourages the logic of ownership of these records, hindering efforts for greater integration and exchange of information within and outside the sectors. This circumstance depends, of course, on the planned and secure availability of data, guaranteeing compliance with rules of privacy, secrecy, and consent regarding sensitive information that may, in some way, expose or harm individuals or organizations due to improper use of this data.

By contrast, broadening access to these data would encourage research by non-state actors and greater use of this information by research agencies and academia, extending the understanding of the potential of registries as statistically valid and consistent data. However, that depends, to a great extent, on the recognition by the governance instances of the need to systematize and organize the existing systems – ensuring continuity, updating, clear and registered routines, as well as efforts to generate inputs that allow the stages of construction and updating of the bases to be of common knowledge to the current and future teams involved in these areas.

It is essential, for the intensification of the use of evidence in public policies, the recognition that evidence is produced all the time at the State level and that its use can be improved, significantly reducing the costs of access to crucial data about the Brazilian population and its demands and potentialities. Thus, measures that foster rigor in the governance of administrative records by creating rules and guidelines for their construction, maintenance and updating, as well as the creation of instances in the agencies responsible for managing information and producing evidence capable of contributing to better inform policies, become essential for the debate on the best use of inputs produced by the State apparatus to serve as increasingly consistent and robust support for use by the State itself.

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APPENDIX A

TABLE A.1
Detailed list of administrative records selected in the analysis

Name	Acronym in Portuguese	Description	Date of creation	Managing body	Uses and functions
Annual Social Information Report	Rais	The governmental management of the labor sector relies on an important data collection tool called Rais. Established by Decree No. 76,900 of December 23, 1975, Rais aims at: Supplying the needs of control of the labor activity in the country, Providing data for elaborating labor statistics and making information about the labor market available to governmental entities. The data collected by Rais constitute expressive inputs to meet the needs of the labor nationalization legislation; the control of the records of the Severance Premium Reserve Fund (FGTS); the Systems of Collection and Granting and of Social Security Benefits; technical studies related to statistics and actuarial nature; the identification of the worker entitled to special salary raise from the Social Integration Program and the Civil Servants' Investment Program (PIS/Pasep).	1975	MTE	i), ii), iii), iv)
Unified Registry for Social Programs of the Federal Government	Cadastro Único	The Unified Registry is an instrument that identifies and characterizes low-income families, allowing the government to better understand the socioeconomic reality of this population. It records information such as household characteristics, identification of each person, education, employment, and income status. Since 2003, the Unified Registry has become the main instrument of the Brazilian State for the selection and inclusion of low-income families in federal programs, being compulsorily used for the granting of benefits under the Bolsa Família Program (BFP), the Social energy tariffs, and the Minha Casa Minha Vida Program, among others. In addition, it can also be used to select beneficiaries for programs offered by state and municipal governments. Therefore, it functions as a gateway for families to access various policies. Implementing the Unified Registry is a shared responsibility between the federal government, states, municipalities, and the Federal District. At the federal level, the Ministry of Citizenship (MCidadania) is the responsible manager, and the Caixa Econômica Federal is the operating agent that maintains the Unified Registry System. The Unified Registry is regulated by Decree No. 6135 of June 26, 2007, and other regulations.	2003	Ministry of Citizenship	i), ii), iii)
General Registry of Employed and Unemployed People	Caged	Caged was created as a permanent record of employee admissions and dismissals under the Consolidation of Labor Laws (CLT) regime. It is used by the Unemployment insurance benefits to check the data regarding labor relations, in addition to other social programs. This database also provides the basis for studies, research, projects, and programs related to the labor market, while supporting the decision-making process for governmental actions.	1965	MTE	i), ii), iii)
Integrated Planning, Budget, and Finance System	Simec	Simec is MEC's operational and management platform that deals with the budget and monitoring of the federal government's online proposals in the area of education. In Simec, managers verify the progress of the Joint Action Plans in their cities. MEC offers states, municipalities, and the Federal District a virtual Simec environment for elaborating the Joint Action Plan and monitoring the works agreed upon with the National Fund for Education Development (FNDE).Simec's 2011-2014 Articulated Actions Plan (PAR and PAR) modules are a tool that offers a diagnostic and planning instrument for educational policies designed to structure and manage strategically defined goals, contributing to the construction of a national education system.Simec's Construction Works 2.0 module is a tool for monitoring and controlling the projects agreed with the FNDE, including the construction, renovation, and expansion of educational spaces.	2005	MEC	i), ii), iii), iv), v)

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Name	Acronym in Portuguese	Description	Date of creation	Managing body	Uses and functions
Social Security Benefits System	Sisben	Sisben is responsible for granting millions of benefits every month and, as a result, the issue of security and auditing in the branches and advanced service units of social security that grant these benefits and in the management that supervise them and, finally, in the Social Security Technology and Information Company (Dataprev), which performs the services of storage and maintenance of this data, becomes very important.	No information	MPS	ii), iii), iv)
National System of Civil Registry Information	Sirc	Sirc collects and processes data from civil registries of birth, marriage, death, and stillbirth.With Sirc, these activities are performed with the support of a digital platform, in a flow that connects the Bureaus of Vital Statistics to the Brazilian State's e-government environments. In addition to contributing to eradicating under-registration in the country and expanding the full exercise of citizenship, Sirc seeks to promote improvements in the provision of public services, facilitating access to rights and social benefits.	2019	MMFDH	i), iii)
Unified Health System User Registration System	Cadsus	Cadsus allows the generation of the National Health Card (CNS), which facilitates the Brazilian Unified Health System (SUS) management and contributes to increased efficiency in direct care to the user. The registration allows the development of a database for diagnosis, evaluation, planning, and programming of health actions.	No information	MS	i), ii), iii), iv)
Death Control System	Sisobi	Sisobi is responsible for collecting information on deaths from Brazil's offices of the Civil Registry of Natural Persons.At the National Institute of Social Security (INSS), Sisobi data is used to cancel benefits by cross-referencing with the Unified System of Benefits (SUB).	2001	MS	i), ii), iii), iv)
Information System of Agrarian Reform ProjectsAgrarian Reform	Sipra	Sipra is the computer-based system that aims to treat, systematize, and recover data about the Agrarian Reform Projects and their beneficiaries.	No information	Incra	i), ii)
Declaration of Aptitude to the National Program for Strengthening Family Farming	DAP	An instrument used to identify and qualify the Family Units of Agrarian Production (UFPA) of family farming and their associative forms organized in legal entities. DAP beneficiaries are considered to be UFPA made up of family farmers, artisanal fishermen, aquaculturists, mariculturists, forestry workers, extractivists, quilombolas, indigenous people, agrarian reform settlers, and beneficiaries of the National Land Credit Program.	No information	Mapa	i), ii)
Information System on Families in Federal Protected Areas	SISFamílias	The Chico Mendes Institute for Biodiversity Conservation (ICMBio) launched an online data management tool in April 2015. In addition to gathering the information already collected, SISFamílias provides photos, satellite images, and reports on each unit, allowing for updates, corrections, and the incorporation of new families into the system.	2013	ICMBio	i), ii), iii)
Management Analysis and Monitoring System	SAMGe	SAMGe is a tool that aims to analyze and monitor the management effectiveness of our Protected Areas.SAMGe is based on the relationships between resources and values allocated to objectives, their interrelations with society through use, and how the institution responds to territorial management challenges. These elements determine management effectiveness, which is the compliance of policies within a territorially protected space. The tool has already been serving as a support for the preparation and revision of Management Plans and decision-making in different sectors of the institution. Similarly, the Ministry of Environment (MMA) has used the SAMGe as a tool to measure the management effectiveness of protected areas under the umbrella of various projects. It evaluates other ways of applying the methodology as a tool to assist in the allocation of resources and management efforts.	2016	ICMBio	i), ii), iii)
National Wildlife Management System	Sisfauna	Sisfauna is an electronic system for managing and controlling undertakings and activities related to the use and management of wild fauna in captivity in Brazil. There are two versions of this system: Sisfauna 1.0 – Fauna Management, dedicated to issuing Prior, Installation, and Management Authorizations; and Sisfauna 1.2 – Re-registration, aimed at registering again already authorized enterprises and controlling their breeding stock.	No information	Ibama	i), ii), iii)

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Name	Acronym in Portuguese	Description	Date of creation	Managing body	Uses and functions
Program to Calculate Deforestation in the Amazon	Prodes	It is used to calculate, on an annual basis, how much native forest has been lost so that the government can formulate policies based on this data.	1988	Inpe	iii), v)
Real-Time Deforestation Detection	Deter	Carried out by the Brazilian Institute for the Environment and Renewable Natural Resources (Ibama), it is a system responsible for providing preliminary warnings about areas with signs of devastation, a quick survey, almost in real-time, to support the supervision and control of deforestation.	2004	Ibama	iii), iv), v)
Terraclass		System used to measure changes in land use and gauge whether deforested woodland is being used for livestock, agriculture, mining, or cattle ranching, for example. Mappings detected the state of the land in 2004, 2008, 2010, 2012, and 2014 – enabling a decade-long analysis.	2004	Inpe/ Embrapa	iii), iv), v)
Registration System of the Unified Social Assistance System	Cadsuas	Suas registry system contains all the information related to the municipalities, managing bodies, funds, municipal councils, and entities that provide social assistance services.	No information	Ministry of Citizenship	i), ii), iii)
Bolsa Família Program Management System	SIGPBF	Aiming to improve and integrate the management of its main processes, the SIGPBF was developed to allow the monitoring of all management actions related to the Programa Bolsa Família and the Unified Registry.	No information	Ministry of Citizenship	ii), iii), iv)
Conditionalities System	Sicon	Sicon is a tool to support intersectoral management that integrates conditionalities monitoring information in the areas of Health and Education, promoting interoperability through the integration and consolidation of school attendance information, vaccination schedules, and prenatal appointments from specific systems developed and managed by the Ministry of Education (MEC) and the Ministry of Health (MS). It is also responsible for the information about family care/monitoring from the National Secretariat of Social Assistance to aid in accessing social services and monitoring PBF beneficiary families for more efficient and effective management of the PBF.It is a multi-user system for federal, state, and municipal managers and members of social control, accessible via the internet.	No information	Ministry of Citizenship	ii), iii), iv)
Food Purchase Program Information System	SIS/PAA	Operational and management tool for the Food Purchase Program (PAA) used to: Register executing units, supplier beneficiaries, receiving units, and program products; record product acquisition and distribution operations;Monitor compliance with the annual limits of beneficiaries and supplier organizations; monitor the acquisition of products; and Monitor achievement of goals.	2015	Ministry of Citizenship	i), ii), iii), iv)
Cisterns Program Management Information System	SIG Cisternas	All the cisterns built are registered in the SIG Cisternas. Each registration presents data on the technology's geographic location (georeferencing), data on the beneficiary, and data on the stages of construction. It also includes a receipt signed by the family. It is a document with a photo that proves the delivery of the technology to the beneficiary. The SIG Cisternas guarantees the control and transparency of the program.	No information	Ministry of Citizenship	ii), iii), iv)
Health Information System for Primary Care	Sisab	Sisab was established in 2013, becoming the Primary Care information system in effect for the purposes of financing and adherence to the programs and strategies of the National Primary Care Policy, replacing the Primary Care Information System (Siab). Sisab is part of the strategy of the Department of Family Health (DESF/SAPS/MS) called e-SUS Primary Care (e-SUS APS), which proposes to increase information management, process automation, improve infrastructure conditions and improve work processes. With Sisab, it will be possible to obtain information on the health and health situation of the territory's population through health reports, as well as reports on health indicators by state, municipality, health region and team.	2013	MS	i), ii), iii), iv)
Mortality Information System	SIM	SIM was created by the Department of Informatics of the Brazilian Unified Health System (Datasus) to regularly obtain data on mortality in the country. With the creation of SIM, it was possible to comprehensively capture mortality data to support the various spheres of public health management. Based on this information, it is possible to carry out situation analyses, planning and evaluation of actions and programs in the area.		MS	i), iii), v)

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Name	Acronym in Portuguese	Description	Date of creation	Managing body	Uses and functions
Hospital Information System of the Brazilian Unified Health System	SIH/SUS	Created in August 1981, in Curitiba, replacing the Hospital Admission Guide (GIH) system in 1982, the popularly known AIH system went through several platforms in UNISYS mainframes and ABC-BULL, in the centralized processing phase. It was the first Datasus system to have its collection implemented in microcomputers (AIH in diskette – 1992) and decentralized to the users themselves, ending the era of typing poles. The AIH processing continued centralized until it was decentralized to the Health secretary managers in April 2006, using Windows platform, Firebird DBMS and delphi programming language – which is its current state.The purpose of the AIH (SIHSUS system) is to register all hospital admissions that were financed by SUS and, after processing, to generate reports so that managers can make payments to health establishments. In addition, the federal level receives a monthly database of all hospitalizations authorized (approved or not for payment) so that the medium and high complexity production values can be passed on to the health secretariats, as well as the values of the National Center for Regulation of High Complexity (CNRAC), Fund for Strategic Actions and Compensation (FAEC) and university hospitals – in their various forms of management contract.	1981	MS	ii), iii)
Information System on Live Births	Sinasc	Datasus developed Sinasc aiming to gather epidemiological information regarding births reported nationwide.	No information	MS	i), iii)
Notifiable Diseases Information System	Sinan	Sinan is supplied mainly by the notification and investigation of cases of diseases and illnesses that are on the national list of compulsorily notifiable diseases (Consolidation Ordinance No. 4 of September 28, 2017, Annex V, Chapter I), but states and municipalities are allowed to include other important health problems in their region. Its effective use allows for the dynamic diagnosis of the occurrence of an event in the population, and may provide support for causal explanations of the diseases subject to compulsory notification, in addition to indicating risks to which people are subjected, thus contributing to the identification of the epidemiological reality of a given geographical area. Its systematic use, in a decentralized way, contributes to the democratization of information, allowing all health professionals to have access to the information and to make it available to the community. It is, therefore, a relevant instrument to help health planning, to define intervention priorities, besides allowing the impact of interventions to be evaluated.	2005	MS	i), iii), iv), v)
National Immunization Program Information System	SI/PNI	The fundamental objective of the SI/PNI is to enable the managers involved in the program a dynamic risk assessment regarding the occurrence of outbreaks or epidemics, based on the registration of immunobiologicals administered and the quantity of vaccinated population, which are aggregated by age group, in a certain period, in a geographical area. On the other hand, it also enables the control of the stock of immunobiologicals necessary for the administrators who have the task of programming their acquisition and distribution.	No information	MS	i), ii), iii)
Outpatient Information System of the Brazilian Unified Health System	Siasus	Siasus was created in 1992 and implemented in July 1994 in the state secretariats replacing the Payment Authorization Guide (GAP) and the Social Security Outpatient Information and Control System (Sicaps) to finance outpatient care. In 1996, it was widely implemented in the municipal health secretariats – then called semi-full management – by the Basic Operational Norm (NOB) 96. In 1997, the application started to process, besides the traditional Outpatient Care Production Bulletin (BPA), a numbered and authorized document called High Complexity Procedure Authorization (Apac). Siasus receives the transcription of production in the BPA and Apac documents, consolidates and validates the payment according to budget parameters stipulated by the health manager himself, before approving the payment – It uses the Budgetary Programming Form (FPO). Monthly, managers, besides generating the amounts due to their network of facilities, send to Datasus-RJ a database containing all the procedures performed in their management. Also, monthly, Datasus-RJ generates files for tabulation having these services. Finally, complementing the information from the Sihsus system, it provides the Health Care Secretary/Department of Regulation, Evaluation and Control (SAS/Drac) with the values of the financing ceiling to be transferred to the managers.	1992	MS	ii), iii), iv)

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Name	Acronym in Portuguese	Description	Date of creation	Managing body	Uses and functions
National Registry of Health Establishments	CNES	Official system for registering information on all health establishments in the country, regardless of their legal nature or whether they are part of SUS. It is the official MS registry concerning the reality of Brazil's installed capacity and health care workforce in public or private health care establishments, with or without SUS agreements. The CNES is the registry base for the operation of more than ninety national systems, such as: the Outpatient Information System (SIA), Hospital Information System (SIH), and e-SUS Primary Care (e-SUS APS), among others. It is an auxiliary tool that provides knowledge of the reality of the existing health care network and its potential to assist in health planning in the three spheres of government for effective and efficient management.	2000	MS	i), ii), iii)
Energy Information System	SIE-Brasil	A valuable tool for the process of management and transparency of the country's energy information.The system allows the Ministry of Mines and Energy (MME) to manage and disseminate information on energy supply and demand, energy facilities, resources and reserves, energy prices, consumption equipment, industrial production, efficiency, demographics, economics, particulate emissions, and prospects, as well as legal and documentary information. The Modules for Brazil, states, municipalities, countries and the world allow comparing indicators based on uniform criteria for data treatment.		MME	i), ii), iii), v)
Environmental Rural Registry	CAR	A nationwide electronic public registry, mandatory for all rural properties, to integrate environmental information from rural properties and possessions regarding areas of permanent preservation (APPs), restricted use, legal reserve, remaining forests and other forms of native vegetation, and consolidated areas, making up the database for control, monitoring, environmental and economic planning, and combating deforestation. CAR registration is the first step towards obtaining the property's environmental regularity and includes: data on the owner, rural possessor, or person directly responsible for the rural property; data on the documents proving ownership and/or possession; and georeferenced information on the property's perimeter, the areas of social interest and places of public utility, with information on the location of the remnants of native vegetation, the APPs, the sites of restricted use, the consolidated areas, and the legal reserves.	2012	MMA	i), ii), iii), iv), v)
Indigenous Information System	Non-applicable	This module allows research on the indigenous lands located in the Brazilian territory and their stages in the demarcation process: in studies; delimited; declared; approved; and regularized.	No information	Funai	i), ii), v)
School census	Non-applicable	The School Census is the main instrument for collecting information on primary education and is the most important Brazilian educational statistics survey. It is coordinated by the National Institute for Educational Studies and Research Anísio Teixeira (Inep) and carried out in collaboration with the state and municipal education departments and with the participation of all public and private schools in the country. It covers the different stages and modalities of basic and professional education: Primary education (early childhood education, elementary school, and high school); Special education – substitutive modality; Youth and adult education (EJA); and Professional education (technical courses and continuing education courses or professional qualifications). Data collection from schools is declaratory and divided into two stages. The first stage consists of filling out the initial registration, when information about the educational establishments, managers, classes, students, and school professionals in the classroom is collected. The second stage occurs with filling in details on the student's situation and considering the data on the students' movement and performance at the end of the school year. The School Census is regulated by normative instruments that establish the obligation, the deadlines, the responsible parties, their responsibilities, and the procedures for the entire data collection process. In addition, all the legislation related to the School Census is available for consultation in the Documents and Legislation menu.	2007	Inep	i), ii), iii), iv), v)

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Name	Acronym in Portuguese	Description	Date of creation	Managing body	Uses and functions
Brazilian Educational System	SEB	SEB is a continuous registry, completed and updated by institutions of primary education (early childhood education, elementary school, and high school), higher education, federal, state and municipal, public and private, and federal institutions of professional and technological education. SEB gathers data on the teaching staff and students of the educational institutions; student enrollment and attendance; and student academic records. The data can be shared with agencies and entities of the direct federal public administration, and with other interested entities, for the formulation, implementation, execution, evaluation, and monitoring of policies. Security, protection, and confidentiality norms and procedures must be observed. The services offered via SEB will benefit both institutions and students. The first initiative is the Student ID, free, digital, aimed at students in basic, technological and higher education. The ID can be issued via a cell phone application. Soon, new services will be made possible through SEB. The registration of information in SBE does not follow a specific schedule. At any time, primary and higher education institutions (IES) can define new managers for SEB and include or change student information.	2019	MEC or Inep	i), ii), iii), iv)
Higher Education Census		The Higher Education Census, conducted annually by Inep, is the most complete research instrument in Brazil concerning the IES that offer undergraduate courses and specific training sequences, as well as their students and professors. This collection aims to provide the academic community and society with detailed information about the situation and significant trends in the sector. The Higher Education Census gathers information about higher education institutions, their undergraduate courses, in-person or distance learning, sequential courses, vacancies offered, enrollments, first-year students and seniors, and information about teachers in the different forms of academic organization and administrative categories. The data are collected from the questionnaires filled out by the IES and by importing data from the e-MECsystem. During the period the questionnaire is being filled out, the institutional researchers can make the necessary changes or additions to the data of their respective institutions at any time. After this period, Inep verifies the consistency of the information collected. The census system is then reopened for checking and validation of data by the IES.	1997	Inep	i), ii), iii), iv), v)
HÓRUS		The National Civil Aviation Secretariat's system that presents information, in an agile and interactive format, on Brazilian civil aviation. Infrastructure, operation, and performance data are available for the country's airdromes.	No information	Minfra	i), ii), iii)
National System of Environmental Information	Sinima	Sinima is one of the instruments of the National Environmental Policy, provided by Law No. 6938/1981. It is considered by the Information Policy of the MMA as the conceptual platform based on the integration and sharing of information between the various systems existing or to be developed under the National Environmental System (Sisnama), according to Ordinance No. 160/2009. Sinima is the instrument responsible for information management within Sisnama, according to the logic of shared environmental management between the three spheres of government, with three structuring axes for action: axis 1 – development of tools for access to information; axis 2 – integration of databases and information systems. These two axes are interconnected and deal with geoprocessing tools, in line with guidelines established by the electronic government (e-Gov), which allow the composition of interactive maps with information from different themes and information systems. They are developed with the support of the MMA's General Coordination of Information Technology (CGTI); and axis 3 – strengthening the process of production, systematization, and analysis of statistics and indicators related to the attributions of the MMA. This is Sinima's strategic axis, whose primary function is to strengthen the process of production, systematization, and analysis of environmental statistics and indicators; to recommend and define the systematization of a basic set of indicatorsand establish an agenda with institutions that produce environmental information; and provide integrated assessments of the environment and society.	1981	MMA	i), ii), iii), iv), v)
Certified Quilombola Communities	Non-applicable	Database with data on certified quilombola communities, composed of certificates issued to the remaining quilombola communities (CRQs).	No information	FCP	i), ii), v)

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Name	Acronym in Portuguese	Description	Date of creation	Managing body	Uses and functions
National Emissions Registry System	Sirene	Set of data on the country's greenhouse gas emissions results (Decree No. 9.172/2017). The time series of emissions refers to the latest results published in the National Inventory, as part of the Third Brazilian National Communication to the United Nations Framework Convention on Climate Change, and the third and fourth editions of the annual estimates, whose data from the graphs and tables can be exported to Excel.	2017	MCTI	i), ii), iii)

Author's elaboration.

Obs.: 1. MTE – Ministry of Labor and Employment; MPS – Ministry of Social Security; MMFDH – Ministry of Women, the Family and Human Rights; Incra – National Institute of Colonization and Agrarian Reform; Mapa – Ministry of Agriculture, Livestock and Supply; Inpe – National Institute for Space Research; Embrapa – Brazilian Agricultural Research Corporation; Funai – National Indian Foundation; Minfra – Ministry of Infrastructure; FCP – Palmares Cultural Foundation; MCTI – Ministry of Science, Technology and Innovations.

2. The uses and functions of the records analyzed were divided into five major groups: i) support for formulating policies; ii) instrument to guide implementation; iii) mechanism for following up and monitoring actions; iv) support for inspection actions and control of physical and financial execution; and v) mechanisms for accountability, transparency, and social control.