

<http://doi.org/10.1590/15174522-109768>

Social studies of quantification and its implications in sociology

Alexandre de Paiva Rio Camargo* 

Claudia Daniel** 

Abstract

This article has a dual purpose: on the one hand, it seeks to present the relevance, scope, and depth of historical and sociological approaches on quantification; on the other, it seeks to reconstruct the origins of this field and its changes over the past few years. Thus, we emphasize the links between the works that analyzed the processes of reasoning, valuing, measuring, and comparing through numbers and sociology's main classical and contemporary concerns. As such, this article offers a broad review of the literature in the field, seeking to arouse the interest of the community of social scientists for its heuristic potential. At the same time, it seeks to compile the contributions of the social studies of quantification to sociology as a whole. The first section presents a historical account of the formation of this analytical perspective, its main references and most significant contributions. The second section discusses the reasons why we believe sociology should extend its attention to the regimes of quantification in contemporary societies. In addition, it addresses the contributions of the field for the advancement of nodal issues, such as the problem of the foundations of social order and political authority, the processes of social differentiation, and the making of subjects, social engagement, criticism, and social change. ♦♦

Keywords: sociology of quantification, history of statistics, government by numbers, politics of population, categories of classification.

* Programa de Pós-Graduação em Sociologia Política, Universidade Candido Mendes, Rio de Janeiro, RJ, Brasil.

** Centro de Investigaciones Sociales, CIS, IDES, CONICET, Buenos Aires, Argentina.

♦ The translation of this work was financed with funds from the PUE-CONICET 005 project.

♦ Translated by Liana V. Fernandes, lianavfer@gmail.com.



Introduction

This work has a dual purpose: on the one hand, to show the relevance, breadth and depth of historical and sociological studies on quantification; on the other, to reconstruct the origins of this field and the transformations it has experienced over the past few years. Along this path, we are interested in highlighting the links of these analytical works on the quantification processes with the classical and contemporary concerns of sociology.

Since the late 1970s, the production of statistics has come to be considered a social practice of interest to social sciences, not only for its political effects, but also for its unique characteristics – the social relationships involved in the chain of statistical production, the confidence and the authority that these numbers usually inspire, the systems of classification and representation of the world that they propose. This interest, initially, leaned towards the generation of sources, classifications, and statistical instruments, underlining their social and political uses.

Two trends are formed in this first phase. On the one hand, a political and institutional history of data production, highlighting the state practices of recording and counting over time, as in the two volumes of *Pour une histoire de la statistique* (INSEE, 1987). Directed by Alain Desrosières, this project resulted from the conferences he organized in 1976, which brought together several historians who took part in the *Annales*, such as Jean-Claude Perrot, Michele Perrot, and Jacques Ozouf, devoting a pioneering historiographical concern with statistics as a state instrument for managing the territory and the population.

The second trend, on the other hand, is the Bielefeld group, close to the philosophy of science and historical epistemology, which brought together German and Anglo-Saxon authors, such as Lorraine Daston, Ian Hacking, and Theodore Porter, and which publishes its manifesto in *The Probabilistic Revolution* (1987), based on conferences held between 1982 and 1984. Inspired by the research program started by Thomas Kuhn, this

line of thought was dedicated to investigating the emergence of risk and the calculation of probabilities as new categories of perception of reality, its passage through the formation of natural science and the humanities, throughout the 19th century, as epistemic conditions for the emergence of biopolitics and population management, and for various processes of rationalization of social life.

In the 21st century, social studies on quantification slightly broadened these limits and designated themselves as those that analyze processes of numbers production and communication, generally understanding quantification as a social phenomenon in itself (Diaz-Bone; Didier, 2016; Espeland; Stevens, 2008). Quantification would no longer be restricted to the practice of developing and publicizing official statistics, now covering other calculation operations and technologies: accounting calculations, cost-benefit analyzes, performance measurements, risk calculations, ratings, and rankings. Thus, quantification is conceived as a fundamental feature of modern social life, which is evidenced by its close links with scientific activity, the consolidation of modern States, the management of complex organizations, the evolution of markets, and economic agency. Therefore, it is difficult to think of quantification as isolated from the questions that sociology has traditionally articulated about the reproduction of order, cohesion, social coordination, inequalities, hierarchies, conflicts, individualization, and work organization.

In this text, we approach and examine a set of cross-sectional studies in the field of social sciences that share the view that quantification is not just a tool scientists and administrators use to produce knowledge about the world, but that it is a social activity engaged in power relations, and which has effects on the reality that it purportedly describes.¹

¹Since studies on quantification are in a process of expansion, we do not intend to offer a completely exhaustive review of the literature here, but rather to describe an overview of a set of research works that share certain common assumptions, outlining their main lines of investigation.

In fact, the recursive effects of numbers on the agency and the reality they describe is one of the main axes of analysis in quantification studies. The mere existence of the field presupposes overcoming an old debate in the social sciences, opposing methodological positivists – who take numerical evidence as a coherent and realistic representation of reality – and theorists and ethnomethodologists – who denounce the numbers for equating *how* to *how much*, omitting or disfiguring the phenomenon to be researched. While the formers forget the objectification effort that surrounds all types of counting, which contributes to the mystification of its authoritative effects, the latter ignore that quantification presupposes a conventional operative definition that gives it social power and impels a standardized agency (Besson, 1995). For this reason, statistics must be understood according to two language registers about reality *at the same time*: a realist (objectivist) one and a relativist (constructivist) one. That is, it must be understood as being simultaneously conventional and real (Desrosières, 1993).

In the first section of this paper, we aim to describe how a research agenda on quantification over time, its theoretical frameworks and most significant contributions, was configured. In the second section, we seek to argue why we believe that sociologists should dedicate more of their attention to the several operations and quantification regimes, supported by the idea that the studies carried out so far take up and shed light on at least three foundational concerns of the discipline of sociology: i) the matter of the bases of social order and political authority in modern times; ii) the issue of social differentiation and the constitution of subjectivities; and iii) the question about the foundations of criticism and the transformative participation of the social world. In the last section, we developed a reflection summarizing the arguments presented.

Quantification studies: genesis and approaches

As we have stated, quantification studies consider statistical measurement practices and other quantification operations to be valid research objects.

This implies recognizing the irremediably social character of the actions that contribute (and have contributed) to the *mise en nombre* of the world, turning into quantities what, until then, was only understood in terms of qualities. From this common premise, we can put together a good part of the most influential studies that are aligned to this perspective in two fundamental schools of thought: on the one hand, the *French school*, which was formed at the intersection between the socio-history of statistics and the sociology of science, the economics of conventions and the sociology of criticism. On the other hand, the *Anglo-Saxon school*, is linked – as we have mentioned – to historical epistemology, to the Anglo-Foucauldians and to the Department of Accounting and Finance of the London School of Economics. We will examine these traditions on the following pages.²

As a starting point, we can say that the field adopted the constructivist lexicon and vocabulary of the new French sociologies of the 1980-2000 years (Corcuff, 2015). This sociology clearly takes after Pierre Bourdieu's critical sociology, which promoted not only the use of statistics in the social sciences, but also an accurate reflection on the practices that guide its elaboration. Bourdieu (2007) gave us a quantitative sociology centered on the issues of reproduction of inequalities and dominance relations between social classes, understood in his conceptual terms of *habitus* and *field*. This choice demanded a critical reflection on the official nomenclatures, which would be carried out by his disciples.

² Before that, it is worth noting that, without being articulated in research groups, a series of works outside these trajectories stand out as isolated contributions, which, in the mid-1970s and early 1980s, generated interest and the kind of questions that still mobilize quantification studies. We refer to the work of Michael Cullen (1975), which analyzes, with a historical perspective, the development of the registry, coding, and enumeration practices of statistics professionals as an applied science – not linked to the academic and intellectual community – in Victorian England, and which expanded our understanding of the emergence of statistical reason in modern times. Similarly, Patricia Cohen's (1982) work focuses on the North American culture's typical propensity to count and measure, carrying out a historical study on the expansion of *numeracy* – or the development of basic arithmetic skills, such as counting, enumerating, and calculating – among the United States population during the eighteenth and nineteenth centuries, and which resulted in the expansion of the numerical domain over themes hitherto considered only in qualitative terms.

One of the particular features of the French research tradition on the history and sociology of statistics is that it originated in France's own national statistics institute, the Institut National de la Statistique et des Études Économiques – INSEE (Didier, 2016). Hence, between the end of the 1970s and the beginning of 1980, the first studies on the professional categories officially employed in France were developed, which were analyzed through a diachronic and synchronic lens, seeking to understand the categorizing mechanisms, with special attention to the codification processes. Inspired by the economics of conventions, in particular the notion of plurality of the logics of action, such works sought to show how the categories of classification adhere to the judgments and typifications that ordinary people make in different situations of everyday life (Boltanski, 1982; Desrosières; Thévenot, 1988; Boltanski; Thévenot, 1991).

Since then, the insightful historical readings of Alain Desrosières and his several contributions to the study of a language (statistics), which combined the authorities of science and the State, paved the way for the understanding of statistics as *outil de preuve and outil de gouvernement*, two poles in permanent articulation. As a numerical proof, statistics serve to describe reality and, as such, they are an indisputable reference that precedes debates. In turn, as a state activity, statistics serve to prescribe and act on this same reality and, as such, constitute the target of denouncement and deconstruction of the pyramid of equivalences that support social distinction. In his major work, *La politique des grands nombres* (1993), Desrosières sought to reconcile the apparent divorce between the cognitive and political histories of statistics, a discipline whose meaning and content were gradually changed between the 18th and 21st centuries.

Then, the author adopted the term quantification, conceiving it as the synthesis of two moments – that of creating a convention (*convenir*) and that of measuring (*mesurer*) –, focusing on the examination of conditioning factors, procedures, and social and political effects of quantification. The methodological realism followed by this tradition introduces the social at the heart of the logic of metrology, undoing the impression that the conventions

of statistical forms are arbitrary (Desrosières, 2008). The real cannot be denied by an absolute constructivism, in which the measure creates the object entirely. Conversely, the role of quantification in the governance of people and things cannot be negated “by an absolute realism, in which things would have a previous existence regardless of their measure” (Armatte, 2014, p. 22).

In the Anglo-Saxon side, the sociology of quantification was nourished by contributions from governmentality studies carried out mainly in the United Kingdom and Australia. Postulating a style of analysis, more than a theoretical model, the works of Rose and Miller (1992), Rose (1999), Miller (2001), Burchell, Gordon and Miller (1991), and Dean (1999) seek to explain the underlying forms of rationality in different government regimes, thus making clear the links between the ways in which we know and are made to know ourselves, and the ways in which we govern and are governed in the present. Their works explore the reverberations between Michel Foucault’s (2008; 2009) latest reflections on population management and other scholarly projects, such as Bruno Latour’s actor-network theory (2000).

In this way, they offer an empirical approach to the widespread reach of government in modern societies, through the notion of *governing at a distance*, which they also applied to the politics of numbers (Rose, 1999). In this context, certain calculation instruments are now examined in terms of “government technologies”, that is, as mechanisms through which government programs become operational (Miller, 2001; Miller; Power, 2013).

Accounting, for example, was recognized as one of modern quantification’s preeminent instruments, as a device that makes it possible to act on the lives of individuals and induce behaviors appropriate to certain economic objectives. Accounting practices demand and inspire particular forms of organization, being linked to a strategic or programmatic ambition – increasing efficiency, fostering responsibility, improving decision-making, increasing competitiveness – but, fundamentally, they provide a means of acting on individuals in order to influence their conduct, without taking

away their “freedom” of choice. Thus, accounting calculation practices, like other quantification tools, promote the governance of individuals, inducing them to think of themselves as *calculating selves* (Miller, 2001).

The work of two Bielefeld group graduates and exponents of the Anglo-Saxon tradition is noteworthy. The pioneer works of the epistemologist Ian Hacking on the emergence and expansion of statistical reasoning take elements from Foucault’s concept of biopolitics, but focusing on an underdeveloped aspect on the French philosopher’s work – statistics. In the scientific field, the erosion of determinism and the introduction of chance, even if “tamed” by calculus, boosted statistical rationality, a process that is followed, at the State level, by the proliferation of data-producing agencies across Europe. The “avalanche of printed numbers” produced by these agencies during the first half of the 19th century promoted the development of new categories for the classification of people, in response to the need to uniformly count and enumerate the population that was to be governed (Hacking, 1982; 1990). This historical process also resulted in the establishment of the idea of normality as a key concept for the understanding of social behaviors.

A few years later, Theodore Porter’s (1995) work, *Trust in numbers*, shifted the focus from science and State administration to the role of quantification in applied fields. Porter showed that the spread of statistical reason has depended on the increasing importance of mechanical objectivity in science and public life, that is, on the systematic preference for standardized protocols and analytical techniques concerning professional judgment based on practice, training, and personal experience. Thus, since the 19th century, competing professional groups have resorted to numbers to consolidate their position in the division of labor, producing new quantification devices and applying them to hitherto immeasurable domains, such as insurance calculation, in the hands of actuaries, and cost-benefit analysis, pioneered by engineers.

Such preceding circumstances inspired new perspectives on quantification at the turn of the century. The research agenda was expanded

with the introduction of the reactivity analysis generated by statistical measurements (Espeland; Sauder, 2007; Espeland; Stevens, 2008) as a way to recognize the reflexivity (and not the mere passivity) of the actors which are the subject of these measures, the feedback loops, and the performativity of statistics in terms of their ability to affect the reality that the numbers not only describe or reflect.

The development – for many years, in parallel – of these two veins or “traditions” mentioned here shed light on the social and political-cognitive dimensions of numbers, statistical objects, and the categories of thought that they propose. The distancing from classical epistemology, along with a conventionalist approach, opened the possibility of inquiring about the choices, assumptions, agreements, and commitments at the origin of every statistical measurement device.

In this sense, we can identify, in the cited literature, a first step taken in that direction, in the intent to recover historicity in order to break away from the perception of numbers as simple technical objects – strongly related to the ideals of precision, objectivity, or neutrality – and reveal their conventional character. The second step was to bring to light the diverse social and political effects produced by numbers in modern societies.

Between the 1990s and the early 2000s, the wide range of case studies (Anderson, 1988; Beaud; Prévost, 1997; Blum; Mespoulet, 2003; Curtis, 2001; Loveman, 2009; Otero, 2006; Patriarca, 1996, among others), many of these with a strongly empirical character and a socio-historical perspective, was fundamental to prove the hypothesis (central to sociology) that statistics compete to establish social reality before reflecting it. This aspect draws attention to the particular importance of the historical and historiographical approaches in affirming a relativistic and constructivist perspective on a frontier object such as statistics.

Thus, the very productive approach between history and sociology seems to us to be a feature at the root of the field, and which reflects the multidisciplinary character of its object. It is not by chance that a large part of its authors has dual training and/or act at the interface between

history and the social sciences. In this sense, when sociologists became more interested in the forms of quantifying and inducing social agency in neoliberalism, they found the debate about the performative and recursive nature of numbers already fermented by these works on the fields of socio-history and historical sociology.

The reflexive and critical effects of the historical approach to statistics as an object of study at the roots of the field have expanded the explanatory potential of more recent analyzes on quantification in contemporary societies. From the 2000s, new research topics were incorporated, such as measurements or performance evaluations, rankings (Espeland; Sauder, 2007), benchmarking (Bruno; Didier, 2013; Fougner, 2008), and Big Data policy (Rouvroy, 2014; 2016). This is a new quantification regime, which is only just becoming an issue in the social sciences, attracting increasing attention (Espeland; Stevens, 2008).

On the same path as history and sociology, although not with as much vigor, a third approach on quantification was established which deserves to be mentioned. From an anthropological perspective, numbers are seen a mediating element for many different cultural practices, a foundational cognitive process, a constitutive phenomenon of all social life, as demonstrated by the pioneering work of Thomas Crump (1990). Here, numerical forms are important in how they converge with secular and spiritual powers, the emotional states of ordinary people, and the transcendent experience. Numerology, gambling, accounting, and probability appear interconnected in their ability to mobilize, to calculate the occurrence of auspicious events, to compute the debts and merits of members of a religious community, but also to inform bets, lotteries, and investment strategies. Anthropology rescues the magical character of the numbers that populate the modern and contemporary world, which is found in the arbitration of risks and uncertainties in finances, the calculation of reparations owed to victims, the intended equivalence between crime or offense, on the one hand, and punishment, amnesty, and conciliation, on the other (Guyer *et al.*, 2010, p. 36-61). While sociology, solidly anchored in a historical sensibility, calls

into question the ways in which we govern ourselves through numbers and the alternative ways of quantifying reality, works oriented by ethnography are interested in the ways of inhabiting a numerically apprehended world.

Some scholars describe quantification studies as a vibrant conversation that is spread across different fields (Berman; Hirschman, 2018), others refer to it as a transdisciplinary scientific movement or an emerging field in the social sciences (Diaz-Bone; Didier, 2016). The debate over whether or not a specialized field already exists is not yet resolved.³ However, it is worth remembering that, at the end of the 1980s, a pioneering work attempted to define something like a program specific to the sociology of statistics and to determine the path through which empirical investigations should be guided⁴ (Alonso; Starr, 1987). In retrospect, there is no doubt that that initial program was overflowed on different levels, partly because quantification as a social phenomenon continued to expand, gain strength, and acquire new forms in the present, following the transformations undergone by the capitalist accumulation regime from the 1970s onwards. The strong trend towards financialization, the profusion of neoliberal modes of government, the development of information and communication technologies further stimulated academic interest in quantification. At the same time, exchanges between specialists from different latitudes have enriched the theoretical perspective, in such a way that the conceptual toolbox for the empirical investigation of quantification has been greatly expanded (Espeland; Stevens, 2008; Mennicken; Espeland, 2019).

³ In every practical sense, we use the term “field” for expository purposes.

⁴ Paul Starr proposed a research program on the social and cognitive structure of statistical systems (Alonso; Starr, 1987). The social structure corresponds to the social relations between informants, state agencies, private companies, professional bodies, and international associations involved in the production networks and uses of statistics. The cognitive structure, in turn, consists of the determinants of the production and legibility of numbers: the links between the design of the questionnaires, the assumptions made about the social reality, the principles of classification, the methods of measurement, and the standards of interpretation and presentation of the data.

Quantification and sociology: a common agenda

We believe that sociology should not leave the numbers out of its powerful dereifying lenses since, as suggested by Espeland and Stevens (2008, p. 433), “Numbers are implicated in the core questions of sociology”. Both the historical research reviewed in the previous section and the most recent sociological contributions converge in pointing out that statistics affect the way we perceive and interpret reality; how we classify and value others, ourselves, and shared situations. They intervene in how we make our choices, decide, and act, by ourselves or with others, they make power relations operable and mediate the maintenance of – or resistance to – forms of domination. Therefore, we agree with Mennicken and Espeland (2019) when they point out that sociological research would have much to gain by being more interested in understanding the interactions between the different quantification regimes and their wider implications for the (re) creation of the social and political order.

Quantifying and ruling

Since its conception, the social studies of quantification have drawn attention to the role played by official statistics and statistical systems in the construction of authority and social domination. While the Foucauldian approaches focused on the production of governmental spaces and subjects through numbers, authors in the field of pragmatic sociology, especially Desrosières and his followers, understood quantification as a system of conventions and a management tool for social coordination.

In the early 1990s, these two modes of interpretation were driven empirically by an aggregate of historiographical research. These studies made new readings of the process of establishment of the State, national spaces, and the regulation of conflicts, based on the development path of the censuses in the United States (Anderson, 1988), Italy (Patriarca, 1996), Canada (Curtis, 2001) and Argentina (Otero, 2006). Some works examined

the relationship between regional statistics and political authority in the Soviet Union, where a supposedly more scientific “Stalinist demography” was developed (Blum; Mespoulet, 2003).

Other works were focused on the intersection between the social history of the production of numbers and their relationship with political regimes, highlighting how statistical systems functioned in totalitarian experiences, such as that of Nazi Germany (Tooze, 2001) and that of fascist Italy (Prévost, 2009). Equally important were the works that sought to relate epistemological innovations to the strengthening of the State’s governmental capacity. This is the case, for example, of the analyzes of the political-cognitive revolution caused by the adoption of probabilistic sampling in official statistics, through which was carried out the institutional engineering of the Welfare state in the mid-20th century (Beaud; Prévost, 1998).

In the Foucauldian (2008; 2009) and Latourian (2000) perspectives, maps, cartograms, censuses, and statistics are approached as technologies of governing at a distance, because they respect the autonomy of private spheres and suggest appropriate conducts to particular conceptions of individual and collective well-being. In this register, statistics would be a liberal governmental technology, because they delimitate authority and codify domains of society, with its own economic processes and dynamics of cohesion, populated by individuals who act according to certain principles of interest outside the legitimate scope of direct State intervention. Statistics are seen here as a device for transferring governmental activity to society’s surface, by framing the field of possible actions and providing actors with “norms and standards for their own ambitions, judgements and conduct” (Rose, 1999, p. 50).

Authors within the theoretical framework of governmentality studies, such as Nikolas Rose, Peter Miller, and Mitchell Dean, have devoted themselves to analyzing the constitutive link between the quantification of public life and liberal governments. Figures would present themselves as an instrument for realizing the democratic promise to align the exercise of public authority with the private beliefs and values of citizens.

On the one hand, numbers put a curb on the discretionary power of governments and experts by submitting political choices and bureaucratic decisions to protocols that make them look like products of standardized analytical techniques. On the other, “democratic government requires vigilant and calculating citizens regarding the effects of power and the risks of their private decisions”, constantly affected by opinion and market surveys, which shift and quantify perceptions of reality (Rose, 1999, pp. 197-198). The increasing quantification of the contemporary world is a phenomenon that must be understood by two complementary dimensions that characterize the governance of modern societies: mutual vigilance and the induction of conduct through freedoms and autonomies produced and consumed by liberalism.

In this sense, some heuristic issues become sociologically relevant to consider the relationship between quantification, domination, and coordination: what can be visualized or, conversely, what remains obscure, in certain moments or societies, when we look at devices such as censuses, maps, graphs, tables, and diagrams that form the visual field of what and who should be governed? How do statistics produce subjects of government—from workers and consumers to so-called risk groups? How do numbers suggest or induce the skills expected of them? How are individuals and populations led to identify with certain groups in order to become virtuous and governable?

These are issues that are sensitive to governmentality studies, but also to quantification studies, insofar as they privilege the material, visual, and spatial dimensions of government, and draw attention to cartographies of power and authority. It is assumed that the success of a governmental regime depends on actors’ experiences through the capacities (e.g., making rational decisions), qualities (e.g., having a job), and statutes (e.g., being an active citizen) that they encourage and favor (Dean, 1999, p. 32).

Despite the fruitfulness of this theoretical perspective, which is evident for thinking about the relationship between the State, population, and statistics as a governmental trinomial (Camargo, 2016), its radical constructivism does

not take into account statistical science and its role in the coordination of social life. Like Foucault, its authors linked public numbers to liberal and neoliberal governmentality, leaving aside the variations between statistical techniques and their correspondence with different types of criticism of reality, precisely what interested Desrosières and the French pragmatists (Diaz-Bone; Didier, 2016, p. 15).

Since the beginning of the 1990s, Desrosières has been committed to conceptually subsidizing an agenda of empirical and historical studies on the statistical construction of an international space for the coordination of the States, the market, and economic agency. In this sense, the relationship between statistical science – as an indisputable reference that precedes the debates – and the national traditions of statistical systems was originally suggested as a research program. Although it remained somewhat fluid and little-theorized, the proposal to approach statistics “between universal science and national traditions” (Desrosières, 1995, p. 167-183) provided the “equivalence conditions” that did not exist, until then, for a base of comparative studies on quantification.

In the 1990s and 2000s, in the wake of Desrosières, a series of works focused on the relations between, on the one hand, the spread of statistical internationalism, pushing for the normalization of classifications, measuring instruments and population-counting infrastructure – and, on the other, the historical conformation of national statistical practices, whose profile is inseparable from the genealogy of States and local structures of domination. Years later, this proposal was extended to a comparative analysis of the statistical experiences of Europe, the United States, and Canada (Beaud; Prévost, 2000) and, later, also of Latin America (Senra; Camargo, 2010; Otero, 2018).

Among the issues shared by these works, we find: the methods used in the censuses of the 19th and 20th centuries; the ways of presenting the numerical information and their role in the movements of State-building and reform; institutions and actors who have had statistics as a source of authority and intervention in social debates; the role of quantification technologies

in the development of science's practices and audiences; the importance of forms of reasoning and valuating with numbers for the formation of a capitalist economic ethos and for the modernization of labor relations. These and other issues gave social historians of statistics an identity and a common interest, who thus managed to partially overcome their initial dispersion, drawing attention to the conditions of comparability, in view of the national differences in the modes of production and circulation of quantified objects.

As a result of the historical reconstruction of official statistical systems – or “national traditions” – the perspective also made possible to reveal the relationship between socially relevant issues, which were placed on the public policy agenda at different historical moments, and the statistical tools created to objectify such issues, give them legibility and, thus, delimit domains of governmental action, with the purpose of acting on them. In this sense, the themes and limits of official statistical investigations would be reflecting the contours of the political agenda at all times. In addition to the use – so common today – of social indicators in the different stages of the formulation and evaluation cycle of public policies, Desrosières' proposal (1993) showed the profound interdependence between the ways of statistically objectifying reality and institutional forms to manage it. The categories of statistical description are enmeshed in the State's modalities of action.

In *L'État, le marché et les statistiques* (2003), Desrosières would redefine that program by conceiving the concept of “statistical regimes”, identifying five ideal types of State, based on their relationship with the economy and economic conduct. Through this concept, he sought to demonstrate the connections between forms of quantifying and forms of governing.

Thus, the technologies for the census and statistics of population and production would be adjusted to the needs of the “engineering State”; price statistics based on classical economic theory accompany the “liberal State”; labor statistics, budget surveys of working-class families, and probability calculation techniques for determining social insurance are at the basis

of the political rationality of the “welfare State”; national accounting, research on consumption and employment, and econometric techniques respond to the needs of the “Keynesian State”. It is worth mentioning here the expressive interest of States in the elaboration of social indicators and in their use to guide public policies. Still a promise at the time, the investment in the indicators aimed to bring about a true matrix of “social accounting”. The social indicators were inspired by other tools that were proven successful in the post-World War II period, such as national accounts and the calculation of GDP, within the framework of determining government planning, the reaffirmation of Keynesian economic principles, and the political concern with the establishment of a social democracy based on redistributive measures.⁵

Following the crisis of the two preceding and interwoven models, the “neoliberal state” puts an end to prediction and planning techniques based on macroeconomic knowledge, in favor of the generalization of benchmarking techniques, which rest on the principle of rational anticipations and the promotion of competition among the actors, according to measurable goals and objectives, and no longer to the concrete relationships of which they take part (Armatte, 2014, p. 21).

In one of his last articles, *Le rôle du nombre dans le gouvernement de la cité néolibérale* (2011), Desrosières’ model becomes significantly more sophisticated, with the incorporation of the notion of governmentality, partly a reflection of the late publication of Foucault’s courses in the Collège de France. In it, Desrosières develops the central hypothesis that the retroaction of indicators on actors’ behavior ceases to be the unforeseen effect of quantification techniques to become the purpose of the political rationality of neoliberalism. This idea quickly catches the attention of several social scientists, drawn by its explanatory value and by the proliferation of contemporary forms of quantification, especially big data, and benchmarking, responsible for the rapid expansion the field has seen in recent years.

⁵ For an account on the historical context of the emergence of social indicators and their progressive importance in Brazil, see Santagada (1992).

Due to the limitations of this article, we cannot dwell on its examination, however, a few words should be said about benchmarking, this specific art of conducting organizations that, over the past few years, under the influence of the New Public Management paradigm, migrated from the scope of companies and private businesses to State administration. Unlike official statistics, benchmarking does not aim to reflect and transform a reality conceived as objective and external to the subjects, but to modify the behavior of the organizations' actors themselves in the course of action, encouraging a self-referenced regard of themselves, detached from the social relationships they take part in. This is because the indicators selected as references in the comparisons depend on the agents themselves quantifying and monitoring their activities. The evaluators' prerogative to evaluate themselves is presented as an advantage, an anti-bureaucratic weapon, since employees gain an expressive margin for initiative, "supposedly freeing themselves from the bonds of hierarchy and formalism of regulations" (Bruno; Didier, 2013, p 17-27).

On the one hand, being public (or publicized), measures of quantified activities compel those responsible to strive in order to avoid the humiliation brought by bad results. On the other hand, each action taken is judged in terms of a failure to stigmatize or a success to be rewarded, which has the effect of "desolidarising public agents in society as a whole and emptying the perception of their social function" (Bruno; Didier, 2013, p. 51). As put by Bruno and Didier, by resorting to the incessant quantification of all activities according to the imperatives of "total quality" and "international competitiveness", benchmarking "subjects individuals to an *indefinite discipline*, aimed at guiding their engagement in action and governing that which is the most personal: their initiatives" (p. 120).

To conclude this section, we point out some background trends. The quite distinct origins and perspectives of the two great traditions of the field – French and Anglo-Saxon – did not prevent them from crossing paths in recent years, with the generalization of the concept of neoliberal governmentality, understood as a way of managing and quantifying population.

Another important aspect is that Alain Desrosières may be considered the main mediator of the two moments in the development of the field. By placing statistics between science (*outil de preuve*) and national traditions (*outil de gouvernement*), he reduced the scattering of historical studies hitherto and provided subsidies for comparative research based on common assumptions. Years later, his project of associating forms of quantifying to forms of governing would attract social scientists, interested in generalizing quantification to levels of agency and domains of social life, which, until then, were immeasurable.

As we have seen, the studies of statistics began with a strong historiographical calling, associating the elaboration of numbers to state-building processes, the creation of images and representations of the nation. Furthermore, they formulated questions about the construction of authority and fundamentals of the State's statistical services. Today, the State is just one among several organizations that promote a government based on measurements and numbers, be it on a national or global scale. There is a growing role of international organizations (United Nations, World Bank, OECD), non-governmental organizations (in human rights and the environmental protection, in the fight against poverty, and in the demand for transparency), and transnational think tanks, along with what we could call private actors. Among the latter, we highlight the risk assessment agencies, the World Economic Forum, and the International Institute for Management Development (Fougner, 2008), whose role in the development of indexes, rankings and all kinds of numerical information drew the attention of social scientists, marking a new trend in studies on quantification.

Understanding the specifics of the exercise of power by means of numbers in the contemporary world involves highlighting this variety of actors of acknowledged repute, central to the establishment of new modes of global and local governance, capable of covering up normative agendas under technical languages of neutral assessment (for more on NGOs, see Rosa, 2014; on credit rating agencies, Fioramonti, 2014; on OECD instruments, such as PISA, Bogdandy and Goldmann, 2012). In parallel

with the displacement of the State by the progressive “competence” of these actors in the elaboration of indexes and rankings, the current scenario is traversed by a rapid process of privatization of data production, which, according to Diaz Bone (2019), supposes the invisibility of conventions on which the generation of this data is based, allowing them to bypass justification requirements and, thus, reduce the possibilities of questioning and criticism.

Quantifying, classifying, and “making up” people

According to Ian Hacking (1991), statistical language promoted a set of classifications through which people have considered (and still consider) themselves. The vast accumulation of official data in Europe throughout the 19th century provided the empirical *corpus* on which Hacking based his concept of “dynamic nominalism” and which allowed him to illustrate the social process that he called *making up people* (Hacking, 2000). “Enumeration demands *kinds* of things or people to count. Counting is hungry for categories. Many of the categories we now use to describe people are byproducts of the needs of enumeration” (Hacking, 1982, p. 280).

During the period of statistical enthusiasm and the avalanche of printed numbers in the mid-19th century, statistical bureaucrats established a series of classifications for counting, which allowed them to group people, classify and code them. The invention of categories in which each person could (and should) fit was, at the same time, a way of managing and solidifying new conceptions about the human being. The creation of these categories gave rise to other ways of conceiving people. Thus, for example, the classification according to working aptitude, originally designed by factory inspectors, will be assimilated by the census on a population scale, establishing a principle of categorization based on the role played by individuals in production relationships. This innovation helped establish the structure of occupations and classes, guiding the terms by which we see society and situate ourselves in relation to it.

Anchored in their national statistical traditions, and through the new power to officially classify all inhabitants of a given territory, statisticians generated descriptions of populations that would come to shape their “national character”. For Hacking, the ways of describing people are not alien to them, but rather, they constitute them, since they delimit the field of possibilities of their personality.

The census categorization, in its relation to national statistical traditions, was the subject of a series of studies focused on the processes of ethnicization and racialization of populations. These are works that approached censuses as a fundamental instrument for the construction and legitimization of national and (post)colonial identity. According to those studies, censuses allow states to produce, represent, and monitor collective identities and, thus, to regulate the conflicts and social pressures that constitute public life (Kertzer; Arel, 2002).

Counting the population in order to build subject positions and, thus, solidify identities that are more real than others – traditional, familial, local, regional – entailed attributing legal and symbolic effects to categories that diluted individualities into individualizations. In this perspective, the “mother tongue” reflects less the language of the individual than the language of the nation to which one belongs and by which one perceives oneself. Similarly, “ethnic origin” in immigrant countries in the West “is more about *assumed* belonging (assumed from the outside, that is) than about *felt* belonging” (Kertzer; Arel, 2002, p. 27). In this sense, the census appears alongside other State registries created to establish a monopoly on legitimate means of mobility and endow the categories with symbolic efficacy, such as, for example, the use of identification documents to ensure circulation and distinguish citizens from foreigners, or nationals from colonial subjects.

Another important point highlighted by the literature is that the addition of legal and symbolic effects to the census categories contributed to the establishment of the statistical conception of normality as recurrence, which reduces the differences between individuals to a matter of measurement, according to the average and the distribution of the normal curve (Hacking,

1990; Carson, 2006). On the one hand, even the identities of “deviant” and racialized individuals become scalable, once the possibility (albeit hypothetical) for the performance of subclassified groups to rise to that of the upper stratum, considered normative, is opened, which warrants interventions (more or less violent) on their living conditions and socialization. These groups will be the most susceptible to markedly biopolitical strategies for population management (Camargo, 2016).

On the other hand, the conception of normality as recurrence subtly invites individuals to see themselves through statistical categories, either reinforcing the stigma produced by the racialized geography of the State (by gender, color, language, and ethnicity), or, more recently, denouncing the domination by contesting the classification criteria, redefining their uses and content.

Some works addressed the relationship between racial categorization and the construction of the State itself. Let us consider, for example, the case of the United States, where the statistical comparison between the free people and slaves, whites and blacks, helped shape the image of a divided country. In her work on the social history of the American census, Margo Anderson (1988) demonstrated how the war of secession was built on an increasing polarization, which had in numbers the common reference for the conflicting points of view. In the 1850 census, the desire of politicians in the South to demonstrate statistically the superior longevity of the slave population, in comparison to free blacks in the North, gave rise to a tripartite racial division – whites, blacks and mulattos –, which instituted the polygenist notion of population – until then considered a crime in regard to religion –, while subordinating groups of color in number and condition, condemning them to rapid absorption by the white race. This system was designed to control the black population as a whole – not just those in captivity – and to biologically isolate a white majority inflated by immigration (Nobles, 2000).

From 1890 onwards, this classification became more sophisticated, subdividing mulattos into quadroons and octoroons, according to the atavistic fraction of black blood. It would last until the 1920 census, when

the principle of “one drop, one rule” was adopted, which liquidated the intermediate group of mulattos, by making the drop of blood the criterion for the definition of blacks, and the purity of blood for the identification of whites. For this reason, some works have shown how the American census was constituted as a laboratory for the pioneering introduction of an anthropological and biological conception of population, even before scientific racism and social theory formalized some of these categories as explanatory concepts of social change (Schor, 2003).

Also included in this group are comparative studies on census categories and racial policies in Brazil and the United States (Nobles, 2000) and on the relationships between census, State, and society in Latin America. In this sense, we highlight the work of Mara Loveman (2014), for whom the countries’ censuses of that region were guided by two complementary political projects: a descriptive one, which, for Loveman, helped define the cultural boundaries of the imagined community; and a prescriptive one, which established racial miscegenation as a positive singularity of these countries in the face of the international system of States.

Another branch of research was developed within the framework of post-colonial studies, having examined the role of censuses in the setting up of the colonial enterprise and in the national liberation movements. Following the trail opened by Benedict Anderson (2008), these works explored the technological intersections between censuses and maps, in order to underpin the territoriality of the colonial State, establish its borders, prevent conflicts, and distribute bureaucracy, reshaping the pre-existing ethnoracial hierarchy and thus modifying the terrain on which colonized populations live, feel and, act (Scott, 1995; Chatterjee, 2004; Legg, 2006).

In this mode of usage, statistics would be strategic in overcoming the local topography, which classified towns, markets, and villages according to their insertion in cultural traditions and religious reports. Such spaces, segmented for centuries, would be configured and reconfigured through censuses and maps, being reconstructed as territorially solid and delimited units. Units endowed with a political and biographical narrative, “which

gives them an unprecedented historical depth, attesting to the lasting and stable existence of a colonial domain" (Scott, 1995, p. 208).

From this angle, the history of statistics has shown how official categories compete to divide groups within a population, separating and ordering them into codified hierarchies. Statistics not only establish these social divisions, but they also fix these categories of people, even when a group's margins are not clearly defined in social life (Alonso; Starr, 1987). In this grouping effort, official statistics can bring together people who, so far, were not considered to be part of the same category. Once they are subordinated to a common administrative and statistical statute, it may also happen that their interests become complementary or combined. In this sense, as pointed out by Starr, the official classifications not only record, but also rewrite the lines of social differentiation.

Statistics has become a means of recognizing the identity and numerical importance of groups (ethnic, racial, gender, etc.) before the State. For this reason, certain social groups became interested in being counted and started to demand that public authorities and statistical systems register and produce data that would make their groups visible in the public sphere. Racial and ethnic minorities, national collectivities, and religious communities have mobilized and publicly expressed their intention to participate in statistical and/or census definitions.

On the other hand, it should be noted that, as we indicated previously, quantification studies are heirs to the concern with the ways in which numerical devices allow to shape and influence people's behavior and act as "technologies of the self". Following up on the analysis of disciplined subjectivity (Rose, 1996), some scholars have explored the most recent phenomenon of the increasingly diffuse penetration of quantification in everyday life, its expansion in the realm of personal life, and its influence on the configuration of the quantified-self (Nafus, 2016). New technologies have created the possibility for people to quantify themselves, routinely generating and analyzing their own data (self-tracking), in order to evaluate and qualify their actions and also that of others (Neff; Nafus, 2016).

For these approaches, it is clear that numerical devices that quantify the self are intended to actively influence the behavior they track. Likewise, digitized metrics lead to new and varied schemes for classifying individuals, which are used by companies and corporations to create markets – for example, credit or insurance, health, education markets, among others –, which, in turn, affects the chances and quality of life of these people. In this sense, it is also evident here that States and their official classifications tend to lose prominence in the 21st century, while new quantification devices, created and disseminated by other actors, become available – platform companies and social networks, financial companies, national and international credit agencies, transnational foundations, etc. – and capable of shaping and managing new subjectivities.

Quantifying, resisting, and criticizing

Although statistics have a long history of articulation with the State, in their claim to control populations and exercise domination, it is no less true that they have been linked to social reform (Cullen, 1975) and associated with the denouncement of injustices, arbitrariness, and social inequalities (Bruno; Didier; Previoux, 2014; Bruno; Didier; Vitale, 2014). As pointed out by Desrosières (2014), there is another story of the uses of statistics as a tool for social criticism. While historical approaches have linked statistics to the exercise of power, favoring the ruling class, more recent studies have focused on statistics as a tool that enhances political action and the critique of reality, emphasizing the capacity for agency of social actors, including subordinate groups, who also take ownership of statistics to resist and try to reverse power relations.

One of the most important contributions of this literature was to show that, in addition to the authority of numbers being based on the intended objectivity and impartiality of techniques, and although one of the great promises of modern statistics is the depoliticization of politics, numbers can be repoliticized in different ways. A series of works has called attention to

the renewed role that quantification assumes in the organization of political activism, social movements and various types of protests (Bruno; Didier; Previex, 2014; Bruno; Didier; Vitale, 2014; Didier; Tasset, 2013). Activists for the most diverse causes resorted to statistical arguments and appropriated numerical information as a means of denouncing and criticizing those in power. These situations demonstrated that quantification is not always, nor naturally, an instrument to impose the interests of elites – economic, technical, and political – or of those who are in charge of large organizations, be they public or private, national or transnational. It can also be a valuable tool for undermining authority and confronting institutionalized powers.

According to the authors who coined the term, the idea of *statactivism* combines a wide variety of militant practices and political action with numbers, and which has in common “the willingness to put statistics at the service of political emancipation” (Bruno; Didier; Previex, 2014, p. 27). The last few years have seen the emergence of new social movements as centers of resistance to the means of quantification embraced by neoliberalism, which led these authors to formulate this descriptive – and, at the same time, optimistic – concept, capable of encompassing a social and plural activism, expressed through the language of statistics.

From a theoretical point of view, it is important to underline that this is an innovation inspired by the economics of conventions. The concept consists of a piece from the French current, after consecrating the transition from the critical sociology of Pierre Bourdieu to the sociology of criticism (or pragmatic sociology) of Boltanski and Thévenot. In *Sociologie de la critique*, Boltanski proposes a distinction between what he calls *reality*, which “tends to be confused with what seems to be sustained by its own strength”, that is, with order, and, on the other hand, the *world*, the flow of events and experiences, the possibility of which is not contained in the known totality (Boltanski, 2009, p. 93). In this approach, statistics is conceived as an institutional form that questions *reality* and makes way for the *world*, thus justifying the claim that sociology addresses the modes

of government and its investment in statistical forms, as well as the critical operations that involve different social actors.

As argued in the article by Bruno and Didier in this dossier, the most recent research within this line of analysis has shown that, both throughout history and today, *statactivism* has spread itself over different fields and with varying scope. In some cases, the experiences of statistical activism consisted merely of denouncing the flaws, gaps, or limitations of public statistics. At times, it took the form of activism in favor of official statistics, taking into account aspects of reality hitherto neglected, denouncing the priorities established by measurement regimes, and highlighting the relevance of elements neglected by quantification practices. In other cases, attempts have been made to expose the internal contradictions of a statistical system or the prejudices on which it is based, to show that statistics are not as neutral or impartial as claimed by many.

Among the *statactivist* practices is the elaboration of alternative indicators to the official ones as a source of political intervention, and as a statistical counter-discourse that allows the confrontation of state power of naming and description of the real, to show a reality different from the official one. However, it should be noted, according to Desrosières (2014), that the success of such a critical undertaking is never guaranteed in advance. It depends on the accuracy of the instruments of criticism, as well as on the strength of the institutions and networks that support the numbers: “the success of the social critique expressed in the language of statistics cannot rely simply on the justness of the arguments, but depends largely on the political and social network in which it is inscribed” (Desrosières, 2014, p. 357).

Statistical activism would be a step towards emancipation in relation to the authority of official statistics, with a goal of regaining the authority that these devices are capable of conferring on the arguments in favor of the group whose interests this activism represents. This process eventually promotes the repoliticization of statistics.

Another type of stactivism resides in the public denunciation of subjects or social groups that are invisible or hidden by official statistics; these actions are sometimes accompanied by the use of the statistics themselves to create or consolidate these groups as institutionalized social categories. Several political groups have aspired, and still do, to free themselves from relationships of subordination or struggle to reverse the conditions of inequality to which they are subjected. This is the case of Hispanics in the United States (Nobles, 2000), of American indigenous peoples, religious minorities, among many others, who sought to institutionalize themselves statistically in order to gain social recognition, translate their moral greatness into visible size and political weight, as a means to strengthen the legitimacy of their claims.

In today's world, there are several networks that draw on numbers, which include human rights associations and NGOs that produce and use original data on violence against minorities, helping to consolidate them as social categories. Studying one of these networks, Eugenia de Rosa (2014) showed how the figures on violence are used in four phases in order to foster public opinion towards the gender equality agenda: in the framing and categorization process, in the design and implementation of policies, in dissemination and awareness campaigns, and in monitoring fluctuations. Throughout these four phases, these networks give consistency to the social aggregates that statistics allow to establish.

But numbers, figures, and indicators are not just political resources in the struggle for recognition driven by previously organized minorities. Often, they are at the very origin of its constitution as a social group. The case of the LGBTQ community is emblematic. As is well known, the publication of the famous Kinsey report in 1948 created a great controversy about sexual practices in American society, undermining conventional views about it. In particular, the data produced in his research on homosexual behavior showed that the proportion of men who had had exclusive relationships with other men throughout their lives was much higher than previously

thought, directly influencing the formation of a new “statistical community”, which was perceived, for the first time, as a political group, organized on the basis of a shared culture and identity, which would soon give rise to the movement for gay rights (Michaels; Espeland, 2006). Therefore, stactivist experiences also involve social actors who mobilize quantification practices in order to create or consolidate statistical categories, in which they find support to defend or claim rights.

Although there were already several historical experiences of statistical activism, neoliberal governmentality produced specific conditions for the emergence of new ways of fighting with numbers. Following Bruno, Didier and Previex (2014), the notion of stactivism acquires a particular meaning as a means of opposing neoliberal forms of government. In the contemporary world, stactivist practices basically consist in showing the rules of production of indicators, rankings, and goals that integrate the political rationality of neoliberalism; benchmarking as a global government technology; and the managerial techniques currently applied in public and private organizations, making special use of the margins of freedom that such rules leave for agents.

This type of statistical activism presupposes the intervention of the actors, both subjects and objects of the measuring instruments, based on the convenient use of the rules to influence their results. For example, adapting or manipulating – for their own benefit – the rules involved in performance appraisals, which compel individuals to achieve quantified goals in their workplaces (about the police, see Didier, 2018; about university rankings, Espeland; Sauder, 2007).

Thus, it is the social actors themselves who, through their participation in critical operations, repoliticize the ways of organizing and ruling by numbers through the application of “transparent”, “objective”, and “neutral” technical tools. As pointed out by Didier and Tasset (2013), “to quantify is to produce knowledge and, therefore, to acquire power. Thus, it is a

precious weapon that we can take back”.⁶ Statistics can be resources to be used by any of the parties engaged in political disputes and social conflicts.

Nevertheless, if stactivism can be thought of as “a challenge to the hegemonic logic of quantification established at a given moment” (Bruno; Didier; Previoux, 2014, p. 30), not all the practices it covers call into question the principles on which quantification is based. We can say that there are more radical modalities, others that are more reformist, and even conservative ones.⁷ At the limit, there are different combinations between statistics and forms of violence. Take, for example, the profound social conflict that occurred in Guadalupe – a small archipelago of the Antilles that constitutes an overseas region of France – due to the rising cost of living in 2009, when figures were implicated in a serious social tension. According to a study by Samuel (2014), statistics appeared both as a mediation support for popular explosive reactions and as tools of intimidation and coercion, leading to an escalation of violence.

The case of Guadalupe shows that “quantification helps build situations of social tension, by revealing and creating feelings of social injustice. It leads thereby to triggering protest actions against the methods of ‘government by numbers’ and motivates the start of confrontation with the State and the dominant players” (Samuel, 2014, p. 254). In addition to exceptional situations like this, statistical arguments often appear in political conflict scenarios as a principle of evidence to erode public authority, as a resource in the dispute between political factions for access to government leadership, or as an instrument for mediating redistributive social conflicts (Hayes, 2011). On certain occasions, stactivism adopts another form of expression, when the use of statistics against governmental authority supposes the mobilization

⁶ Originally, in French: “quantifier, c’est produire du savoir, donc acquérir du pouvoir. C’est donc une arme précieuse dont nous pouvons nous ressaisir”.

⁷ As Desrosières (2014) pointed out, criticism can be “reformist” and rely on “unquestionable figures” or, on the contrary, more or less “radical”, and reject the calculations and tools used, or disqualify even the very recourse to them. The counterpoint between reformist and radical stactivism was also addressed by Didier and Tasset (2013).

of a conservative criticism in its fundamentals, which basically accepts, sanctions, and reinforces the established quantification modes, restoring the conventions at the base of measurement (Daniel; Lanata Briones, 2019).

In short, there are many reasons that justify paying more attention to statistics as a political argument and as a tool for political action. What is the role played by numbers in the formulation and framing of a public discussion? What kind of social criticism do they allow, restrict, or strengthen? How have numbers transformed the way in which actors are engaged in politics? What specific effects do statistics have when associated with social protests? How and under what circumstances can a persuasive device like statistics become a support for threat or coercion? To what extent does quantification promote or block democratic participation? The reflection on the intervention of statistical language in political debates and social disputes, its implications and effects are of great relevance for understanding the dynamics of contemporary societies.

Closing thoughts

As we sought to demonstrate in this article, quantification practices deserve to be part of a legitimate research agenda in the social sciences. If we agree that quantification is both a tool of knowledge and of government (Desrosières, 2008), its investigation in a sociological key is not only relevant, but necessary. But why is a sociological reading of numbers so essential?

The several empirical and theoretical research works that we have reviewed here have shown that quantification operations are constitutive of social relations, not just derived from them; that is, they are intrinsic to themselves, not secondary. Through the objects produced by quantification (numbers, indicators, rankings, series, graphs, charts, tables) and the relationships they establish – between people, and between people and things –, forms of exercising power are conveyed. Quantification affects the way we perceive and build social reality, the way we evaluate our

actions and those of others, how we consider our options and objectives, how we manage organizations and govern life; quantification is not only present, but it also directly influences the world we inhabit. It is important to recognize that, in contemporary societies, the extension of quantification to new domains that were not commensurable is driven by a multiplicity of actors, institutions, and processes, which, in turn, it helps to configure. Quantification operates as a device that acts on individuals and intervenes in their lives to guarantee a certain type of conduct or behavior. It is important to study the constitutive role of quantification practices because they create a particular way of understanding, representing, and acting on processes, events, and subjectivities. In the same way, it is essential to rescue its potential for social transformation, as these tools also allow us to mobilize criticism, denounce inequalities, define and give visibility to new problems, so that it is possible to intervene on them. Statistics are not and have not always been the exclusive weapons of the powerful, their potential to challenge consensus and repoliticize social relations remains inexhaustible.

Thinking sociologically about complex realities such as those in Latin America through the focus of quantification is an urgent challenge, which leads us to select new objects of study and to construct other axes of problematization. The profound social inequalities in the region – aggravated by the Covid-19 pandemic – must be understood in their reproduction dynamics, which include models of statistical objectification and their implications for the development of public policies. We believe it is necessary to reveal the social nature of its standardized forms of measurement in order to construct alternative quantifications, which allow us to glimpse other ways of solving the impasses and problems in Latin America.

Social studies of quantification have broadened our understanding of the links between the State and ethnic, racial, and sexual minorities in multi-ethnic and diverse societies such as Latin America, both in the present and in the past. They highlighted the processes of configuring their identities, the recognition or invisibility of these groups, through the alteration or

creation of classifications within the framework of the political struggles for the recognition by the State, an issue addressed by Mara Loveman in this dossier, a path that deserves to be further explored.

Another line of questioning arises when we observe the increasingly intense circulation of numbers (not only disparate, but often contradictory) in national public cultures, in terms of the role they play in democratic discussions, in a scenario of increasing political polarization in several Latin-American countries. This approach also includes the possibility of alerting, on a solid conceptual and empirical basis, about the “neo-colonization” of Latin American States, observable in the tendency of subordination of the latest administrations (from the right to the left of the political spectrum) to the different modalities of the neoliberal metric after the adoption of the managerial model.

This article sought to highlight the contributions of social studies of quantification to sociology as a whole. The literature overview has highlighted the richness of this analytical perspective, while recognizing that, in addition to disagreements about whether or not it is a specialized field, in the strict sense of the term, it still lacks an investigation program that goes beyond the common issues of research.

In this direction, our analysis pointed out that there is still a lot to study about the social and political impacts of quantification in democratic societies. For this purpose, sociology has quite valuable tools that make it possible to highlight the effects produced by quantification devices between different social groups, to discern the variety of uses and applications to which they may be subject, as well as to reveal the ways in which the relations of power operate, their limits and ambiguities. Lastly, we call the community of social scientists for nurturing, strengthening, and expanding a research program whose fruitfulness we hope to have demonstrated in this article.

Alexandre de Paiva Rio Camargo holds a PhD in Sociology from the Instituto de Estudos Sociais e Políticos da Universidade do Estado do Rio de Janeiro (IESP / UERJ) and is associate professor at the Instituto Universitário de Pesquisas do Rio de Janeiro (IUPERJ) and the Graduate Program in Political Sociology at Candido Mendes University (UCAM).

✉ alexandre.camargo.2009@gmail.com

Claudia Jorgelina Daniel holds a PhD in Social Sciences from the Universidad de Buenos Aires and a researcher at the Centro de Investigaciones Sociales, IDES - CONICET, Buenos Aires, Argentina.

✉ cdaniel@ides.org.ar

References

1. ALONSO, William; Starr, Paul (eds). **The politics of numbers**. New York: Russell Sage Foundation, 1987.
2. ANDERSON, Benedict. **Comunidades imaginadas: reflexões sobre a origem e a difusão do nacionalismo**. 2. ed. São Paulo: Cia das Letras, 2008.
3. ANDERSON, Margo. **The American census: a social history**. New Haven: Yale University Press, 1988.
4. ARMATTE, Michel. Introduction aux travaux d'Alain Desrosières : histoire et sociologie de la quantification. **Statistique et Société**, v. 2, n. 3, p. 17-23, 2014.
5. BEAUD, Jean-Pierre; PRÉVOST, Jean-Guy. La forme est le fond : la structuration des appareils statistiques nationaux (1800-1945). **Revue de Synthèse**, v. 118, n. 4, p. 419-456, 1997.
6. BEAUD, Jean-Pierre; PRÉVOST, Jean-Guy. The politics of measurable precision: the emergence of sampling techniques in Canada's Dominion Bureau of Statistics. **The Canadian Historical Review**, v. 79, n. 4, p. 691-725, 1998.
7. BEAUD, Jean-Pierre; PRÉVOST, Jean-Guy (orgs.). **L'ère du chiffre : systèmes statistiques et traditions nationales**. Montreal: Presses de l'Université du Québec, 2000.
8. BERMAN, Elizabeth; HIRSCHMAN, Daniel. The sociology of quantification: where are we now? **Contemporary Sociology**, v. 47, n. 3, p. 257-266, 2018.
9. BESSON, Jean-Louis. As estatísticas: verdadeiras ou falsas? In: BESSON, Jean-Louis (org.). **A ilusão das estatísticas**. São Paulo: Unesp, 1995. p. 25-67.
10. BOLTANSKI, Luc. **Les cadres : la formation d'un groupe social**. Paris: Éditions de Minuit, 1982.

11. BOLTANSKI, Luc. **De la critique** : précis de sociologie de l'émancipation. Paris: Gallimard, 2009.
12. BOLTANSKI, Luc; THÉVENOT, Laurent. **De la justification** : les économies de la grandeur. Paris: Éditions Gallimard, 1991.
13. BLUM, Alain; MESPOULET, Martine. **L'anarchie bureaucratique** : statistique et pouvoir sous Staline. Paris: La Découverte, 2003.
14. BOGDANDY, Armin Von; GOLDMANN, Matthias. Taming and Framing Indicators: a legal reconstruction of the OECD's programme for international student assessment (PISA). In: DAVIS, Kevin E. et al. (eds.). **Governance by Indicators**. Oxford: Oxford University Press, 2012. p. 52-85.
15. BOURDIEU, Pierre. **A distinção**: crítica social do julgamento. São Paulo: EDUSP; Porto Alegre: Zouk, 2007.
16. BRUNO, Isabelle; DIDIER, Emmanuel. **Benchmarking** : l'État sous pression statistique. Paris: Zones, 2013.
17. BRUNO, Isabelle; DIDIER, Emmanuel; PRÉVIEUX, Julien (eds.). **Statactivisme** : comment lutter avec les nombres. Paris: Zones, 2014.
18. BRUNO, Isabelle; DIDIER, Emmanuel; Vitale, Tommaso. Statactivisme. Forms of action between disclosure and affirmation. **Partecipazione e Conflitto**, v. 7, n. 2, p. 198-220, 2014.
19. BURCHELL, Graham; GORDON, Colin; MILLER Peter (eds.). **The Foucault Effect**: studies in governmentality. Chicago: University of Chicago Press, 1991.
20. CAMARGO, Alexandre de P. R. **A construção da medida comum**: estatística e política de população no Império e na Primeira República. Tese (Doutorado em Sociologia). Instituto de Estudos Sociais e Políticos, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, 2016.
21. CARSON, John. **The measure of merit**: talents, intelligence and inequality in the French and American Republics, 1750-1940. Princeton: Princeton University Press, 2006.
22. CHATTERJEE, Partha. **The politics of the governed**: reflections on popular politics in most of the world. New York: Columbia University Press, 2004.
23. COHEN, Patricia C. **A calculating people**: the spread of numeracy in Early America. Chicago: University of Chicago Press, 1982.
24. CORCUFF, Philippe. **Las nuevas sociologías**. Principales corrientes y debates, 1980-2010. Buenos Aires: Siglo XXI editores, 2015.
25. CRUMP, Thomas. **The anthropology of numbers**. Cambridge: Cambridge University Press, 1990.
26. CULLEN, Michael J. **The statistical movement in Early Victorian Britain**. New York: The Harvester Press Limited, 1975.

27. CURTIS, Bruce. **The politics of population**: state formation, statistics and the census of Canada, 1840-1875. Toronto: University of Toronto Press, 2001.
28. DANIEL, Claudia; LANATA BRIONES, Cecilia. Battles over numbers: the case of the Argentine consumer price index (2007–2015). **Economy and Society**, v. 48, n. 1, p. 127-151, 2019.
29. DEAN, Mitchell. **Governmentality**: power and rule in modern society. London: Sage, 1999.
30. DE ROSA, Eugenia. Gender stactivism and NGOs. Development and use of gender sensitive-data for mobilizations and women's rights. **Partecipazione e Conflitto**, v. 7, n. 2, p. 314-347, 2014.
31. DESROSIÈRES, Alain. **La politique des grands nombres** : histoire de la raison statistique. Paris: La Découverte, 1993.
32. DESROSIÈRES, Alain. Historiciser l'action publique. L'Etat, le marché et les statistiques. In: LABORIER, Pascale; TROM, Danny (eds.). **Historicités de l'action publique**. Paris: Presses Universitaires de France, 2003. p. 207-221.
33. DESROSIÈRES, Alain. **Pour une sociologie historique de la quantification**. Paris: Presses de l'École des Mines, 2008.
34. DESROSIÈRES, Alain. Statistics and social critique. **Partecipazione e Conflitto**, v. 7, n. 2, p. 348-359, 2014.
35. DESROSIÈRES, Alain; THÉVENOT, Laurent. **Les catégories socioprofessionnelles**. Paris: La Découverte, 1988.
36. DIAZ-BONE, Rainer. Statistical panopticism and its critique. **Historical Social Research**, v. 44, n. 2, p. 77-102, 2019.
37. DIAZ-BONE, Rainer; DIDIER, Emmanuel. The sociology of quantification. Perspectives on an emerging field in the social science. **Historical Social Research**, v. 41, n. 2, p. 7-26, 2016.
38. DIDIER, Emmanuel. Alain Desrosières and the Parisian flock. Social studies of quantification in France since the 1970s. **Historical Social Research**, v. 41, n. 2, p. 27-47, 2016.
39. DIDIER, Emmanuel. Globalization of quantitative policing: between management and stactivism. **Annual Review of Sociology**, v. 44, n. 1, p. 515–534, 2018.
40. DIDIER, Emmanuel; TASSET, Cyprien. Pour un stactivisme. La quantification comme instrument d'ouverture du possible. **Revue des Sciences Humaines**, v. 24, p. 123-140, 2013.
41. ESPELAND, Wendy; SAUDER, Michael. Rankings and reactivity: how public measures recreate social worlds. **American Journal of Sociology**, v. 113, p. 1-40, 2007.

42. ESPELAND, Wendy; STEVENS, Mitchell. The sociology of quantification. **Arch. europ. sociol.**, v. 49, n. 3, p. 401-436, 2008.
43. FIORAMONTI, Lorenzo. **How numbers rule the world**. The use and abuse of statistics in global politics. London: Zed Books, 2014.
44. FOUCAULT, Michel. **Segurança, território, população**. São Paulo: Martins Fontes, 2008.
45. FOUCAULT, Michel. **O nascimento da biopolítica**. São Paulo: Martins Fontes, 2009.
46. FOUIGNER, Tore. Neoliberal governance of states: the role of competitiveness indexing and country benchmarking. **Millenium: Journal of International Studies**, v. 37, n. 2, p. 303-326, 2008.
47. GUYER, Jane *et al.* Introduction: Numbers as inventive frontier. **Anthropological Theory**, v. 10, n. 1-2, p. 36-61, 2010.
48. HACKING, Ian. Biopower and the avalanche of printed numbers. **Humanities in Society**, v. 5, p. 279-295, 1982.
49. HACKING, Ian. **The taming of chance**. Cambridge: Cambridge University Press, 1990.
50. HACKING, Ian. How should we do the history of statistics? *In*: BURCHELL, Graham; GORDON, Collin; MILLER, Peter (eds.). **The Foucault effect**. Studies in governmentality. Chicago: The University of Chicago Press, 1991. p. 181-195.
51. HACKING, Ian. Façonner les gens : le seuil de pauvreté. *In*: BEAUD, Jean-Pierre; PRÉVOST, Jean-Guy (orgs.). **L'Ère du chiffre** : systèmes statistiques et traditions nationales. Quebec: Presses de l'Université du Québec, 2000. p. 17-36.
52. HAYES, Matthew. The social history of quantifying inflation: a sociological critique. **Journal of Economic Issues**, v. 65, n. 1, p. 97-111, 2011.
53. INSEE - Institut National de la Statistique et des Études Économiques. **Pour une histoire de la statistique**. 2 vols. Paris: Economica, 1987.
54. KERTZER, David; AREL, Dominique (eds.). **Census and identity**: the politics of race, ethnicity and language in national censuses. New York: Cambridge University Press, 2002.
55. LATOUR, Bruno. **Ciência em ação**: como seguir cientistas e engenheiros sociedade a fora. São Paulo: Editora Unesp, 2000.
56. LEGG, Stephen. Governmentality, congestion and calculation in colonial Delhi. **Social & Cultural Geography**, v. 7, n. 5, p. 709-729, 2006.
57. LOVEMAN, Mara. The race to progress: census taking and nation making in Brazil (1870-1920). **Hispanic American Historical Review**, v. 89, n. 3, p. 435-470, 2009.

58. LOVEMAN, Mara. **National colors**: racial classification and the State in Latin America. New York: Oxford University Press, 2014.
59. MENNICKEN, Andrea; ESPELAND, Wendy. What's new with numbers? Sociological approaches to the study of quantification. **Annual Review of Sociology**, v. 45, p. 223-245, 2019.
60. MICHAELS, Stuart; ESPELAND, Wendy. Queer counts: measurement and the emergence of gay identity. **Presentation at 101st Annual Meeting of the American Sociological Association**. Montreal, 2006.
61. MILLER, Peter. Governing by Numbers: Why Calculative Practices Matter. **Social Research**, v. 68, n. 2, p. 379-396, 2001.
62. MILLER, Peter; POWER, Michael. Accounting, organizing, and economizing: connecting accounting research and organization theory. **The Academy of Management Annals**, v. 7, n. 1, p. 557-605, 2013.
63. NAFUS, Dawn (ed.). **Quantified**: biosensing technologies in everyday life. Cambridge: MIT Press, 2016.
64. NEFF, Gina; NAFUS, Dawn. **Self-tracking**. Cambridge: MIT Press, 2016.
65. NOBLES, Melissa. **Shades of citizenship**: race and the census in modern politics. Stanford: Stanford University Press, 2000.
66. OTERO, Hernán. **Estadística y nación**: una historia conceptual del pensamiento censal de la Argentina moderna, 1869-1914. Buenos Aires: Prometeo libros, 2006.
67. OTERO, Hernán. Socio-history of statistics on Latin America: a review. **Histoire et Mesure**, v. 33, p. 13-32, 2018.
68. PATRIARCA, Silvana. **Numbers and nationhood**: writing statistics in nineteenth century Italy. Cambridge: Cambridge University Press, 1996.
69. PORTER, Theodore. **Trust in numbers**: the pursuit of objectivity in science and public life. Princeton: Princeton University Press, 1995.
70. PRÉVOST, Jean-Guy. **A total science**: statistics in liberal and fascist Italy. Montreal: McGill-Queens University Press, 2009.
71. ROSE, Nikolas. **Inventing ourselves**: psychology, power and personhood. Cambridge: Cambridge University Press, 1996.
72. ROSE, Nikolas. **Powers of freedom**: reframing political thought. Cambridge: Cambridge University Press, 1999.
73. ROSE, Nikolas; MILLER, Peter. Political power beyond the state: problematics of government. **British Journal of Sociology**, v. 43, n. 2, p. 172-205, 1992.

74. ROUVROY, Antoinette. Big data : de nouveaux outils à combiner aux savoirs établis et à encadrer par la délibération publique. **Statistique et Société**, v. 2, n. 4, p. 33-41, 2014.
75. ROUVROY, Antoinette. **Des données et des hommes**. Droits et libertés fondamentaux dans un monde de données massives. Strasbourg: Conseil de L'Europe, 2016.
76. SAMUEL, Boris. Statistics and political violence: reflections on the social conflict in 2009 in Guadeloupe. **Partecipazione e Conflitto**, v. 7, n. 2, p. 238-257, 2014.
77. SANTAGADA, Salvatore. Indicadores sociais: contexto social e breve histórico. **Indicadores Econômicos FEE**, v. 20, n. 4, p. 245-255, 1992.
78. SCHOR, Paul. **Compter et classer**. Histoire des recensements américains. Paris: Éditions de EHESS, 2009.
79. SCHOR, Paul. Statistiques de la population et politique des catégories aux États-Unis au XIXe siècle : théories raciales et questions de population dans le recensement américain. **Annales de démographie historique**, n. 105, p. 5-22, 2003.
80. SENRA, Nelson de C.; CAMARGO, Alexandre de P. R. (orgs.). **Estatísticas nas Américas**: por uma agenda de estudos históricos comparados. Rio de Janeiro: IBGE, 2010.
81. SCOTT, David. Colonial governmentality. **Social Text**, n. 43, p. 191-220, 1995.
82. TOOZE, Adam. **Statistics and the German State**: the making of modern economic knowledge, 1900-1945. Cambridge: Cambridge University Press, 2001.

Submitted on: 10 Dec. 2020.

Accepted on: 21 Feb. 2021.

