

The Role of Data Creates Opportunities and Challenges for Public Policy Literature Study

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ABSTRACT

In the last decade, data approaches to policy design have spread across jurisdictions and policy areas. While the number of studies on successful data interventions continues to increase, experts report unwanted side effects and other forms of policy failure associated with behavioral public policy. This paper aims to gain a better understanding of the various mechanisms of behavior change and their impact on policy success or failure. The failure of behavioral public policy appears to be the result of a deficit in understanding the relationship between cognitive and social mechanisms at multiple levels. It is argued that systematically linking the mechanisms underlying behavior change will help us to gain a better understanding of the biases and unintended effects of policy design. The method used in this research is a literature study. This research is a literature study in accordance with the guidelines. It was carried out in various stages: development of a review protocol, identification of inclusion and exclusion criteria, keyword searches in bibliographic databases for relevant studies, and critical assessment. Describe the details of each step taken and the method used.

Keywords: Data; Public Policy; Opportunities

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Introduction

According to (Anisetti et al., 2018) states that how the “data revolution” creates new challenges for statisticians: the volume, speed, and variability of often unstructured data will (or can) require new theories, methods, and tools for integration and data visualization. However, such efforts will result in a “better society”, only if there is a “problem” where the characteristics of the data can improve the quality of decision-making and the decision-makers themselves are aware of the opportunity and are willing to take advantage of it. Public policy design and implementation, from this point of view, is a promising area for expanding the use of data in decision making (Branham & Jessee, 2017), (Dantas et al., 2017). In this paper, I will try to explain why there is a strong potential to support public policy through data and what is the added value for society. I would also argue that to turn this potential into reality, we must face new organizational and conceptual problems, the solution of which requires the concerted efforts of statisticians along with scholars from many other disciplines, from ethics to law, from political science to management.

For more than a decade, insights from behavioral economics, psychology, neuroscience, and other behavioral sciences have been integrated into policy design in a variety of fields and jurisdictions (McConnell, 2010). Especially the research program is known as the 'heuristic and biased approach' is very

inspiring by showing that many errors in the judgments of citizens or even experts can be traced back to a specific set of cognitive mechanisms (Kahneman & Frederick, 2012). Under conditions of uncertainty and whenever the situation is complex, individuals can use simpler judgments conceptually, semantically, or logically 'heuristics' in place of more complex judgments. People may answer difficult questions as if they were simple questions. This basic mechanism of 'attribute substitution', the shift from a complex mode of consideration (called 'system 2') to a fast and simple mode (called 'system 1'), can lead to bias and behavioral failure (Kahneman & Frederick, 2012). Discussion of the role of mechanisms in data-inspired public policy and their implications for preventing policy failures.

Data is considered to have a global reach and to have a fundamental structural impact across society (Mergel, 2016). While the use of data in the public sector is not new, the potential and actual use of data applications influence the theoretical and practical considerations of decision-making in the public sector (Giest, 2017). This is not only driven by the data revolution but also the developments in advanced analytics that come with it. From a practitioner's perspective, this was summarized in a speech by John Manzoni, Chief Executive of the British Civil Service and Permanent Secretary of the Cabinet Office on Civil Service Transformation. The civil service is undergoing a transformation with robotics and automation transforming the provision of public services. There is a requirement to embrace the data and technologies that are reshaping the workforce. The challenge now is to make better use of citizen data to improve public services, targeting who needs services more specifically and 'adapting those services more accurately' (Höchtel et al., 2016).

At the most basic level, data is about the volume of information, the different sources and types of data (structured and unstructured), and speed is the speed at which data is created, stored, and disseminated, often in real-time (Einav & Levin, 2014). However, different stakeholders associate different meanings with the concept (Stough & McBride, 2014). Some see it as a 'cultural, technological and scientific phenomenon' (Boyd & Crawford, 2012); others as 'multidimensional concepts embracing technology, decision-making, and public policy (Stough & McBride, 2014). The difficulty of defining such a broad concept has led to several attempts to clarify its true meaning. As a result, several authors have proposed to include concepts such as honesty, validity, value, and viability (Kimble et al., 2015). Although the use of these new concepts has caused some controversy, because they do not refer to the proportional dimension of data, but they can refer to any type of data. The definition of the concept is not the only challenge facing governments and policymakers; difficulties ranging from governance and ethical issues to structural and organizational resource constraints when dealing with data need to be considered as well (Mergel, 2016).

This paper is articulated in several sections: The first section describes the key dimensions of public policy quality, and the processes required to create value through public policies and services; Part two discusses the interaction between some characteristics of data and the quality of public policies and services; Part three presents several open-ended questions, the answers of which are necessary for the actual use of data information in public policy.

Methods

This study uses literature studies sourced from reputable international journals. The sources obtained by researchers are used to strengthen the basis, examine and draw conclusions in order to obtain comprehensive knowledge. This method uses literature taken from journals, encyclopedias, and other supporting literature. This research is a literature study based on the guidelines proposed by (Keele et al., 2004). It was carried out in various stages: development of review protocol, identification of inclusion and exclusion criteria, keyword search in bibliographic databases for relevant studies, critical assessment, data

extraction, and data synthesis. In this section, we describe the details of each step taken and the methods used.

Results and Discussion

A public policy can be defined as a series of actions that affect the solution of a policy problem, namely dissatisfaction about a particular need, demand, or opportunity for public intervention (Faivre d'Arcier, 2014). Its quality is measured by the ability to create public value (Belletti et al., 2017) describing public value as a combination of four different characteristics. Capacity to solve individual problems, we hope that the health system finds a cure for our ailments. That our every problem is collected, Capacity to increase the quantity and quality of life in a country. These dimensions are more complex to assess objectively, because citizens may have different ideas about what constitutes "improvement of quality of life" in a country. However, there are some "shared values" that can lead to "shared action". For example, the increase in "life expectancy" can be used as a measure of the quality of health policies, or the percentage of waste recycled as a measure of the quality of environmental policies.

Over the last few years, however, two additional dimensions have gained relevance, due to changes in society. All life experiences that individuals gain from public services, which have a very broad impact on individual lives. A student assesses "public service higher education" according to the content of the course and the job opportunities he or she will find after graduation (i.e. measuring the university's capacity to solve individual student problems), but also assesses opportunities to have international experience or to build interpersonal networks. Similarly, a patient evaluates hospital services either by the kindness of the nurses or the quality of the food. Readiness to change, i.e. assuming more and more important as the world becomes more and more dynamic. In such an environment, universities are required to educate students to learn how to learn (Polet et al., 2010), or hospitals to prepare sick people to live with chronic pathology (Schoen, 2010).

The last two dimensions of public value remind of the importance of several characteristics of the design and implementation of a policy: The capacity to provide personalized services, i.e. services that are consistent with the requirements and expectations of every citizen. Today, we can afford "customized service" when we buy a car or choose a meal at a restaurant, so we expect the same approach from public service. The involvement of a person in the process of designing and producing the personalized service. Public services always involve users, but sometimes collaboration is unintentional and at the individual level (we cannot educate a student without his active participation); today, there are growing claims for co-design (where individuals and public administrations jointly design services) or co-innovation, where the action is taken at the level of groups of users interacting with the administration. The capacity to change the characteristics of services over time, according to the evolution of personal and societal needs and expectations. Data can improve the quality of public policy acting on all of these characteristics.

Data as a way to Create Value in Public Policy

The term is applied to data sources with different characteristics, ranging from structured administrative databases to weak, unstructured signals from social media, leading to different possible uses of each data source in supporting public policy (Cosgrave et al., 2013). For this purpose, we can classify data sources according to three dimensions: "Completeness" of data, i.e. its availability to the entire population interested in the policy, "timeliness" of data, i.e., the limited time interval between an event and the availability of information about the event, "Volunteering of users to provide data and information" (e.g. writing posts on Facebook or answering questions on websites), as opposed to cases where they are compelled by law or they unknowingly provide data (such as when we monitor their

“signal” via mobile and GPS). The results of the analysis below describe the impact of each of these characteristics on public policy; however, it can generally be seen to have a combined effect, depending on the specific data source considered.

Designing a “personalized policy”

The first opportunity arises from the possibility to maintain a very large database, including complete and detailed personal information about policy users, thereby supporting the design of "personalized" or "precise" policies. Traditionally, public policies are “standard”, providing equal opportunities and services to all users, or a broad group of them (for example, social policies may be dedicated to all low-income citizens or economic policies for small businesses). But requirements and expectations are only partially shared by users in the same group: policies can only be designed for the "average user," resulting in over-resources for some and under-resources for others. Precision policy focuses on the specific expectations of homogeneous user groups (in principle, even single-user expectations, if complete and detailed data at the individual level are available), thereby enabling increased efficiency and effectiveness of the public policy.

Social Data is a way to Engage Users in the Design and creation of Services

Data and information that users voluntarily “post” on social networks can play a powerful role in engaging citizens in the design and production of public services, thereby empowering their “life experiences” (A. J. Meijer et al., 2012). Such engagement can be aimed at improving the performance of existing services, by asking users for ratings, testing their sentiments on possible policy changes before introducing them, and more generally collecting advice (codesign), many public administrations use their websites and social networking accounts. for this purpose. Designing new services here, social networks can be used as a way to interact with groups of actual or potential users to gather ideas for new services, the creation of which can also involve groups of users. Student groups and student representatives can often play such a role in universities, suggesting new services (such as assessment centers, startup competitions, project-based learning, social events) that universities can implement with their active support (innovation). In either case, data analysis is needed to understand how individual and group ideas and sentiments are actually relevant to the larger group of users or, conversely, can lead to choices that most will reject.

New challenges

To turn all these opportunities into tangible improvements as a value-added policy, we still have to face some problems. Some are intensified by a big data set, others simply by the news. We will focus on six questions: How can we match the evolution of social and individual expectations with the evolution of law? How can we guarantee "equality" among all citizens? How can we manage fake news and opportunistic behavior in providing information? How should we balance individual privacy and the public interest? How should we adapt the roles and competencies of public managers? How can we adjust public managers' attitudes toward accountability and responsibility?

Equity concept

Equity, namely fairness and partiality to all parties, based on the principle of providing equal benefits to all users, is the main goal of public policy (Gil-Garcia, 2012). In “standard” public policy, equality is often defined as providing equal opportunities to all users to access services (all students with certain grades in high school can continue to higher education, all people with the same disease can access hospitals) and

level the same service. Privacy policy calls into question such an approach. If the public's value depends on individual expectations, the same level of service can provide different values (hence, different benefits) for each of them. But how can we determine a "fair" level of service for each individual?

Fake News and Opportunistic Behavior

Inexperienced people will find it increasingly difficult to distinguish between information based on real data and fake news (A. Meijer, 2009). However, if we do not increase this capacity in all citizens, individual expectations may be based on false information, thus compromising the quality of public policy design according to those expectations. The problem is further compounded by opportunistic behavior, especially when dealing with data provided voluntarily by users. The web is a chaotic system, where consistent messages from several people can give the impression of a common problem. In addition, companies and individuals can directly "manage" the flow of information, put more emphasis on some posts, or create messages artificially via software (bots). How can we distinguish real data and information from a "noise"?

Public Management Roles and Competencies

Private policies, policy changes based on weak signals, and citizen engagement through social media have greatly redefined the roles and competencies of public managers (Calderoni et al., 2012). In general, public managers contribute to the design and implementation of policies: Defining the decision space, ie the boundaries that must be respected in policy design; Anticipating future impacts with alternative solutions, helping decision-makers to identify the best; Environmental monitoring, to suggest possible new policy needs. All of these activities are influenced by data: Decision space is not only constrained, as in the past, by-laws and economic boundaries. We must also verify the available information, check whether it is consistent with the requirements of the privacy policy, in terms of the full range of potential users, data reliability, privacy concerns, etc. The expected impacts of alternatives cannot be determined, as in the past, through publicly available information sets, usually prepared by public managers themselves or assigned to external experts.

Collecting and analyzing data in a way that supports policy design requires strong and ongoing interaction between public managers who know policy objectives and boundary conditions and data experts, who can "read" the data. The problem of monitoring the socio-economic environment requires that public managers be able to collect a signal not to underestimate its relevance and to share useful information from a "noise", taking advantage of new technologies and methods. This issue is very important because individuals and groups can try to use social media to influence policy, playing with the public management system must therefore be able to reduce some information to avoid the influence of unfair actions. In short, data requires fairly new competencies and skills in public managers. Will, the public administration be able to make such changes, without limiting, as in the past, to "formal" adaptation?

Accountability and Responsibility of Public Managers

Finally, designing and implementing public policy through big data requires changing the attitudes of public managers. In a "standard" policy, managers must "enforce" the law; often norms are justifications against users: even if we disagree, we must follow the rules. Personal policies open up a space of autonomy for managers, they are responsible for understanding and deciding how best to respond to individual expectations, within "broad" boundaries. Therefore, public managers are responsible for policy outcomes. The difficulty of changing this attitude cannot be underestimated, because in the past it was the main cause of failure in public policy innovation.

Conclusion

The open issues mentioned above represent an ambitious research agenda. Dealing with these issues implies not only the promotion of coordinated studies in different disciplines, but rather to build long-term transdisciplinary research programs, where even the definition of each question requires a strong integration of theories, methods, and languages from different disciplines. Such programs will succeed if they lead to viable solutions, capable of changing the way institutions design “real” policies, recruiting, training, and assessing their management, thereby requiring ongoing interaction between researchers, politicians, and administrators.

I don't think so, because the stakes are too high to lose without trying. Privacy policies, citizen involvement in policy design through social data, and early warning to improve timeliness in policy redesign are unique opportunities. They can increase the efficiency and effectiveness of public policies, balance the crisis due to the lack of financial resources and the increasing need for public services experienced by most countries, effectively counteracting populism, which is the most visible and dangerous consequence of the crisis.

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