

Research Article

A Case for Behavioral Public Financial Administration

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Abstract: Interest in using behavioral insights to study public administration has been gaining momentum in recent years. While the literature on behavioral finance and behavioral public finance offers a useful reference point, incorporating behavioral approaches to the study of public financial administration remains pending. This article uses a bibliometric approach to provide readers with “a bird’s eye view” of co-authorship networks and topics driving public finance discussions in public administration and public policy journals. The gaps that are made evident with the analysis represent an area of opportunity for the development of what we refer to as behavioral public financial administration.

Keywords: Behavioral public finance; public financial administration; bibliometric analysis

1. Introduction

The use of behavioral approaches to address topics of interest to public administration scholars is blossoming. Behavioral public administration offers an opportunity for “the analysis of public administration, from the micro-level perspective, of individual behavior and attitudes by drawing on insights from psychology on the behavior of individuals and groups” (Grimmelikhuisen, Jilke, Olsen, & Tummers, 2016). This is a positive development, as it furthers our understanding of the advantages and limitations of evidence-based policies by testing theories with research designs and theoretical approaches that have been successful in behavioral economics, political psychology, or behavioral public policy, among other disciplines. It is time to acknowledge that exploring new frontiers in the behavior of public administrators (and the consequences of such behavior) should go beyond the analysis of their choices, actions, and decisions, as it is clear that “public managers must overcome not only environmental complexities but also their own cognitive limitations and moral impasses” (R. P. Battaglio & Hall, 2020).

Scholars joining a new behavioral public administration movement are building along the lines of seminal contributions by Herbert Simon, Amos Tversky, Daniel Kahneman and Richard Thaler (among others) to learn more about the ways in which phenomena such as bounded rationality, cognitive limitations, or mental accounting, impact individual decision-making and, by extension, the operation of public organizations. Battaglio et. al. (2019), for example, recently identified 109 articles inspired in the behavioral sciences that were published in ten public administration journals¹. This review allows them to argue that the published articles could be grouped into four categories: those focusing on (1) accessibility, (2) loss aversion, (3) overconfidence, and (4) optimism (R. P. Battaglio, Jr., Belardinelli, Bellé, & Cantarelli, 2019). As illustrated in the article, these categories have been used to analyze a wide array of issues, such as environmental protection, public personnel, energy, or public branding, among others. Interestingly, research published in recent years has not embarked in a discussion of the potential use of behavioral lenses to try to answer questions of interest to public financial administration scholars².

The incorporation of behavioral approaches has captured the attention of psychologists and economists interested in public finance for some time (DellaVigna, 2009; Erdoğan, Batrancea, & Çevik, 2020; McCaffery

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& Slemrod, 2006). Behavioral public finance refers to the intersection between behavioral economics and public finance (McCaffery & Slemrod, 2006). The work of psychologists and behavioral economists have been crucial in documenting the limitations of models of human behavior grounded in neo-classical economic thought. Psychology has been key to demonstrate that violations to the standard economic assumptions about preferences and choice cannot be bypassed. The work of behavioral economists has contributed to the identification of situations where such deviations have consequences for market or policy outcomes (Congdon, Kling, & Mullainathan, 2011). The work of public finance economists and psychologist embracing behavioral economic approaches has been instrumental to inform our understanding of public finance. Regrettably, public finance scholarship in public administration journals has fallen behind in these discussions.

We have reached a point where some of the foundational assumptions about individual behavior and decision-making in which the public financial administration literature is anchored ought to be revisited, especially as numerous empirical studies have taken mechanistically rational models of decision-making as a given (Espinosa, Kriz, & Yusuf, 2021). This opens important avenues for the advancement of a sub-discipline that is of significant relevance for the field of public administration. With this in mind, and given the recent debates in what is generally referred to as behavioral public finance, we pose the following questions: (1) What topics have been driving scholarly discussions in this area of scholarly research? (2) What authors have been leading such discussions? (3) What would be a possible starting point for public finance scholars seeking to contribute to the nascent behavioral public administration movement?

This article uses a bibliometric approach to visualize the scholarly networks using behavioral lenses for the analysis public finance puzzles. The next section of the article explains how this methodology was applied and presents readers with a “bird’s eye view” of these networks by using visualization software. Given the relative novelty of the topic in the public administration field, we also overview emerging discussions on the subject matter, which have been published in the *Journal of Behavioral Public Administration*. Upon discussing the observed trends, we elaborate a series of recommendations for scholars willing to engage in the study of what we refer to as behavioral public financial administration.

2. Bibliometric analysis: “A bird’s eye view” of the literature

Bibliometrics refers to an increasingly popular and rigorous method to analyze scientific data (Bahoo et al., 2020; Dombu et al., 2021; Fonseca-Costa et al., 2019; Marsilio et al., 2011; Vitor Jordão da Gama Silva et al., 2019). This methodology allows to uncover emerging trends in scholarly literature, journals performance, collaboration patterns, research constituencies, or to explore the intellectual structure of a specific domain in the literature (Donthu et al., 2021). The most common sources of information to conduct bibliometric analyses are Web of Science (aka. Web of Knowledge) and Scopus³. Table 1 compares the coverage of these datasets.

Table 1: Web of Science and Scopus: Coverage

Document type	Web of science	Scopus
Article	12,468,342	16,680,987
Conference proceedings paper (Conferences)	301, 619 (**)	4,393,991
Biographical item	33,010	-
Book/edited books	16	163,711
Book chapter	40,396	1,205,119
Book review	492,387	-
Correction	140,470	-
Editorial	854,607	577,730
Erratum	-	163,707
Letter	384,090	431,041

Meeting abstract	2,689,143	-
Note	-	571,858
News item	146,838	-
Preprint	-	-
Retraction	2746	-
Retracted publication	3117	3338
Review	749,665	1,377,431
Short survey	-	198,730
Software review	340	-
Conference review	-	52,772
Business article	-	9073
Data paper	1186	3688
Abstract report	-	1044
Report	-	6
Undefined	-	30,524
Monograph	-	-
WoS others (*)	129,615	-

(*) WoS others include document types- poetry, Biographical Item, Art Exhibit Review, Record Review, Film Review, Music Performance Review, Fiction Creative Prose, Dance Performance Review, TV Review/Radio Review, Reprint, Theatre Review, Bibliography, Music Score Review, Database Review, Music Score, Excerpt, Script, Hardware Review, Chronology, Abstract of Published Item, Main Cite and Meeting Summary.

(**) The number appearing in the primary source has an error (it shows 3,01,619).

Source: Singh, et. al (2021)

Web of Science is known for having a more selective criteria to select the journals to be included, as well as a more established system for tracking and verifying citations. Scopus, on the other hand, has a broader coverage of scholarly journals, books, and other publications, including more regional and non-English language content. While this makes Scopus more comprehensive, it also means that there may be a higher risk of errors or inconsistencies in the data (Gavel & Iselid, 2008; Mongeon & Paul-Hus, 2016). To maximize coverage of the literature, both databases were consulted. The findings of the search are reported below.

Web of Science was first used to search for different combinations of term ***behavioral public finance*** (see table 2). Using the broadest search term possible resulted in 18,748 entries, 4121 entries mentioning the term in the different topical areas considered in the dataset (e.g., social sciences, humanities, natural sciences, etc.) and 2358 abstracts.

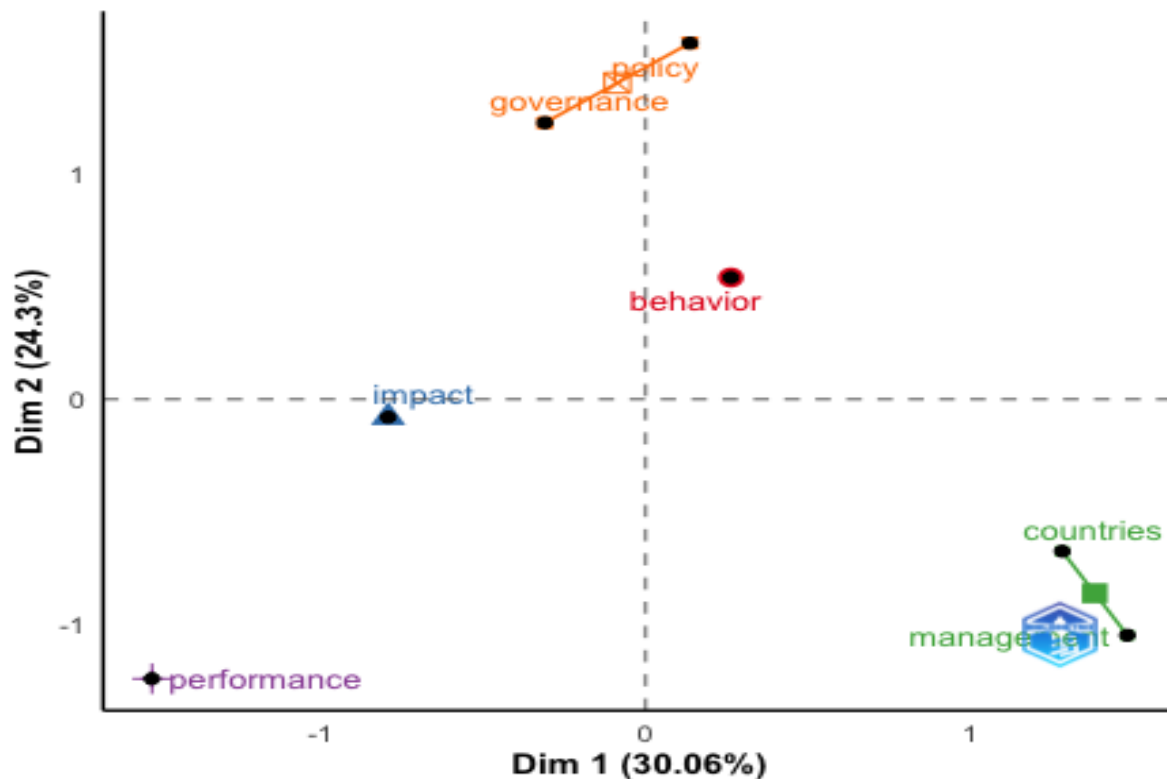
Table 2: Web of Science Outcome

Search Term (keyword)	All (*)	Topic	Abstract
behavior* AND public AND financ*	18,748	4,121	2,358
behavior* AND public AND administration	11,427	2,449	1,636
behavior* AND public AND financ* AND Management	5,047	846	391
behavior* AND public AND financ* AND Administration	1,808	133	75

(*) This searches the term within the journal, topic, abstract and keywords.

To make a distinction between the sub-field of behavioral public finance and behavioral public financial administration (see endnote 2) a search for publications on the latter term was also conducted, resulting in only 1808 entries. This number gives an idea of the limited attention that the subject matter has received, but also of the opportunities in terms of future research. Once the search is restricted to published articles in the last decade (2013-2023), the number of documents referring to behavioral public financial administration (or variations of this search term) went down to 1354. The keywords listed in these publications were organized into clusters by using principal component analysis (See Figure 1). This type of visualization allows one to identify topics driving scholarly research, as well as interactions among topics in the published literature. Figure 1 shows that when keywords appearing in the published literature are grouped into clusters, there is practically no interconnection among works addressing topics from a behavioral perspective.

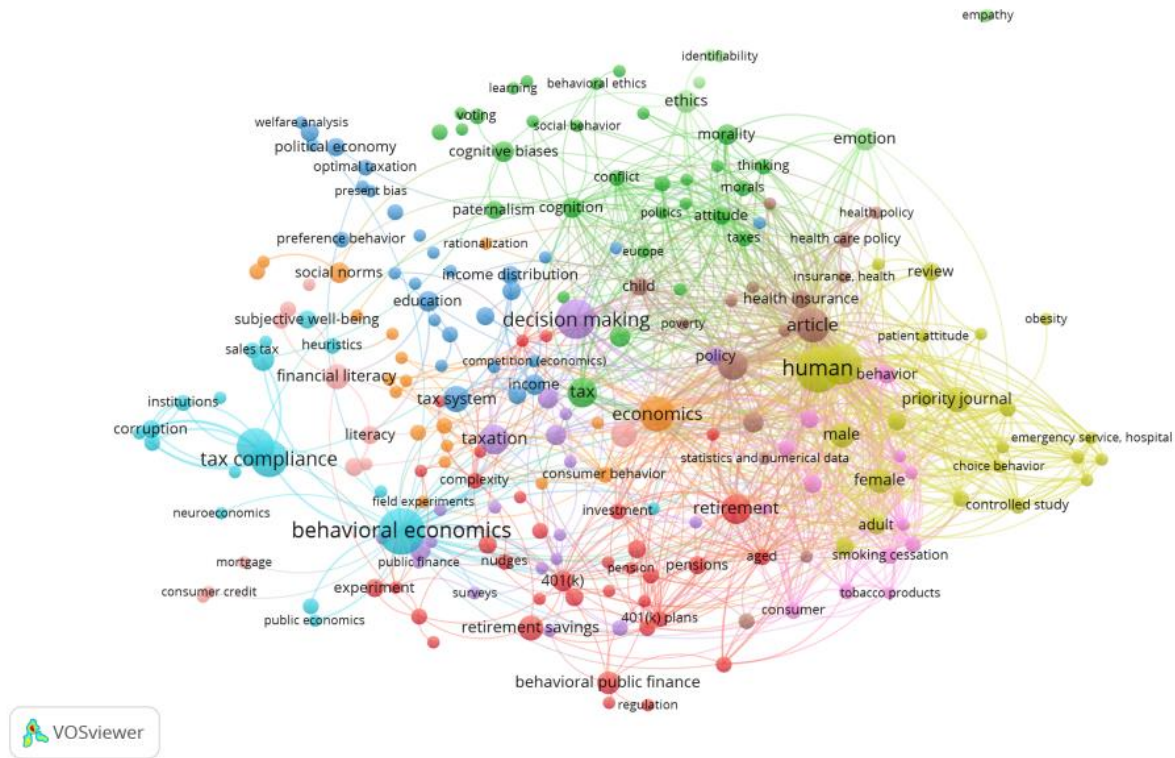
Figure 1: Cluster analysis of keywords



Source: Elaborated by the authors with data from Web of Science (R *package: Bibliometrix*)

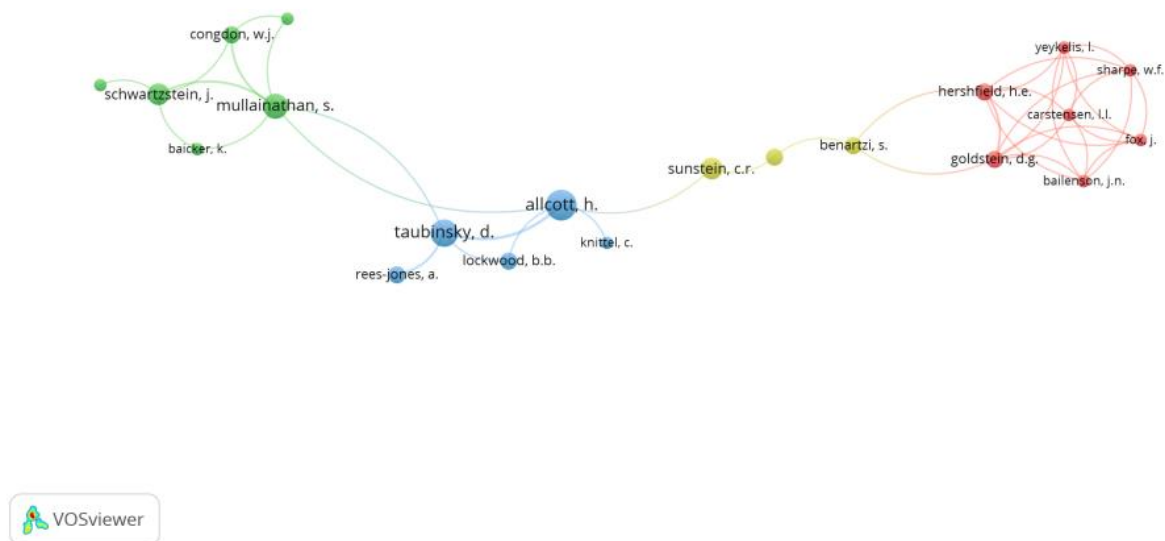
The next step in this bibliometric analysis was to try to refine the search by using the Scopus database⁴. We searched for peer-reviewed articles on behavioral public finance. The search allowed us to identify 411 publications. The information was exported to the visualization software, *VOSviewer*. The results of a keyword co-occurrence analysis (Figure 2) and a co-author analysis (Figure 3) are shown below⁵.

Figure 2: Co-Occurrence Analysis (Keywords)



Source: Elaborated by the authors with data from Scopus (Software: *VOSviewer*)

Figure 3: Co-authorship Analysis



Source: Elaborated by the authors with data from Scopus (Software: *VOSviewer*)

In the co-occurrence visualization, the clustering of items is determined based on the number of documents in which keywords appear together. The two circles are added to highlight the interconnections for our search term (i.e., behavioral public finance), as well as a commonly used keyword used to link research articles to the sub-field in which they intend to contribute (i.e., behavioral economics). The keyword “behavioral public finance” is interconnected with terms such as perceived tax burden, savings, retirement plans, social security, income taxation, and theory of planned behavior, which gives us an idea of the topics capturing the attention of scholars working on the subject. The small size of the circles for this cluster compared to others, nevertheless, indicates that the literature is not as extensive as, for example, behavioral economics approaches to the study of tax compliance. This visualization makes it clear that behavioral economics is more deeply interconnected with literature in topics such as taxation, tax compliance, tax salience, optimal taxation, and retirement, to name a few. Interestingly, the analysis suggests that there is practically no interconnection between this sub-field of economics, and the literature on behavioral public finance.

Figure 3 shows the co-authorship networks working on behavioral public finance topics. The four interconnected clusters depicted here include joint contributions by behavioral scientists focusing on public finance (Congdon et al., 2011; Mullainathan et al., 2012), behavior-informed interventions usually referred to as *nudges* (Thaler & Sunstein, 2008), or the role of heuristics and behavior biases on financial decisions (Benartzi & Thaler, 2007). Another cluster of researchers indicates collaboration on marketing research (Goldstein et al., 2016; Herschfield et al., 2011). This visualization shows that the interconnections among scholars involved in the study of behavioral public finance is far from being consolidated, which opens a gamut of opportunities for scholarly collaborations in this important area of research.

3. Setting the stage for a research agenda on behavioral public financial administration

While bibliometric tools can assist in the creation of conceptual maps of the literature, one of their limitations is that information is usually retrieved from databases that do not include recently created or non-indexed journals, or exclude articles with important contributions, but that are published in unranked journals.

This is the case of the Journal of Behavioral Public Administration (JBPA), which is gaining relevance as outlet for scholarly works in this nascent subfield, but whose first issue was just released in 2018. We reviewed the nine issues that have been published between 2018 and 2023 to get a sense of the direction that discussions on behavioral public finance could take within the public administration field.

One of the articles reminds us about the role that risk perceptions among public managers play in decision-making (Nicholson-Crotty et al., 2019). Traditional risk theory has commonly assumed that when it comes to financial decisions individuals tend to show similar risk aversion outcomes. Behavioral economists, nevertheless, have documented systematic anomalies on their behavior (Rabin & Thaler, 2001). What this article does is to analyze framing effects and the status quo bias among public and private sector managers, suggesting that public managers are not more risk averse or anchored to the status quo than their private sector counterparts. Another article analyzes agents’ risk aversion but using principal-agent theory (Livnat-Lerer et al., 2018). Here, the core argument is that under outcome-knowledge-based principal-agent relationships, agents anticipate the effect of outcome bias on principals, and adjust their *ex-ante* behavior by opting for less risky alternatives (a phenomenon that is called foresighted outcome effect).

The journal has also published works about the nudging of taxpayers (John & Blume, 2018; Leets et al., 2020; Vainre et al., 2020). “Nudges” are non-coercive and non-invasive interventions aimed at encouraging certain behavioral responses (Thaler & Sunstein, 2008). John and Blume (2018) write about the effect of message simplification or a descriptive social norm on tax payment. Vainre et al. (2020), on the other hand, claim that changing complex behaviors such as tax evasion may require behavioral interventions to guarantee employers’ payroll tax compliance. While works applying the concept of nudging in public finance have also been published in outlets such as *Behavioral Public Policy*, bringing this line of research to the public administration field will allow scholars to explore alternative research designs and methods when addressing public finance puzzles of utmost relevance if the aim is to improve financial management within public organizations. The rise of behavioral public administration, additionally, provides new perspectives in a

psychological standpoint by using experiments to enhance the internal validity of empirical studies (Vogel & Xu, 2021).

Where to go from here? Incorporating behavioral lenses to the study of public administration and public policy is capturing the attention of scholars, something that is evident from published works in Public Administration Review (R. P. Battaglio & Hall, 2020), Journal of Public Administration Research and Theory (Tummers, Olsen, Jilke, & Grimmelikhuijsen, 2016), but also with the launching of specialized journals such as the Journal of Behavioral Public Administration (Jilke, Meier, & Ryzin, 2018) and Behavioural Public Policy (Akerlof, Oliver, & Sunstein, 2017). Noticeably, while efforts to encourage discussions on public financial management with a behavioral lens are emerging (Espinosa et al., 2021), the study of behavioral public finance has not yet permeated the public administration field.

This gap opens interesting opportunities for the advancement of public financial administration. Adding a behavioral lens to the study of many of the puzzling questions in this sub-field of public administration, nevertheless, requires interested scholars to be willing to move beyond the status quo and reconsider some of the fundamental assumptions underlying public finance and budgeting scholarship. A great deal of the research in public financial management has taken these assumptions for granted, focusing instead on empirical studies with marginal contributions to our understanding of crucial questions about individual behavior and choice. The possibility to apply behavior-informed approaches to the study of relevant public financial management puzzles makes it necessary to revisit the theoretical pillars of our empirical research. Because as Thaler explains, "...in some well-defined situations, people make decisions that are systematically and substantially different from those predicted by the standard economic model. Quasi-rational behavior can be observed under careful laboratory controls and in natural economic settings...Some of the work that needs to be done is theoretical" (Thaler, 1994).

A good starting point to move forward would be to reflect on the ways in which theoretical insights from other disciplines may be used to craft testable hypotheses to advance our understanding of topics of utmost importance for public financial management research. Doing so is an invitation to review the potential contribution of intellectual approaches and disciplines that are already influential in the behavioral public policy movement. Some of these approaches, as well as common modes of operation are listed in table 2.

Table 2: Intellectual influences and modes of operation

<i>Intellectual influences</i>	<i>Modes of operation</i>
Behavioral economics	Non-conscious priming
Behavioral psychology	Intelligent assignment
Cognitive design	Presumed consent
Engineering psychology	Mandated choices
Ethology	Anchoring
Intuitive judgment theory	Culture change
Material psychology	Channeling factors
Neuroeconomics	Collaborative filtering
Neuropsychology preferences theory	Disclosure
Psychographics	Feedback
Social Cognition	Self-registered control strategies
Social influence theory	Peer-to-peer pressure
Social marketing	Norm formation
Theories of affect	Choice editing
Time preferences theory	Default positions
User-centered design	
Visual perception theory	

Source: Jones et al. (2013)

The contributions of behavioral economists should be considered closely as we think about a future research agenda on behavioral public financial administration, especially since the inclination in this nascent field of study has been to address research with a strictly empirical lens. Consider the study of tax evasion as an example. As explained in a recently published book, the standard model of tax evasion assumes that taxpayers are wealth-maximizers making decisions after weighting the costs and benefits of their actions (Erdoğan et al., 2020). These fundamental assumptions in deterrence models have resulted in the creation of policy interventions seeking to increase the costs associated with noncompliance (Allingham & Sandmo, 1972; Becker, 1968, 1976). Recent development has demonstrated nevertheless that these solutions do not necessarily impact taxpayers' decision-making, as the models in which they are based are not able to explain the effects of other potentially significant variables, such as moral concerns and personal beliefs (Batrancea et al., 2020), emotions (Zaleskiewics & Traczyk, 2020a), or even cognitive abilities (Sobkow, Garrido, & Garcia-Retamero, 2020), among other factors. This is then an invitation to envision the study of public financial management with alternative theoretical and analytical lenses.

How to move forward with this conversation? While there may be various avenues to follow, a good starting point is to revisit Herbert Simon's contributions to the field public administration, particularly those on human information processing (Simon, 1979)⁶ and his notion of "bounded rationality", which in broad terms can be explained as the failure to have complete and consistent preferences (Munro, 2009). The issue is not trivial, especially as one thinks about the possible implications for the study of decision-making in the context of public organizations. Simon's work provides a starting point to combine cognitively focused approaches to behavioral economics with evolutionary/institutional economics in a coherent framework (Earl & Potts, 2004).

The notion of bounded rationality has been researched extensively. However, there is much to discuss in terms of its theoretical and empirical implications for the study of financial management in public organizations. How would this concept impact the ways in which we conceptualize and analyze public finance puzzles? Moving on this direction invites us to focus our attention on the individual -the taxpayer, the budget analyst, the policy maker, etc.- as the unit of analysis. A recent line of inquiry, for example, explore the extent to which psychological, behavioral, and neural factors contribute to shape risk perceptions among public managers (Fennimore & McCue, 2021; Nagtegaal, Tummers, Noordegraaf, & Bekkers, 2020; Nicholson-Crotty, Nicholson-Crotty, & Webeck, 2019). Fennimore and McCue's article reminds us of the vast opportunities to further our understanding of decision-makers operating within public entities. Their inquiry is about the motivations prompting individuals to differ in their risk preference. As they point out, it is already known that social influences are an important mediator in risk taking behavior, but also neurobiological factors and learned behaviors that can be expressed through emotions. Risk taking-behavior may then go beyond what traditional models prescribe. Not all public financial managers act in the same way. A behavioral approach to the study of their actions may illustrate the role of cultural factors, the particularities of the organizational environment where they interact, or individually shaped perceptions about fear, reward, or punishment, among others.

Technological developments make the empirical analysis of these issues feasible (Frydman, Barberis, Bossaerts, & Rangel, 2014; Frydman & Camerer, 2016; Vartanian & Mandel, 2011). The study of public financial administration would advance significantly with willingness to explore puzzles guiding our scholarly work with alternative lenses: the linkage of neurobiology, economics, cognitive, affective, and social psychology have enabled researchers to refine our understanding of financial decision making (Zaleskiewics & Traczyk, 2020b).

Clearly, a good understanding of the psychology of economic behavior is a necessary, yet not a sufficient condition, to narrow many of the existing gaps in the policy literature (Munro, 2009). Advancing a theory-based research agenda on topics that have traditionally been relevant in public financial administration scholarship, and a discussion of alternative methodologies to tackle old and new puzzles would be an excellent way to move forward. After all, "...the inference of truth from observation is inherently ambiguous...Primarily and most difficult of all we have to constantly reevaluate everything, including ourselves, especially in examining how we talk about and interpret our data" (Smith, 2010).

4. Conclusion

This article used a bibliometric approach to try to identify research on behavioral public finance published in top public administration & policy journals. The aim of this effort was to learn how behavioral insights have been used to study relevant questions in this sub-field, as well as commonly studied topics. The findings suggest co-authorship networks are scant, the inter-connectedness across journals is limited, and the emphasis of published research focuses on corporate (not public) finance. This creates great opportunities to further knowledge in what we refer to as behavioral public financial administration. Interested scholars are invited to recast some of the ways in which topics have traditionally been studied, and to consider a research agenda that starts by revisiting core theories of individual behavior, explore the ways in which psychology and behavioral economics can inform research in public financial administration, and consider alternative methodologies to test hypotheses in the subjects in which our interests reside.

Notes

1. Governance, International Public Management Journal, International Review of Public Administrative Sciences, Journal of Policy Analysis and Management, Journal of Public Administration Research and Theory, Public Administration, Public Administration Review, Public Management Review, Review of Public Personnel Administration, and the Journal of Behavioral Public Administration.
2. The fields of public finance and public financial administration are closely intertwined. While in most circumstances they can be used interchangeably, public finance economists and public financial administration scholars approach subjects from different perspectives and using different analytical approaches. In both cases, the locus of attention is the provision of public goods and services, often with resource constraints. But while public finance economists tend to focus on the welfare implications of government intervention, or on normative approaches to analyze the role of government in the economy, scholars trained in public financial administration pay close attention to the practical implications of government intervention.
3. For decades, Web of Science (WoS) has been tracking citations for longer than Scopus and has a more established system, since it was created initially as an information retrieval tool in 1964. However, Scopus is a more recent database, created only in 2004. Several previous studies have compared different databases, either through a direct comparison of article coverage or by comparing the citations across the databases. Both databases cover a broad range of academic disciplines, but their coverage is different. Web of Science is known for its strong coverage in the hard sciences (especially prior to 1996), while Scopus has focused on more social sciences and humanities.
4. The Scopus database has information about publications' titles, abstracts, and citations so the search term "behavioral public finance" will look through all journal article records' for this sentence. To reduce the number of entries, the command was set so that only the term "behavioral public finance" was searched. This, for example, prevented the term "behavioral finance" to be included.
5. "The strength of a link, for example, indicate the number of cited references two publications have in common (in the case of bibliographic coupling links), the number of publications two researchers have co-authored (in the case of co-authorship links), or the number of publications in which two terms occur together (in the case of co-occurrence links)" (van Eck & Waltman, 2021).
6. This book is a compilation of 25 of Simon's published articles on human information processing. Researchers wishing to follow this line of thought can also refer to Newell and Simon's book "Human Problem Solving" (Newell & Simon, 1972).

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