

Rahel M. Schomaker/Michael W. Bauer
Experiments in Public Administration
– some research, but no agenda



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Abstract

The methodology of experiments has been slow to garner a following in public administration (PA), a scientific discipline that exhibits a high degree of methodological conservatism over time (Perry 2012). Our review takes stock of the experimental research agenda so far. Examining all articles that appeared between 1990 and 2013 in the fifteen most cited journals in the field of 'Public Administration', we analyze the range of experimental PA research with regards to their coverage of experimental methods and research designs applied, but also with a view to their contribution to the development of an experimental research agenda. Based on the finding that PA not only experiences a general dearth of experimental research, but also a limited scope with regard to the variety of experimental designs and research questions tackled, we assess the potential benefits from that methodological advancement and outline approaches for prospective research.

Key words: Experiments; Public Administration

1. Exposition

The methodology of experiments (or, to use the label from social sciences, a more “behavioral approach”) has been slow to garner a following in the scientific discipline of public administration (PA). Reviews of PA research show a high degree of methodological conservatism over time, with researchers using “traditional approaches rather than learning new methods” (Perry 2012, 480). Nonetheless, the use of experiments could contribute to innovation in PA research and help it to keep pace with other disciplines centered on studying the transformations of the state and the society that have incorporated experimental methodology over the last decade, using it to enlarge their traditional methodological toolkit (Bozeman and Scott 1992).

Our review scrutinizes all articles addressing experiments that appeared between 1990 and 2013 in the fifteen most cited journals in the field of ‘Public Administration’. After discussing the implications of the experimental approach and outlining our research design, in section four we delineate the main contributions to date of experimental research in mainstream PA. In the last sections we discuss the benefits and shortcomings of experimental PA research and outline which future enhancements would be beneficial for better establishing the “experimental approach” in PA.

2. Experiments in the context of PA

Introducing experiments, one has to emphasize that “traditional” methods – whether formal modeling, qualitative approaches, or quantitative analyses – do not compete with this approach. Rather, experiments are ways to multiply analytical leverage for examining existing research puzzles.

Following Morton and Williams, “in an experiment, the researcher intervenes in the DGP [data generating process] by purposely manipulating elements of the environment” (2009, 30). Therewith, the “researcher actively creates variation” (Margetts 2011, 190). In doing so the researcher must be aware that there may be interferences that restrict the ability to manipulate desired elements, which could invalidate the outcomes of the experiments. Accordingly, controlling for these confounding factors, using *ceteris paribus* conditions, is one relevant measure of experimental quality. While this prerequisite excludes all random

interventions of a procedural nature by the research team, the selection of the treatment group has to follow randomization. Randomization and manipulation as research characteristics depend on each other (Morton and Williams 2009). Hence, a wide array of actions that could be understood as “quasi experiments” – e.g. policy changes over time and the retrospective analysis of reactions to these – are not included in this definition and therefore not in this review.

Concrete measures applied in the context of an experimental setting can take many different forms, including self-reporting by the subjects (on their perceptions, experiences, or feelings), behavioral (“decision-outcomes”) or physiological measures, as well as creating incentives (McDermott 2002). As all types of measures are combinable – more or less – with all types of experiments (with the modest exception of field experiments, where the measures are restricted due to the possible ignorance of subjects), a matrix structure for measures and experimental designs can be developed.

While an experimental research strategy raises new challenges regarding the research design, it also provides clear-cut solutions to some common problems related to the use of the traditional toolkit of PA, as delineated below. When used in PA research, different types of experimental approaches may be suitable, each with its own associated advantages as well as challenges when applied to specific research objectives or designs.

Table 1: Experimental approaches adoptable in PA Research

	Conven- tional Lab	Internet- based Lab	Artefactual Field Experiment	Framed Field Experiment	Natural Field Experiment
<i>Characteristics</i>					
Physical presence of the proposition	+	-	+	+	+
Standard subject pool	+	+	-	-	-
Naturalistic Environment	-	-	-	+	+
Naturalistic task	-	-	-	+	+
Awareness of experiment	+	+	+	+	-
Costs	-/+	-	-/+	-/+	+

Source: Authors' compilation.

Referring to table 1, the *conventional lab* approach uses a controlled laboratory for the experiments. The study group typically is composed of students or other randomly selected individuals, but rarely the PA persons that perform the task tested in the real world. The *internet-based lab*, typically in all other aspects designed congenerically, conducts the experiments through the internet, without any personal contact between the study group participants and the researcher, which minimizes the risk of an expectancy or experimenter bias due to physical presence.¹ Both types – *conventional* as well as *internet-based lab* – use a standard subject pool, but they are missing a naturalistic environment and task (Morton and Williams 2009).

The setting for *artefactual field experiments* is similar to that of conventional laboratory experiments, only with a nonstandard subject pool, so that individuals/groups typically involved in processes tackled by the study participate in the effective, for the other two types costs depend on the laboratory setting; all three methods allow for a high level of control. The same is true for *framed field experiments*. This

1 Nonetheless, other kinds of systematic bias can occur in all kinds of experiments, in particular a demand bias “if the purpose of the experiment is too obvious” (McDermott 2002, 33).

approach is very close to the *artefactual field experiment*, but the context is more naturalistic in the sense that either the task or the information set the subjects use is drawn from reality. Compared to other approaches, this approach reduces the risk of bias arising due to the artificiality of the experiment.

Lastly, *natural field experiments* “are not conducted in a common location and rely on an intervention into a real situation” (Margetts 2011, 191) involving subjects who naturally undertake the task of interest and/or taking place in the natural environment for the task. They also may comprise subjects who are unaware that they are participating in an experiment. Compared to other types of experiments, this setting bears a low risk of artificiality, but the degree of control for the researcher is also limited, so “at their best, field experiments can offer a reasonable trade-off between internal and external validity through increased realism without too much loss of control” (McDermott 2002, 32). All experimental settings imply a high degree of standardization to ensure that “the same stimuli, procedures, responses, and variables are coded and analyzed” (McDermott 2002, 33) to minimize biases and thereby avoid invalid results.

In general, the dichotomy of internal and external validity characterizes the experimental approach, being reflected in the benefits and caveats of the method and different experimental designs. As the experiment is controlled in many ways, it provides sound evidence of causation, the “researcher is in a strong position to infer a causal relationship between the intervention and any group differences detected” (Margetts 2011, 190). The causal relation between the variable of interest and independent and control variables can, therefore, be explored without bias; a clear-cut solution to empirical problems of endogeneity (such as reverse-causality, omitted variable bias, or selection bias) are provided by the experimental approach (King et al. 1994). The high level of control allows steering the whole process from recruitment and treatment of the subjects included in the experiment to the measurement of effects, providing a high level of internal validity (McDermott 2002). This also applies to complex relationships or detailed research questions, for which experiments are also suited, unlike large-scale quantitative studies (due to a lack of detailed data) as well as surveys. Additionally, as particular details can be added or removed from the experimental setting, and a wide variation in experimental design, alone or as complements allows to test for a multitude of research questions. Additionally,

a change of conditions can be modeled – e.g. the question in how far procedural changes influence an outcome.

At the same time, some degree of artificiality is inherent in all non-field experiments; thus external validity can be limited. Hence, not all outcomes can be interpreted as being “representative” of the answer to the underlying question and the real-world phenomena. This applies to the group of participants involved as well as for the “gains” and “losses” in the experiment. In any case, some groups or subject pools are likely to be underrepresented in experiments if they are not conducted as natural field experiments. Hence, a trade-off between costs and artificiality is hard to avoid (McDermott 2002). Some key conditions are relatively complex to replicate or proxy in the lab, as the individuals meet only once (or a restricted number of times) for the experiment and focus on limited tasks, while real-world conditions are often characterized by iterations. Also relationships are hard to simulate in experiments, though cultural factors can be captured by using study groups from different cultural contexts. Notwithstanding the above, replication helps to reach external validity; in particular testing on multiple populations may be a promising approach. Additionally, realism created in an experimental setting can also help to increase or maximize external validity, even if there will always be some bias due to unobserved factors (McDermott 2002). However, increased realism also acts as a cost driver; it is often “prohibitively expensive to carry out experiments on the same scale as other forms of empirical analysis, such as those based on surveys” (Grimmelikhuijsen et al. 2013, 584). Lastly, potential ethical conflicts for parties involved and third parties have to be considered – field experiments increase external validity, but may result in ethical problems when subjects are unaware of the experiment.

3. The experimental PA research program – Method of the Survey

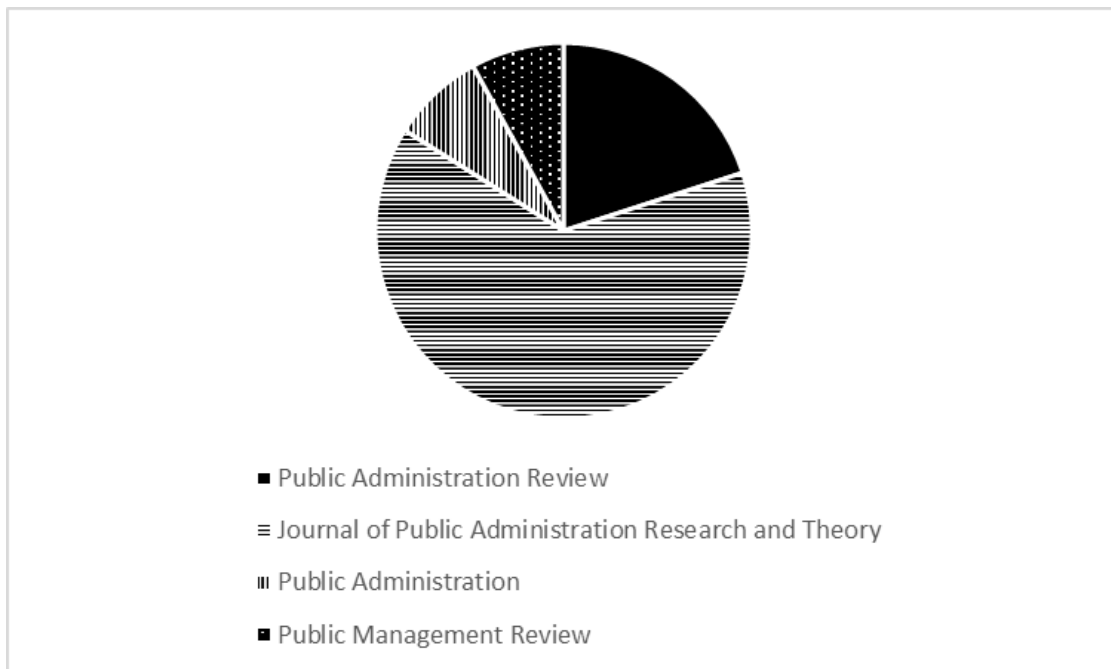
Our aim is to give a structured overview of the experimental research in PA, expounding on the methodological variety and rigor applied. To date the range of sub-topics of PA that have been elaborated on and the methodological diversity used in experimental approaches in PA is very limited. To ensure the rigor of our argument we therefore apply a stringent selection criteria for the publications including in our analysis, following a formal logic. Hence, we take the nominal disciplinary output –

publications in established international PA journals with the highest impact factors – as the basis of our empirical investigation.

We scrutinized all articles that appeared between 1990 and 2013 in the fifteen most cited journals in the field of ‘Public Administration’. The selection is based on the ‘5 Year Impact Factor’-Index (IF) as developed by Thompson Reuters and appearing in their Journal Citation Reports (JCRs).² The Public Administration Ranking of 2012 provides the basis for our review.³

The review of articles on experiments published by established PA journals revealed a total of 26 articles,⁴ and an increase in the number of published articles using experimental approaches over time, with a first peak in the early 1990s and a second peak in 2011. Additionally, as can be seen from table 2, just a few journals account for the majority of published experimental work in PA.

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- 2 This IF counts the number of citations in the last 5 years (current year and the previous four) divided by the number of published (and therefore potentially citable) articles in the journal. The resulting value represents the scientific relevance of single journals.
- 3 The following journals are named as the most frequently cited (in brackets: value of the index): 1. Journal of Public Administration Research and Theory (3.337), 2. Philosophy & Public Affairs (2.762), 3. Journal of Policy Analysis and Management (2.281), 4. Governance (2.129), 5. Journal of European Social Policy (2.042), 6. Policy Sciences (1.779), 6. Regulation & Governance (1.779), 8. Climate Policy (1.679), 9. Journal of European Public Policy (1.667), 10. Public Administration (1.583), 11. Public Administration Review (1.546), 12. Environment and Planning C (1.386), 13. Public Management Review (1.291), 14. American Review of Public Administration (1.257), 15. Journal of Social Policy (1.195).
- 4 In detail, we used the following procedure: Firstly, the terms ‘experiment*’ and ‘behavio*’ were checked using the search function on the journal’s websites in the fields <Title> and <Abstract>. This search included both the British and American spelling. On closer examination, some of the papers identified had to be removed from the sample as they did not meet the criteria (e.g. they did not really target experimental methods despite using the term). In a second step, using the reference lists of the selected sample, additional articles were added which met the selection criteria (Top-15 journals, focusing on experimental approaches).

Figure 1: Distribution of Sample

Source: Authors' compilation.

4. Analysis of the Sample – Topics and Findings

In the following, we analyze the body of research published in these outlets so far, following a method-centered classification logic that allows us to elaborate on the methodological rigor and the variety of methods applied. Given this focus, we do not take issue with the concrete findings of the studies scrutinized.

4.1 General reflections on experimental research in PA

Compared to other social sciences, papers predominantly focused on methodological questions are relatively scarce in the top-15 PA journals, even more so when it comes to experimental approaches. That function is primarily served by other outlets, such as book series and handbooks, in public administration research.

Table 2: Methodological Reflections

Author	Topic
Bozeman and Scott (1992)	Review and evaluation of the potential of laboratory experiments in public policy and management (PPM) research
Perry (2012)	Innovative Methods for practical knowledge in PA
Raadschelders and Lee (2011)	Review of trends in the study of PA by empirical and qualitative observations from the <i>Public Administration Review</i> 2000–2009
Margetts (2011)	Development of experimental methodologies for public management issues, discussion of experimental designs and their respective possibilities and drawbacks, re-evaluation of barriers to experimentation
Hood (2011)	Reflections on possibilities and challenges of innovative methods used in public management research
Wright and Grant (2010)	Elaboration on research designs aiming to explain the emergence and effects of public service motivation

Source: Authors' compilation.

The relative absence of experimental works is deplored in all studies, but only a few of them either give an overview of the achievements of the experimental approach so far or provide incipient recommendations for a research agenda. Perry (2012), using the forum of an editorial in *Public Administration Review*, tackles the general question of how far new methodological approaches matter for the advancement of PA as a discipline, claiming that “experimental research, both the laboratory and field varieties, should get a larger share of attention from scholars and practitioners” as “the setting is one that the consumer of the research understands and trusts” (Perry 2012, 480). Hence, the lack of innovation is seen as restricting the development of PA and the transfer of knowledge into practice. While his brief statement does not contribute to the elaboration of experimental designs or applications, it is a door-opener, reflecting the relevance of this approach and the general willingness of the leading editors/publishers to include more research of this kind in the future.

Hood (2011), hunting for consilience, in line with other authors emphasizes that “nothing radically new has been added to that [methodological] repertoire in half a century and that no wholly new methodological planet (so to speak) has been discovered” (2011, 321). In their review, Bozeman and Scott (1992) discuss, focusing on public policy

and management research, a spectrum of reasons for that neglect. In particular PA's focus on institutions and organization is interpreted as a hampering factor that initially may veil the benefits of the experimental approach. Practical constraints are also mentioned, from the lack of resources for experiments in PA schools to the insufficient or absent methodological training (and thus of methodological skills) of the PA researchers. The authors' overall evaluation of this method remains critical, in particular they have methodological reservations, as the implicit trade-off between external and internal validity are seen as inescapable obstacles: "laboratory experiments as a way of knowing more and more about less and less, and field studies as a way of knowing less and less about more and more" (Bozeman and Scott 1992, 294).

A number of studies exist also specifically for public management research, not surprisingly considering that a fair amount of the overall publication output in PA comes from the public management field, inter alia Margetts (2011) and Hood (2011). Referring to the drift towards experiments in Political Science, Margetts posits that "in public management research, however, the methodology remains under-explored and there has been no such 'drift', dramatic or otherwise, with only a scattering of experiments reported in leading journals" (Margetts 2011, 190). Unlike the other articles in our sample, she discusses not only the opportunities and drawbacks of experiments for public management research, but also provides solutions for overcoming traditional or methodological barriers to experimentation (Margetts 2011). She outlines new fields for experimental research, for example in citizen-government interaction or citizen participation, and explains the extent to which specific experimental designs can provide practical solutions to public management problems by tackling detailed and concrete questions (Margetts 2011).

Elaborating also on the logistical challenges for research, she discusses how new technologies such as morphing, computer-modelling and internet-based approaches, are in a way blurring the lines between the traditional experimental settings. In concluding, she remains positive about the overall impact of experiments in the long run.

Unlike Margetts' (2011) overall positive evaluation of the use of digital reality (not only) for experiments, Hood (2011) highlights some potential drawbacks to the use of simple equation reality=virtual space. Hood contends that that the digital world may not be appropriately representative of the analog reality of PA, as so many operations in PA "are

unavoidably physical rather than virtual, for instance in emergency operations or the last stage of enforcement activity that goes beyond ‘nudge’ type measures” (Hood 2011, 322f.). Raadschelders and Lee’s (2011) arguments follows a similar vein.

Wright and Grant’s (2010) study also outlines a research agenda, including the use of experiments for questions related to public sector motivation. The authors address the question of how to design research to answer questions on the emergence and effects of public service motivation. They reflect in detail on the specific added-value of field experiments and quasi-experiments, discussing the main factors that may bias research on PSM and experimental approaches to circumvent them. Concretely, they “recommend starting with randomized, controlled field experiments with interventions designed to increase PSM. Ideally, researchers will use multisource, interrupted time-series designs to obtain both observer ratings and objective measures of performance in pretest and posttest phases” (Wright and Grant 2010, 696). They conclude by discussing several possible interventions for increasing PSM and how they could be designed.

Given the fact that the reflection on methodological issues in the top-15 PA journals is generally scarce, the relative quantitative coverage of the experimental approach is not exceptionally weak. In the body of literature sampled, the potential challenges posed by experiments are identified. However, they do not develop a concise agenda for the development of the methodology in order to advance PA research. Table 3 provides a summary of the sampled literature, while the following paragraphs discuss the contribution of selected papers towards an experimental PA.

Table 3: Sample overview

Author	Topic	Study Group (Size and composition)	Control Variables
Conventional Lab			
Bretschneider and Straussman (1992)	Analysis of how well individuals can assess the underlying risk inherent in policy-relevant estimates, focusing on the response of individuals to public management decisions under uncertainty	108 graduate students (Master of Public Administration or Master of Business Administration) from the US	Age, work experience, sex, study program, risk taking scale, budget role, Meyers-Briggs Scales (THINKING-FEELING; JUDGING-PERCEIVING; SENSING-INTUITIVE; EXTROVERT-INTROVERT)
Coursey (1992)	Information credibility and the choice between policy alternatives	75 subjects from graduate classes in public administration or policy science in the US	-
Knott, Miller, and Verkuilen (2003)	Adaptive incrementalism of decision makers in an administration	Students (political science, math, members of sports teams)	-
Landsbergen, Coursey, Loveless, and Shangraw Jr. (1997)	Relationship between results produced by a computer program (expert system), its physical structure and features, and the user's commitment and confidence in its solutions	101 master and PhD students from public administration programs in the US	Age, attitude, education, personnel experience, computer experience

Author	Topic	Study Group (Size and composition)	Control Variables
Moynihan (2006)	Examination of the Program Assessment Rating Tool (PART) for the federal budgeting process in order to develop a dialog theory	22 Master students in Public Service and Administration	-
Wittmer (1992)	Ethical sensitivity and ethical decision-making in the public administration with two measures for ethical sensitivity	156 students (public administration, business management, engineering) from the US	Age, PSCORE (moral development score), LOCUS (the Rotter measure of locus of control, indicates perceived control)
Brewer and Brewer Jr. (2011)	Discussion of more experimental research on the public/private distinction in work motivation and performance	40 undergraduate students	Age, race, gender, education, income, political affiliation, ideology, PSM, personality
Internet-based Lab			
Grimmelikhuijsen, Porumbescu, Hong, and Im (2013)	Effect of transparency on trust in government from a cross-national comparative perspective (Netherlands and South Korea)	Students (381 in the Netherlands, 279 in South Korea)	Gender, political preference, age.
Herian, Hamm, Tomkins, and Pytlik Zillig (2012)	Relevance of public participation by a local government for perceptions of procedural fairness among the public	197 individuals	Age, sex, ethnic background, education
Sulitzeanu-Kenan (2006)	Test of the appointment and reports of public inquiries in UK	474 UK citizens	Sex, voting intention

Author	Topic	Study Group (Size and composition)	Control Variables
Van de Walle and Van Ryzin (2011)	Study on the role of the order of questions in a survey on citizen satisfaction with public services	1638 US volunteers (Civic Panel Project)	Age, sex, education, ethnic background, education, regional affiliation
Artefactual Field			
Avellaneda (2013)	Analysis of the effect of the decision environment on mayoral decision-making	120 incumbent mayors representing 12 Latin American countries.	Education, public sector experience, country, sex
Landsbergen, Bozeman, and Bretschneider (1992)	Study of effects of perceived decision difficulty on the use of specific decision criteria	106 subjects (practicing public managers and graduate students in PA, business administration, and environmental science)	Sex, age
Nielsen and Baekgaard (2013)	Analysis of the impact of performance information on politicians' attitudes to spending and reform, building on blame-avoidance theory	844 Danish city councilors	Gender, age, education, city council seniority, party affiliation, municipal population size (ln)
Nutt (2006)	Comparison of public and private sector decision making	Public (134) and private (103) mid-level managers from the US	Sex, age, experience
Scott (1997)	Testing the influence of potential determinants of bureaucratic discretion in street-level bureaucracies	96 graduate students and social work practitioners	Professionalism, education, altruism, orientation toward bureaucratic norms, locus of control, and gender

Author	Topic	Study Group (Size and composition)	Control Variables
Thurmaier (1992)	Study on budgetary decisionmaking – economic and political rationalities – in central budget bureaus	190 subjects – practitioners from several state and local government budget offices and graduate students in public administration, economics, and business	Age, government experience, budget experience
Field			
Bellé (2013)	Relationship between job performance, PSM, and exposure to contact with beneficiaries and self-persuasion interventions	90 nurses at a public hospital in Italy	Conscientiousness, intrinsic motivation, self-efficacy, age, gender, job tenure, years of education, number of dependent children
Jakobsen (2013)	Study on the role of government initiatives for increasing citizen coproduction of public services	614 immigrant families with one or more 3-4 year-old child(ren) enrolled in public childcare and who are learning Danish as a second language, clustered for centers	Stress level, number of children in centers, percentage of children with Danish as second language, budget for targeted language support
James (2011)	The role of published information on the performance of public bodies	Local citizens in an English (UK) council district; Social science and humanities students	Sex, age, ethnic background, employment status

Source: Authors' compilation.

4.2 Conventional Lab

Not surprisingly, a relatively large number of studies in our sample use conventional lab experiments as the only method. Brewer and Brewer Jr. (2011) see experiments as “perhaps the most under-utilized type of research” (Brewer and Brewer jr. 2011, .i352), despite being aware of the potential drawbacks in utilizing true experimental designs “in the field”, inter alia, control and cooperation issues. They, therefore, focus on conventional lab experiments and provide a coherent approach for how to tackle some of the related problems, using a wide toolkit, e.g. ex ante power analysis for the size of the study group. In addition to their own study and the general methodological discussion, Brewer and Brewer Jr. examine other research articles that have been classified as being experimental, and come to the conclusion that many of them “lack some essential features of the true experimental design, such as random assignment of subjects to treatment and control groups; comparison of two treatment groups, alternating treatments and non-treatments (including placebos) among subjects; or similar experimental manipulations” (Brewer and Brewer Jr.. 2011, .i352). This article is, thereby, outstanding regarding not only its methodological reflection and assessment of the literature, but also its substantial contribution to the development of an experimental research agenda in the area of work motivation.

In an early experimental work, Wittmer (1992) focuses on a behavioral approach regarding ethical sensitivity and ethical decision-making in the public administration. While his reflection on the methodology remains limited, he is a pioneer in the sense that he was the first to apply the experimental method in this field. The control variables he applies are not only numerous, but also diagnostically useful, controlling for individual factors that are not easy to observe but that are of pivotal relevance for ethical decision making, such as, for example, the locus of control. The contributions of Bretschneider and Straussman (1992) and Scott (1997), adopt an elaborated package of control variables of different types, though they do not elaborate in detail on the rationale behind their selection. Nonetheless, even if a concrete explanation and recommendation for why and how to use these controls is missing, these works offer an implicit way forward, Aas most other studies from all the different disciplines include and examine controls only for basic factors such as age, sex, or professional experience.

4.3 Internet-based Lab

The striking advantage of internet-based lab approaches is that they allow for cost-effective comparative studies. In our sample, only Grimmelikhuijsen, Porumbescu, Hong, and Im (2013) take advantage of this approach, testing the effect of transparency on citizens' trust in the government, including consideration of the relevance of the respective national culture, by comparing the Netherlands and South Korea. Beyond their findings on the cultural dependency of the effects of government transparency, they also evaluate experimental designs and explicitly encourage more experiments adopting a comparative method, claiming that their "understanding of the consequences of transparency needs to be furthered by carrying out similar studies in different countries" (Grimmelikhuijsen et al. 2013, 583). However, the authors – as a rare exception – not only base their evaluation of the experimental approach on the scientific side of the story but also elaborate on the cost dimension, in particular of field experiments. They point out that "the drawback associated with experimental methodologies is that it is often prohibitively expensive to carry out experiments on the same scale as other forms of empirical analysis, such as those based on surveys" (Grimmelikhuijsen et al. 2013, 584).

4.4 Artefactual and Field Experiments

In assessing the effects of perceived decision difficulty Landsbergen, Bozeman, and Bretschneider (1992) also reflect on the anthropology inherent in PA, stating that though the idea of individual rationality has long been underlying PA research, the advancement in decision analytic techniques has led over time to a heavier focus on external rationality criteria (Landsbergen, Bozeman and Bretschneider 1992, 247). Even if the authors reflect on the limitations of their study and identify a "need to combine experimental and field approaches to this question" (Landsbergen, Bozeman and Bretschneider 1992, 260), they miss the opportunity to turn this approach into a research agenda for further studies or to explain the extent to which a turn towards a more internal rationality approach could positively contribute to other research settings.

Thurmaier's study (1992) elaborates on the bases of budgetary gatekeepers' recommendations. The implications of experiments for the rigor of research on budgetary decision-making are discussed, in particular regarding the potential shortcomings of the experimental approach.

As he concludes, “construct validity goes beyond the ‘face validity’ of how realistic the experiment appears to be. Of greater concern is whether – and how well – the variables and treatments capture the theoretical constructs” (Thurmaier 1992, 470). Thurmaier not only elaborates on the (limited) use of experiments in decision-making theory, but also provides arguments in how far experiments can enhance prospective theory development for PA in general and research on budgetary decisions in particular, e.g. by providing the opportunity to modify key features in subsequent experiments and being used complementarily with other methods (Thurmaier 1992).

While framed field experiments are completely missing from the literature, two studies from our sample conduct natural field experiments in the narrow sense of the term. Bellé’s study on the relationship between public service motivation and job performance uses an experimental approach, including a practitioners study group and conducting the experiment in a hospital. Bellé reflects not only on the limitations of the approach used, e.g. the way that the study group’s contact with beneficiaries was manipulated, but explicitly supplements past experimental studies by applying their lessons in a different experimental settings. Thereby the study contributes to the validation of findings regarding whether and how PSM fosters civil servants’ job motivation as well as to the discussion regarding the extent to which PSM is a stable trait or a dynamic state (Bellé 2013).

Jakobsen (2013) uses an experimental approach that includes more than 600 real world study units. Thereby he examines the effects of government initiatives seeking to increase citizens’ coproduction of public services. In a methodological section he extensively discusses the extent to which biases - e.g. the well-known “Hawthorne Effect” resulting from being observed, but also “novelty effects” and a “response bias” - could have influenced the outcomes of his study, as well as how to circumvent them effectively. These consideration include also a reflection on the question of generalizability. While the study provides mixed results regarding the practical influence of initiatives to foster citizen coproduction, he comes to the conclusion that, despite their limitations, experimental approaches such as the one he used “provide a valuable supplement to the in-depth case studies and cross-sectional studies” (Jakobsen 2013, 50). His work is one of the rare examples of studies offering solutions for how to further develop experimental research– In particular, he believes real benefits for methodological advancement lie in the development of a multi-level experiment for use in

examining public-civil interaction in a multi-level setting, not only applicable in-lab or as a field-experiment in the administration.

The only example of the combination of experimental designs and implicit method development is seen in James (2011). His study focuses on information policies, specifically analyzing the extent to which published summaries of local public bodies' service performance provide a relevant source of information for citizens. James uses two conventional lab experiments and a field experiment. This approach entails "randomization of treatment and non-treatment allocation of information cues about the overall relatively good or bad performance of an English local government unit relative to other local governments in England" (James 2011, 404). Thereby he ensures both the strong internal and external validity of the study. James also reflects on the study group (resident service users) and the potential shortcomings that may arise from including students in the lab experiment. However, as this reflection takes place in the methodological section, the results are not analyzed for potential methodological bias as compared to related studies.

Given the high potential attributed to the use of experiments in all the examined studies, and in view of the fact that many of the works in this part of the sample are relatively old, one would expect more follow-ups. However, no study in the sample is directly related to a previous one. Furthermore, the general reference to previous studies using other methodologies is relatively weak, which is surprising given the fact that the potential for triangulation is one of the main advantages of experimental research.

5. Discussion - Towards a behavioral PA?

Based on our review above, the call for a coherent research agenda in experimental PA comprises two dimensions – the first related to theory development, and the second to the adjustment of experimental methods to the specific needs and demands of PA.

Regarding the implications of experimental approaches for theory development, one must keep in mind that experiments in social sciences not only diversify the methodological scheme applied and thus augment the toolkit; they – implicitly or explicitly – support a distinct perspective regarding the anthropology used to explain human behavior

(as for the PA, *Logic of Appropriateness* [LoA] or the *Logic of Consequentiality* [LoC])⁵. So far, many PA works do not explicitly reflect on their positions in this respect. Thus one benefit of the experimental method may be the fact that - depending on the experimental outcomes – not only the specific hypothesis or research question can be tested for, but, at least implicitly, also the underlying anthropology. Even if being only a side-effect of experimental approaches, this may provide a real added-value to theory development, igniting a debate on the micro-foundation of PA.

As for methodological advancement, most experimental studies use experiments (and their statistical analysis) as the only method, and thus do not benefit from the specific value of experiments as part of a triangulation approach or as complements to traditional methods (such as surveys or quantitative analyses). Existing studies seek neither to validate previous studies nor to triangulate within their own research design. This seems is all the more astonishing given that the PA sub-fields tackled by experiments – public sector motivation, decision making and choice – are typically also covered by a fair amount of studies using other methods. Nonetheless, in most cases the authors of the respective papers do not discuss their outcomes specifically against the backdrop of non-experimental findings on their topic. An increase of such reviews could not only contribute to PA research, especially in cases of inconsistent or contradictory results, but could also help to answer the question of which experimental designs can be used for specific sub-topics of PA and which kind of additional work would be needed to “match” the findings to arrive at a more coherent result, the “consilience” mentioned above (Hood 2011), given the limitations of the different methods. Assuming that experimental methods work best as part of method triangulation, research gaps could be discovered and subsequently filled by adjusted experimental designs.

5 The striking difference between these two anthropologies is that the LoA focuses on the process (rather than the outcomes) and the role of institutions within the process, while the LoC, reflecting preferences and estimated utilities of the individual, is at least implicitly more oriented towards the outcomes (March and Olsen, 2009).

While a number of the studies scrutinized in this review comprehensively examine a specific research question via the experimental approach, the authors fail to use their methodological advancement to draw conclusions for the elaboration of PA research. Assuming that – once developed – a coherent research program could also help to provide robust answers for new research questions, which fields should such a research agenda comprise? Following Rosenbloom’s (1983) characterization of three “dimensions” or “pillars” that constitute the identity of PA as a discipline – the political, the legal, and the managerial – one has to conclude that questions arising in all three dimensions can be tackled by experimental designs. From our viewpoint the following fields in particular may benefit from experimental research:

- Maximization of budgets and power as complements or trade-offs in public administrations
- Contagion effects in and between national and international bureaucracies or in multi-level settings due to loyalty and networks
- Cooperation, coalitions, and network formation in administrations
- Questions related to problems of causality and reverse-causality in the context of PSM, incentives, and performance
- Citizen-administration interaction, cooperation, and decision-making (e.g. co-production and partnership-regimes)

Most of the topics mentioned could initially be tackled by both *internet-based* as well as *conventional lab experiments*. The limitations mentioned above – the focus of experimental research on the individual rather than the institution – is not applicable here or can be bypassed by the experimental setting. Using a study group in a *lab-* or *internet-*setting in the first step could also help to elaborate on the underlying anthropology and – in a circular approach – may help to detect relevant confounding factors, which could be included in subsequent “experimental loops”. However, as there is some evidence from meta-studies on experiments in other social sciences that “students can be assigned to experiments when they represent citizens but not elites (Margetts 2011, 196), the external validity of these experiments could be seen as limited. Consequently, the second step “in the field” could help to validate the findings. In particular, topics related to elites and decision making, but also institutional behavior, would benefit from complementary *artefactual* or *real field experiments*. This implicitly could serve also as a meta-analysis of the experimental approach per se. Given the

fact that lines are blurring between in-lab and in-field experiments, resulting in particular from new or expanding internet and mobile device technology, a first step in an experimental research agenda could be the “replication” of successful lab experiments in the field.

A more general point is that comparative approaches in particular can benefit from experimental methods. Compared to other methods, comparative experimental studies are relatively easy and cost-effective to conduct, in particular via internet-based methods. In this context, contemporary technological advancement may become increasingly relevant. The wide usage and broad coverage of mobile computers and smartphones may decrease the costs of both internet-based and conventional lab-experiments if these devices can substitute for infrastructure provided by the research team or facilitate analyses with their already existing digitized information. Moreover, methodological rigor need not be sacrificed due to these developments. As control variables can “capture” a large number of confounding factors, the reliability of these studies should be as high as other research methodologies.

The delineations above imply a substantial elaboration and adjustment of the set of control variables used to PA. Gender, age, education, and professional experience (or experience in the administration) are the controls used in most cases. These basic variables by no means cover the whole array of factors that may be relevant, in particular with regarding complex confounding factors such as, *inter alia*, (political or religious) socialization, cultural aspects, attitude towards power, locus of control, and intrinsic (public sector) motivation. Therefore, one important step towards a genuinely experimental PA is the development of control variables that suit the needs of PA research. This implies not only controlling for factors that are relevant on the individual level but also for more “group-specific” controls suitable in the context of the LoA, e.g. the group cohesion of the institution to which the individual belongs, “group-values”, and/or multi-level problems related to the organizations’ structure and task.

6. Outlook

Summing up our findings from the inspection of 26 articles on experiments in PA, there are some interesting studies delivering new insights for different sub-sectors of PA, in particular for public sector motivation and decision-making, using predominantly “conservative” experimental

designs of a lab and internet-based nature. Hence, these studies do not exploit the wide methodological potential provided by an experimental approach. Whenever deployed, experiments in PA mostly have a restricted scope – the real added-value of comparative designs, triangulation approaches, and multi-level experiments has not been realized. This is even more astonishing given that the development of digital communication and technology, both hard- and software, can provide interesting new options for experiments. Morphing technologies or the supplemental use of simulations (whether for the creation of experimental settings or as a robustness check for findings) could substantially enhance the scope of experimental designs, helping to overcome the ignorance of new technological possibilities and the general dearth of methodological advancement in PA. In sum, while experiments are not a panacea for all perceived or real PA research shortcomings, their added-value in specific contexts and in order to answer particular research questions has not yet been realized to the fullest possible extent.

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