Journal of European Public Policy

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rjpp20

To consent, or not to consent? The publicness effect on citizens' willingness to grant access to personal data in the face of a health crisis

Nicola Belle, Paola Cantarelli & R. Paul Battaglio

To cite this article: Nicola Belle, Paola Cantarelli & R. Paul Battaglio (2021): To consent, or not to consent? The publicness effect on citizens' willingness to grant access to personal data in the face of a health crisis, Journal of European Public Policy, DOI: 10.1080/13501763.2021.1912147

To link to this article: https://doi.org/10.1080/13501763.2021.1912147

JOURNAL OF EUROPEAN PUBLIC POLICY
https://doi.org/10.1080/13501763.2021.1912147

To consent, or not to consent? The publicness effect on citizens' willingness to grant access to personal data in the face of a health crisis

Nicola Belle[a], Paola Cantarelli[a] and R. Paul Battaglio[b]

[a]The Management and Healthcare Laboratory, Institute of Management and EMbeDS, Scuola Superiore Sant'Anna, Pisa, Italy; [b]The School of Economic, Political and Policy Sciences, The University of Texas at Dallas, Richardson, TX, USA

ABSTRACT
This study contributes to the nascent behavioral governance scholarship by experimentally testing whether individuals' likelihood of lifting their privacy rights in the face of a health crisis varies based on the public versus private nature of the entity accessing their personal data and the length of time during which records can be used. We run an online, randomized control trial with 1,500 citizens representative of the Italian general adult population. Results show a significant increase in subjects' willingness to grant access to personal records when the entity analyzing data is public rather than private. Further, the propensity to consenting is higher when access to personal data is granted for a limited rather than an unlimited period of time. We discuss how these patterns of results change remarkably across geographic areas within the country.

KEYWORDS Behavioral public governance; policy formulation and adoption; privacy rights; publicness effect

> Public policy needs to understand human behaviour better […] through a more scientific approach. (OECD, 2017, p. 13)

Introduction

As governments across the globe rely on digital contact tracing as a critically important tool in COVID-19 pandemic responses (e.g., Ferretti et al., 2020; Horvath et al., 2020), their citizens are faced with the dilemma of whether or not to grant access to personal data. Striking a balance between privacy and health concerns is an enduring wicked problem with compounding

CONTACT Paola Cantarelli paola.cantarelli@santannapisa.it
All Authors contributed equally
Supplemental data for this article can be accessed online at https://doi.org/10.1080/13501763.2021.1912147.

implications for public governance (Thomann et al., 2019; Versluis et al., 2019). Policies are effective only if target groups behave consistently with the policy objectives (e.g., Weaver, 2015, p. 2014). In the context of the current pandemic, how individuals approach the dilemma between their privacy and public health can determine the success or failure of COVID-19 contrast strategies. Indeed, citizens' concerns about data privacy settings – for instance which public entity is responsible for maintaining records and duration of data storage – and data security breaches may reduce adoption below the required coverage to be effective (Horvath et al., 2020). Accordingly, clarifying the behavioral mechanisms that drive citizens' willingness to lift their privacy rights in the face of a health crisis is particularly salient for policy makers and scholars alike.

Previous research has taken into account the consequences for governance when the implementation of state-defined policies is in the hands of market-driven private actors. Maximizing the alignment between private performance determinants and public interest is crucial to circumvent differences in institutional logics (Thomann et al., 2016). Related work in public policy suggests that publicness may be a significant feature of initiatives that rely on the use of technologies to process sensitive personal data (Felt & Fochler, 2008). From this perspective, one question that deserves special attention from scholars in public policy and administration alike is whether citizens' willingness to give access to their personal records varies when the entity analyzing their data is public rather than private. Behaviourally-inspired research has so far focused on citizens' perceptions of the performance of public versus private organizations, finding an anti-public sector bias when productivity dimensions of performance are concerned and pro-public sector attitudes when normative dimensions of performance are considered (Battaglio et al., 2019). Following this line of inquiry, there is a dearth of research regarding the publicness effect on citizens' willingness to lift their privacy rights.

During the COVID-19 pandemic, social scientists have started investigating whether citizens' willingness to download and use contact tracing applications may depend on the length of time for which access to personal data is granted, for instance as long as diagnostic kits or an effective vaccine are available or indefinitely (Horvath et al., 2020). We contribute to this stream of research by including time as the second factor in our randomized controlled trial.

The resulting experimental design allows us to answer two primary questions: (1) Are citizens more willing to grant a public rather than a private institution access to their personal health records? (2) Are they more likely to lift their privacy rights in the face of a public health crisis for a limited rather than an unlimited time? We focus our inquiry on 'the micro-level perspective of individual behavior and attitudes' (Grimmelikhuijsen et al., 2017, p. 1), by

building on a rapidly-growing body of research that combines the use of experimental methodologies with insights from psychology to tackle fundamental public administration and policy issues (e.g., Battaglio et al., 2019; Ewert et al., 2020). Our study aims at contributing to a nascent behavioral governance scholarship by shedding light on decision processes that involve policymakers, who are ultimately responsible for the formulation and adoption of pandemic response strategies, public and private entities that are involved in the implementation of those strategies, and the citizens targeted by contact tracing and other interventions that require lifting their privacy rights. Thus, the main theoretical contribution of our work lies in bridging the research gap among public governance, policy, and administration on the question of publicness and privacy rights. Consequently, our use of a randomized controlled trial design is methodologically pertinent and maximizes the internal validity of our inference.

Theoretical framework

One factor that may influence citizen willingness to give access to personal records is whether the entity analyzing their data is public rather than private. Extant publicness research sees the concept as either dichotomous or along a continuum (Bozeman, 2013; Bozeman & Bretschneider, 1994; Moulton, 2009). In their foundational work on possible explanations for the differences between public and private organizations, Bozeman and Bretschneider (1994) distinguish between a core and dimensional approach of publicness. In the core approach, publicness is conceptualized as ownership. As such, organizations are classified based on their formal legal status. While similarities between private and public entities are considered, their 'differences are elegantly captured in a simple distinction based on legal type (government owned vs. privately owned)' (Bozeman & Bretschneider, 1994, p. 200). Alternatively, the dimensional approach views organizations as 'more or less public depending on the extent to which externally imposed political authority affects them' (Bozeman & Bretschneider, 1994, p. 202). Thus, publicness is a continuum and organizations fall on a spectrum based on the mix of political and economic authority that direct their behaviors. The core and dimensional approaches to publicness are not mutually exclusive. Indeed, the simultaneous use of each approach provides more insights than either one alone to explore organizations and the publicness puzzle.

Behavioral public administration research that adopts a core approach to publicness finds an anti-public sector bias, whereby 'citizens automatically and unconsciously associate public sector organizations with inefficiency, inflexibility, and other pejoratives, and these automatic associations color their assessments of public sector performance' (Marvel, 2015, p. 143).

These studies include productivity-related performance dimensions, such as efficiency, effectiveness, and responsiveness (Christensen et al., 2018; Hvidman & Andersen, 2016; James & Jilke, 2020; Marvel, 2015, 2016; van den Bekerom et al., 2021). To the contrary, studies that do not find negative public sector biases are currently a minority (Meier et al., 2019). For instance, in replicating Hvidman and Andersen' research design (2016), which observes negative views of public organizations in Denmark, Meier et al. (2019) find no anti-public sector attitudes in the United States.

Extant behaviourally-inspired evidence of anti-public sector bias for productivity-related dimensions of organizational performance seems to resonate with worldwide government reforms that have introduced sector choice for the provision of services. Indeed, private sector knowhow and efficiency is often championed as a means for improving accountability and quality of service in the public sector (Battaglio & Legge, 2009; James & Jilke, 2020; Kettl, 2011, 2015; Thomann et al., 2016). Research suggests that both policy-makers and scholars should be actively engaged in evaluating how citizens feel about policies that regulate public and private delivery of services (Battaglio & Legge, 2009; Durant & Legge, 2002; Felt & Fochler, 2008; Gofen, 2015; James & Jilke, 2020; Sunstein et al., 2019; Thomann, 2018). Often considered symbolic, these predispositions are usually acquired during early political socialization and often form ideological references that citizens can utilize when assessing different policies. This is especially true of health policy where the current pandemic crisis is likely to trigger citizens' predispositions through cues and schema in the absence of interest or complete information about the subject (Kumlin, 2001). For the respondent, unsurprisingly, the recency and salience of the issue (e.g., health policy and COVID-19) usually has a significant impact on the cognitive recollection of cues and thus provides for consistent and coherent opinions. Additional research detailing citizen perceptions of policies on public versus private delivery of services has also noted the importance of consumer feedback in the policy decision process (Battaglio & Legge, 2009; Bouckaert et al., 2005; Durant & Legge, 2002; Poister & Henry, 1994; Thompson & Elling, 2000). While supporters continue to extol the efficiencies private sector delivery offers, more deliberative approaches advocate including the public as stakeholders in policy decisions (DeLeon & Denhardt, 2000; Feldman & Khademian, 2002, 2007; Sunstein et al., 2019; Thomann, 2018).

Moving from a core to a dimensional approach to publicness, latest advancement in behavioral public administration research on unconscious sector preferences seems to point toward a pro-public sector bias for normative dimensions of performance, such as equity, redistribution of resources, and benevolence (Hvidman & Andersen, 2016). Indeed, negative perceptions for public entities vary across public services (such as healthcare, education, and transport), performance dimensions (such as effectiveness, efficiency,

equity, responsiveness, and benevolence) and individuals' baseline preference for one sector over the other (Hvidman, 2019). For instance, a survey experiment with Dutch citizens found that, keeping negative outcomes constant, public organizations that deliver health emergency, public order and safety services were assessed more poorly relative to their private counterparts among respondents with a baseline preference for private sector service provision (van den Bekerom et al., 2021). For mass transit services, citizens condemned badly performing public entities more harshly than private entities regardless of sector preference (van den Bekerom et al., 2021). In an online experiment with citizens, Hvidman (2019) shows that compared to private organizations, subjects perceived public organizations as less effective, more burdened by red tape, more equitable, and equally performing on cost containment, user orientation and fairness toward employees.

Overall, when examining the performance gap of public versus private organizations, citizens may 'trade-off between productivity and more normative aspects of performance' (Hvidman & Andersen, 2016, p. 118). Whereas private providers tend to have a comparative advantage on the productivity-related performance dimensions, public providers may have a comparative advantage on normative performance dimensions. Based on the empirical studies discussed above, the protection of privacy rights seems to pertain naturally to the normative aspects of performance, thus potentially suggesting a preference for public institutions. This claim aligns with the fact that government agencies at the national and supranational levels are explicitly tasked with regulating access to personal data by third parties. In this respect, an emblematic example is the General Data Protection Regulation 2016/679, which aims at providing citizens with control over their personal data and to homogenize the legal environment for international business within the European Union and the European Economic Area. Recent research has suggested that citizens tend to prefer public institutions when it comes to the protection of their privacy rights. For example, participants in a conjoint experiment in the United Kingdom (UK) are more likely to install a COVID-19 contact tracing app if data are stored in a centralized database maintained by the National Health System rather than a centralized database managed by the Government or a decentralized system where data are stored locally (Horvath et al., 2020). Thus, we formulate and test the following hypothesis:

> Hypothesis 1: Citizens are more willing to grant access to their personal data to a public institution than to a private institution.

A second factor that may influence citizens' willingness to give access to their personal records is the length of time during which data can be used. In the information age where access to policy discourse is literally at one's fingertips, 'engaging the public in the governance of science has become a kind

of gold standard' (Felt & Fochler, 2008, p. 489). For public health, such a discourse might include the benefits of access to information as well as its limits, perils, and pitfalls (Leshner, 2003). This is particularly salient for European countries where such policy discourses hinge upon legitimacy subject to public involvement and participation (Héritier, 2003). Extant evidence suggests that stricter privacy guarantees predict the adoption of healthcare wearable devices (Li et al., 2016). Very recent work shows that citizens prefer to install on their smartphones contract tracing apps that store personal data until COVID-19 tests are widely available or until an effective vaccine for COVID-19 is widely available rather than contact tracing apps that store data indefinitely (Horvath et al., 2020).

A provider's access to personal information is an important consideration for policy matters. For instance, consumer protection is paramount in the use of personal health data, as health information is considered 'the most confidential of all types of personal information' (Cilliers, 2020, p. 151; Mehraeen et al., 2016). Information control is ultimately concerned with consumer perceptions of access to personal data by private actors (Long & Quek, 2002; Phelps et al., 2000). In terms of information control over personal health data, increasingly multiple actors and sources (e.g., wearable devices and electronic health records) will be involved in the collection and accumulation of health records in order to provide individuals and societies with an overall picture of health (Cilliers, 2020; Montgomery et al., 2018). The key concerns for individuals will be to what extent they have control over the collection of data, how it is used, and for how long. Given the above evidence, we formulate the following hypothesis:

> Hypothesis 2: Citizens are more willing to grant access to their personal data for a limited time than for an unlimited time.

Methods

Our study consists of an online randomized controlled trial (RCT). RCTs are the most efficient tool for making an unbiased estimate of the average effect caused by an intervention of some kind. The feature that makes RCTs so powerful in allowing causal claims is the random assignment of subjects to treatments (Shadish et al., 2002). When participants have an equal and nonzero probability of being assigned to any experimental arm, the resulting groups are probabilistically similar to each other on average. Therefore, any differences in outcome measures among the groups are due to the intervention rather than any other observed and unobserved baseline characteristics. In other words, experimentalists can take full advantage of random assignment to guarantee that treatment status is independent of subjects' potential outcomes and their background features. This makes RCTs the gold standard

in ensuring the internal validity of the findings. To the contrary, however, RCTs are poorly equipped to address external validity concerns (Belle & Cantarelli, 2018).

We conducted our RCT on a sample of 1,500 respondents who belong to the Italian general adult population. Subjects were recruited by the Qualtrics Software Company and completed the survey between April 28 and May 8, 2020, i.e., several weeks after the country-wide introduction of lockdown measures to combat the COVID-19 spread. This context provided a unique setting to address our research questions. On the one side, it made our scenario and experimental manipulations simultaneously realistic, tangible, and salient. Indeed, we prompted respondents to imagine themselves during a public health emergency and we informed that analyses of personal records – that are normally protected by privacy rights – would be useful to defend public health. To potentially move our inference beyond the historical contingencies under which we collected our data, we did not explicitly mention the COVID-19 pandemic in our experimental scenarios. On the other side, the setting of our work offers a disaster case scenario (i.e., a public health emergency) that can be used comparatively in the study of the willingness to lift privacy rights or other civil liberties in different disaster case scenarios (such as earthquakes, terrorist attacks, or global financial crises) as well as non-disaster case scenarios.

Our RCT employs a two-by-two full factorial design. In particular, subjects were randomly assigned to one of four conditions resulting from the combination of two factors, namely factor Publicness (P) and factor Time (T). We manipulated factors P and T at two levels each. Factor P varies the institutional nature (public versus private) of the entity using personal data in order to combat the public health emergency. Factor T, then, manipulates the length of time (limited versus unlimited) during which that personal data can be accessed by a third party to help respond to the health emergency. Participants were asked to report the likelihood – in a scale from 0 to 100 – with which they would grant access to their personal records for coping with a public health crisis. The choice of a 0 to100 point response scale for our dependent variable is grounded in extant research that adopts the same practice (e.g., Belle et al., 2018; Cantarelli et al., 2020; James & Van Ryzin, 2017; Olsen, 2017a, 2017b). The experimental scenarios, to which respondents were randomly and evenly allocated, read as follows:

> In the event of a health emergency, how likely would you be – on a scale from 0 (not at all likely) to 100 (most likely) – to allow a public [private] entity access to your personal data for a limited [unlimited] time in order to carry out analyses that are useful to protect public health?

Respondents in our survey also indicated their Region of residence within the Country. Adopting a descriptive and exploratory rather than normative and

pre-defined, approach, we explored whether geographic areas moderate the effects of factor P and factor T on the inclination to lift privacy rights. The rationale for testing the interaction of our factors with respondents' geographic areas of residence is to take into account longstanding socio-economic differences within the country. Exploring such interactions is even more salient and interesting in the context of the COVID-19 pandemic because the spread of the virus was very different across the geographic areas that we control for until the end of May 2020. We used the geographic areas defined and widely used by the National Institute of Statistics, namely North-Western, North-Eastern, Central, and Southern Italy.

The following section describes the results of our RCT combining the reporting guidelines for experimental research proposed by Gerber et al. (2014) and the reporting statistics in APA style illustrated by Kahn (2020). Furthermore, online Appendix B shows the Consort 2010 checklist. More precisely, we first present the two-way analysis of variance (ANOVA) with main effects and treatment-treatment interaction. For both factor P and factor T, then, we report a graph showing the main effect of a one-way ANOVA, the results of a two-way ANOVA displaying the treatment-geographic area interaction, and a graphical representation of differences in the average likelihood of granting access to personal data as a function of the factor of interest by citizens' area of residence.

Results

Table 1 in the online Appendix A reports the demographic characteristics of subjects for the pooled sample as well as for each treatment level within the two experimental factors (P and T). The demographic characteristics of our sample resemble the Italian adult population in terms of sex, age, and geographic area of residence. However, subjects in our experiment tend to be more educated than in the general population, where 62 per cent hold a high school diploma or higher degree. In general, our sampling procedures share the same limitations that are common to most web surveys that use online panels of self-selected respondents, such as MTurk samples (e.g., Favero & Kim, 2020) or samples of university affiliated individuals (e.g., James & Van Ryzin, 2017). However, concerns about the representativeness of such samples are mitigated by evidence showing few noticeable disparities relative to other types of samples (e.g., Berinsky et al., 2012). As expected due to randomization, subjects in the four experimental arms were not statistically different at the conventional levels with regards to gender ($\chi 2(6, N = 1500) = 10.06$, $p = .12$), average age ($F(3, 1496) = .75$, $p = .52$), education ($\chi 2(6, N = 1500) = 9.20$, $p = .16$), and geographic area of residence ($\chi 2(9, N = 1500) = 6.51$, $p = .69$). Table 1 in the online Appendix A also shows means and standard deviations of the percentage likelihood of granting access to

personal data for the pooled sample as well as for each treatment level within the two experimental factors (P and T). Figure A.1 and A.2 in the online Appendix A, then, provide a graphical comparison of the density distribution of the outcome variable across the two treatment levels within each of the two experimental factors.

Table 2 in the online Appendix A reports the results of a two-way analysis of variance (ANOVA) of the main effects and the interaction of the two experimental manipulations on the likelihood of granting access to personal data. Both the institutional nature of the entity accessing data (public vs. private) and the length of time consented for the use of personal data (limited vs. unlimited) do have a significant impact on the outcome variable, $F(1, 1496) = 12.20$, $p = .0005$ and $F(1, 1496) = 12.46$, $p = .0004$ respectively. Instead, our data do not indicate any significant interaction effects, $F(1, 1496) = .53$, $p = .47$. In other words, the impact of a public versus a private entity accessing data on the willingness to lift privacy rights does not differ based on the limited versus unlimited length of time consented for the use of personal data, and vice versa.

Figure 1 displays the average likelihood of granting access to personal records by nature of the entity accessing the data. A one-way ANOVA demonstrates that, compared to the private entity condition, respondents' willingness to consenting to the use of personal data is 5.73 per cent points higher when the entity using personal data is public, $F(1, 1498) = 12.13$, p

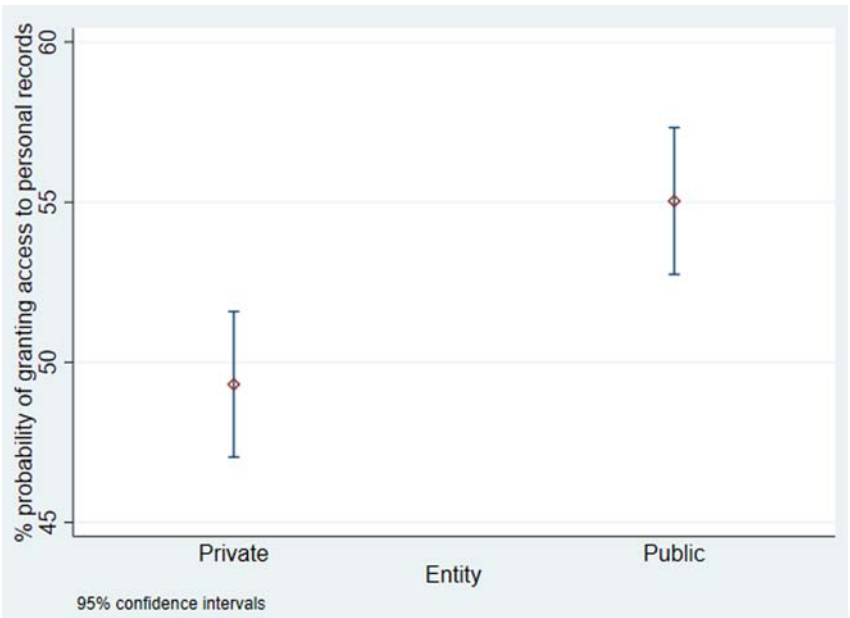

Figure 1. Average probability of granting access to personal data, by entity.

= *.0005* ($n = 745$, $M = 49.31$, SD = 31.60; $n = 755$, $M = 55.04$, SD = 32.08). This provides support for the publicness effect formulated in Hypothesis 1.

Table 3 in the online Appendix A reports the results from an ANOVA showing that the publicness effect does not significantly vary across geographic areas. This is demonstrated by the insignificant coefficient on the interaction term, F(3, 1492) = .56, $p = .64$. Figure 2 shows a breakdown of respondents' likelihood of granting access to personal records in the face of the COVID-19 outbreak by their geographic area of residence. Findings from a series of one-way ANOVAs show that among subjects living in North-Eastern ($n = 253$) and Central Italy ($n = 458$), the willingness to consent access to personal data do not vary based on the public versus private nature of the entity that would store and analyze the data (F(1, 251) = .51, $p = .48$ and F(1, 456) = 2.13, $p = .15$ respectively). To the contrary, the likelihood of granting access to personal information was higher in the public entity treatment relative to the private entity treatment by 9.09 per cent points for participants living in North-Western Italy ($n = 363$) (F(1, 361) = 7.02, $p = .01$) and by 5.93 per cent points for adults living in Southern Italy ($n = 426$) (F(1, 424) = 4.26, $p = .04$).

Figure 3 reports citizens' average likelihood of granting access to their personal records by the length of time consented for the storage and use of data. An ANOVA displays that respondents in our study are more

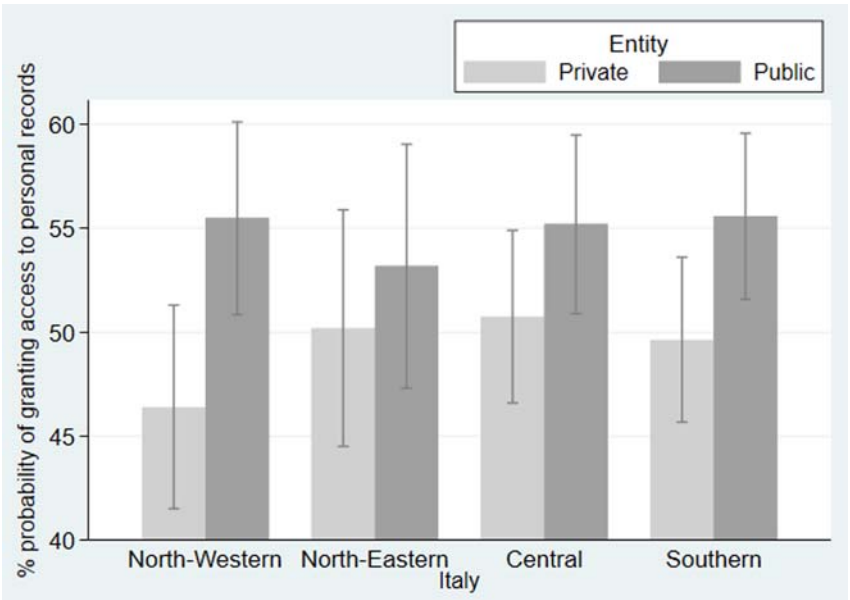

Figure 2. Average probability of granting access to personal data, by entity, by geographic area.

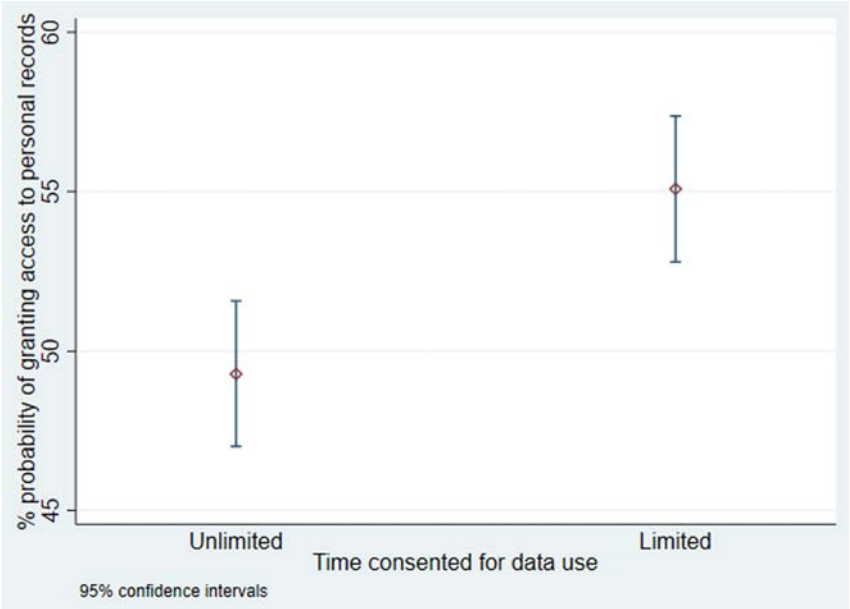

Figure 3. Average probability of granting access to personal data, by time of data use.

willing to provide their consent when data are used for a limited time rather than an unlimited time, F(1, 1498) = 12.41, $p = .0004$ ($n = 753$, M = 55.08, SD = 32.02; $n = 747$, $M = 49.29$, SD = 31.65). This result gives evidence in support to Hypothesis 2.

Table 4 in the online Appendix A displays the results of a two-way ANOVA revealing that the geographic area does moderate the effect of the time consented for data use on the willingness to grant access to personal data, F(3, 1492) = 5.26, $p = .001$. The significant interaction indicates that the causal impact of the time factor on our outcome variable changes across geographic area within the country. Figure 4 provides a graphical representation of differences in the average likelihood of granting access to personal data as a function of the length of time for data use by citizens' area of residence. We do not detect any statistically significant difference in the willingness to consent to the use of personal data for a limited versus unlimited time for residents in North-Eastern Italy (F(1, 251) = 1.28, $p = .26$) and Southern Italy (F(1, 424) = .23, $p = .63$). Instead, we found sizable effects in the other geographic areas. More precisely, for respondents in our sample living in North-Western Italy, the likelihood of granting access to personal records is 9.17 per cent points higher when records are used for a limited time relative to an unlimited time (F(1, 361) = 7.11, $p = .008$). As to residents in Central Italy, then, the same difference amounts to 12.93 per cent points (F(1, 456) = 18.68, $p < .0005$).

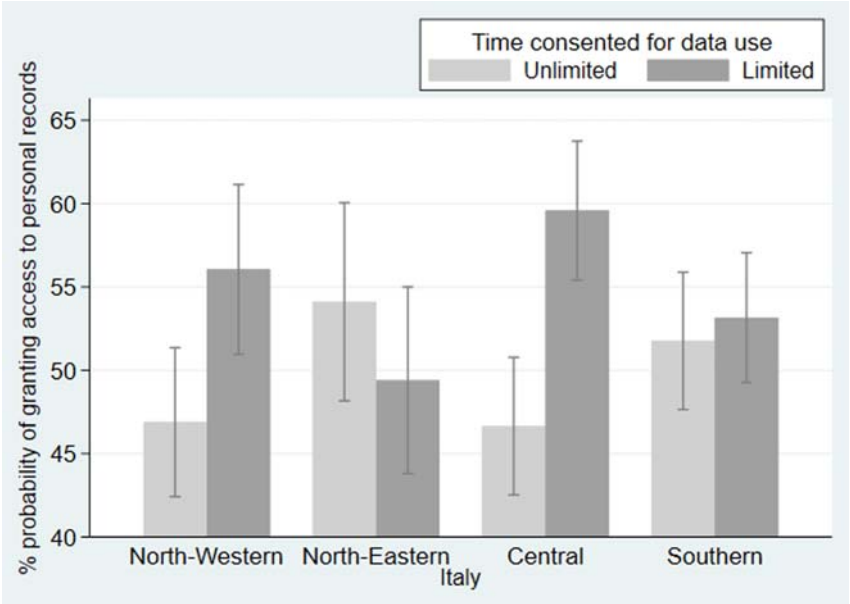

Figure 4. Average probability of granting access to personal data, by time of data use, by geographic area.

Discussion, limitations, and conclusion

Taking up recent calls by the Organization for Economic Cooperation and Development (2017), our behaviourally-inspired randomized controlled trial may inform early stages of the policy formulation and adoption process to make public governance work better (Weaver, 2015). Indeed, understanding the role citizens' preferences play in the take-up of desired behaviors during a pandemic presents an opportunity for contributing to nascent behavioral public governance scholarship (Versluis et al., 2019; Weaver, 2014). The COVID-19 outbreak has presented both opportunities and challenges for policy-makers engaged in curbing the spread of the virus. For practitioners, the public health problem has forced them to make hard policy choices. Many of these choices have involved testing the limits of citizen privacy with respect to personal data and the implementation of innovative technology for contact tracing. For Italian citizens and healthcare workers who have been at the forefront of the pandemic, there has been little time to analyze the impact of novel approaches to health-related policy. To that end, we run an online full-factorial experiment with 1,500 respondents representative of the general adult population in Italy. We test whether individuals' propensity of lifting their privacy rights in the face of a public health crisis varies based on the publicness of the entity accessing their personal data and the length of time during which records can be used. Our unique approach to

analyzing citizens' attitudes towards granting access to personal data offers original insight to public policy research in terms of provider choice and information control.

In terms of service provider, results show a significant increase in subjects' willingness to grant access to personal records when the entity analyzing data is public rather than private. The findings support earlier work in behavioral public policy (James & Jilke, 2020; Sunstein et al., 2019) that suggests citizens are less than sanguine about private actors in the policy process.

Furthermore, we complement recent work into how different privacy-preserving attributes influence citizens' willingness to share their personal data (Horvath et al., 2020) looking at governance models horizontally (public versus private) rather than vertically (centralized versus decentralized). In terms of the policy process, findings suggest that taking a top-down approach that haphazardly makes decisions without public input risks the ire of concerned citizens, especially if private vendors are involved in access to sensitive data such as personal records. Policy-makers forging ahead without a bottom-up perspective to decision making may risk the overall success of the policy. For Italian healthcare workers on the front-line, time is critical. A careful and prudent consideration of bottom-up approaches to the public policy process can mean life or death in the current healthcare climate. Considering reform efforts worldwide, most have been driven top-down by political elites with little – if any – feedback from the bottom (i.e., citizens or target groups) (Battaglio & Legge, 2009; Durant & Legge, 2002). For policy-makers and theorists, omitting bottom-up practices from the policy process (i.e., citizen input) risks undermining their success. For example, recent work in behavioral governance analyzing citizens' perceptions of policy nudges regarding health, the environment, and public safety showed that trust in public institutions increased when 'citizens are invited to participate, to make active choices, and to give feedback to planned interventions' (Sunstein et al., 2019, p. 1437). Thus, our work may contribute to behavioral public administration (Battaglio et al., 2019; Grimmelikhuijsen et al., 2017; James et al., 2017) and behavioral public policy (Ewert et al., 2020; Oliver, 2015, 2017; Sanders et al., 2018) by suggesting the presence of a pro-public sector bias when normative outcomes are considered.

In terms of the window of time consented for data storage, the literature regarding information control largely originates in general management or health policy research, with scant work in public policy and governance. The results from our experiment suggest that Italian respondents are more willing to grant access to their personal records when the duration of said access is limited rather than unlimited. Methodologically, our work also shows that this preference holds across different operationalizations of the time-factor. For instance, Horvath et al. (2020) use a different operationalization and manipulation of data storage duration and observed the same

results. Going a step further, our work suggests such privacy concerns also hinge upon the duration of time providers have access to personal data, or information control. Given the need for expediency in healthcare policy during the pandemic, stipulating the terms of information control upfront may be critical to policy success. Information control is even more salient in health policy given the concerns of confidentiality (Cilliers, 2020; Mehraeen et al., 2016) and the propensity for multiple actors to be involved in the provisions of individual health informatics (Cilliers, 2020; Montgomery et al., 2018). To what extent policy actors have control over the collection of data, how it is used, and overall ownership of the data will be important questions for policy makers at the front lines of the pandemic.

Our analyses of the publicness and length of time effects on citizens' willingness to share their personal data during disaster response broken down by geographic area within the country may prove especially timely and meaningful. Indeed, while moving rapidly into a second or third wave of COVID-19 outbreak, the Italian national government is increasingly leaving more autonomy to regional governments, thus defining a multi-layered governance system. In particular, regions are allowed to design policies that further restrict national limitations of individuals' rights. Mandating more austere restrictions based on citizens' preferences in a target area may make disaster response simultaneously more effective and more bearable by citizens at large. Moreover, our investigation of within-country variation in policy formulation follows related work at the European level that explores whether and how member states have adapted to European Union requirements to facilitate context-sensitive policy formulation and adoption (e.g., Thomann, 2015).

That said, we certainly want to warn policy makers and practitioners to understand and use our findings for policy formulation and adoption in light of the inherent shortcomings that affect all online randomized controlled trials. Although randomization procedures are best suited to estimate the average treatment effect of our two factors and to establish causal connections between those factors and the outcome, our research design is unable to unveil the mechanisms through which the effects we observe come about. In other words, whereas our work allows making causal claims about the impact of the nature of the entity using personal data and the length of time during which that data can be accessed by a third party on citizens' willingness to grant access to personal information, it does not illuminate the underlying cognitive processes leading from our manipulations to their outcome. Future studies should, therefore, adopt other experimental designs and triangulate quantitative and qualitative insights to expand our understanding of the factors that influence citizens' willingness to share their personal data for an effective disaster response at the societal level and to account for geographic differences in outcome. Another main

limitation of our study lies in a series of potential threats to the external validity of our inference. For example, it remains to be tested to what degree our findings extend to respondents from other countries, to subjects with different levels of trust in government or different political preferences. Moreover, future research should test the generalizability of our results beyond our experimental setting to other types of disasters, to non-disaster scenarios, across different operations, and to more naturally-occurring environments. Most notably, testing the moderating effect of the ideology of individuals appears to be a priority.

In conclusion, being set during a global pandemic that requires a comparative and multi-level governance response, our work may help the integration and cross-fertilization of behavioral insights (Battaglio et al., 2019; Ewert et al., 2020; Grimmelikhuijsen et al., 2017; James et al., 2017; Oliver, 2015, 2017) into mainstream public policy scholarship. Sector type and duration of use are important considerations in assessing citizens' readiness to grant access to personal information, especially given the global efforts to employ private sector research and development to combat an unprecedented public health emergency (e.g., Mazzucato & Kattel, 2020). Our work demonstrates how policy makers around the world can rapidly gain rigorous evidence on the potential effect of public policies that involve private organizations at the early stages of the policy design process through experimentation.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

Data are available upon request to the corresponding author.

Notes on contributors

Nicola Belle is Assistant professor at the Management and Healthcare Laboratory in the Institute of Management and EMbeDS, Scuola Superiore Sant'Anna, Pisa, Italy. His research focuses on behavioural public administration and management. email: nicola.belle@santannapisa.it.

Paola Cantarelli is Assistant professor at the Management and Healthcare Laboratory in the Institute of Management and EMbeDS, Scuola Superiore Sant'Anna , Pisa, Italy. Her research focuses on behavioural management and work motivation in mission-driven organizations. email: paola.cantarelli@santannapisa.it.

R. Paul Battaglio, Jr. is Professor of public and non-profit management at the Public and non profit management program, School of Economic, political, and policy sciences at the University of Texas at Dallas. His research interests include public

human resource management, organization theory, behavioural public administration, comparative public policy, and research methods. email: battaglio@utdallas.edu.

References

Battaglio Jr., R. P., Belardinelli, P., Belle, N., & Cantarelli, P. (2019). Behavioral public administration ad fontes: A synthesis of research on bounded rationality, cognitive biases, and nudging in public organizations. *Public Administration Review*, *79*(3), 304–320. https://doi.org/10.1111/puar.12994

Battaglio Jr., R. P., & Legge Jr., J. S. (2009). Self-interest, ideological/symbolic politics, and citizen characteristics: A cross-national analysis of support for privatization. *Public Administration Review*, *69*(4), 697–709. https://doi.org/10.1111/j.1540-6210.2009.02018.x

Belle, N., & Cantarelli, P. (2018). Randomized experiments and reality of public and nonprofit organizations: Understanding and bridging the gap. *Review of Public Personnel Administration*, *38*(4), 494–511. https://doi.org/10.1177/0734371X17697246

Belle, N., Cantarelli, P., & Belardinelli, P. (2018). Prospect theory goes public: Experimental evidence on cognitive biases in public policy and management decisions. *Public Administration Review*, *78*(6), 828–840. https://doi.org/10.1111/puar.12960

Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon. com's mechanical Turk. *Political Analysis*, *20*(3), 351–368. https://doi.org/10.1093/pan/mpr057

Bouckaert, G., Van de Walle, S., & Kampen, J. K. (2005). Potential for comparative public opinion research in public administration. *International Review of Administrative Sciences*, *71*(2), 229–240. https://doi.org/10.1177/0020852305053882

Bozeman, B. (2013). What organization theorists and public policy researchers can learn from one another: Publicness theory as a case-in-point. *Organization Studies*, *34*(2), 169–188. https://doi.org/10.1177/0170840612473549

Bozeman, B., & Bretschneider, S. (1994). The "publicness puzzle" in organization theory: A test of alternative explanations of differences between public and private organizations. *Journal of Public Administration Research and Theory*, *4*(2), 197–224. https://doi.org/10.1093/oxfordjournals.jpart.a037204

Cantarelli, P., Belle, N., & Belardinelli, P. (2020). Behavioral public HR: Experimental evidence on cognitive biases and debiasing interventions. *Review of Public Personnel Administration*, *40*(1), 56–81. https://doi.org/10.1177/0734371X18778090

Christensen, J., Dahlmann, C. M., Mathiasen, A. H., Moynihan, D., & Petersen, N. B. G. (2018). How do elected officials evaluate performance? Goal preferences, governance preferences, and the process of goal reprioritization. *Journal of Public Administration Research and Theory*, *28*(2), 197–211. https://doi.org/10.1093/jopart/muy001

Cilliers, L. (2020). Wearable devices in healthcare: Privacy and information security issues. *Health Information Management Journal*, *49*(2-3), 150–156. https://doi.org/10.1177/1833358319851684

DeLeon, L., & Denhardt, R. B. (2000). The political theory of reinvention. *Public Administration Review*, *60*(2), 89–97. https://doi.org/10.1111/0033-3352.00068

Durant, R. F., & Legge Jr. J. S. (2002). Politics, public opinion, and privatization in France: Assessing the calculus of consent for market reforms. *Public Administration Review*, *62*(3), 307–323. https://doi.org/10.1111/1540-6210.00181

Ewert, B., Loer, K., & Thomann, E. (2020). Beyond nudge: Advancing the state-of-the-art of behavioural public policy and administration. *Policy & Politics*, *49*(1), 3–23. https://doi.org/10.1332/030557320X15987279194319

Favero, N., & Kim, M. (2020). Everything is relative: How citizens form and Use expectations in evaluating services. *Journal of Public Administration Research and Theory*, https://doi.org/10.1093/jopart/muaa048

Feldman, M. S., & Khademian, A. M. (2002). To manage is to govern. *Public Administration Review*, *62*(5), 541–554. https://doi.org/10.1111/1540-6210.00236

Feldman, M. S., & Khademian, A. M. (2007). The role of the public manager in inclusion: Creating communities of participation. *Governance*, *20*(2), 305–324. https://doi.org/10.1111/j.1468-0491.2007.00358.x

Felt, U., & Fochler, M. (2008). The bottom-up meanings of the concept of public participation in science and technology. *Science and Public Policy*, *35*(7), 489–499. https://doi.org/10.3152/030234208X329086

Ferretti, L., Wymant, C., Kendall, M., Zhao, L., Nurtay, A., Abeler-Dörner, L., Parker, M., Bonsall, D., & Fraser, C. (2020). Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing. *Science*, *368*(6491), eabb6936. https://doi.org/10.1126/science.abb6936

Gerber, A. S., Arceneaux, K., Boudreau, C., Dowling, C. M., Hillygus, D. S., Palfrey, T. R., Biggers, D. R., & Hendry, D. J. (2014). Reporting guidelines for experimental research: A report from the experimental research section standards committee. *Journal of Experimental Political Science*, *1*(1), 81–98. https://doi.org/10.1017/xps.2014.11

Gofen, A. (2015). Citizens entrepreneurial role in public service provision. *Public Management Review*, *17*(3), 404–424. https://doi.org/10.1080/14719037.2013.822533

Grimmelikhuijsen, S., Jilke, S., Olsen, A. L., & Tummers, L. G. (2017). Behavioral public administration: Combining insights from public administration and psychology. *Public Administration Review*, *77*(1), 45–56. https://doi.org/10.1111/puar.12609

Héritier, A. (2003). Composite democracy in Europe: The role of transparency and access to information. *Journal of European Public Policy*, *10*(5), 814–833. https://doi.org/10.1080/1350176032000124104

Horvath, L., Banducci, S., & James, O. (2020). Citizens attitudes to contact tracing apps. *Journal of Experimental Political Science*, 1–13. https://doi.org/10.1017/XPS.2020.30

Hvidman, U. (2019). Citizens evaluations of the public sector: Evidence from two large-scale experiments. *Journal of Public Administration Research and Theory*, *29*(2), 255–267. https://doi.org/10.1093/jopart/muy064

Hvidman, U., & Andersen, S. C. (2016). Perceptions of public and private performance: Evidence from a survey experiment. *Public Administration Review*, *76*(1), 111–120. https://doi.org/10.1111/puar.12441

James, O., & Jilke, S. (2020). Marketisation reforms and coproduction: Does ownership of Service Delivery structures and customer language matter? *Public Administration*, *98*(4), 941–957. https://doi.org/10.1111/padm.12670

James, O., Jilke, S. R., & Van Ryzin, G. G. (2017). Behavioural and experimental public administration: Emerging contributions and new directions. *Public Administration*, *95*(4), 865–873. https://doi.org/10.1111/padm.12363

James, O., & Van Ryzin, G. G. (2017). Motivated reasoning about public performance: An experimental study of how citizens judge the affordable care act. *Journal of Public Administration Research and Theory*, *27*(1), 197–209. https://doi.org/10.1093/jopart/muw049

Kahn, J. (2020). *Reporting statistics in APA style*. Retrieved January 8, 2021, from https://my.ilstu.edu/~jhkahn/apastats.html.

Kettl, D. F. (2011). *Sharing Power: Public Governance and Private Markets*. Brookings Institution Press.

Kettl, D. F. (2015). *The Transformation of Governance: Public Administration for the Twenty-First Century*. JHU Press.

Kumlin, S. (2001). Ideology-Driven opinion formation in Europe: The case of attitudes towards the third sector in Sweden. *European Journal of Political Research*, *39*(4), 487–518. https://doi.org/10.1111/1475-6765.00585

Leshner, A. (2003). Public engagement with science. *Science*, *299*(5609), 977. https://doi.org/10.1126/science.299.5609.977

Li, H., Wu, J., Gao, Y., & Shi, Y. (2016). Examining individuals adoption of healthcare wearable devices: An empirical study from privacy calculus perspective. *International Journal of Medical Informatics*, *88*, 8–17. https://doi.org/10.1016/j.ijmedinf.2015.12.010

Long, W. J., & Quek, M. P. (2002). Personal data privacy protection in an age of globalization: The US-EU safe harbor compromise. *Journal of European Public Policy*, *9*(3), 325–344. https://doi.org/10.1080/13501760210138778

Marvel, J. D. (2015). Public opinion and public sector performance: Are individuals beliefs about performance evidence-based or the product of anti–public sector bias? *International Public Management Journal*, *18*(2), 209–227. https://doi.org/10.1080/10967494.2014.996627

Marvel, J. D. (2016). Unconscious bias in citizens evaluations of public sector performance. *Journal of Public Administration Research and Theory*, *26*(1), 143–158. https://doi.org/10.1093/jopart/muu053

Mazzucato, M., & Kattel, R. (2020). COVID-19 and public-sector capacity. *Oxford Review of Economic Policy*, *36*(Supplement_1), S256–S269. https://doi.org/10.1093/oxrep/graa031

Mehraeen, E., Ghazisaeedi, M., Farzi, J., & Mirshekari, S. (2016). Security challenges in healthcare cloud computing: A systematic review. *Global Journal of Health Science*, *9*(3), 157. https://doi.org/10.5539/gjhs.v9n3p157

Meier, K. J., Johnson, A. P., & An, S. H. (2019). Perceptual bias and public programs: The case of the United States and hospital care. *Public Administration Review*, *79*(6), 820–828. https://doi.org/10.1111/puar.13067

Montgomery, K., Chester, J., & Kopp, K. (2018). Health wearables: Ensuring fairness, preventing discrimination, and promoting equity in an emerging internet-of-things environment. *Journal of Information Policy*, *8*, 34–77. https://doi.org/10.5325/jinfopoli.8.2018.0034

Moulton, S. (2009). Putting together the publicness puzzle: A framework for realized publicness. *Public Administration Review*, *69*(5), 889–900. https://doi.org/10.1111/j.1540-6210.2009.02038.x

Oliver, A. (2015). Nudging, shoving, and budging: Behavioural economic-informed policy. *Public Administration*, *93*(3), 700–714. https://doi.org/10.1111/padm.12165

Oliver, A. (2017). *The Origins of Behavioural Public Policy*. Cambridge University Press.

Olsen, A. L. (2017a). Human interest or hard numbers? Experiments on citizens selection, exposure, and recall of performance information. *Public Administration Review*, *77*(3), 408–420. https://doi.org/10.1111/puar.12638

Olsen, A. L. (2017b). Compared to what? How social and historical reference points affect citizens performance evaluations. *Journal of Public Administration Research and Theory*, *27*(4), 562–580. https://doi.org/10.1093/jopart/mux023

Organization for Economic Cooperation and Development. (2017). *Behavioural insights and public policy lessons from around the world*.

Phelps, J., Nowak, G., & Ferrell, E. (2000). Privacy concerns and consumer willingness to provide personal information. *Journal of Public Policy & Marketing*, *19*(1), 27–41. https://doi.org/10.1509/jppm.19.1.27.16941

Poister, T. H., & Henry, G. T. (1994). Citizen ratings of public and private service quality: A comparative perspective. *Public Administration Review*, *54*(2), 155–160. https://doi.org/10.2307/976524

Sanders, M., Snijders, V., & Hallsworth, M. (2018). Behavioural science and policy: Where are we now and where are we going? *Behavioural Public Policy*, *2*(2), 144–167. https://doi.org/10.1017/bpp.2018.17

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Wadsworth Cengage Learning.

Sunstein, C. R., Reisch, L. A., & Kaiser, M. (2019). Trusting nudges? Lessons from an international survey. *Journal of European Public Policy*, *26*(10), 1417–1443. https://doi.org/10.1080/13501763.2018.1531912

Thomann, E. (2015). Customizing Europe: Transposition as bottom-up implementation. *Journal of European Public Policy*, *22*(10), 1368–1387. https://doi.org/10.1080/13501763.2015.1008554

Thomann, E. (2018). "Donate your organs, donate life!" Explicitness in policy instruments. *Policy Sciences*, *51*(4), 433–456. https://doi.org/10.1007/s11077-018-9324-6

Thomann, E., Lieberherr, E., & Ingold, K. (2016). Torn between state and market: Private policy implementation and conflicting institutional logics. *Policy and Society*, *35*(1), 57–69. https://doi.org/10.1016/j.polsoc.2015.12.001

Thomann, E., Trein, P., & Maggetti, M. (2019). What's the problem? Multilevel governance and problem-solving. *European Policy Analysis*, *5*(1), 37–57. https://doi.org/10.1002/epa2.1062

Thompson, L., & Elling, R. C. (2000). Mapping patterns of support for privatization in the mass public: The case of Michigan. *Public Administration Review*, *60*(4), 338–348. https://doi.org/10.1111/0033-3352.00096

van den Bekerom, P., van der Voet, J., & Christensen, J. (2021). Are citizens more negative about failing service delivery by public than private organizations? Evidence from a large-scale survey experiment. *Journal of Public Administration Research and Theory*, *31*(1), 128–149. https://doi.org/10.1093/jopart/muaa027

Versluis, E., van Asselt, M., & Kim, J. (2019). The multilevel regulation of complex policy problems: Uncertainty and the swine flu pandemic. *European Policy Analysis*, *5*(1), 80–98. https://doi.org/10.1002/epa2.1064

Weaver, R. K. (2014). Compliance regimes and barriers to behavioral change. *Governance*, *27*(2), 243–265. https://doi.org/10.1111/gove.12032

Weaver, R. K. (2015). Getting people to behave: Research lessons for policy makers. *Public Administration Review*, *75*(6), 806–816. https://doi.org/10.1111/puar.12412