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**Administrative burden, motivation, and performance in the public sector: from
state actions to individual experience**

Francisco Gabriel Ferraioli Karamanian

**Administrative Burden, Motivation, and Performance in the Public Sector: from
state actions to individual experience**

A thesis submitted to the Autonomous University of Barcelona for the degree of Doctor
of Philosophy in the Faculty of Political Science and Sociology.

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Abstract

This article-based compilation thesis examines individual experiences that arise during interactions with the state. Individual experience has taken on a central role in the study of public service provision, which can significantly influence its performance. New insights from public administration aim to address the entire spectrum of individual experience, including rational and bounded behavior. Based on the idea that individual experience results from both subjective and objective aspects of administration, this dissertation aims to analyze its antecedents and outcomes from various sides of public service provision. The first article focuses on the relationship between sociodemographic characteristics and citizens' administrative burden experience in digital interactions with the administration. The second article examines the association between doctors' high administrative burden experience within the administration and their intrinsic motivation and its impact on the patient experience in healthcare. The third article explores the link between citizens' subjective evaluations of public service performance with technical measures and prior individual attitudes and sociodemographic characteristics. In sum, these articles demonstrate the importance and complex composition and outcomes of individual experience at all stages of public service provision.

Keywords: administrative burden, citizens' experience, motivation, public service performance

Resum

Aquesta tesi basada en articles examina les experiències individuals que sorgeixen durant les interaccions amb l'Estat. L'experiència individual ha esdevingut un paper central en l'estudi de la provisió de serveis públics, cosa que pot influir significativament en el seu rendiment. Noves perspectives de l'administració pública busquen abordar l'espectre de l'experiència individual, incloent-hi el comportament racional i limitat. Basada en la idea que l'experiència individual resulta d'aspectes tant subjectius com objectius de l'administració, aquesta tesi té com a objectiu analitzar els seus antecedents i resultats des de diverses perspectives de la provisió de serveis públics. El primer article se centra en la relació entre les característiques sociodemogràfiques i l'experiència de càrrega administrativa dels ciutadans en les interaccions digitals amb l'administració. El segon article examina l'associació entre l'alta càrrega administrativa que experimenten els metges dins de l'administració i la seva motivació intrínseca, i el seu impacte en l'experiència del pacient en l'atenció sanitària. El tercer article explora el vincle entre les avaluacions subjectives dels ciutadans sobre el rendiment dels serveis públics amb mesures tècniques i amb actituds individuals prèvies i característiques sociodemogràfiques. En resum, aquests articles demostren la importància i la complexa composició i resultats de l'experiència individual en totes les etapes de la provisió de servei.

Paraules clau: càrrega administrativa, experiència dels ciutadans, motivació, rendiment del servei públics públics.

Resumen

Esta tesis basada en artículos analiza las experiencias individuales que surgen durante las interacciones con el estado. La experiencia individual ha adquirido un papel central en el estudio de la provisión de servicios públicos, lo cual puede influir significativamente en su desempeño. Nuevas perspectivas de la administración pública buscan abordar todo el espectro de la experiencia individual, incluyendo el comportamiento racional y el limitado. Basada en la idea de que la experiencia individual es la resultante de aspectos tanto subjetivos como objetivos de la administración, esta disertación tiene como objetivo analizar sus antecedentes y resultados desde diversos aspectos de la provisión de servicios públicos. El primer artículo se centra en la relación entre las características sociodemográficas y la experiencia de carga administrativa de los ciudadanos en las interacciones digitales con la administración. El segundo artículo analiza la asociación entre la alta carga administrativa que experimentan los médicos dentro de la administración y su motivación intrínseca, y el impacto en la experiencia del paciente en la atención sanitaria. El tercer artículo explora el vínculo entre las evaluaciones subjetivas de los ciudadanos sobre el desempeño de los servicios públicos con medidas técnicas y con actitudes individuales previas y características sociodemográficas. En resumen, estos artículos demuestran la importancia y la compleja composición de la experiencia individual en todas las etapas de la provisión de servicios públicos.

Palabras clave: carga administrativa, experiencia de los ciudadanos, motivación, rendimiento del servicio público

INTRODUCTION

Individual experience is a central aspect of public service provision. Alongside policy designs, stakeholders' experiences on both sides of the counter condition the success or failure of public services. How individuals live through those interactions explains individuals' behaviors and, thus, state outcomes. The subjective nature of these experiences means that policy designs and outcomes impact sociodemographic profiles in society differently (Herd & Moynihan, 2018). Nor are the experiences the same among the diverse profiles of public employees within the administration. Employees working in public organizations that only process people's information to change some citizens' status experience administrative requirements differently than those working in organizations seeking to change citizens' behavior, such as teachers and doctors (Hasenfeld, 1972).

The growing literature on the 'behavioral of public administration' combines psychology and behavioral economics insights to address the attitudes and behavior of the individuals facing the state (Carrigan et al., 2020). These studies address individuals' behavior with both rational and bounded rational perspectives, considering biased judgments, emotions, and cognitive illusions (Battaglio Jr. et al., 2019). From this perspective, public administration scholars can address the entire individual experience with the administration, which often causes people to make suboptimal decisions from an exclusively economic approach.

Understanding the variation of experiences is crucial for improving the performance of public services, which is always at the center of public opinion debates. Citizens tend to have a negative bias against public organizations over private ones. Evidence shows that even when good performance information is available, it does not entirely change

negative expectations against the public sector (James & Moseley, 2014; Marvel, 2016). Others find that people are more prone to perceive public organizations as low-performing because they are public but consider them more equitable (Hvidman, 2019). Negative perceptions about the public sector are a source of important problems, such as reducing citizens' willingness to pay more taxes to improve public services or directly increasing tax evasion (Andreoni et al., 1998; Sandmo, 2005). Public sector negative perceptions also compel citizens to prefer private service providers to public ones (Chubb & Moe, 1988) and create difficulties in hiring top candidates for public sector jobs (Banerjee et al., 2015; Kjeldsen & Jacobsen, 2013; Linos, 2018).

Administrative burden and citizens' experience

In the behavioral public administration literature, 'administrative burden' studies address the onerous experience of individuals facing policy implementation (Burden et al., 2012). Administrative burden experience results from citizens' encounters with formal and informal aspects of the state when implementing policies (Baekgaard & Tankink, 2022). Formal aspects are about the rules and procedures of policy design, while informal aspects address public employees' behavior or administration communication (Halling et al., 2023). This literature aims to capture individual experiences without preconceived judgments about how things should work, focusing on what individuals feel, perceive, and endure in their interactions with the state.

What makes the experience onerous for individuals are the learning, compliance, and psychological costs that emerge in the encounter with the administration. Moynihan et al. (2015) explain that the learning cost is the search for information about programs, rules, procedures, selection criteria, and other aspects surrounding a state action; the compliance

cost is the effort, time, and resources to meet administrative demands; and the psychological cost is the feeling of the stigma of participating in programs, the sense of loss of autonomy, disempowerment or the stress resulting from complying with state requirements.

When individuals face high administrative burden costs imposed by the state, they are more likely to fail to complete procedures correctly, give up midway, or refrain from starting them altogether due to a lack of knowledge or ability. The administrative burden effect can be seen when citizens apply for public services (take-up problem) or exercise rights such as voting or seeking an abortion practice (Herd & Moynihan, 2018).

How individuals experience administrative actions is influenced by social and material resources, personal characteristics, and the cultural values of the society in which they are embedded (Masood & Azfar Nisar, 2021). These factors mediate between government actions and individual experiences, resulting in a distributive effect of administrative burden along society (Herd & Moynihan, 2018).

From this literature, we know the origins of administrative burden (Peeters, 2020); the support or tolerance of society and street-level bureaucrats toward burdens (Baekgaard, Moynihan, et al., 2021; Bell et al., 2021; Halling et al., 2023; Lavertu et al., 2013; Nicholson-Crotty et al., 2021); the characteristics, resources (or lack of them), and strategies that citizens have to cope with their encounters with the state (J. Christensen et al., 2020; Chudnovsky & Peeters, 2021; Masood & Azfar Nisar, 2021; Nielsen et al., 2021; Nisar, 2018; Olsen et al., 2022), and the consequences of the state action and its relationship with citizens experience (Fox, Stazyk, and Feng 2020; Heinrich 2016; Lopoo, Heflin, and Boskovski 2020; Herd et al. 2013; Daigneault and Macé 2020; Bell et al. 2023; Chudnovsky and Peeters 2021; Jenkins and Nguyen 2022).

A new focus has been on how citizens interact with digital administration. Digital interactions have become central to engaging with governmental bodies, significantly altering the citizen experience. The skills required for these interactions delineate societal divisions, determining who will build better connections with the administration. The situation is particularly problematic because those with the least ability to navigate digital administrations usually need public services the most. In this context, the literature on administrative burden attempts to categorize the various citizen experiences within the three specific costs. Qualitative studies indicate that while some costs, such as the learning cost, have increased, others, like the psychological cost of feeling stigmatized during interactions, can be reduced (Giest & Samuels, 2023; Heggertveit et al., 2022; C. Ø. Madsen et al., 2022; Peeters, 2023).

Administrative burden literature is still in development. New domains that have yet to be fully explored, like digital interactions with public administration, can be addressed. Furthermore, the consequences of a burdensome experience have yet to be comprehensively investigated, such as attitudes toward democracy and trust in government (Halling & Baekgaard, 2023). Finally, although there have been some recent efforts to measure administrative costs (Baekgaard, Mikkelsen, et al., 2021; Bell et al., 2023; Döring & Madsen, 2022; Jilke et al., 2024; Johnson & Kroll, 2020; J. K. Madsen et al., 2023; Thomsen et al., 2020), more work has to be done to get feasible and validated measures (Baekgaard & Tankink, 2022).

Individual experience in the public sector

In the public sector, the individual experience of interacting with the administration has been predominantly explored through red tape literature. Red tape is defined as “rules,

regulations, and procedures that involve a compliance burden without promoting the legitimate purposes for which they were intended” (2000, p. 12). In essence, these burdens lead to inefficient or dysfunctional use of organizational resources (Bozeman, 1993; Bozeman & Feeney, 2011; George et al., 2021; Hattke et al., 2020; Kaufmann & Tummers, 2017; Tummers et al., 2016). Although red tape is defined objectively, most research has worked with subjective perceptions of employees and managers addressing, for example, its impact on public employees’ motivation, performance, job satisfaction, commitment, and overall well-being (George et al., 2021).

There is an ongoing debate about the similarities and differences between administrative burden and red tape (Campbell et al., 2023; J. K. Madsen et al., 2022). However, what does it prevent us from considering the experience of individuals within administration from the perspective of administrative burden? If we approach individuals’ experiences solely from the perspective of red tape, we might miss out on feelings that are not directly related to the functionality or efficiency of tasks. Few authors have addressed public employees from this perspective (Bozeman & Youtie, 2020; Burden et al., 2012; Stanica et al., 2022).

A case that exemplifies the administrative burden proposal inside the public sector is doctors’ experience with rules and procedures. Like every professional, doctors have a distinct identity that distinguishes them from other employees (Kilponen et al., 2021). Professional identity involves employees’ attitudes, values, and beliefs shaping their expected organizational roles. Professionals value their inherent career activities, distinguishing them from others, producing pride, and reaffirming their self-esteem. When a task violates norms about what a professional is reasonably supposed to do, it becomes a critical job stressor. These transgressing tasks are known as illegitimate tasks.

When doctors or other professionals find state rules and procedures disruptive—not because they are dysfunctional, but because they deem them illegitimate—the concept of red tape might not fully capture their experience. Instead, the literature on administrative burden may offer a more accurate framework for understanding these experiences and their consequences.

The impact of disruptive situations within the administration is evident in employee motivation. Unlike citizens who can opt out of engaging with public services, employees cannot avoid their responsibilities. To be motivated is to have a reason to act. Behind any individual actions, a psychological process constitutes the reasons that lead people to behave (Esteve & Schuster, 2019). However, not every reason or motive has the exact nature and consequences; acting because one enjoys the activity itself differs from acting to obtain a reward.

The distinction between types of motivation was addressed early in the literature through the concepts of intrinsic and extrinsic motivation (Ryan & Deci, 2000). Intrinsic motivation arises spontaneously from personal volition, choice, genuine interest in an activity, and a sense of competence and connection with others. Extrinsic motivation is ruled by the external consequences of the action, which implies a distance between the action and enjoying the outcome. Studies in work organizations show that increased intrinsic motivation results in better employee performance in complex tasks requiring full engagement (Cerasoli et al., 2014; Deci et al., 2017). Intrinsic motivation is also related to higher well-being, such as reduced burnout and increased job satisfaction (Moller et al., 2019, 2022; Montasem et al., 2014; Tak et al., 2017).

Individual experience and performance of public services

Citizen experience with the outputs of administration is central to governments. This experience translates into satisfaction or dissatisfaction with the provision of public services, which can result in political attitudes or input for governments to improve public service provision (Van de Walle, 2018). In particular, local governments frequently rely on citizen feedback regarding public services to evaluate their performance. Capturing citizens' experiences through regular surveys is an indirect but relatively cost-effective way to measure the quality of public services for this level of government.

But does this subjective experience reflect aspects of the technical performance of public services? Do citizens perceive government efforts to improve technical aspects of public services? These are questions that public administration scholars have been exploring since the 1980s. Various waves of studies on this issue have shown evidence on both sides (Brown & Coulter, 1983; Kelly, 2003; Kelly & Swindell, 2002; Licari et al., 2005; Parks, 1984; Stipak, 1979; Van Ryzin et al., 2008). This issue raises questions about what types of performance citizens can detect, whether they have the tools to evaluate services, and which aspects they focus on. For example, when evaluating a public service, citizens may prioritize their experience with the street-level bureaucrat or the cleanliness of the administration over the expenditure in relation to the outcome (Parks, 1984; Tsai et al., 2015).

Among citizen's subjective evaluations, patient experience is one of the most developed. Patient experience is shaped by interpersonal interactions such as interaction types, easy-to-understand language communication, and attentiveness to patients' opinions and concerns. The experience is also influenced by structural factors such as physical environment, waiting times and consultation structure, and technical or organization

elements such as the medical expertise of the staff (Gardner et al., 2016; Salisbury et al., 2010; Sequist et al., 2008; Smith et al., 2017). High levels of patient satisfaction are desirable because they are linked to positive clinical outcomes, such as improved adherence to treatment (Anhang Price et al., 2014).

Moreover, as a complex phenomenon, individuals' subjective evaluations are shaped by pre-existing characteristics and attitudes regardless of objective aspects of service provision. Opinions on government actions can vary based on personal factors such as gender, age, ethnicity, education (T. Christensen & Laegrid, 2005), or socio-economic status (Dahlström et al., 2018; James, 2009). Public services experience is also influenced by a partisan bias (Jilke, 2018; Jilke & Bækgaard, 2020) or a general thought about the role of public services in general (Dehoog et al., 1990; Hvidman, 2019; Jørgensen & Bozeman, 2007; Marvel, 2016).

Object of the thesis

This dissertation is part of a broader program led by Professor Xavier Ballart that examines public service performance and public employee motivation. In Ballart et al. (2024), the relationship between expectations, performance, and satisfaction (a classic model adapted from the private sector) is explored within the context of concerns about the tendency of citizens to perceive public administration as less effective than the private sector. Ballart and Rico (2023) investigate the relationship between registered process measures of primary care services and patients' subjective experience measures. Additionally, Ballart and Ripoll (2023) focus on how transformational leadership is associated with basic needs, particularly relatedness, intrinsic motivation, and public service motivation.

By expanding this research line to administrative burden, the main objective of this dissertation is to contribute to understanding how individuals experience the state and affect the process of public service provision, accordingly. The leading theoretical idea is that the interactions between subjective prior individual characteristics and objective state actions shape individual experiences. The experience resulting from those interactions condition state performance. In this line of research, I propose five specific research questions to be addressed in the empirical work:

Research question 1: How do sociodemographic factors affect citizens' experience in digital interactions with the administration?

Research question 2: To what extent does the experience of administrative burden affect professionals' intrinsic motivation within public administration?

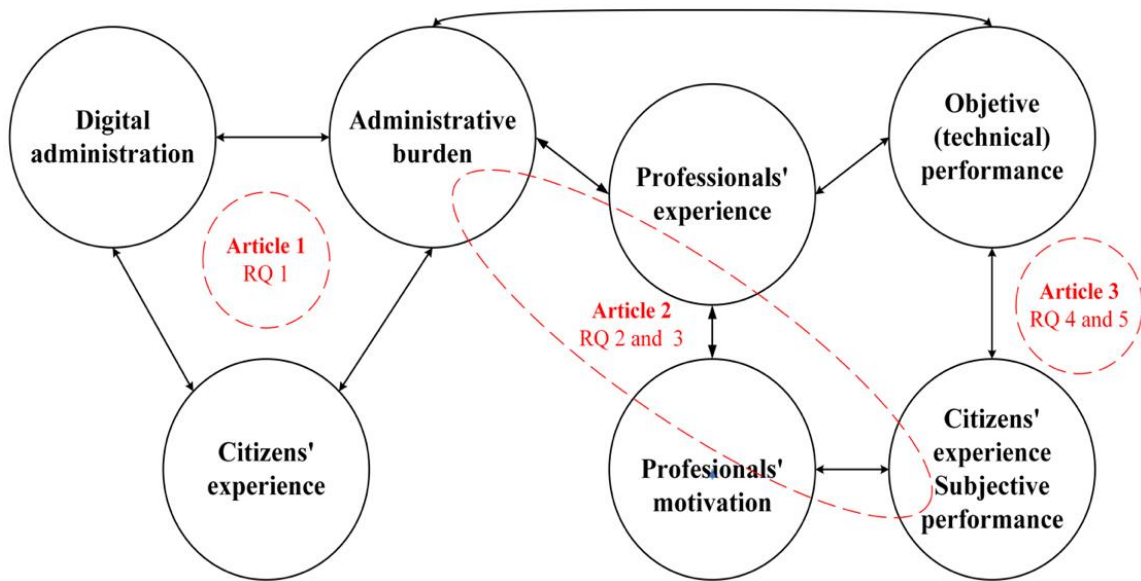
Research question 3: To what extent does administrative burden perception affect citizens' experience through professionals' intrinsic motivation?

Research question 4: To what extent are citizens' subjective perceptions of public service performance related to technical objective measures?

Research question 5: To what extent do citizens' prior attitudes condition their evaluation of public service provision?

To organize the five research questions, I propose a schematic model in Figure 1 that illustrates individuals' interactions with the administration. Citizens initially interact as inputs in public service delivery, completing procedures and requirements set by the state. Subsequently, public employees deal with state requirements within the administration to carry out their work. Ultimately, citizens engage with the state's outputs, which can become new inputs for government actions or influence political behavior.

Figure 1. Research model: individuals interacting with the administration



Content of the thesis

This PhD project will answer the five research questions in three different articles. Each article contributes to explaining a side of the research model presented above.

The first article focuses on the first research question to understand the relationship between sociodemographic characteristics and administrative burden experience in digital interactions with administration. It is expected that citizens with lower digital skills, fewer material resources and technological infrastructure, and greater feelings of scarcity that influence their short-term decision-making will experience digital interactions as more onerous. In this line of research, the article assesses whether citizens with a lower level of education, higher age, lower income, and greater job insecurity experience more learning, compliance, and psychological costs when interacting with digital administration. Another aim of this article is to contribute to developing

administrative burden studies in Spain's territory, adding a theoretical state of the art at the beginning.

The second article tackles research questions two and three. By distinguishing red tape from administrative burden experience, the article analyzes how doctors are especially sensitive to administrative tasks that disrupt their core medical tasks. Although specific tasks of doctors, such as medical records, are critical to the healthcare system, they may experience them as burdensome because they are far from direct patient care. Using self-determination theory, it explores the effect of administrative burden experience on intrinsic motivation, which is associated with feeling autonomous, competent, and relatedness in the job. As intrinsic motivation is associated with better performance and well-being, the article then studies how doctors' administrative burden experience impacts patient experience of care.

The third article addresses questions four and five. It tests the link between inherent subjective and inherent objective performance measures. The main hypothesis is that given the ease of perception and annoyance of noise level, citizens' subjective perception would be significantly associated with objective measures. This would not occur in the case of air pollution, which is more difficult to experience in the average levels of European cities. The article also considers the prior individual's attitudes about the environment, political issues, and sociodemographic characteristics. Citizens' prior attitudes would influence their evaluations of the services regardless of the actual objective performance of the public services provision.

Data and methods

In order to address each research question, this thesis articulates specific data and methods along the three articles.

The first article uses typical barometers for citizens in Spanish territory. Although the survey is standardized and not specifically tailored to the concepts of the article, it is potent in terms of sampling. The survey is representative of all Spain's territory, including 10,306 citizens across the 52 provinces and the larger municipalities. It collects different citizens' attitudes toward public services and several sociodemographic characteristics. The disaggregated level over provinces and municipalities allows for the conducting of multilevel regressions. Multilevel models allow for the inclusion of random effects, which can capture unobserved heterogeneity at different levels, such as local public administration characteristics.

For the second article, a survey was conducted since data on public employees' perceptions are not regularly collected. This survey was developed by e-mail with the support of the Catalan Society of Family and Community Medicine (CAMFIC). It collected 542 answers, representing 10% of the primary care doctor's population. The sample characteristics are similar to those of primary care doctors in Catalonia, with almost two-thirds of the employees being women and one-third of the staff being men. It also used a survey on patients' experiences in medical centers conducted by Catalonia's government. It includes 29,738 citizens over the 372 primary care centers of the CCAA. Full structural equation modeling is employed to analyze these data. These techniques enable us to work with various items without aggregating them, contributing to greater validity and reliability of our measures. Additionally, this technique is appropriate for linking a single model patient experience with the administrative burden experienced by

doctors and intrinsic motivation as a mediator. Furthermore, using two databases allows us to avoid common source bias risk inflation, conferring more validity to the analysis.

The third article works with data from administrative records and a citizen survey of Madrid. The city collects daily data about noise levels through 31 stations and air pollution levels in 24 stations across the city. With the stations' data and following the literature (Montero et al., 2010), a map of the city's noise and air pollution levels using the kriging method was created. Kriging is a geostatistical interpolation method used to predict values at unsampled locations based on the spatial autocorrelation of sampled data points. That objective noise and air pollution level is crossed with a survey of citizens' satisfaction in Madrid. The survey involves 8,304 citizens and places them in each census section of the city, allowing for a precise combination of objective measures and citizens' subjective experiences. Then, the data were analyzed with multivariate regressions clustered at the neighborhood level, combining the two data sources.

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ARTICLE 1

Carga administrativa. ¿Qué sabemos? ¿Cómo es la experiencia de los españoles con la administración digital?

This article is under review in Revista Española de Investigaciones Sociológicas.

Resumen

Este artículo busca contribuir al desarrollo del estudio de la ‘carga administrativa’ en el ámbito español y, asimismo, expandir su aplicación a las interacciones digitales con la administración. Recorremos sus líneas de investigación para, a continuación, abordar la experiencia ciudadana en la interacción con la administración digital en España. Analizando una encuesta del Centro de investigaciones Sociológicas (CIS) con regresiones multinivel encontramos que los ciudadanos con menor nivel educativo, mayor edad, menores ingresos y mayor precariedad experimentan más costes de aprendizaje, cumplimiento y psicológicos en las interacciones con digitales con la administración. Estos resultados evidencian la heterogénea experiencia de los ciudadanos frente a la administración digital, contribuyendo a la desigualdad en el acceso a servicios públicos.

Palabras clave: carga administrativa, administración digital, desigualdad de acceso, servicios públicos.

Abstract

This article seeks to contribute to the development of the study of the ‘administrative burden’ in Spain’s territory and expand its application to digital interactions with the administration. We go through their lines of research to then address the citizens’ experience when interacting with the digital administration in Spain. Analyzing a survey of the Center for Sociological Research (CIS) with multilevel regressions, we find that citizens with a lower level of education, higher age, lower income, and greater job insecurity experience more learning, compliance, and psychological costs when interacting with digital administration. These results show the heterogeneous experience of citizens vis-à-vis digital administration, contributing to inequality in access to public services.

Keywords: administrative burden, digital administration, inequality of access, public services

Introducción

Los trámites y los procedimientos administrativos son un elemento esencial de la interacción entre los ciudadanos y los servicios públicos que, sin embargo, pueden afectar de forma significativa tanto a los ciudadanos como a los empleados públicos. El malestar generado por los problemas administrativos es un factor determinante en la implementación de las políticas, ya sea porque los ciudadanos no llegan a terminar correctamente los procesos o porque los funcionarios y otros empleados públicos se ven afectados en su motivación y desempeño individual (Bozeman & Youtie, 2020; Burden et al., 2012; Herd & Moynihan, 2018; Stanica et al., 2022).

En el marco de las investigaciones en administración pública, el concepto de *administrative burden* (carga administrativa a partir de ahora) tiene como objeto de estudio “las experiencias onerosas de los ciudadanos en su encuentro con la administración” (Burden et al., 2012, p. 741). Una experiencia se vuelve onerosa cuando implica altos costes de aprendizaje, cumplimiento o psicológicos para los individuos (D. Moynihan et al., 2015). El nivel de costes experimentado depende de las características y recursos individuales y del proceso de interacción con la administración.

Existe un debate sobre las similitudes y diferencias entre el concepto de carga administrativa y el de *Red tape* que se puede traducir como burocracia inútil (Campbell et al., 2023; J. K. Madsen et al., 2022). La burocracia inútil se define principalmente como “normas, reglamentos y procedimientos que implican una carga de cumplimiento sin promover los propósitos legítimos para los que fueron destinados” (2000 p.12). Es decir, estas cargas consumen recursos organizacionales de forma ineficiente o disfuncional para las mismas organizaciones (Bozeman, 1993; Bozeman & Feeney, 2011; George et al., 2021; Hattke et al., 2020; Kaufmann & Tummers, 2017; Tummers et al., 2016).

A diferencia de la burocracia inútil, en los estudios de carga administrativa se analiza la experiencia negativa de los individuos en su interacción con la administración, independientemente del rol de los trámites y procedimientos para el funcionamiento de la organización, centrándose en los costes subjetivos (J. K. Madsen et al., 2022). Desde esta perspectiva se consigue tener una visión más completa de los factores que influyen en los encuentros exitosos entre los ciudadanos y la administración, así como de los obstáculos que pueden surgir (Halling & Baekgaard, 2023). Asimismo, se ha empezado a estudiar las experiencias de los ciudadanos en las interacciones digitales con la administración, lo que permite integrar los estudios en este ámbito (Peeters, 2023).

Inicialmente, los estudios de carga administrativa mostraron la utilización política de los procedimientos administrativos para excluir del acceso a servicios públicos a parte de la población susceptible de recibirlos (Herd & Moynihan, 2018; D. P. Moynihan et al., 2016). Más recientemente se han estudiado otros factores que generan más o menos cargas administrativas como las actitudes y las experiencias personales de los empleados públicos o incluso su ideología (Bell et al., 2021). El mismo tipo de razonamiento se ha aplicado a políticos (Baekgaard, Moynihan, et al., 2021) o incluso a los mismos ciudadanos (Halling et al., 2023). Por otra parte, también se han estudiado las cargas generadas de forma involuntaria por errores de diseño o implementación (Peeters, 2020; Peeters & Widlak, 2018).

En España, la administración pública es pionera en la digitalización de trámites y procedimientos tanto para ciudadanos como para empresas, situándose entre los siete países con mayor digitalización de trámites de Europa (European Commission, 2023). También tiene una población con un alto nivel de competencias digitales básicas o por encima de las básicas, alcanzando casi dos tercios del total. El problema consiste en que

las competencias digitales descienden de forma significativa entre los ciudadanos con menor educación, mayor edad, desempleados, inactivos o jubilados (European Commission, 2023). La transición de una administración hacia la digitalización de los trámites puede ser generadora de experiencias onerosas para estos segmentos de la población que muchas veces son los más necesitados de servicios públicos.

El objetivo de este artículo es contribuir al estudio de la carga administrativa en el ámbito español y, al mismo tiempo, expandir su aplicación a las interacciones digitales. Para ello se realiza una revisión de la literatura recorriendo las distintas líneas de investigación de esta literatura y discutiendo los aspectos aún pendientes por desarrollar. Luego se utiliza este marco teórico para abordar las experiencias de los ciudadanos en su encuentro con la administración digital española.

Los datos para el análisis provienen de una encuesta sobre calidad de servicios públicos realizada por el CIS en noviembre de 2023, la cual incluye 10.306 ciudadanos y es representativa de las 13 Comunidades Autónomas y las 52 provincias del territorio español. Las preguntas de la encuesta se centran en la experiencia de los ciudadanos con la administración digital española. El análisis se fundamenta en regresiones multinivel en provincias y municipios e indica cómo algunos de los segmentos más vulnerables de la población tienen consistentemente experiencias más costosas con la administración digital.

El artículo se estructura de la siguiente forma. En primer lugar, se realiza la revisión de la literatura. En segundo lugar, se presenta el caso de estudio empírico. Finalmente, se discuten las implicancias de esta teoría y la particularidad del caso de la administración digital en España.

Marco teórico

Acción administrativa y experiencias individuales

La carga administrativa es el resultado del encuentro de los ciudadanos tanto con aspectos formales como informales de la implementación de las políticas y servicios públicos (Baekgaard & Tankink, 2022). Los formales contemplan leyes, reglas y requerimientos dispuestos para acceder a los bienes públicos, ya sea la cantidad de formularios a rellenar, requisitos, documentos a presentar o por el número de citas en las que presentarse (Halling & Baekgaard, 2023). Trabajos como el de Deshpande y Li (2019) muestran cómo los requisitos formales médicos y no médicos de acceso a prestaciones por discapacidad generan experiencias costosas en las personas en Estados Unidos. Al contrario, Baekgaard et al. (2021) encuentran cómo una reducción de requisitos para la búsqueda activa de empleo o las actividades de formación disminuyen los costes psicológicos experimentados en Dinamarca.

Los aspectos informales de la implementación se relacionan con las prácticas de los funcionarios públicos que influyen en la experiencia de los ciudadanos. Funcionarios públicos con mucha carga de trabajo (Brodkin & Majmundar, 2010), con un elevado estrés (Mikkelsen et al., 2024) o una administración con pocas capacidades y recursos (Ali & Altaf, 2021) hacen que la experiencia ciudadana sea más compleja al ofrecerles menos colaboración y menos empatía. En el mismo sentido, la simplificación de la comunicación (Linos et al., 2022), la utilización de categorías más coloquiales (D. Moynihan et al., 2022) o el envío de recordatorios a través de mensajes de texto facilitan la concreción de los trámites (Lopoo et al., 2020).

Las acciones administrativas se vuelven onerosas cuando generan un alto coste de aprendizaje, cumplimiento o psicológico en los individuos. Moynihan y Herd (2015)

describen el coste del aprendizaje como aquel asociado a la búsqueda de información sobre programas, procedimientos, criterios de selección y otros aspectos que rodean una política pública. El coste del cumplimiento como el derivado del esfuerzo, el tiempo y los recursos financieros necesarios para satisfacer las demandas administrativas. Mientras que el coste psicológico sería consecuencia del estigma de participar en algunos programas además del sentimiento de pérdida de autonomía, estrés o desempoderamiento. Cuando la provisión de servicios públicos requiere la participación activa de los ciudadanos, su implementación inevitablemente conlleva costes para estos. No obstante, los costes percibidos varían de una persona a otra (Herd & Moynihan, 2018) y dependen de los recursos sociales, de los recursos materiales y de las características personales, así como de los valores culturales de la sociedad donde cada individuo está inmerso. Estos factores median entre las acciones de la administración y la experiencia individual y hacen que una misma política tenga costes más elevados para un segmento de la población que para otros (Masood & Azfar Nisar, 2021).

Entre las características individuales que dotan o privan de las competencias necesarias para interactuar con la administración se señalan fortalezas psicológicas como la percepción de autoeficacia (Thomsen et al., 2020) o el sentimiento de carencia (Christensen et al., 2020), el nivel educativo (Chudnovsky & Peeters, 2021; Collie et al., 2021) o el estado de salud física y mental (Bell et al. 2023 Collie et al. 2021). También influyen la edad y el deterioro cognitivo (Christensen et al., 2020) y los recursos materiales para afrontar los trámites (Chudnovsky & Peeters, 2021; Collie et al., 2021).

Por otra parte, los encuentros repetidos con la burocracia generan un activo individual denominado “capital administrativo” (Masood & Azfar Nisar, 2021) o “competencia administrativa” (Döring, 2021; Döring & Madsen, 2022) que vendría a ser el

entrenamiento previo que dota de capacidades para comprender las comunicaciones oficiales y los formularios de la administración, para saber dónde buscar los programas más acordes para cada ciudadano o simplemente para conocer la estructura de la administración, sus procedimientos y tiempos (Döring, 2021; Döring & Madsen, 2022; Masood & Azfar Nisar, 2021).

Algunas características culturales de las sociedades pueden complicar los encuentros con la administración para grupos específicos. Por ejemplo, a las minorías étnicas, como la musulmana, se las rechaza más frecuentemente en el acceso a servicios públicos en Dinamarca (Olsen et al., 2022) o las mujeres tienen barreras culturales adicionales al solicitar una licencia en Pakistán (Masood & Azfar Nisar, 2021) o acceder a políticas de ayuda por discapacidad en Australia (Yates et al., 2021).

Respecto a las relaciones sociales de los individuos, las familias o amigos pueden ayudar a llevar a cabo los trámites (Masood & Azfar Nisar, 2021). Sin embargo, las relaciones familiares también pueden ser generadoras de problemas como se ha investigado para grupos de transexuales en la India, donde las familias pueden obstaculizar su identificación legal (Nisar, 2018) o para mujeres cuando sus exmaridos dificultan la solicitud de beneficios por hijos (Cook, 2021).

Finalmente, las organizaciones del tercer sector pueden acompañar a grupos de población vulnerable en sus contactos con servicios públicos (Herd & Moynihan, 2018; Nisar, 2018). En el mismo sentido, pueden influir sobre los responsables de las políticas para cambiar su implementación y mejorar la experiencia ciudadana (Herd & Moynihan, 2018).

Consecuencias de la carga administrativa

El efecto más estudiado es la limitación en el acceso de la población que debería ser beneficiaria de una política a la misma, ya sea porque no puedan cumplimentar correctamente los trámites, los abandonen durante el proceso o no los comiencen por desconocimiento o falta de capacidad (Fox, Stazyk, and Feng 2020; Heinrich 2016; Lopoo, Heflin, and Boskovski 2020; Herd et al. 2013; Daigneault and Macé 2020; Bell et al. 2023; Chudnovsky and Peeters 2021; Jenkins and Nguyen 2022).

Otro efecto muy relacionado es la restricción del ejercicio de derechos individuales. En Estados Unidos, por ejemplo, la carga administrativa es utilizada para restringir la entrega de actas de nacimiento a hijos de madres nacidas en México mediante cambios en las formas de identificación aceptadas para los trámites (C. Heinrich, 2018). Otros trabajos explican cómo en algunos estados se reducen los abortos mediante procedimientos dirigidos a que las mujeres se retracten de su decisión con tiempos arbitrarios de espera entre solicitud y la entrega de las pastillas, con la obligación de tomar la medicación frente a los médicos, o la obligación de ver una ecografía previa a la realización (Herd & Moynihan, 2018). Otro conocido uso de la carga administrativa es para reducir la participación electoral de ciertos ciudadanos al dificultar el registro previo para las elecciones, la limitación del voto anticipado, la votación en días laborales o el requisito de votar con un ID actualizado (Herd & Moynihan, 2018).

Una línea de investigación interesante aún no explorada suficientemente es la influencia de las cargas administrativas en las actitudes de los ciudadanos (Christensen et al., 2020; Halling & Baekgaard, 2023). Es posible que los costes asociados a la implementación de las políticas reduzcan la confianza en las instituciones, la percepción de ineficacia política o la participación ciudadana en la esfera pública. También se podría estudiar el efecto de

la carga administrativa en los empleados de los servicios públicos. El artículo de referencia es el de Burden et al. (2012) que muestra como un incremento en la carga sobre los funcionarios incrementa su percepción de que las políticas son problemáticas y aumenta su deseo de transferir responsabilidades a otros.

Medida de la carga administrativa

La medición de los costes de aprendizaje, cumplimiento y psicológicos que forman la experiencia de la carga administrativa está aún en discusión. Algunos autores han desarrollado ítems para abordar los tres costes (Bell et al., 2023; Johnson & Kroll, 2020; J. K. Madsen et al., 2023) y otros han trabajado específicamente en los costes psicológicos de estrés, estigma y pérdida de autonomía (Baekgaard, Mikkelsen, et al., 2021; Döring & Madsen, 2022; Thomsen et al., 2020). Estas escalas están siendo validadas por estos y otros autores. Jilke et al. (2024), por ejemplo, proponen una medida de la carga administrativa con un ítem por coste. En la selección de los ítems de coste psicológico descartaron algunos sentimientos y se quedaron con el de frustración por ajustarse mejor a su modelo factorial.

Los ítems finales son: “¿Cuán difícil fue el proceso de encontrar información sobre el programa, cómo aplicar o lo que necesitabas hacer para renovar tu beneficio? (coste de aprendizaje); “¿Cómo fue el proceso de completar los formularios, proporcionar pruebas de elegibilidad y/o asistir a entrevistas?” (coste de cumplimiento); “Por favor, describe cómo te sentiste durante estas experiencias” (coste psicológico). La encuesta fue validada con usuarios de programas de asistencia sanitaria de Estados Unidos. Sus resultados de validez predictiva evidenciaron que los ciudadanos con salud más precaria, menor

educación, más jóvenes y con problemas financieros a corto plazo experimentan mayores niveles de carga administrativa (Jilke et al., 2024).

Por otro lado, aún son escasos los estudios que vinculan los costes experimentados por los ciudadanos con los efectos en sus capacidades frente a la administración. La estrategia mayoritaria ha sido el abordaje indirecto relacionando ciertas características de la implementación de las políticas (muchos requerimientos, mala comunicación, ausencia de líneas telefónicas de ayuda) con mayor o menor acceso a los programas (Herd et al., 2013; D. Moynihan et al., 2015). Algunas excepciones a este abordaje han sido trabajos cualitativos como el de Daigeault y Macé (2020) que analizan el acceso a un programa de asistencia social en Quebec o el de Masood and Azfar Nisar (2021) que estudian los costes y sus efectos en las solicitudes de licencias por maternidad en hospitales de Pakistán.

Tampoco existen suficientes estudios que vinculen los costes experimentados con resultados tanto actitudinales como de las mismas políticas lo que permitiría conocer mejor la relación entre los distintos tipos de costes, en la práctica interrelacionados de forma que a menudo uno precede al otro (Baekgaard, Mikkelsen, et al., 2021; Baekgaard & Tankink, 2022).

Administración digital y experiencia ciudadana

La experiencia ciudadana frente a la administración se ha modificado con la introducción de medios digitales que a menudo son, o bien obligatorios, o bien el medio más ágil para conseguir el acceso a los servicios. Las competencias necesarias para esta interacción varían entre segmentos de la sociedad, lo que hace que las cargas no sean experimentadas de igual manera por los ciudadanos. Recientes estudios cualitativos muestran cómo

algunos costes aumentan mientras otros se reducen (Giest & Samuels, 2023; Heggertveit et al., 2022; C. Ø. Madsen et al., 2022; Peeters, 2023).

En términos de costes de aprendizaje, la interacción digital requiere identificar de forma autónoma qué beneficios o programas son los adecuados para el individuo y con qué autoridad u organismo deben vincularse. El trabajo autónomo también implica dificultad en la comprensión del lenguaje utilizado por la administración y en la utilización de las herramientas digitales. Algunos procesos puntuales son especialmente onerosos por su naturaleza ocasional lo que hace que ciudadanos olviden los conocimientos aprendidos. En términos generales, estos costes son reducidos cuando existen sitios web con información clara sobre los procesos y cuando los ciudadanos ostentan lo que llamamos el capital administrativo por repetidos encuentros con la administración (Heggertveit et al., 2022; C. Ø. Madsen et al., 2022; Peeters, 2023).

Algunos costes psicológicos pueden aumentar como el estrés y la frustración por no tener el acompañamiento de un funcionario a la hora de completar los trámites. A ello se suma la falta de un funcionario que pueda tener empatía y con el que se pueda llegar a negociar aspectos de la gestión administrativa. El desconocimiento sobre lo que ocurre cuando se termina por enviar un trámite puede generar sentimientos de inseguridad respecto a si se ha completado de forma correcta. Al contrario, la interacción digital puede reducir el sentimiento de estigmatización, dado que no se vincula directamente con otra persona. (Heggertveit et al., 2022; C. Ø. Madsen et al., 2022; Peeters, 2023).

Respecto a los costes de cumplimiento, estos pueden verse aumentados por la responsabilidad de las tareas que recaen sobre los ciudadanos, como el escaneo y la carga de documentos en los sistemas. Pero también pueden verse reducidos por no tener que personarse en las oficinas y por evitar los tiempos de espera. Este coste también puede

ser especialmente reducido cuando la administración tiene un eficiente intercambio de información entre oficinas que facilitan la carga de información de los ciudadanos (Heggertveit et al., 2022; C. Ø. Madsen et al., 2022; Peeters, 2023).

Administración digital en España

España es de los países de Europa con mayor nivel de digitalización de los trámites con la administración pública tanto para ciudadanos como para empresas. Según los datos de la Comisión Europea (2023), el 85,4% de los trámites de ciudadanos se pueden hacer de forma digital mientras que es el 91% de los trámites en el caso de las empresas. España también se sitúa por arriba de la media europea en adopción de infraestructura digital, con una amplia cobertura de hogares con banda ancha fija y de ciudadanos con servicios de telefonía móvil (European Commission, 2023).

Entre las formas más eficaces de interacción de los ciudadanos con la administración española está el uso del DNI electrónico, el Certificado electrónico y el sistema Cl@ve. Estas tres herramientas permiten una acreditación de identidad ágil para acceder a la información personal y solicitar servicios públicos, y cruzar información administrativa. La gestión y utilización de estas herramientas varía en cuanto a sus requisitos y complejidad. La gestión del DNI electrónico es simple y consiste en ir a una comisaría sin cita previa y leer el DNI en una máquina de activación. Las dificultades se presentan en el momento de utilizarlo ya que es necesario un lector externo de las tarjetas DNI o la utilización del NFC del teléfono móvil. Por su parte, la gestión del certificado digital y el sistema Cl@ve es más compleja e implica rellenar formularios y presentarse en una oficina de la administración con cita previa para validar la identidad.

Las interacciones con la administración digital requieren ciertas capacidades digitales. En España el 64% de los ciudadanos tiene competencias digitales básicas o por encima de las básicas. Sin embargo, entre las personas con menor nivel de educación, el nivel de competencias digitales baja a 38,03%, entre los ciudadanos de 55 y 75 años baja a 40,57% y entre las personas en paro en 61,80%. Asimismo, al combinar distintas características sociodemográficas, el porcentaje es aún más bajo, como el 34% de competencias básicas de los individuos con al menos dos de las tres características siguientes: 55 a 74 años; bajo nivel educativo; desempleados, inactivos o jubilados (European Commission, 2023).

El problema de España se presenta en la intersección entre servicios públicos altamente digitalizados y la población sin competencias básicas o con necesidad de servicios públicos por su vulnerabilidad. Siendo España el cuarto país de Europa en personas en riesgo de pobreza o exclusión social (26,65%), el primero en desempleo (11,9%) y el cuarto país con mayor nivel de población con baja educación (entre primaria y primer ciclo de la secundaria) (37,7%), la provisión de servicios públicos que implican una interacción digital puede ser problemática (EUROSTAT 2023).

Cabe esperar que los ciudadanos con menores capacidades digitales, menos recursos materiales e infraestructura informática y mayores sentimientos de escasez que condicionan su toma de decisiones a corto plazo tengan una experiencia más difícil con la administración digital. De ahí que la hipótesis sea que los ciudadanos con menor nivel educativo, mayor edad, situación laboral precaria y menores ingresos experimentarán mayores costes de aprendizaje evidenciado en la dificultad de uso de herramientas de interacción digital, en el alto coste de cumplimiento por falta de recursos materiales y en un mayor coste psicológico por la incertidumbre y el miedo que genera este tipo de interacciones.

Datos y método

Con el fin de abordar la problemática planteada, el análisis se fundamenta en una encuesta sobre calidad de servicios públicos realizada por el CIS Noviembre de 2023 en todo el territorio español. Muchas de las preguntas se refieren a la experiencia ciudadana con la administración digital, su nivel de uso, su dificultad y percepciones generales, las cuales permiten abordar los costes de aprendizaje y, en menor medida, los de cumplimiento y psicológicos. La muestra es de 10.306 ciudadanos identificados por comunidades autónomas, provincias y municipios. Los municipios de menos de 50.000 habitantes son agrupados conjuntamente en cada provincia.

Las primeras variables dependientes se refieren a la disposición o no del certificado digital, el sistema Cl@ve o el DNI electrónico, la dificultad de la obtención de estas herramientas (Tabla 1: modelos 1 a 9): “¿Diría Ud. que obtenerlo y activarlo le resultó muy fácil, fácil, difícil o muy difícil?”. Las variables fueron codificadas como dicotómicas, siendo un 1 la obtención y un 0 la no obtención, y siendo 1 el uso u obtención difícil o muy difícil de las herramientas y 0 el resto.

La segunda batería de variables dependientes corresponde a la dificultad de realizar ciertos trámites y gestiones con la administración digital (Tabla 1: modelos 10 a 15). Por ejemplo, “Acceder a la información almacenada sobre usted por las autoridades (pensión, salud, vida laboral, multas)”. Se codifica como 1 la experiencia “más bien difícil” y como 0 el resto “Más bien fácil” o “ni fácil ni difícil”.

Con el tercer grupo de variables dependientes nos adentramos en qué aspectos generan la dificultad durante las interacciones digitales (Tabla 1: modelos 16 a 20). Se codifica como 1 si los ciudadanos mencionan alguna de las siguientes problemáticas durante los encuentros: “Dificultad para encontrar información precisa, lo que buscaba”, “Falta de

ayuda o apoyo presencial o por teléfono”, “Dificultad para entrar, autenticarse o identificarse”.

Por último, se incluye un grupo de variables dependientes que permiten capturar los costes de cumplimiento y psicológicos percibidos (Tabla 1: modelos 21 a 25). Se pregunta sobre si están “Muy de acuerdo”, “Bastante de acuerdo”, “Ni de acuerdo ni en desacuerdo”, “En desacuerdo” o “Muy en desacuerdo”, con ciertas afirmaciones como “Pone en peligro la privacidad de los datos y la seguridad de los/as ciudadanos/as ante el fraude”. Aquellas respuestas “de acuerdo” y “muy de acuerdo” son codificadas como 1 y el resto como 0. Asimismo, se incluye una variable final general: “Y en conclusión, ¿cree usted que la Administración Electrónica tiene más ventajas que inconvenientes o más inconvenientes que ventajas?” categorizando “Más inconvenientes que ventajas” como 1 y “Más ventajas que inconvenientes” y “Ni una cosa ni la otra / las mismas / igual” como 0.

< Tabla 1 acá >

Las principales variables independientes son las características sociodemográficas de la población: género (hombre =1, mujer = 0), edad (1 si están por arriba de la media, 0 el resto), educación (1 si solo tienen aprobado hasta el nivel de educación secundaria, 0 el resto), ingresos (1 si los ingresos netos familiares son menores a 1800€, 0 el resto), situación laboral (1 si no trabaja, 0 si trabaja o estudia). También se incluyen dos variables de control que pueden afectar las actitudes respecto a los servicios públicos. La primera, la “importancia que concede Ud. a los servicios públicos en general” (1 “ninguna importancia” y 10 “mucho importancia”), codificada como 1 las respuestas del 1 al 5 y 0 para las de 6 al 10. La segunda es si votaron al partido de coalición del gobierno a la hora

de realizarse la encuesta: 1 para los que votaron al PSOE o SUMAR y 0 para el resto. La Tabla 2 describe las variables independientes propuestas.

< Tabla 2 acá >

Método

Para el abordaje de la relación entre las variables se utilizaron regresiones multinivel al nivel de las provincias y municipios. La experiencia de los ciudadanos frente a la administración puede estar influida por las características del municipio y de la administración local, sea por las ayudas que puede proveer, o por la diversidad de portales y trámites para las interacciones. Por ello, los análisis de regresión cuentan con las variables independientes mencionadas como efectos fijos y el intercepto aleatorio de las provincias y los municipios donde se encuentran los ciudadanos. Para realizar el análisis se utilizó el paquete lme4 para el ajuste de modelos lineales generalizados de efectos mixtos en R-studio (versión 2023.09.1+494).

Resultados

La Tabla 3 muestra cómo las personas con mayor edad, menor nivel educativo, con precariedad laboral y con menores ingresos tienen menor probabilidad de disponer de alguna de las herramientas clave para interactuar con la administración (modelos 1, 2, y 3) y tienen más probabilidades de experimentar dificultades para obtener estas herramientas digitales (modelo 4, 5 y 6). Estas preguntas no nos permiten desentrañar específicamente qué costes son los que explican la carencia de estas herramientas. Podrían ser debidas tanto a costes psicológicos o a problemas de aprendizaje y de no saber hacer los trámites. En cambio, la mayor dificultad de uso de estas herramientas por parte de

estos ciudadanos (modelos 7, 8 y 9) refleja un problema de costes de aprendizaje. Asimismo, los altos niveles de ICC de los últimos tres modelos (modelos 7, 8 y 9) muestran que hay una alta variación de los niveles de dificultad en el uso de las herramientas que se explican por los efectos aleatorios de las provincias y los municipios como consecuencia de las características de cada sitio web de los gobiernos locales donde se utilizan.

< Tabla 3 acá >

En la Tabla 4 se puede observar que hay una relación positiva y significativa entre la probabilidad de experimentar dificultades realizando ciertas gestiones a través de la administración electrónica y las características demográficas propuestas (modelos 10 a 15). Las gestiones y trámites que se presentan no implican un tiempo y esfuerzo particular, así que entendemos que lo que experimentan las personas con mayor edad, menor nivel de estudios, precariedad laboral y menores ingresos son costes de aprendizaje en estas interacciones. En este sentido, también hay un más alto nivel de ICC que implica una diferencia de las variables dependientes entre grupos de municipios y provincias.

< Tabla 4 acá >

Los resultados presentados en la Tabla 5 ofrecen información sobre los costes de aprendizaje de los ciudadanos con la administración digital. Los ciudadanos del perfil demográfico propuesto son más propensos a tener dificultades con los pasos a seguir y a no entender el lenguaje (modelos 16 y 17). La problemática de no saber a qué sitio web dirigirse sigue estando positivamente relacionada con el nivel de estudio, los ingresos y la situación laboral, pero no con la edad (modelo 18). Es posible que las personas de edad más avanzada tengan cierta experiencia o capital administrativo y al menos sepan a dónde dirigirse. La falta de ayuda o apoyo y la dificultad para autenticarse (modelos 19 y 20)

nuevamente correlaciona con todos los perfiles sociodemográficos, excepto la precariedad laboral con la falta de ayuda.

< Tabla 5 acá >

Finalmente, la Tabla 6 muestra ciertas actitudes de los ciudadanos respecto a la administración electrónica en la misma línea de los resultados precedentes. En primer lugar, excepto para la edad, el resto de los perfiles propuestos tienen mayor probabilidad de pensar que la administración digital pone en riesgo su privacidad y la seguridad de sus datos (modelo 21) y tienen menor probabilidad de pensar que favorece la transparencia (modelo 22). Estas dos variables capturan costes psicológicos de inseguridad y miedo ante unos mecanismos de interacción no tan conocidos por ellos. En segundo lugar, estos mismos grupos están significativamente relacionados con las percepciones de que la administración digital genera más trámites que recaen sobre la responsabilidad los ciudadanos (modelo 23) sin eliminar trámites y requisitos (modelo 24). Estos resultados reflejan un elevado coste de cumplimiento percibido por estos ciudadanos. Finalmente, y en línea con los resultados precedentes, estos cuatro grupos de ciudadanos piensan que la administración electrónica presenta más inconvenientes que ventajas (modelo 25).

< Tabla 6 acá >

Discusión

La experiencia de los ciudadanos frente a la administración es esencial para la eficacia de las políticas públicas. Los trámites y procedimientos no son inocuos ni neutrales, y generan múltiples efectos en los ciudadanos. Tomando como punto de partida la experiencia subjetiva de los ciudadanos, la literatura sobre carga administrativa se ha expandido para abordar sus usos políticos y otros efectos distributivos en la sociedad

además del posicionamiento de los funcionarios públicos respecto a tolerar o no la carga administrativa sobre los ciudadanos.

Los costes de aprendizaje, cumplimiento y psicológicos son un elemento diferencial respecto al *red tape*, ya que evitan que los individuos evalúen aspectos relacionados con el efecto de la carga administrativa en la funcionalidad organizativa. Por el contrario, se trata de analizar lo que los individuos experimentan o sienten en su interacción con la administración. En este sentido, es importante que la teoría de la carga administrativa continúe trabajando en su diferenciación respecto a otros conceptos con los que se podría confundir. En los últimos años se ha avanzado en el análisis de la experiencia ciudadana con la administración al abordar los costes derivados de la carga administrativa. La validación de las baterías de ítems para medir estos costes es fundamental para el desarrollo de investigaciones en diversos países y para comparar los resultados además de comprender mejor la relación entre ellos.

En España, el abordaje de las problemáticas generadas por la administración desde la perspectiva de la carga administrativa se limita al análisis del “in-take” de programas sociales. En un contexto de alta digitalización de la administración pública, la literatura sobre la carga administrativa muestra su potencial para entender la experiencia de los ciudadanos en muchas otras situaciones en las que se produce una interacción con la administración. Por ello, en este estudio se ha analizado la digitalización de la administración pública española desde la perspectiva de la carga administrativa.

Los resultados son claros respecto a cómo las personas con menor nivel educativo, menores ingresos, mayor edad y situación laboral precaria tienen mayor probabilidad de no tener las herramientas para interactuar con la administración digital en España y más dificultades para usarlas. Este tipo de interacción con la administración requiere

conocimientos y habilidades específicas y un trabajo autónomo sin apoyo directo de un funcionario público. Los grupos de ciudadanos mencionados tienen menores capacidades digitales, experiencia o recursos para afrontar eficazmente estas interacciones.

Respecto a las tres categorías de costes, la encuesta utilizada permite señalar los costes de aprendizaje que experimentan estas personas. También es posible identificar algunas percepciones que reflejan los costes de cumplimiento por el aumento de tareas que recaen sobre ellos y costes psicológicos como el miedo a la pérdida de privacidad, a la falta de transparencia en la resolución y a la incertidumbre respecto al resultado que pueden generar estas interacciones. Asimismo, el análisis multinivel nos permite despejar el componente aleatorio asociado a las características propias de los municipios y provincias donde se encuentren los ciudadanos, un aspecto clave dada la descentralización de muchos servicios en España.

Este estudio tiene algunas limitaciones en la medida que el análisis realizado podría ser más preciso en la medición de los costes de cumplimiento, aprendizaje y psicológicos que supone la carga administrativa. Sin embargo, encuadrar la experiencia ciudadana en estos tres costes ordena los intuitivos resultados obtenidos permitiendo no solo comprender y explicar, sino también establecer las posibles intervenciones para aliviar la carga administrativa en los ciudadanos más expuestos a ella. Los costes propuesto por esta literatura también ofrecen un lenguaje común para poner en dialogo los efectos de distintas acciones estatales sobre la ciudadanía.

Nuevas investigaciones podrían plantearse capturar los costes directamente con las escalas que van siendo validadas por la investigación internacional no solo para conocer mejor las experiencias de los ciudadanos españoles ante sus administraciones, sino para realizar comparaciones entre estas administraciones y con otros países. También cabría

ampliar el horizonte de las investigaciones analizando tanto los orígenes de la carga administrativa que pueden ser de naturaleza política o técnica como las consecuencias, incluido el cambio de actitudes respecto a la administración o a la política.

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Tabla 1. Variables dependientes

Variable	Nº	Obs	Media
¿Dispone usted de certificado electrónico?	(1)	8003	0,73
¿Dispone usted de certificado DNI electrónico?	(2)	7969	0,71
¿Dispone usted de Sistema cl@ve?	(3)	6253	0,55
¿Diría Ud. que obtenerlo y activarlo le resultó muy fácil, fácil, difícil o muy difícil? (Certificado digital)	(4)	5837	0,42
¿Diría Ud. que obtenerlo y activarlo le resultó muy fácil, fácil, difícil o muy difícil? (Cl@ve)	(5)	5579	0,33
¿Diría Ud. que obtenerlo y activarlo le resultó muy fácil, fácil, difícil o muy difícil? (DNI electrónico)	(6)	3378	0,29
¿Y la última vez que lo utilizó, le resultó muy fácil, fácil, difícil o muy difícil?" (Certificado digital)	(7)	5332	0,15
¿Y la última vez que lo utilizó, le resultó muy fácil, fácil, difícil o muy difícil?" (Cl@ve)	(8)	4676	0,14
¿Y la última vez que lo utilizó, le resultó muy fácil, fácil, difícil o muy difícil? (DNI electrónico)	(9)	1543	0,19
Acceder a la información almacenada sobre usted por las autoridades (pensión, salud, vida laboral, multas, ...)	(10)	5536	0,17
Obtener información de webs o aplicaciones de la Administración (servicios, prestaciones, derechos, leyes, impuestos, ...)	(11)	5242	0,32
Descargar o imprimir un formulario oficial de una web o aplicación de las administraciones (por ejemplo, solicitudes, etc.)	(12)	5848	0,19
Solicitar una cita, a través de una web o aplicación de las administraciones	(13)	6722	0,19
Solicitar algún documento o certificado oficial (certificado de graduación, nacimiento, residencia, antecedentes policiales, penales)	(14)	3138	0,19
Solicitar subvenciones o derechos, inscripción o matrícula en centros educativos (pensión, desempleo, subsidio por hijos/as, ...)	(15)	2569	0,30
Dificultades con los pasos a seguir	(16)	8060	0,44
No entender el lenguaje	(17)	8060	0,25
No saber a qué web o aplicación dirigirse	(18)	8060	0,45
Falta de ayuda o apoyo presencial o por teléfono	(19)	8060	0,60
Dificultad para entrar, autenticarse o identificarse	(20)	8060	0,32
Pone en peligro la privacidad de los datos y la seguridad de los/as ciudadanos/as ante fraude	(21)	9761	0,47
Favorece la transparencia de la Administración	(22)	9717	0,54
Genera más pasos y trámites que recaen en el/la ciudadano/a	(23)	9940	0,68
Elimina burocracia, trámites y requisitos	(24)	9964	0,57
¿Cree usted que la Administración Electrónica tiene más ventajas que inconvenientes o más inconvenientes que ventajas?	(25)	10116	0,32

Tabla 2. Descriptivos variables independientes

Variable	Media
Género (hombres)	0,47
Edad avanzada	0,26
Bajo nivel de estudios	0,15
Precariedad laboral	0,34
Bajos ingresos	0,26
Valoración servicios públicos	0,09
Voto gobierno	0,43

Tabla 3. Disposición, dificultad de uso y gestión del certificado digital, sistema CI@ve y DNI electrónico

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	1.31*** (0.12)	1.01*** (0.10)	0.53*** (0.12)	-0.56*** (0.13)	-0.98*** (0.17)	-1.39*** (0.22)	-2.46*** (0.23)	-2.61*** (0.33)	-5.03*** (0.75)
Género (hombre)	-0.12*** (0.01)	-0.09*** (0.01)	-0.30*** (0.01)	0.02*** (0.01)	0.03*** (0.01)	0.09*** (0.01)	0.13*** (0.01)	0.08*** (0.01)	0.03* (0.02)
Edad avanzada	-0.25*** (0.01)	-0.42*** (0.01)	0.07*** (0.01)	0.11*** (0.01)	0.10*** (0.01)	0.40*** (0.01)	0.25*** (0.01)	0.26*** (0.02)	0.20*** (0.03)
Bajo nivel de estudios	-0.64*** (0.01)	-0.06*** (0.01)	-0.52*** (0.01)	0.07*** (0.01)	0.16*** (0.01)	0.17*** (0.02)	0.70*** (0.02)	0.45*** (0.02)	0.44*** (0.03)
Precariedad laboral	-0.47*** (0.01)	-0.11*** (0.01)	-0.17*** (0.01)	0.01 (0.01)	0.08*** (0.01)	-0.03* (0.01)	0.20*** (0.01)	0.40*** (0.01)	-0.05* (0.02)
Bajos ingresos	-0.42*** (0.01)	-0.08*** (0.01)	-0.14*** (0.01)	0.32*** (0.01)	0.17*** (0.01)	0.01 (0.01)	0.39*** (0.01)	0.36*** (0.01)	0.00 (0.02)
Servicios públicos	-0.13*** (0.01)	-0.15*** (0.01)	-0.20*** (0.01)	0.26*** (0.01)	0.15*** (0.01)	0.63*** (0.02)	0.37*** (0.02)	0.31*** (0.02)	-0.09* (0.04)
Voto gobierno	0.19*** (0.01)	0.19*** (0.01)	0.04*** (0.01)	-0.20*** (0.01)	-0.25*** (0.01)	-0.19*** (0.01)	-0.41*** (0.01)	-0.44*** (0.01)	-0.18*** (0.02)
SD (Intercept MUN)	0.67	0.60	0.75	0.75	1.20	1.29	1.53	2.30	5.04
SD (Intercept PROV)	0.70	0.52	0.61	0.73	0.75	1.13	1.05	1.47	3.31
Num.Obs.	7273	7245	5677	5332	5092	3079	4888	4272	1396
R2 Marg.	0.041	0.012	0.015	0.008	0.006	0.009	0.020	0.014	0.001
R2 Cond.	0.255	0.170	0.234	0.257	0.384	0.477	0.521	0.698	0.917
ICC	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.7	0.9

p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Errores estándar entre paréntesis

Tabla 4. Dificultad de durante las interacciones en distintos trámites y gestiones digitales

	(10)	(11)	(12)	(13)	(14)	(15)
(Intercept)	-2.21*** (0.27)	-0.76*** (0.12)	-1.75*** (0.26)	-2.01*** (0.27)	-2.00*** (0.34)	-1.39*** (0.37)
Género (hombre)	-0.08*** (0.01)	-0.08*** (0.01)	-0.22*** (0.01)	-0.20*** (0.01)	0.01 (0.01)	-0.31*** (0.01)
Empleo avanzada	0.26*** (0.01)	-0.15*** (0.01)	0.14*** (0.01)	0.12*** (0.01)	0.24*** (0.02)	0.66*** (0.02)
Bajo nivel de estudios	0.10*** (0.02)	0.22*** (0.01)	0.25*** (0.01)	0.27*** (0.01)	0.08*** (0.02)	0.20*** (0.02)
Precariedad laboral	0.03* (0.01)	0.11*** (0.01)	0.00 (0.01)	-0.02+ (0.01)	0.05** (0.02)	-0.34*** (0.01)
Bajos ingresos	0.46*** (0.01)	0.22*** (0.01)	0.11*** (0.01)	0.21*** (0.01)	0.31*** (0.01)	0.50*** (0.01)
Servicios públicos	0.84*** (0.02)	0.27*** (0.01)	0.45*** (0.02)	0.59*** (0.01)	0.43*** (0.02)	0.77*** (0.02)
Voto gobierno	-0.40*** (0.01)	-0.31*** (0.01)	-0.25*** (0.01)	-0.32*** (0.01)	-0.55*** (0.01)	-0.26*** (0.01)
SD (Intercept MUN)	1.79	0.80	1.56	1.59	2.05	2.60
SD (Intercept PROV)	1.23	0.59	1.35	1.39	1.76	1.57
Num.Obs.	5093	4820	5345	6122	2885	2351
R2 Marg.	0.017	0.012	0.007	0.010	0.010	0.011
R2 Cond.	0.596	0.240	0.567	0.580	0.693	0.739
ICC	0.6	0.2	0.6	0.6	0.7	0.7

p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Errores estándar entre paréntesis

Tabla 5. Dificultades experimentada durante las interacciones

	(16)	(17)	(18)	(19)	(20)
(Intercept)	-0.33** (0.11)	-1.50*** (0.14)	-0.24* (0.11)	0.29** (0.10)	-1.00*** (0.09)
Género (hombre)	-0.09*** (0.01)	0.12*** (0.01)	-0.10*** (0.01)	0.27*** (0.01)	-0.03*** (0.01)
Empleo avanzada	0.38*** (0.01)	0.56*** (0.01)	-0.27*** (0.01)	0.03*** (0.01)	0.05*** (0.01)
Bajo nivel de estudios	0.36*** (0.01)	0.34*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.42*** (0.01)
Precariedad laboral	0.05*** (0.01)	0.08*** (0.01)	0.05*** (0.01)	-0.23*** (0.01)	0.19*** (0.01)
Bajos ingresos	0.19*** (0.01)	0.16*** (0.01)	0.22*** (0.01)	0.05*** (0.01)	0.18*** (0.01)
Servicios públicos	0.16*** (0.01)	0.11*** (0.01)	0.12*** (0.01)	0.35*** (0.01)	0.34*** (0.01)
Voto gobierno	-0.18*** (0.01)	0.02* (0.01)	-0.18*** (0.01)	-0.17*** (0.01)	-0.15*** (0.01)
SD (Intercept MUN)	0.67	0.78	0.64	0.60	0.58
SD (Intercept PROV)	0.62	0.81	0.56	0.51	0.46
Num.Obs.	7320	7320	7320	7320	7320
R2 Marg.	0.014	0.016	0.008	0.010	0.014
R2 Cond.	0.214	0.290	0.185	0.169	0.156
ICC	0.2	0.3	0.2	0.2	0.1

p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Errores estándar entre paréntesis

Tabla 6. Actitudes respecto a las interacciones digitales con la administración

	(21)	(22)	(23)	(24)	(25)
(Intercept)	0.80*** (0.10)	2.64*** (0.19)	-0.22* (0.09)	0.28*** (0.07)	-1.20*** (0.09)
Género (hombre)	0.30*** (0.00)	0.30*** (0.01)	0.21*** (0.00)	-0.28*** (0.00)	0.43*** (0.00)
Empleo avanzada	-0.03*** (0.01)	-0.11*** (0.01)	0.27*** (0.01)	-0.26*** (0.01)	0.21*** (0.01)
Bajo nivel de estudios	0.06*** (0.01)	-0.65*** (0.01)	0.34*** (0.01)	-0.08*** (0.01)	0.42*** (0.01)
Precariedad laboral	0.11*** (0.01)	-0.25*** (0.01)	0.15*** (0.01)	-0.05*** (0.01)	0.25*** (0.01)
Bajos ingresos	0.04*** (0.01)	-0.41*** (0.01)	0.14*** (0.01)	-0.12*** (0.01)	0.32*** (0.01)
Servicios públicos	-0.19*** (0.01)	-0.60*** (0.01)	0.31*** (0.01)	-0.53*** (0.01)	0.99*** (0.01)
Voto gobierno	-0.27*** (0.00)	0.18*** (0.01)	-0.41*** (0.00)	0.59*** (0.00)	-0.49*** (0.01)
SD (Intercept MUN)	0.57	1.07	0.55	0.42	0.50
SD (Intercept PROV)	0.52	1.06	0.51	0.36	0.48
Num.Obs.	8923	9063	8763	8727	9055
R2 Marg.	0.011	0.040	0.031	0.041	0.080
R2 Cond.	0.163	0.433	0.173	0.123	0.198
ICC	0.2	0.4	0.1	0.1	0.1

p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Errores estándar entre paréntesis

ARTICLE 2

Exploring the relationship of administrative burden with doctors' motivation and patients' experience of care: evidence from primary healthcare in Catalonia

This article is in the revise and resubmit process in the International Review of Administrative Science journal

Abstract

Administrative burden focuses on the subjective experience of citizens when they face administrative tasks as potential beneficiaries of public policies. This paper examines the administrative burden experienced by professionals in the public health sector, in this case general practitioners. After distinguishing between red tape and administrative burden, we test whether the onerous experience of following guidelines and procedures impacts their intrinsic motivation and, indirectly, their patient experience. We base our analysis on two surveys, one of primary care doctors and one of patient experience and satisfaction in Catalonia. Using Structural Equation Modelling, the study confirms a negative effect of administrative burden on doctors' intrinsic motivation and a significant but smaller direct and mediated effect of administrative burden on patient experience. Efforts to increase professionals' performance through standardization may increase the quality of services but this study shows the importance of considering the negative effects of administrative burden on medical professionals and their patients.

Keywords: Administrative burden – intrinsic motivation – patient experience – behavioral public administration

Introduction

General practitioners are concerned about the excessive administrative work they are asked to carry out. This is an issue that appears frequently in the media and in academic papers (Erickson et al., 2017; Lorkowski et al., 2021; Lorkowski and Grzegorowska, 2020; Rao et al., 2017). Medical professionals hold a particular identity that distinguishes them from other employees (Kilponen et al., 2021). Their professional identity defines the tasks which are substantial to their job. When secondary tasks are frequent or consume a lot of time, they may consider them illegitimate (Semmer et al., 2010, 2015) and a source of stress on the job. Doctors tend to consider part of their administrative work as illegitimate which increases their levels of frustration and burnout (Rao et al., 2017).

In public administration literature, administrative burden (AB) focuses on the citizens' onerous experience when they face policy implementation, as well as the impact that administrative procedures may have on their behavior and well-being (Baekgaard and Tankink, 2022; Burden et al., 2012). There is an open debate about the differences and similarities between Red Tape (RT) and AB (Campbell et al., 2023; Madsen et al., 2022). However, a significant distinction between the two can be made. RT addresses individuals' perceptions of the effectiveness of burdensome rules and procedures in achieving organizational objectives. In contrast, AB focuses on individuals' experiences of citizens interacting with the state regardless of the rules and procedures functionality. The AB experience is shaped by individuals' high learning, compliance, and psychological costs during the interactions with the administration (Moynihan et al., 2015).

AB born by primary doctors has not been studied as such although there is an extensive literature on doctors and nurses performing what they consider "illegitimate" tasks. This

paper connects both streams of literature and gives attention to a significant problem among the medical profession seen from the lenses of the AB literature.

Motivation theory makes the very basic distinction between intrinsic and extrinsic motivation (Deci and Ryan, 2000; Gagné and Deci, 2005; Ryan and Deci, 2006). Intrinsic motivation emerges when individuals feel that they are developing their capacities in their jobs, experience a sense of freedom and ownership of their work and feel connected with others, either professionals or users. This type of motivation is important as there is extensive evidence associating high levels of intrinsic motivation and increased performance in complex tasks that need high involvement and a positive attitude at work (Cerasoli et al., 2014; Deci et al., 2017).

Performance in healthcare organizations is usually measured with a combination of registered process measures and patient reported experience measures (PREMS) (Ahmed et al., 2014; Ballart and Rico, 2023; Gardner et al., 2016). Registered process measures reflect the guidelines and performance targets proposed by health authorities which limit the autonomy of healthcare professionals in favor of achieving the system's objectives at the population level. PREMs provide information about patients' experiences based on parameters that patients can observe in their use of the system.

In their efforts to increase standardization and improve performance, health authorities increase the AB experience for professionals, which may act as a negative extrinsic demotivator. Although management objectives may also attempt to make progress toward a more patient centered approach, it is very likely that the increased standardization and AB has a negative effect on patients' experience of care. We know that there is a positive relationship between certain positive attitudes of health professionals and health

outcomes (Anhang Price et al., 2014; Beck et al., 2002; Swarna Nantha, 2013; Xu et al., 2020).

Thus, this study addresses two research questions: to what extent AB experience affects doctors' intrinsic motivation, and what is the effect of the AB experienced by doctors on patients' experience. There is a gap in both medical studies on doctors assuming administrative tasks and in the AB literature on street-level bureaucrats, and this study can contribute to filling it.

The data for this study comes from two sources, thus avoiding common source problems (Podsakoff et al., 2012). The first survey (N= 526) provided data on primary health doctors' motivation and perceptions of AB. The survey was conducted with the help of the Association of Family Doctors in Catalonia (CAMFiC). The dataset reflecting patient experience comes from another survey which is carried out every two years by the Catalan government to collect information on patient experience and satisfaction (Plaensa, 2021). The paper uses confirmatory factor analysis (CFA) to analyze the AB latent variable construct and structural equation modeling (SEM) and path analysis to measure the AB effect on intrinsic motivation and patient experience mediated by intrinsic motivation.

Theoretical framework

Administrative Burden or Red Tape?

The terms RT and AB are used both in ordinary language and technically which has contributed to some conceptual confusion in the RT and AB literature. Recently, (Baekgaard and Tankink, 2022) as well as Madsen, Mikkelsen and Moynihan (2022) argue that since the term AB is used interchangeably with RT, it is necessary to discuss their distinctive features.

Going back to the initial definitions, Bozeman identified RT with complex organizational and control tools that create rules that consume an organization's resources but fail to advance its goals (Bozeman, 1993; Bozeman and Feeney, 2011). From this perspective, the problem of RT is defined as a problem of "no efficacy for the rules' functional objectives"(Bozeman, 1993: 283) and therefore that RT degrades organizational performance by wasting resources (Bozeman, 2012).

AB is the alternative approach developed more recently that focuses on the experience of "onerous" public sector rules by citizens (Burden et al., 2012). The main idea is that rules impose costs on citizens in their interactions with the state which reduce program take-up, that is of those who are formally eligible for program participation. Thus, burdensome rules harm citizens subject to them, although the effects may be unequal depending on the citizen's ability to cope with them.

In the case of AB, the origin was initially associated to "machinations of partisan actors" (Moynihan et al., 2016). In their study of access to Medicaid in the US, they found that burdensome rules were less likely in states controlled by Democrats than in states controlled by Republicans. Along the same lines, liberal street-level bureaucrat would oppose burden from a social equity perspective while conservative street-level bureaucrats would have higher levels of support for AB and justify it with references to its potential to reduce fraud. However, other researchers have associated AB to non-political factors such as poor policy design or implementation, lack of organizational capacity or malfunction of digital services (Peeters 2020) all of which should be more common in less developed countries.

Part of the literature sees both concepts as having much in common (Campbell et al., 2023) and belonging to the same family. However the focus of RT are internal rules

affecting the functioning of the organization (resources, personnel and internal activities) while AB studies focus on the rules that shape the interaction between the government and citizens (particularly those who are more vulnerable) and on the compliance, learning and psychological costs borne by those citizens. In the original conceptualization by Herd and Moynihan (2018: 23), learning costs refer to “the time and effort expended to learn about a program or service”; compliance costs to “the provision of information and documentation (...) avoiding or responding to discretionary demands made by administrators,” and psychological costs to the “stigma arising from applying” but also to the “loss of autonomy, frustration at dealing with learning and compliance costs, unjust or unnecessary procedures; stresses that arise from uncertainty.”

Citizens or public employees?

The focus on vulnerable citizens in the AB research drove scholars to center on citizen experiences away from public employees, although Burden et al. refers to an individual who can be either a citizen or an administrator (Burden et al., 2012).

Employees experience can also be the object of AB studies. As it is literally conveyed by the terms, AB causes a burden for someone, and it can be any kind of professional. With this perspective, Bozeman et al. (2020), for example, study the effects of AB on researchers who deal with the rules and regulations of funding agencies. In this study, we analyze the AB borne by primary health doctors. The Herd and Moynihan conceptualization of AB is particularly adequate as the focus is not on organizational efficacy (RT) as on psychological costs as a consequence of dedicating too much time on administrative activities. Primary doctors also suffer learning costs as they have to gain access, interact with online systems, and learn about their technical requirements. And they bear compliance costs as they have to provide information and extensive

documentation to the systems as well as respond to discretionary demands made by administrators.

Intrinsic and extrinsic motivators

Behind any individual action, there is a psychological process leading people to behave in a certain way (Esteve and Schuster, 2019). However, not every motive has the same nature. The distinction between intrinsic and extrinsic motivators was addressed early in the literature (Ryan and Deci, 2000). Intrinsic motivation is driven spontaneously by volition, choice, interest and enjoyment in the activity. In contrast, extrinsic motivation is ruled by the external consequences of the action. One of the main motivation theories, Self Determination Theory (SDT), departs from this distinction and presents a continuum from autonomous to controlled motivation (Deci and Ryan, 2000; Gagné and Deci, 2005; Ryan and Deci, 2006) with intrinsic motivation being fully autonomous, and extrinsic motivation externally controlled. For an individual to have an autonomous form of motivation it is necessary to internalize the values behind a specific behavior and to integrate them as a part of his or her self-identity. When individuals internalize values and enjoy the activity, they move from completing a task because of an external regulation (controlled motivation) to a more intrinsic and thus self-determined form of motivation (Gagné and Deci, 2005). SDT proposes that the nutrients for internalizing regulations consist of satisfying three basic psychological needs: autonomy, competence, and relatedness (Deci and Ryan, 2000; Gagné and Deci, 2005). Autonomy is related with feeling ownership of the experience—that is, to act with a sense of self-organization and psychological freedom. Competence relates to the individuals' inherent propensity to challenge his/her capacities in manipulating the environment and experiencing successful performance. Relatedness responds to the human volition to feel connectedness with others.

Previous studies have shown the relationship between a high-demand administrative environment and a number of negative outcomes such as a perception of lower autonomy and a higher concern for not having performed well in individual appointments because of excessive attention paid to filling clinical histories and other administrative tasks (Zegers et al., 2020). Similar results associate administrative requirements and higher levels of burnout, feelings that the job is not meaningful or lower levels of work engagement (Kilponen et al., 2021). Other outcomes that have been identified are lower levels of career satisfaction, willingness to see fewer patients in the future (Rao et al., 2017) or even higher of absenteeism due to sickness (Thun et al., 2018).

Other studies have generally shown the positive effects of increased autonomous motivation resulting in better employee performance and well-being (Deci et al., 2017). In healthcare studies, intrinsic motivation appears to reduce burnout and intention to leave practice (Moller et al., 2019, 2022; Montasem et al., 2014). Intrinsic motivation has also been associated with increased job satisfaction and doctor's commitment to patient centered care (Moller et al., 2019, 2022; Montasem et al., 2014; Tak et al., 2017).

The high-demanding character of administrative tasks primary doctors have to perform, including completing clinical histories, involves a recurring experience which can be felt as onerous. The high share of time and effort in administrative procedures may affect doctors' satisfaction of basic needs of autonomy and competence at work, thus having a negative effect on their intrinsic motivation. Administrative tasks are activities that are not normally seen as rewarding and the psychological costs in terms of stress and burn out may reduce the feeling of doing an activity for its inherent satisfaction rather than for some separable consequence (Ryan & Deci, 2000). The result that can be expected is therefore that doctors are less intrinsically motivated.

H1: The higher the administrative burden doctors perceive, the less intrinsic motivation they are likely to have at work.

Patient experience as part of healthcare performance

Performance in healthcare organizations is normally measured with a combination of objective process measures and patient reported experience measures (PREMS) (Ahmed et al., 2014; Ballart and Rico, 2023; Gardner et al., 2016). Health authorities impose process measures to control the implementation of their guidelines and the extent that their targets are achieved. For first-line doctors and nurses, these measures are external demands aimed at the control of their activity, limiting their autonomy. This does not mean that all the guidelines and targets are negatively perceived by medical professionals as they may agree on their relevance. On the other hand, patient experience is related to those aspects of healthcare that patients can observe. Engaging with patients about their experience facilitates a better understanding of what is considered important from their perspective and it is an important element to redesign the delivery of health care in favor of a more patient-centered care (Salisbury et al., 2010).

Patient experience is influenced by various elements; some of them have a structural character (like the physical environment, waiting times and consultation structure), while others have a technical or organizational character (like improvements in knowledge and the capacity to introduce new treatments) and human character including interpersonal relations (communication, trust and respect) (Gardner et al., 2016; Salisbury et al., 2010; Sequist et al., 2008; Smith et al., 2017). The whole experience lived by the patient including the inclusion of family members or other individuals from their environment may be important. In this study, we have identified various items that are related with patient experience as defined by the literature (Gardner et al., 2016; Salisbury et al., 2010;

Sequist et al., 2008; Smith et al., 2017), which are related with interpersonal communication, language, trust, attention and kindness.

Governments and management actions aimed at improving performance tend to increase the standardization of the services and the AB for professionals who perceive external demands to comply with rules and procedures as the negative side of the implementation of management directives and objectives. Although management efforts may also be directed at making progress toward a more patient-centered approach, it is very likely that the increased standardization and AB will have a negative effect on medical professionals and eventually impact patients' experience of care.

We know that doctors' relations with patients are conditioned by their well-being, stress level, job satisfaction, and teamwork climate (Beck et al., 2002; Swarna Nantha, 2013). It is likely that their perception of an increasing AB has a direct or an indirect effect on patients. Patients may be required to fill out new forms, answer questions or simply wait and see their nurse or doctor doing their work. They also may feel that healthcare is becoming more bureaucratic, their concerns do not get enough attention or that the overall system is less responsive. Therefore,

H2: The higher the administrative burden doctors perceive, the worse the patient experience of care.

H3: The higher the administrative burden doctors perceive, the worse the patient experience of care, mediated by doctor's intrinsic motivation.

Data and methods

In order to assess AB, we focused on the obligation to fulfill clinical records, which is a critical administrative task for doctors in the public sector. Clinical records are essential

to keep for patient diagnosis and treatment and for performance management. Maintaining this system falls mainly on general practitioners, who perceive these tasks consume their energy and working day while reducing their clinical implications with patients. Thus, although doctors know the functionality of clinical records, they experience compliance with them as a job stressor.

We developed our own scale based on previous studies (Baekgaard et al., 2021; Thomsen et al., 2020) and on the consequences of doctors' feeling some tasks as illegitimate. Our items center on the personal experience of the doctors without asking about the benefits or disadvantages of the clinical records for the organization. Doctors may feel that administrative tasks reduce the time they would rather spend on patient care activities (compliance cost): "Complying with medical records takes a lot of time and effort", and "Generally, complying with medical records is annoying." Second, doctors may feel that a high compliance context can affect their performance with patients, and because of that, they may be more vulnerable to work pressure (psychological cost): "I'm concerned about the effect this may have on the patient's relationship," and "Complying with medical records causes me stress." Finally, following the AB literature, we propose to collect information on learning costs with two items: "Completing clinical records requires additional research and learning" and "Instructions for completing clinical records are not helpful enough." Table 5 (appendix) shows the original Catalan and Spanish items of both the dependent and independent variables.

Secondly, to measure motivation, we used the motivation at work scale proposed by Gagné et al. (2010). This validated scale has three items for intrinsic and three items for extrinsic motivation. Family doctors were asked to fill out the six items with a seven-point Likert scale, beginning with the following statement: "(...) to what degree they presently correspond to one of the reasons for which you are doing this specific job."

Intrinsic motivation items were: “Because I enjoy this work very much,” “Because I have fun doing my job,” “For the moments of pleasure that this job brings me.” Extrinsic motivation items were: “Because this job affords me a certain standard of living,” “Because it allows me to make a lot of money,” and “I do this job for the paycheck.”

Finally, to measure patient experience, we used five items from the patient’s subjective assessment of the medical encounters that allow patients to value the information they received through their doctor, to what extent it was understandable, the level of trust in the doctor, the kindness in the personal treatment and the attention paid to patient concerns. We used the following items: (scale: always, almost always, often, sometimes, never/almost never): “Does the doctor give you the information you need about your illness and treatment?”, “Does the doctor give you the information in a way that you can understand?”, “Do you feel you are in good hands?” and “How do you rate the kindness in the way the doctor relates to you?” We used the following items (Scale: perfect, very good, good, regular, bad): “How willing is the doctor to listen to you and your concerns?” We coded both scales from 1 to 5, 5 being the best value.

Data collection

The data came from two surveys, both from 2021. The first survey was addressed to primary care health doctors in Catalonia. Family and community medicine is the equivalent of GPs (general practitioners) in Spain. Primary doctors are the main gate to access the public health system and the quality of their relations with patients is key for the for the healthcare system (Beck et al., 2002). They are responsible for various key processes like keeping patients’ clinical histories, giving sick leave permissions, or transferring patients to specialists in hospitals. The survey was sent by e-mail through the Catalan Society of Family and Community Medicine (CAMFiC). This scientific and

professional association groups 4,641 family doctors of an estimated total of 5,926 family doctors in Catalonia. After sending the first e-mail and two reminders to all association members, we collected 526 (11%) responses from 236 primary care centers. Although the sampling strategy does not control for some bias in the responses, the number of responses is sufficient to conduct the statistical analyses.

The second survey collects information on patients' experiences with primary care doctors in Catalonia. The "Plaensa" survey has been conducted by the Catalan Health Department every two years since 2005. The 2021 wave surveyed 29,738 patients from 372 health centers. We aggregated items at the center's level because it is not possible to identify which doctor sees each patient. However, patients are always attended in the same center, and it can be expected that working environment and management at the center level provides similar experiences within the centers. Thus, the analysis uses a patient experience at the center level for each primary care doctor who participated in the first survey. Using two different surveys reduces common source bias risk inflation (Podsakoff et al., 2012).

Table 1 shows the descriptive statistics for both samples. Most of the respondents in the first survey were female doctors (74%) between 38 and 57 years old (68%) which roughly corresponds with the population.

< Table 1 about here >

Methods

In order to observe the effects of learning, compliance, and psychological costs on motivation and patient experience, the study used SEM (Brown, 2015; Kline, 2016). This technique allows for working with latent variables without aggregating the items and

testing for the validity and reliability of measures. Furthermore, it is possible to conduct path analysis to measure the effect of AB on patient experience mediated by intrinsic motivation.

Since the data violate the normality assumption, we used the weighted least square mean as an estimator and variance adjusted (WLSMV) with Satorra-Bentler correction (Brown, 2015; Kline, 2016). To evaluate the model fit with absolute indexes, we use root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMS). The closer to 0, the better the model fit being acceptable below 0.8. We use the comparative fit index (CFI) and the Tucker–Lewis index (TLI) for incremental indexes—the closer to 1, the better model’s fit being acceptable above 0.95. Our analysis is conducted in R (version 4.0.3) using the Laavan package (0.6-10 version) (Jorgensen et al., 2022; Rosseel, 2012).

Results

We assessed the fit of the AB scale by conducting a confirmatory factor analysis. We loaded the six items and evaluated fit indexes. Learning costs do not fit well in the model; their items are unrelated to the other job stressors and do not load the latent construct's administrative burden. This technique allows us to draw the first finding. The AB onerous experience of doctors is not a matter of learning and understanding well-known administrative procedures. Their burdensome experience with administrative tasks comes from spending too much time and effort complying with them and the concern and stress it generates. Thus, we discarded learning costs and built the AB latent variable with psychological and compliance costs. The AB concept construct shows a good fit: RMSEA = 0.33, SRMR = 0.01, CFI = 0.99, and TLI = 0.971. All loaded factors and latent variables

are significant at < 0.01 and with an acceptable explanatory power (R-squared above 3.5). Internal consistency is also acceptable, with a Cronbach's of 0.82.

< Figure 1 about here >

Figure 1 presents the complete model of the effect of AB and motivation on patient experience. Extrinsic motivation variables were included to strengthen the analysis. The first hypothesized model was a fully mediated one; however, we chose a model with the motivation variables partially mediating the AB effect on patient experience after comparing model fit running the `lavTestLRT` (likelihood-ratio test) function. Demographic control variables are not presented in Figure 1. The model ends normally after 85 interactions with 111 degrees of freedom and a Satorra-Bentler scale of 0.51. It shows an acceptable fit with robust RMSEA 0.048, SRMR 0.054, CFI 0.97, and TLI 0.96. Appendix 1 presents the plot of the correlation matrix, and Table 2 the covariance endogenous latent variables.

< Table 2 about here >

Table 3 shows the standardized coefficient of loading factors regarding their latent variables. All factors are significant at < 0.01 . The linear regression path in Table 4 summarizes the relationships between the exogenous and endogenous variables of the model. The analysis indicates that the perception of AB is significantly and negatively associated with intrinsic motivation, confirming hypothesis 1. Doctors who perceive higher levels of AB tend to be less intrinsically motivated. In this regard, the model explains 9.2% of intrinsic motivation variation. Extrinsic motivation is not significantly associated with AB.

< Table 3 about here >

Regarding patient experience, it is negatively affected by the perception of AB, mediated by intrinsic motivation, which confirms our third hypothesis. AB experience undermines the positive effects of intrinsic motivation that contribute to having a good patient experience. The analysis also shows a direct effect of AB on patient experience with a higher explanation power, which confirms the second hypothesis. These results have to be taken with caution because aggregating the patient experience at the center level and merging it with the doctors' perceptions could be a source of error. The model explains 3.4% of the variation in patient experience. Extrinsic motivation is not significantly associated with any relevant outcomes. Finally, age and gender do not affect intrinsic motivation or patient experience of care; only gender shows little effect on extrinsic motivation.

< Table 4 about here >

Discussion and conclusions

This study was initiated because AB theory and analysis have been applied to citizens who are potential beneficiaries of public policies but not so much to professionals providing public services. Distinguishing from RT and looking at the AB and professionals connects to a vast literature on the professional identity of medical personnel and the concern for the increasing number of tasks that they consider illegitimate. Combining both public administration theories on AB, and theories on what defines the professional identity of doctors, this study identified a gap that contributes to fill by associating AB perception by street-level bureaucrats and intrinsic motivation, as well as the analysis of the direct and indirect effects of increasing AB on patient experience of care.

AB is usually defined as the sum of learning, compliance and psychological costs. However, in this study, doctors did not perceive high learning costs in the task of introducing data and completing clinical histories. Although learning costs in relation to the filling clinical histories did not fit the AB latent variable, complying with the obligations regarding clinical histories was perceived as a burden with a significant psychological cost.

We knew about the negative consequences of working in a high-demanding administrative context for medical personnel. Previous studies have shown negative effects on their levels of stress provoked by dedicating too much time to filling records and not enough time to talking and answering patient questions, stress and burnout effects, lower levels of commitment and job satisfaction leading to absenteeism or even abandoning the profession (Kilponen et al., 2021; Rao et al., 2017; Thun et al., 2018; Zegers et al., 2020). There was an important gap in the analysis of motivation and the potential effects of AB on both intrinsic and extrinsic motivation. This study shows that the relevant effects of the burdensome experiences by doctors are on intrinsic motivation. Extrinsic motivation is not relevant; however, AB acts as an external factor crowding out intrinsic motivation. Instead of sustaining a positive behavior, it acts as a negative reinforcement.

Another interesting, although weak, finding is the direct and indirect effects of AB on performance through patient experience. AB can be directly observed by patients, or it can be indirectly perceived because of a change of attitude or behavior of the professional attending the patient. One of the main tendencies in primary health management is leading doctors to focus on patients, and administrative requirements could seriously disturb them from this patient-centered approach.

The conclusions are quite straightforward. Administrative requirements can create a burden for medical professionals that may reach a point that seriously affects their intrinsic motivation and their relationship with patients. As is well known from Herzberg (1968), more than motivating professionals, management action tends to demotivate them. Different individuals are motivated by different factors (Esteve and Schuster, 2019), and the crowding-out effect on their intrinsic motivation will happen at different phases in their professional careers. A similar argument can be made concerning doctor-patient relations and the impact of AB on patient experience. However, this is an important component of healthcare performance. Governments and management define their policy objectives and they control the achievement of the targets imposed on first-line professionals. These targets include more patient centered activities which in turn contribute to achieving more objective outcomes. On the practical side, however, these processes need to be monitored by management when introducing new policies with their own targets and their own dose of additional administrative tasks, as it is possible that the undesired effects do not compensate the positive effects initially aimed, particularly when professionals and patients perceive that their activities and relations are affected.

This study presents some limitations that we would like to acknowledge. First, the data did not allow us to identify which doctor sees each patient, and this is why an aggregate patient experience measure at the center level was used. The study tracked the effects on intrinsic motivation in the case of filling clinical histories and not, among other probably even more peripheral administrative tasks that some primary health doctors are asked to perform. Using a second dataset to address our dependent variable is a good practice to strengthen the significance of the analysis by reducing common source bias risk inflation. However, further studies should attempt to link doctors' experiences with their specific patient reports.

Finally, there is more research to be pursued in connection with this study. Unfolding the AB concept is still an underdeveloped theoretical and empirical project. This study contributes to the debate about the differences between AB and RT which still needs further research. It would be interesting to identify the burdensome experience and its consequences regarding professionals working in other environments. A proposition to study is whether AB has a lesser impact on bureaucratic jobs that entail weaker professional identities.

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Table 1. Descriptive statistics

Variable			Mean	Std Dev
AB: Learning	x1	Completing clinical records requires additional research and learning	4.97	1.72
	x2	Instructions for completing clinical records are not helpful enough	3.99	1.68
AB: Psychological	x3	Complying with medical records causes me stress	3.89	1.79
	x4	I'm concerned about the effect this may have on the patient's relationship	3.23	1.72
AB: compliance	x5	Generally, complying with medical records is burdensome	3.94	1.83
	x6	Complying with medical records takes a lot of time and effort	5.56	1.46
Intrinsic motivation	x7	Because I enjoy this work very much	5.37	1.51
	x8	Because I have fun doing my job	4.55	1.57
	x9	For the moments of pleasure that this job brings me	4.23	1.63
Extrinsic motivation	x10	Because this job affords me a certain standard of living	3.88	1.57
	x11	Because it allows me to make a lot of money	2.34	1.36
	x12	I do this job for the paycheck	2.34	1.67
Patient experience (Health centers)	x13	Does the doctor give you the information you need about your illness, treatment, etc.?	3.53	0.50
	x14	Does the doctor give you information in a way that you can understand?	3.98	0.55
	x15	Do you feel you are in good hands?	4.18	0.56
	x16	How do you rate the doctor's treatment and kindness towards you?	3.82	0.53
	x17	How willing is the doctor to listen to you and understand your health concerns?	3.94	0.54
Age			47.63	9.40
Gender			0,26	0,44

Notes: AB = Administrative burden; Gender (1=male, 0 =female).

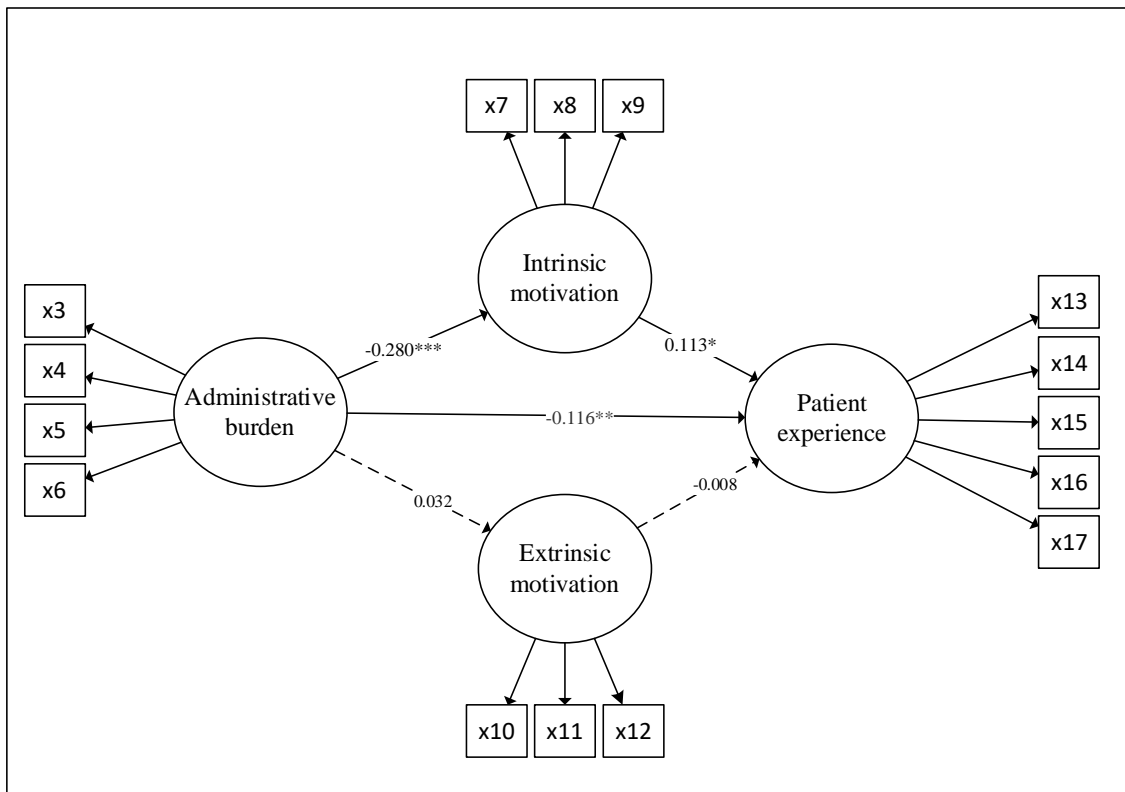


Figure 1. SEM model of administrative burden, motivation and patient experience

Table 2. Latent variables correlation

Factor 1	Factor 2	r	sig	p	SE
Intrinsic	Extrinsic	0.773	***	0.000	0.053

Table 3. Standardized coefficients for the measurement model.

Latent Factor	Indicator	Loadings	sig	p	SE
Intrinsic	x15	0.862	***	0	0.035
Intrinsic	x16	0.842	***	0	0.034
Intrinsic	x17	0.709	***	0	0.046
Extrinsic	x24	0.762	***	0	0.038
Extrinsic	x25	0.808	***	0	0.045
Extrinsic	x26	0.54	***	0	0.045
Administrative burden	x3	0.889	***	0	0.026
Administrative burden	x4	0.638	***	0	0.04
Administrative burden	x5	0.822	***	0	0.027
Administrative burden	x6	0.603	***	0	0.034
Patient experience	x32	0.982	***	0	0.007
Patient experience	x33	0.995	***	0	0.004
Patient experience	x34	0.994	***	0	0.005
Patient experience	x35	0.987	***	0	0.005
Patient experience	x36	0.983	***	0	0.006

Table 4. Regression Paths

Predictor	DV	Path Values	SE	z	sig	p
Administrative burden	Intrinsic	-0.280	0.049	-5.659	***	0
Gender	Intrinsic	0.086	0.048	1.803		0.071
Age	Intrinsic	0.065	0.05	1.297		0.195
Administrative burden	Extrinsic	0.032	0.057	0.567		0.571
Gender (ref. Male)	Extrinsic	0.106	0.05	2.135	*	0.033
Age	Extrinsic	-0.079	0.054	-1.448		0.147
Intrinsic	Patient experience	0.113	0.045	2.49	*	0.013
Extrinsic	Patient experience	-0.008	0.048	-0.175		0.861
Administrative burden	Patient experience	-0.116	0.044	-2.617	**	0.009
Indirect effect	Patient experience	-0.032	0.014	-2.287	*	0.022

(Administrative burden)

Supplementary material

Table 5. Variables and items in English, Spanish and Catalan

Variable		
AB: Learning	x1	Completing clinical records requires additional research and learning Completar las historias clínicas requiere una investigación y aprendizaje adicional (SP) Completar les històries clíniques requereix una investigació i aprenentatge adicional (CA)
	x2	Instructions for completing clinical records are not helpful enough Las instrucciones para completar las historias clínicas no son suficientemente útiles (SP) Les instruccions per a completar les històries clíniques no són prou útils (CA)
AB: Psychologic al	x3	Complying with medical records causes me stress Cumplir con las historias clínicas me genera estrés (SP) Complir amb les històries clíniques em genera estrès (CA)
	x4	I'm concerned about the effect this may have on the patient's relationship Me preocupa el efecto que puedan tener sobre la relación con el paciente (SP) Em preocupa per l'efecte que pugui tenir sobre la relació amb el pacient (CA)
AB: compliance	x5	Generally, complying with medical records is burdensome En general, cumplir con las hisotiras clínicas es engorroso (SP) En general, complir amb les històries clíniques és molest (CA)
	x6	Complying with medical records takes a lot of time and effort Cumplir con las clínicas requiere bastante tiempo y esfuerzo (SP) Complir amb les històries clíniques demana força temps i esforç (CA)
Intrinsic motivation	x7	Because I enjoy this work very much Porque me gusta mucho este trabajo (SP) Perquè m'agrada molt aquest treball (CA)
	x8	Because I have fun doing my job Porque disfruto haciendo mi trabajo (SP) Perquè em diverteixo fent la meva feina (CA)
	x9	For the moments of pleasure that this job brings me Para los momentos de placer que me ofrece este trabajo (SP) Pels moments de plaer que m'ofereix aquesta feina
Extrinsic motivation	x10	Because this job affords me a certain standard of living Porque este trabajo me proporciona un cierto nivel de vida (SP) Perquè aquesta feina em proporciona un cert nivell de vida (CA)
	x11	Because it allows me to make a lot of money Porque me permite ganar mucho dinero (SP) Perquè em permet guanyar molts diners (CA)
	x12	I do this job for the paycheck Hago este trabajo por el sueldo (SP) Faig aquesta feina pel sou (CA)
Patient experience (Health centers)	x13	Does the doctor give you the information you need about your illness, treatment, etc? ¿El/la médico/a le da la información que necesita sobre su enfermedad, el tratamiento que hace, etc.? (SP)

Table 5. Variables and items in English, Spanish and Catalan

	El/la metge/essa li dóna la informació que necessita sobre la seva malaltia, el tractament que fa, etc.? (CA)
	Does the doctor give you information in a way that you can understand?
x14	¿El/La médico/a le da la información de manera que pueda entenderla? (SP)
	El/la metge/essa li dóna la informació de manera que pugui entendre-la? (CA)
	Do you feel you are in good hands?
x15	¿Tiene la sensación de estar en buenas manos? (SP)
	Té la sensació d'estar en bones mans? (CA)
	How do you rate the doctor's treatment and kindness towards you?
x16	¿Cómo valora el trato, amabilidad, que tiene con usted el/la médico/a? (SP)
	Com valora el tracte, amabilitat, que té amb vostè el/la metge/essa? (CA)
	How willing is the doctor to listen to you and understand your health concerns?
x17	¿Qué disposición tiene el/la médico/a para escucharle y comprender lo que a usted le preocupa de su salud? (SP)
	Quina disposició té el/la metge/essa per escoltar-lo i fer-se càrrec del que a vostè li preocupa de la seva salut? (CA)

Notes: AB = Administrative burden. CA = Catalán. SP= Spanish

Table 6. Correlation matrix

	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13	x14	x15	x16	x17
x1	1	0,84	0,81	0,7	0,74	0,81	-0,47	-0,55	-0,55	-0,41	-0,36	0,01	-0,47	-0,48	-0,48	-0,47	-0,47
x2	0,84	1	0,85	0,78	0,82	0,75	-0,6	-0,66	-0,67	-0,34	-0,25	0,14	-0,5	-0,5	-0,5	-0,49	-0,49
x3	0,81	0,85	1	0,9	0,95	0,88	-0,67	-0,7	-0,68	-0,29	-0,22	0,21	-0,58	-0,58	-0,59	-0,58	-0,58
x4	0,7	0,78	0,9	1	0,87	0,75	-0,59	-0,61	-0,57	-0,29	-0,2	0,15	-0,57	-0,58	-0,58	-0,57	-0,57
x5	0,74	0,82	0,95	0,87	1	0,85	-0,68	-0,68	-0,69	-0,23	-0,18	0,27	-0,6	-0,6	-0,6	-0,6	-0,59
x6	0,81	0,75	0,88	0,75	0,85	1	-0,53	-0,59	-0,58	-0,28	-0,26	0,13	-0,59	-0,59	-0,59	-0,59	-0,58
x7	-0,47	-0,6	-0,67	-0,59	-0,68	-0,53	1	0,95	0,89	-0,07	-0,14	-0,69	0,2	0,19	0,19	0,19	0,18
x8	-0,55	-0,66	-0,7	-0,61	-0,68	-0,59	0,95	1	0,91	0,04	-0,01	-0,58	0,15	0,15	0,15	0,15	0,14
x9	-0,55	-0,67	-0,68	-0,57	-0,69	-0,58	0,89	0,91	1	0,08	0,05	-0,53	0,1	0,1	0,1	0,09	0,08
x10	-0,41	-0,34	-0,29	-0,29	-0,23	-0,28	-0,07	0,04	0,08	1	0,89	0,58	-0,23	-0,22	-0,22	-0,22	-0,23
x11	-0,36	-0,25	-0,22	-0,2	-0,18	-0,26	-0,14	-0,01	0,05	0,89	1	0,62	-0,28	-0,27	-0,27	-0,27	-0,28
x12	0,01	0,14	0,21	0,15	0,27	0,13	-0,69	-0,58	-0,53	0,58	0,62	1	-0,33	-0,32	-0,32	-0,32	-0,32
x13	-0,47	-0,5	-0,58	-0,57	-0,6	-0,59	0,2	0,15	0,1	-0,23	-0,28	-0,33	1	0,99	0,99	0,99	0,99
x14	-0,48	-0,5	-0,58	-0,58	-0,6	-0,59	0,19	0,15	0,1	-0,22	-0,27	-0,32	0,99	1	0,99	0,99	0,99
x15	-0,48	-0,5	-0,59	-0,58	-0,6	-0,59	0,19	0,15	0,1	-0,22	-0,27	-0,32	0,99	0,99	1	0,99	0,99
x16	-0,47	-0,49	-0,58	-0,57	-0,6	-0,59	0,19	0,15	0,09	-0,22	-0,27	-0,32	0,99	0,99	0,99	1	0,99
x17	-0,47	-0,49	-0,58	-0,57	-0,59	-0,58	0,18	0,14	0,08	-0,23	-0,28	-0,32	0,99	0,99	0,99	0,99	1

ARTICLE 3

Measuring performance concerning air and noise pollution: a comparison of Madrid's official data and results from a citizen survey

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ABSTRACT

The main objective of this study is to analyse whether citizens' perceptions of noise and air pollution are related with objective measures of noise and air pollution in the urban context. Merging local services performance and air quality research, the study makes a contribution to theories on how objective and subjective measures relate, identifying differences in ease of perception between noise and air pollution and the effect of previous attitudes. The analysis is based on datasets from the city of Madrid. After matching territorial zones, we use correlation and OLS regression analysis. Only in the case of noise, there is a significant relation between the actual levels of pollution and citizen's perceptions, which is explained by differential characteristics of both types of pollution. Previous concern for the environment colours the assessment of local government actions as well as some personal characteristics and general attitudes towards the local community.

KEYWORDS Air quality; citizen satisfaction; environmental indicators; local government; noise pollution; objective performance – surveys

Introduction

Local governments collect an incredible amount of data on the performance of their services. In most of the cases, annual surveys act as snapshots that capture different aspects of citizen satisfaction. They also collect data on the technical performance of their services, the structure of the material and human resources, the processes they use to deliver the services and their outcomes. Improving public services' performance, their quality and accountability is at the centre of local government responsibilities (Montesinos and Brusca 2009; Pandeya and Oyama 2019).

In the Public Administration literature there is a debate that started in the eighties (Stipak 1979; Brown and Coulter 1983; Parks 1984) about the relationship between objective performance indicators and the citizen evaluation of public services. Politicians and managers introduce reforms in public services but do not have the certainty that improved technical performance is captured by citizens. Better management over time should result in increased citizen satisfaction but there is uncertainty about the extent that technical reforms are visible for citizens and affect their satisfaction with public services. The majority of studies, on the convergence between objective measures and subjective perceptions studied local services (Licari, McLean, and Rice 2005; Ryzin, Gregg, and Altman 2008).

The research question of this study centres on the extent that citizens' perceptions of noise and air pollution are related with technical and objective measures of noise and air pollution in the urban environment. Answering this question, the study aims to extend the theory and contribute to the analysis of the convergence between subjective and objective measures of performance.

This is an important question for local governments for various reasons. First, because air quality and noise in the urban context is a main issue for local governments (Domingues

et al. 2015; Mapar et al. 2017). We are currently at the highest historical level of population living in cities with the prospect of representing 60% of the world's population in 2030 (United Nations 2016) and cities are responsible for 70% of greenhouse gases. Pollution generated in cities is the main source of climate change in the world (Programme, United Nations Human Settlements 2011, IPCC 2021) and it has important effects on the health and quality of life of citizens (World Health Organization. Regional Office for Europe 2006).

Second, from a theoretical perspective, we know there is an association between citizen's perceptions and process and outcome quality measures for some local services but not for others (Stipak 1979; Brown and Coulter 1983; Parks 1984; Kelly and Swindell 2002; Kelly 2003; Licari, McLean, and Rice 2005; Ryzin, Gregg, and Altman 2008). In this study, we merged the literature on local services with environmental studies. We identify ease of perception of the annoyance produced by pollution to explain whether there will be convergence between objective and subjective measures of performance. We also focus on the need to pay attention to previous attitudes since individuals who are more concerned with a public problem, as in the case of pollution, will take the opportunity to express their feelings towards these issues when asked about their satisfaction with local government services.

Third, from practical perspective, for many local governments, it is easier to collect citizen satisfaction measures than complex technical quality measures for certain local services. Thus, it is relevant to study whether survey measures can be used as a substitute or a complement of delivery process and outcome measures and when it is more likely that there is some correspondence.

In this research, we use datasets from the city of Madrid. This study combines technical measures of air quality and noise pollution with citizen evaluations of local services to

control pollution. The city of Madrid measures the quality of air 24 hours a day through 24 stations and the level of noise through 31 stations distributed among its neighbourhoods. The city also conducts an annual survey on the quality of public services. We use the 2019 edition (N = 8,578) and for the analysis we use correlation and OLS regression.

The findings are different for air and noise pollution. A result that is explained by the different characteristics of both types of pollution. Local government performance systems need to address elements of public services that are relevant to citizens since engaging them facilitates a better understanding of what they consider good performance or quality. However, perceptions are not sufficient for the performance analysis of some services. In this study, we advance the theory to determine whether their role can be more a complement or a substitute of other measures.

The rest of this article proceeds as follows. The next section reviews performance measures, previous studies on the convergence between objective and subjective measures and the debates about ease of perception of noise and air pollution and the effects of previous attitudes towards the environment. Next, we describe technical and survey data and the matching of territorial zones. In the fourth section, we present the analysis and results. The last section concludes and discusses the implications of the findings.

Theoretical framework

Local government performance measurement is essential for improving the management of local public services. Both researchers and local governments have made a lot of progress to collect data, not only on the overall satisfaction of citizens with public services but on citizens' perceptions on different elements of local services. However, we lack

knowledge on how overall satisfaction ratings or other citizens' perceptions are related with technical measures of performance. Understanding how citizens' perceptions are associated with other performance measures can help local governments and providers of public services, whether they are public, private or mixed, to improve the effectiveness and efficiency of their services.

Inherently objective and inherently subjective measures

Previous studies have centred on the distinction between objective and subjective measures of performance (Andrews, Boyne, and Walker 2006; Boyne, Kenneth Meier, and Walker 2006; Schachter 2010; Andersen, Boesen, and Pedersen 2016). This distinction is based on the degree to which performance concerns 'interior experiences and perceptions versus exterior observable phenomenon' (Andersen, Boesen, and Pedersen 2016, 5). Additionally, it can be argued that, in general terms, research on performance tends to favour objective measures of performance to subjective measures of performance. However, there is a lot of debate about the objectivity and subjectivity of measures. Some performance criteria like satisfaction with a public service are inherently subjective because they express an internal feeling. But most of performance criteria can be measured objectively and subjectively. For example, the health status of a patient or the waiting time for a visit. Local governments have multiple potentially conflicting goals and focusing only on one aspect of performance is problematic. As indicated by Andersen, Boesen, and Pedersen (2016), a priori, it is difficult to make a judgement in favour of inherently objective or subjective criteria as this decision depends on the conceptualisation that different local governments and their stakeholders make of performance.

The relationship between the two types of measures

The relationship between inherently subjective and inherently objective measures of performance would appear to be mutually reinforcing. From this perspective, more resources, and better structural and process quality should produce better outcomes. If outcomes are better, citizens should notice it and be more satisfied with public services.

More specifically, if citizens see, for example, that public services from their City repair and clean their streets very often, it is likely that this will have an influence on their perception of government services (Ryzin, Gregg, and Altman 2008). It may also even have an influence on their behaviour when they are called to vote (Boyne et al. 2009; James and Moseley 2014). However, a majority of arguments in the literature sustain the opposite view. From this perspective, survey data has raised considerable scepticism on its validity as a measure of ‘true’ performance (Im and Jong Lee 2012). For many years, citizen’s opinions were not considered a reliable source to capture actual improvements in the management of public services (Dehoog, Lowery, and Lyons 1990; Kelly 2003; Manary et al. 2013).

The most common criticism is that surveys reflect the characteristics of respondents (their age, socio-economic status, ethnic background, gender). Along similar lines of argumentation, it has been considered that surveys are a combination of rather general and intrinsically subjective assessments made of feelings, opinions and judgemental evaluations (Bouckaert and van de Walle 2003). And, that the majority of users do not have the formal training and they only capture aspects of public services that could be easily influenced by factors unrelated to their effectiveness. In police services, for example, citizens can judge their experience in their encounters with officers but not the efficacy of the police to solve crimes (Parks 1984) the same way that patients of hospital services can value the ‘conierge’ services but not the accuracy of the diagnostic and

treatments (Tsai, John Orav, and Jha 2015). Finally, it is also argued that citizen satisfaction with local services may be determined by their political leanings including voting for those who are in charge of managing public services (Hirschman 1970; Boyne et al. 2009; James and Moseley 2014).

Previous studies in local government

The initial studies linking objective and subjective measures in public services (Stipak 1979; Brown and Coulter 1983; Parks 1984) were developed in the US on police services. They found a weak or no relationship between objective police service indicators and the citizen evaluation of these services. A second wave of studies collected evidence regarding the correspondence between objective and subjective measures of performance at the urban level using citizen ratings of park quality and street condition and professional assessments by trained observers (Licari, McLean, and Rice 2005). Ryzin, Gregg, and Altman (2008) replicated these studies for street cleaning in New York, where the city government had a well-established objective measure and a series of sample surveys of city residents. They found a high level of correlation between the two types of measures for a municipal service that is quite visible and tangible. At the same time, new studies on police and fire-fighting services found that the overall correspondence between objective performance data and citizen surveys appeared to be either weak (Kelly and Swindell 2002) or non-existent (Kelly 2003). The differences in the results indicated that in some services, management improvement is less visible to external actors, while in other services, objective change in the quality of service provision is more visible and better known, hence producing an indirect effect on citizen satisfaction. More recently, Charbonneau and Van Ryzin (2012) returned to the objective-subjective debate examining data from New York schools. In this study, the authors were able to use outcome measures instead of input-output indicators and they managed to disaggregate objectively measured

performance and satisfaction to a smaller geographic level, which was a key element in their study hypothesising there is a link between the two types of measures. They found that official measures of school performance predict aggregate parental satisfaction even after controlling for school and student characteristics.

Previous studies on air quality

A number of environmental studies on air quality have looked at the relationship between subjective perceptions and the measured concentration of pollutants. The main conclusion is that perceptions of air quality are not significantly correlated with air quality (Brody et al. 2005; Semenza et al. 2008). Some studies, however, found a correlation between objective exposure levels and risk perception, but they use city averages for exposure levels (Rotko et al. 2002) or studied cities during times of severe haze pollution (Huang et al. 2017). In a related research stream, some studies showed how air pollution affects life satisfaction or self-reported happiness (Bickerstaff and Walker 2001). Most of these studies measured air pollution through citizen's perceptions (Liao, Shaw, and Lin 2015; Yuan et al. 2018). Similarly, other studies relate perceptions of pollution, economic activity and housing markets. Chasco and Le Gallo (2013) found a greater impact of perceptions of air quality and noise levels on housing prices than those of the actual measurements of decibels and pollutants in the air. Thus, previous studies confirm that local environmental factors influence public perceptions and that both perceptions and actual measurements of air and noise pollution may be taken into account for the evaluation of different aspects of life in cities and their management by local governments.

Theory development and hypothesis

Convergent validity between objective and subjective measures is more likely when services are more simple or visible (for example, street cleanness, Ryzin, Gregg, and Altman 2008) and less likely when services are more complex or citizens do not observe how the service is produced (crime resolution, Kelly and Swindell 2002; Kelly 2003). A similar characteristic can be found in environmental studies when they use annoyance levels to reflect a displeasure caused by either odour or noise. For example, Atari, Luginaah, and Fung (2009) use odour annoyance as a proxy for air quality and they reach the conclusion that it can be used to capture the variability of pollution between different areas.

Therefore, ease of perception, annoyance or visibility should be included as an important trait in the analysis of objective and subjective measures of performance. The higher the salience of a problem, the more it will have a direct impact on the experience of citizens. A high level of noise or, similarly, a bad odour, will directly affect citizen's experience and consequently their satisfaction with the service that is supposed to control it. When the experience is pleasant, citizens will tend to assimilate it to their expectations and it is less likely they react. However, in the case of a negative experience, citizens could exaggerate their response. In accordance with the theories relating expectations with public services, perceived performance and satisfaction (Ryzin and Gregg 2004; Van Ryzin 2013; James 2009, 2011) a negative evaluation of public services is the likely product of the difference between expectations and perceived performance. On the opposite, when the problem is less visible or not noticeable at all, it should not have an impact on the citizen and consequently on the evaluation of the local service.

The annual plan of the City of Madrid sets an average level of 40 $\mu\text{g}/\text{m}^3$ for NO₂. Since this source of pollution is invisible and odourless unless it achieves a concentration higher

than 188 $\mu\text{g}/\text{m}^3$ (World Health Organization 2010), we hypothesise that convergence between inherently objective and inherently subjective measures will be less likely to happen with air pollution. Noise pollution, which is mostly caused by heavy traffic, is easier to be perceived by citizens (Fyhri and Klæboe 2009). Therefore, we expect that:

H1. Technical measures assessing noise pollution will be positively associated to citizen's perceptions of noise pollution.

H2. Technical measures assessing air quality will not be associated to citizen's perceptions of air quality or, if they are associated, it will be with a lower probability than in the case of noise pollution.

On the other hand, it is reasonable to assume that citizen's previous attitudes towards the environment influence their perceptions (Hart and Nisbet 2012). The literature of Public Administration is clear about how prior beliefs affect the way citizens judge performance of public services. The majority of studies compare public and private services and conclude that citizens tend to perceive more negatively the performance of public providers (Wilson 1989; Andersen and Hjortskov 2016; Hvidman 2019). Prior beliefs about the problem might (or might not) moderate citizen's judgements of interventions oriented towards controlling the problem (Baekgaard and Serritlew 2016; Marvel 2016). We also know that the stronger the environmental identity is the more polarised opinions tend to be (Elliott, Seldon, and Regens 1997; Hart and Nisbet 2012).

Citizens concerned with pollution in the city should be more attentive to changes in the state of pollution and to the local government's interventions to control and improve air quality and vice versa. If pollution is very noticeable, and therefore annoying, the effect of prior attitudes is more likely to have a negative impact on subjective perceptions and citizens more concerned with the environment will react more strongly. If their level of

concern is very high, they could be very unsatisfied with the local government when it is rather obvious that pollution is out of control.

Therefore,

H3. Citizen's concern for the environment will moderate the relationship between technical measures assessing noise pollution and citizen's perceptions of noise pollution.

Other factors influencing citizen's perceptions

Other factors besides actual air and noise pollution may influence citizen's perceptions. Their opinions on what local governments do should vary with some personal characteristics such as gender, age, ethnic, education (Christensen and Laegrid 2005) or socio-economic status (James 2009; Dahlström, Nistotskaya, and Tyrberg 2018). Citizens supporting the Mayor and the administration in charge of the City at the time of the survey could be inclined to give more favourable opinions on the efforts to control air and noise pollution as an effect of partisan bias (Jilke and Bækgaard 2020; Jilke 2018). Citizen's perceptions can also be influenced by their values and beliefs about society and their general stand with regard to public services (Dehoog, Lowery, and Lyons 1990; Jørgensen and Bozeman 2007; Marvel 2016; Hvidman 2019). Finally, citizen's may respond differently when they are asked about their city or their neighbourhood depending on their community attachment and the feelings they may have in relation to their place of residence (Dehoog, Lowery, and Lyons 1990; Bickerstaff and Walker 2001; González 2005). In sum, the analysis will take into account 1) personal characteristics, 2) political orientation, 3) attitudes towards public services, and 4) community attachment.

Context, data and methods

For this study, we use data from the city of Madrid¹. As a major conurbation in Europe, Madrid suffers from both air and noise pollution but the extension of these two problems is rather diverse over its territory. Every three and five years, Madrid updates city plans to control air quality and noise levels. Air quality is controlled systematically 24 hours a day with 24 stations located in different sectors. The noise level is controlled through 31 stations which are also distributed in different areas of the city. Madrid publishes data since 2001 on a daily basis and as monthly averages for noise levels and air pollutants. Additionally, the City also conducts a ‘Survey of quality of life and satisfaction with public services’ since 2006 with editions every year or every two years. In this study, we used the 2019 survey² before the impact of the COVID19. We replicated the analysis for 2017 and we found the same results (see Appendix A). In the 2019 survey, 8,578 people were surveyed, approximately 400 per city district, achieving a representative sample of the population. The criteria for selecting the respondents was that they were 18 years or older and had lived in Madrid for at least six months. For this study we discarded citizens with less than one year. The survey specifically asks about the citizen’s satisfaction with the air pollution and noise control services of the City.

Dependent, independent and control variables

The 2019 survey on quality of life and satisfaction with public services provides the two indicators on citizen satisfaction that are used as dependent variables. The survey specifically asks to rate from 0 to 10 the level of satisfaction with the actions and services that the City takes to control air pollution and to control the level of noise.

The main explanatory variable for the citizen’s evaluation of the performance of the noise control is the objective noise level measured by the thirty- one stations over the territory.

The study uses the average noise level during the year immediately preceding the survey, considering the measurements made during the evening and night, between 7 pm and 7 am. We selected this time range to make sure the citizens value the noise at their place of residence. In the case of air quality, the main explanatory variable is the measurement of Nitrogen Dioxide (NO₂). The main source of this pollutant is the combustion engine and the presence of NO₂ correlates with the presence of other pollutants (World Health Organization. Regional Office for Europe 2006).

The two type of variables do not exactly measure the same, as in one case it is objective pollution and in the other case, whether citizens attribute pollution or noise (or the absence of it) to the city control services. This is why we do not expect a strong correlation between satisfaction measures and objective measures. However, when citizens consider that the air is clean or that their neighbourhood is quiet, it is reasonable to assume that they believe the City is doing a good job and vice versa, the same way that parents who believe that their children learn in school they tend to express their satisfaction with their teachers and the opposite.

In order to identify those citizens with an underlying concern for the environment, the study uses the survey question on what problems citizens consider ‘main problems’ in the city. We coded them with a 1” if they spontaneously mentioned ‘environment’ and we coded with a 0” all the other answers. We created a second variable with the same coding system for those who specifically mentioned noise or air quality problems.

For the sociodemographic control variables, the study uses sex, age, country of birth (dichotomous variable for those born in Spain and for the rest of the countries), educational level (1” to 9”, the lowest number corresponding to the lowest level of education) and income level (1” to 9” for income ranges). With regard to political orientation, ideology was included in the survey with the traditional scale of 1 to 10, with

the lowest number being 1 representing the extreme left. The survey also asked for the general evaluation of the governing party at the time of the survey. Finally, the study uses the items that express general attitudes of citizens towards public services, taxes and attachment to their neighbourhood. For this last question, the survey asks citizens to rate their level of satisfaction and their quality of life in the neighbourhood where they live. For the attitudes of citizens concerning public services, the study uses two items, one on the level of information the citizen has about them, and one on the citizen evaluation of local services according to the local taxes paid.

Methods

Before proceeding with the statistical analysis, we created two maps, one for the noise levels in different parts of the city and one for air pollution (for variograms and predictions, see Appendix B). In each census section where we locate the respondents, we have an objective value for noise and one for air pollution. Following the methods proposed by Montero, Chasco, and Larraz-Iribas (2010), the Kriging geo-statistical data interpolation technique allows to assign a value to each point on the map based on the weighted distance between the different stations (Figures 1 and 2).

We observe certain similarities in the distribution of the air pollutant and noise with a clear decrease of both towards the north. In the map for the noise, a clear peak can be observed in the city centre. The minimum noise levels are 53.96 dB and they are located in El Pardo, a predominantly reserved natural area in the outskirts of the city. The maximum levels of noise are in the central almond of Madrid, in the districts of Centro, Arganzuela, Retiro, Salamanca, Chamartín, Tetuán, and Chamberí, with peaks at 64.02 dB. Regarding NO₂ levels in the air, the minimums are 22.50 µg/m³ and the maximums

are 45.90 $\mu\text{g}/\text{m}^3$ towards the south of the city but with a more homogeneous distribution in general.

Having a value for air and noise pollution throughout the city and not only in the specific points of the stations, it is possible to relate the levels of noise and air pollution with the subjective evaluation made by citizens positioned in the centre of each census section and to group respondents by neighbourhood. Since our dependent and independent variables are numerical we use correlation for bivariate analysis, and OLS regression for multivariate analysis.

Analysis

Table 1 presents the main descriptive statistics of the two dependent variables. For the 8.304 cases, the averages for noise control is 5.16 and for air control 5.38 with standard deviations of 2.65 and 2.67. The histograms of the two variables suggest a normal distribution with a unimodal shape – with mode at 5– and a symmetric appearance supported by an obliquity close to zero in both cases. The kurtosis of both variables is close to 3, also coinciding with a normal distribution, without atypical values. The normal distribution of our dependent variables confirms the use of linear regression.

< Figures 1 and 2 about here >

< Table 1 about here >

The correlation analysis between the two main dependent variables (air and noise pollution and the independent variable (citizen's perceptions) shows a non-significant relationship between the evaluation of the air pollution control service and the levels of the NO₂ in the atmosphere in line with hypothesis 2 and this is a final result with regard to air pollution. In relation to noise pollution, the empirical test gives a highly significant result – with a confidence interval of 99%. Despite showing a weak correlation, being significant and with a negative sign, we can consider that a lower level of objective noise in the territory could imply greater satisfaction with the noise control services on the part of the citizens. In order to confirm this hypothesis, we performed the multivariate analysis with clusters at the neighbourhood level.

Table 2 shows the results of the estimation of the effect of the objective noise in the citizens' evaluations of noise control by the City government. The empirical analysis proceeds in four steps. We present four consecutive models of linear regressions, where groups of independent variables are added. The first model includes the technical measure of decibels in the area, the second includes the concern for environmental issues. The third model includes demographic control variables and the fourth is the most complete model including political orientation and prior attitudes towards the neighbourhood and the services provided by the local government.

In the four models, the objective noise measurement is highly significant with a negative coefficient, confirming the bivariate analysis and hypothesis 1. However, considering environmental problems a priority does not have a moderation effect on the relationship between inherently objective and subjective measures, what leads to reject hypothesis 3. Previous attitudes factor in the evaluation of the City's efforts to control noise pollution. Citizens who spontaneously mention environment or more specifically noise pollution as a priority problem tend to give worse evaluations in surveys while, on the opposite,

citizens who do not have this concern or mention other problems before noise or air quality will more likely give a better evaluation of noise control. This means that those with environmental concerns with regard to the City where they live give worse evaluations of services in charge of controlling air quality and noise independently of the state of pollution. Their underlying beliefs, which tend to be rather stable, influence their responses.

< Table 2 about here >

With regard to the socio-demographic variables, the level of studies, the country of birth and the level of income are significant. The higher level of studies, the less satisfaction with the noise control. This result may be due to a greater knowledge of the environmental situation or about the services provided by the City council. Those not born in Spain have a better consideration of noise control. The significance of the income level disappears with the inclusion of all controls.

The political ideology variable is significant and positively correlated, which implies that the more positioned to the right in the ideological spectrum, the better the evaluation of the noise control by the City. This may be because the Madrid City was governed by a conservative party for many years and citizens with a leftist leaning are more aware of environmental problems. Dissatisfaction with the neighbourhood is associated with a negative evaluation of the noise control. Likewise, the level of information on the activities carried out by the city council, as well as the satisfaction with the taxes paid and services received, both correlate positively with the perception of noise control by the city. In the last model, the R-squared coefficient increases significantly from 0.027 to 0.078.

Discussion and conclusions

Studying performance management of environmental issues like noise and air pollution is relevant, not only because this is a major public problem for local governments, but because it provides insights on the different ways that objective and subjective measures of performance can be related and may substitute one another.

Air quality is not perceived in the same way as noise levels due to the intrinsic nature of both types of pollution. In the absence of odour, air pollution becomes invisible and difficult to perceive. It does not have a direct effect on citizen's and, from this perspective, it is not experienced as an annoyance. Noise pollution, on the contrary, is more evident for citizens who can value the levels of uproar produced by the city at different times during the day and the week. This characteristic can be applied to other public services directly experienced by citizens.

Local governments need to find out what elements of public service are relevant to citizens and to engage them in their evaluation to have a better understanding of what they consider a good service. In those instances that citizens can form their own criteria about the performance of public services, local governments should pursue crossing objective and subjective data. On the opposite, in cases where citizens have more difficulty to observe public services or experience the consequences of the quality of their management, the analysis of their performance will be more dependent on the technical measurement by administrative services. Citizens will also depend on the efforts of their local governments to share this information with them to find out about, for example, how clean the air they are breathing is.

The lack of convergence validity between technical measures of air quality and citizen's perceptions does not imply that they are not both valuable separately. However, a significant relationship between objective and subjective measures gives greater validity

to both types of measurements and local governments can be sure that the official ‘true’ performance measure reflects an aspect that clearly matters to citizens.

The weight of the objective measures on the citizen’s opinion is limited as there are other factors, which influence their perceptions. The analysis of an environmental issue revealed the relevance of previous attitudes towards the problem (Hart and Nisbet 2012). Citizens concerned with the environment tend to be more unsatisfied with public services in charge of controlling and ameliorating the problem they experience. This is interpreted as an independent, additive effect to the effect of experiencing the annoyance, in our case because of city noise. On the opposite, those less concerned with the environment are probably less demanding with City services in charge of controlling pollution. Their level of concern is lower and they react to changes in the perceived quality of the environment but at a lower level. This relevance of previous attitudes should apply to other public services, like for example, those preventing security problems, keeping the streets clean or facilitating the mobility within the city.

Additionally, some personal characteristics also explain subjective perceptions as previously indicated by the literature on public services (Christensen and Laegrid 2005; James 2009; Dahlström, Nistotskaya, and Tyrberg 2018). In our sample, the level of education and the country of origin have an effect on the evaluation of the public pollution control services. More educated citizens and nationals, compared with migrants, are more likely to be tougher in their evaluations. The results of our analysis indicate that political attributes (Jilke 2018) are less important than general attitudes concerning public services (Marvel 2016; Hvidman 2019) and the appreciation for the place where people live (Bickerstaff and Walkner 1999; González 2005). Citizens leaning to the right appear to be less concerned about the efficacy of local government controls of noise pollution but the weight of this factor is relatively low. The lower effect of political attributes contrasts

with civic attributes of citizens expressing a greater concern for the city in general, willingness to be informed and to contribute with taxes to maintain public services as well as a stronger attachment and identification with the neighbourhood where they live.

In practical terms, the analysis of convergence validity between objective and subjective measures is important for those in charge of performance management at the local level. Contrary to some prejudices against the use of surveys and subjective perceptions, in some cases, they can be a good measure of performance when no other data is available. In other cases, they need to be more cautious but certainly looking at the matching between the two types of measures will give them more certainty about what is a good performance of the services they manage, the extent their local governments contribute to ameliorate public problems and citizens are capturing the progress made.

This study uses data from the city of Madrid, and it is possible that the results in other cities are different. The levels of pollution vary considerably in big cities depending on the intensity of traffic, climate conditions and the actions taken to prevent and reduce pollution. In the European context, cities may pay penalties for air pollution above certain thresholds. Another limitation with respect to air quality comes from the fact that the data is not available for different time bands during the day as it is the case with noise pollution. The availability of the data at different times during the day and night would allow for more precision in the analysis. These are reasons that justify the continuation of this type of research in other cities with different levels of environmental problems. We also believe further research is needed with other public services to contribute to the debates on how inherently objective and subjective measures may be connected and how their use can be optimised for better local performance management. Most likely, these two types of measures are not a perfect match, but when they reflect the same underlying reality, they portray a more accurate picture of issues that matter to citizens.

Notes

1. Data on air and noise pollution from: <https://datos.madrid.es/portal/site/egob/menuitem.c05c1f754a33a9fbe4b2e4b284f1a5a0/?vgnextoid=41e01e007c9db410VgnVCM2000000c205a0aRCRD&vgnnextchannel=374512b9ace9f310VgnVCM100000171f5a0aRCRD>. <https://datos.madrid.es/portal/site/egob/menuitem.c05c1f754a33a9fbe4b2e4b284f1a5a0/?vgnextoid=b8c427a272e4e410VgnVCM2000000c205a0aRCRD&vgnnextchannel=374512b9ace9f310VgnVCM100000171f5a0aRCRD&vgnnextfmt=default>
2. Survey data from <https://www.madrid.es/portales/munimadrid/es/Inicio/El-Ayuntamiento/Calidad-y-Evaluacion/Percepcion-Ciudadana/Edicion-2019/?vgnnextfmt=default&vgnextoid=7d062d7c2bd6a610VgnVCM2000001f4a900aRCRD&vgnnextchannel=f22ff49c4495d310VgnVCM2000000c205a0aRCRD>

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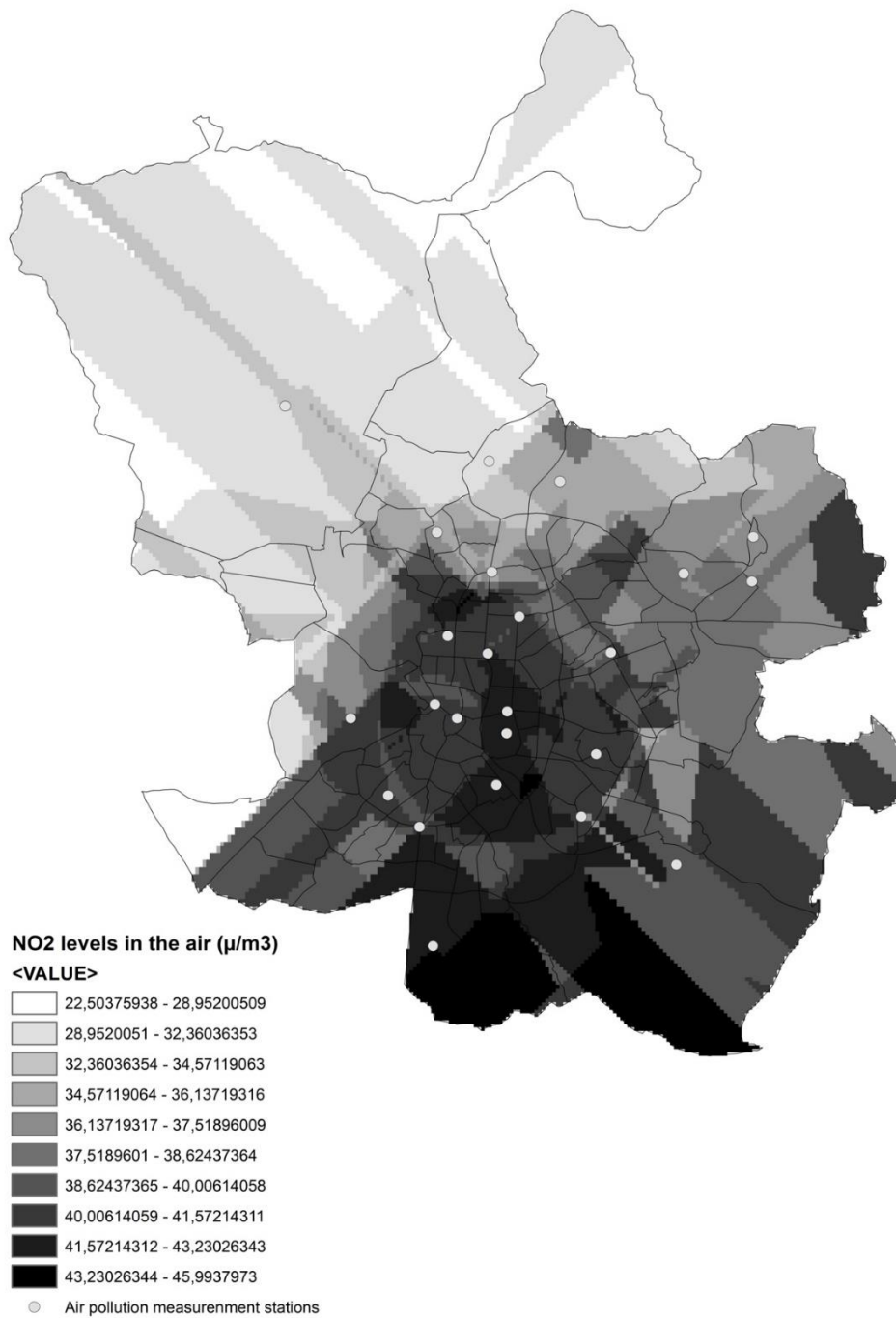


Figure 1. Kriging estimates of the noise level in Madrid.

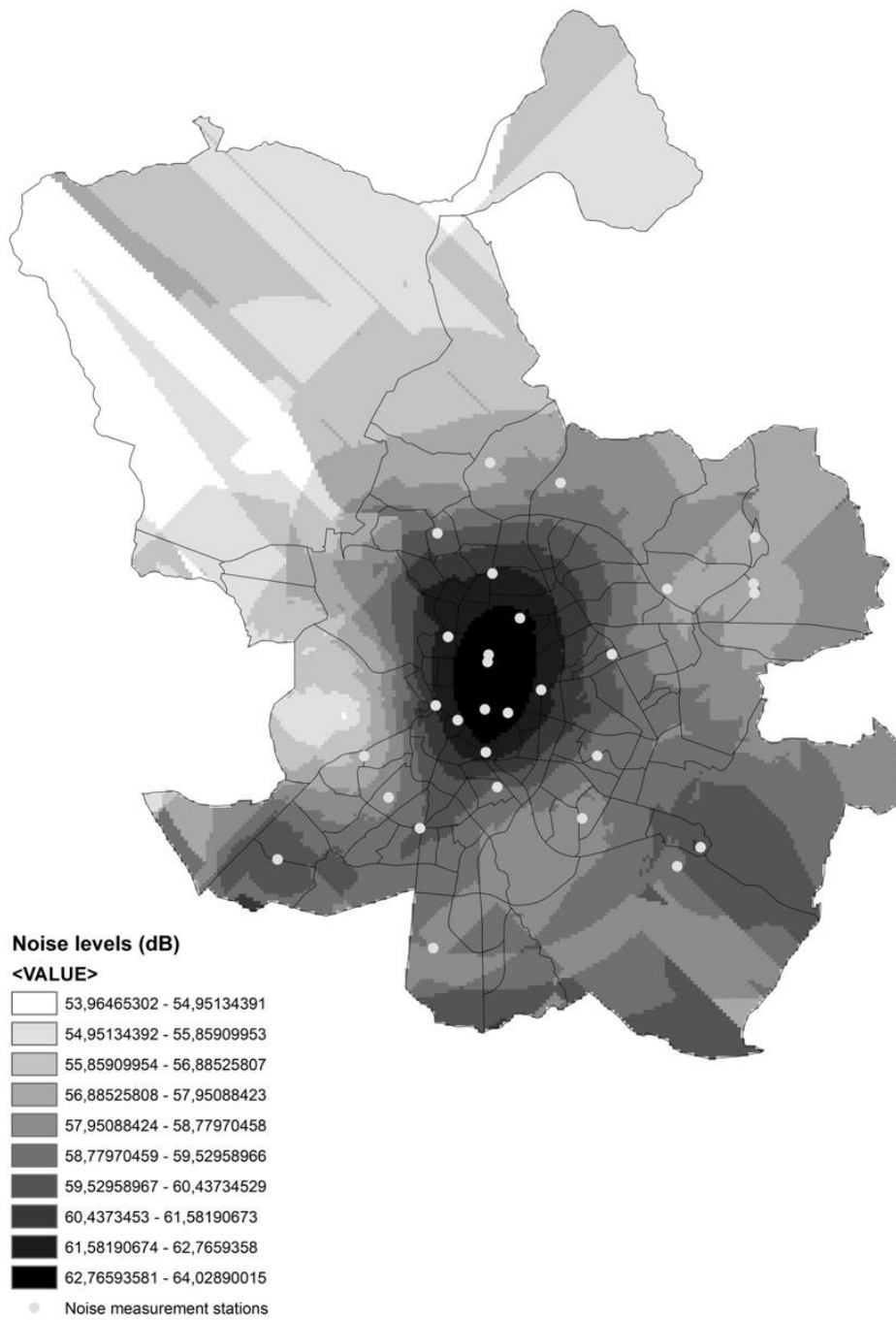


Figure 2. Kriging estimates of the air quality in Madrid.

Table 1. Descriptive analysis of the subjective evaluation of the noise and air pollution control service

	Noise	Air
Mean	5.16	5.37
SD	2.65	2.67
Min	0	0
Max	10	10
1 ^{er} Quartile	4	4
2 ^{do} Quartile	5	5
3 ^{er} Quartile	7	7
Obliquity	-.034	-.004
Kurtosis	2.80	2.83
N	8304	8304

Table 2. OLS regression of citizens' evaluation of Madrid's noise control service

VARIABLES	Model 1	Model 2	Model 3	Model 4
Objective noise	-0.124*** (0.0342)	-0.115*** (0.0343)	-0.106*** (0.0345)	-0.162*** (0.0378)
Priority noise problems	-	-1.787*** (0.268)	-1.731*** (0.372)	-1.899*** (0.372)
Priority environmental issues	-	-0.205*** (0.0723)	-0.220** (0.101)	-0.393*** (0.109)
Female	-	-	-0.0516 (0.0799)	-0.0743 (0.0790)
Age	-	-	0.00377 (0.00273)	0.00371 (0.00306)
Educational level	-	-	-0.0696*** (0.0239)	-0.0751*** (0.0255)
Income level	-	-	0.0644** (0.0260)	0.0292 (0.0269)
Not born in Spain	-	-	0.793*** (0.112)	0.574*** (0.128)
Political ideology	-	-	-	0.0970*** (0.0249)
Evaluation of the management of Mayor Manuela Carmena (Cat. Ref. "Very bad")				
2. Bad	-	-	-	0.365 (0.252)
3. Regular	-	-	-	0.360 (0.264)
4. Good	-	-	-	0.606** (0.278)
5. Very good	-	-	-	0.840*** (0.318)
Satisfied with the neighbourhood				0.736*** (0.150)
Tax/services ratio (Cat. Ref. "Not satisfied")				
2. Little satisfied	-	-	-	0.526*** (0.170)
3. Neither satisfied nor dissatisfied	-	-	-	0.870*** (0.228)
4. Quite satisfied	-	-	-	1.040*** (0.198)
5. Very satisfied	-	-	-	0.938*** (0.281)
Information about city council's activity (Cat. Ref. "Not at all")				
2. Little	-	-	-	0.250* (0.138)
3. Quite a bit	-	-	-	0.359** (0.156)
4. A lot	-	-	-	0.592** (0.245)
Constant	12.60*** (2.047)	12.17*** (2.046)	11.61*** (2.223)	12.67*** (2.260)
Observations	8,304	8,304	3,880	3,738
R-squared	0.004	0.012	0.027	0.078

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

None of the models exhibits multicollinearity problems (vif < 6 for the last model).

Appendix A

Table A1. OLS regression of citizens' evaluation of Madrid's noise control service in 2017

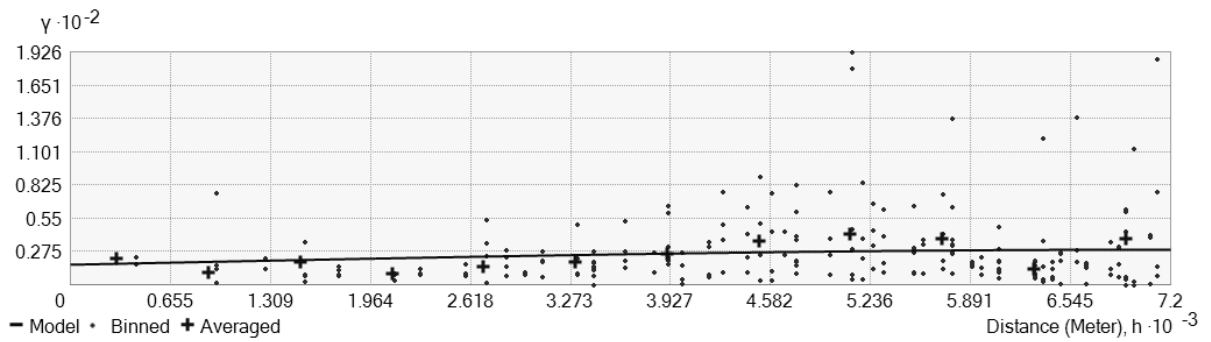
VARIABLES	Model 1	Model 2	Model 3	Model 4
Objective noise	-0.161*** (0.0405)	-0.149*** (0.0397)	-0.150*** (0.0528)	-0.171*** (0.0560)
Priority noise problems	-	-1.944*** (0.333)	-2.227*** (0.361)	-1.764*** (0.365)
Priority environmental issues	-	-0.234* (0.120)	-0.191 (0.174)	-0.409** (0.179)
Female	-	-	0.236* (0.121)	0.173 (0.126)
Age	-	-	-0.00101 (0.00359)	0.00270 (0.00453)
Educational level	-	-	0.00356 (0.0189)	-0.0191 (0.0355)
Income level	-	-	-0.0610 (0.0438)	-0.0524 (0.0522)
Not born in Spain	-	-	-0.499*** (0.152)	-0.260 (0.187)
Political ideology	-	-	-	0.0427 (0.0411)
Evaluation of the management of Mayor Manuela Carmena (Cat. Ref. "Very bad")				
2. Bad	-	-	-	-0.144 (0.387)
3. Regular	-	-	-	0.595* (0.339)
4. Good	-	-	-	0.633* (0.374)
5. Very good	-	-	-	0.453 (0.420)
Satisfied with the neighbourhood				-0.705*** (0.166)
Tax/services ratio (Cat. Ref. "Not satisfied")				
2. Little satisfied	-	-	-	0.0213 (0.211)
3. Neither satisfied nor dissatisfied	-	-	-	0.0829 (0.222)
4. Quite satisfied	-	-	-	0.599** (0.232)
5. Very satisfied	-	-	-	1.314** (0.647)
Information about city council's activity (Cat. Ref. "Not at all")				
2. Little	-	-	-	-0.0154 (0.259)
3. Quite a bit	-	-	-	0.196 (0.323)
4. A lot	-	-	-	0.0416 (0.430)
Constant	14.70*** (2.469)	14.10*** (2.422)	14.77*** (3.138)	15.05*** (3.325)
Observations	2,581	2,581	1,465	1,104
R-squared	0.017	0.042	0.064	0.111

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

None of the models exhibits multicollinearity problems (vif < 6 for the last model).

Appendix B

Graph 1. Variogram of the Kriging estimation of noise levels in Madrid.



Graph 2. Variogram of the estimation of kriging NO₂ levels in Madrid.

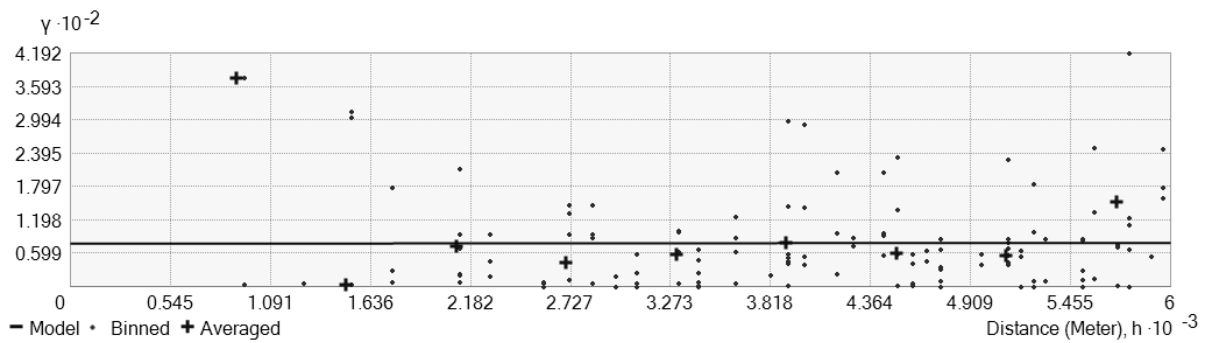
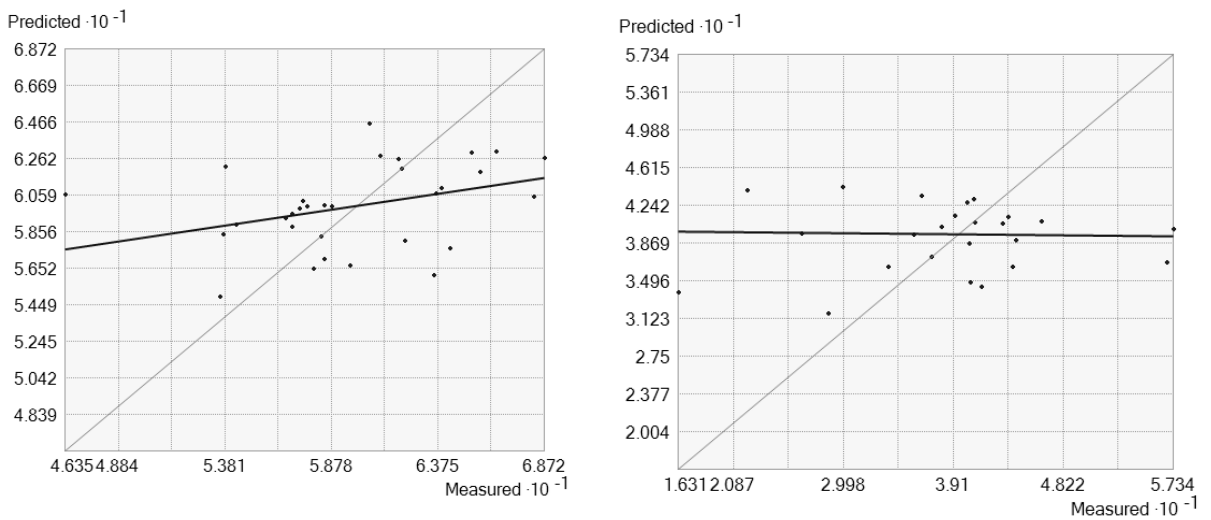


Figure 3. Predictions of kriging estimates of noise level (left) and NO₂ (right).



CONCLUSIONS

Object, products, and outcomes of the thesis

The objective of this dissertation was to understand how individual experience facing state actions is shaped and what their effects are on public service performance. Upon reviewing earlier studies on this relationship, the overarching concern was broken down into five research questions. Three articles were produced to address these questions. Although each article has its own objectives, they are interconnected, contributing to answering the main research concern leading to the thesis. Below is a summary of the main conclusions of each article and their connection to the research questions of this thesis.

The first article addresses citizens' encounters with digital administration as a public service demander to answer the first research question. The rules and procedures proposed by the administrations are not innocuous or neutral, having heterogeneous effects on citizens. In line with the literature on administrative burden, the results show that people with lower educational levels, older age, lower incomes, and greater job insecurity are less likely to use digital administration and have more difficulty doing so. Furthermore, these sociodemographic profiles are associated with the perception that digital administration entails a more significant workload for citizens and that digital interactions jeopardize their data and security, in addition to undermining the transparency of the processes. We address these experiences through learning, compliance, and psychological costs of administrative burden literature.

The second article aims to examine the impact of administrative burden on doctors' motivation and, consequently, on patient experience. Drawing from self-determination theory, we understand that there is a substantial difference between being motivated by receiving material rewards and being motivated by satisfying the psychological needs of

competence, autonomy, and relatedness. Therefore, the hypothesis tested is that doctors experiencing high administrative burdens are more likely to be intrinsically demotivated since this burden diminishes their sense of performing an activity for its inherent satisfaction. Furthermore, since intrinsic motivation is linked to better performance and well-being, the relationship between administrative burden and patient experience mediated by intrinsic motivation was investigated. The findings reveal both a significant relationship and a direct effect on doctors' perception of administrative burden on patient experience. The direct effect may result from overly standardized procedures for citizens or concerns about not receiving adequate attention, leading to a less responsive overall system.

The third article focuses on citizens' experiences with state outcomes. It addresses questions four and five to determine which factors affect their satisfaction with public service provision. It was tested whether the technical output of public services influences citizen satisfaction. The findings indicate a significant relationship in the case of noise control services but not for air pollution control. This result was expected, as noise levels are easily perceived by citizens, whereas air pollution unless at high concentrations, is not as noticeable. Additionally, it was shown that certain individual attitudes significantly impact citizens' satisfaction with public services. Prior concerns about environmental issues, political attitudes, neighborhood attachment, and sociodemographic characteristics all significantly affect satisfaction, regardless of the technical output of the services.

Relevance of the thesis

Theoretical work on the relationship between individuals and the administration has proliferated in recent decades. This dissertation contributes to this field by addressing

individual experiences from various sides of public service provision. First, it enriches studies on the relationship between citizens and digital administration, a central aspect of recent years that will continue to grow. Second, it expands this literature by examining administrative burden within the administration to explore its effects on professionals' motivation from self-determination theory literature and, subsequently, on citizens' experiences. Third, this dissertation contributes to understanding the extent to which citizen satisfaction is related to both the objective aspects of services and citizens' prior characteristics and attitudes.

Methodologically, this thesis advances in capturing administrative burden experience directly. This is a developing issue in the literature on administrative burden, especially within the administration. Developing valid and reliable measures is crucial for producing more outcomes and replicating studies. Techniques such as structural equation modeling and confirmatory factor analysis shed light on the items' influence on latent concepts and their relationships. Additionally, measuring noise levels and air pollution using kriging techniques and comparing these measurements contributes to a method that has not been completely explored in public administration studies.

Practitioners need to recognize that individual experience with administration is crucial for effective development. Policy designs do not exist in a vacuum; citizens' experiences and perceptions play a decisive role in their success. Practitioners should acknowledge the heterogeneity of individuals both outside and inside the administration, recognizing that different people may have varying needs, expectations, and responses to administrative processes. Considering these diverse experiences as valuable feedback for improving policy designs is essential. By incorporating citizen input and adjusting policies based on real-world experiences, practitioners can create more responsive, effective, and equitable public services.

Limitations of the thesis

Firstly, this thesis has certain limitations regarding the validity of the items used in the first article. While utilizing established surveys with good sampling has advantages, it also restricts the ability to measure the desired concepts. Despite efforts to use appropriate questions and design controls to minimize bias, the approach to capturing the experience of administrative burden could be improved by using items specifically designed for these concepts.

Secondly, all the articles rely on cross-sectional data to test their hypotheses. This is particularly problematic in the second article, which attempts to link various experiences over time. While the use of a second database is a strength of the analysis, more is needed to mitigate the limitations inherent in cross-sectional data fully. Longitudinal data should be employed to establish causal relationships more accurately. Longitudinal studies track the same subjects over some time, providing a clearer picture of how variables interact and change, thereby offering more robust evidence for causality.

Thirdly, also related to the measures used, the third article could be more precise in defining what performance means. The items used link a purely technical aspect with a perception of quality. However, the quality assessed by citizens may be influenced by factors such as the ratio of investment to output or their expectations rather than solely by the technical level.

Further research

This dissertation creates favorable conditions for further exploration of the antecedents and outcomes of individuals' experiences with administration. More work is needed to track citizens' life experiences with the administration. The antecedents of administrative burden in the digital administration context should be studied in more detail. Factors such

as citizens' prior experience with administration and 'administrative literacy' could have significant explanatory power. Additionally, the outcomes of administrative burden experiences, such as political attitudes toward government or public administration in general, warrant further investigation.

Examining the experience of administrative burden within the administration itself also opens up a new realm of study. It would be valuable to conduct similar studies with other professionals and compare them with more bureaucratic profiles within the administration. The outcomes of professionals' experiences can be expanded to include aspects such as organizational commitment, job satisfaction, and overall well-being.

Finally, considerable work is still being done to refine empirical methodologies. It is essential to prioritize the development of valid and reliable scales that accurately capture citizens' experiences. These measures are crucial for facilitating studies across different contexts, as mentioned, and across countries.

Beyond the thesis

In addition to the completed studies conducted during the PhD, I must mention some other projects related to the thesis object I have been working on. With my supervisor Xavier Ballart and Antoni Iruela, a primary care doctor, we worked on analyzing the experience of doctors in health care centers, combining an analysis of their characteristics, motivation, and professional well-being. We also compared different management models across Catalonia: total public, concerted, and private management. This article was published in *Gaceta Sanitaria* in 2023 (DOI: 10.1016/j.gaceta.2023.102306). It was selected as one of the ten most important in health management by the Spanish Society of Family and Community Medicine (Sociedad Española de Medicina de Familia y Comunitaria).

Furthermore, I am working with Lloreç Soler-Buadres from the Autonomous University of Barcelona on an article about the administrative burden experienced by citizens applying for the minimum vital income in Spain. Our main contribution is analyzing the burden arising from the multilevel setting of the Spanish social security system. The article was selected for a special issue on social policy implementation in Latin America and Southern Europe in the *Journal of International and Comparative Social Policy*.

Conclusions

This dissertation has focused on understanding the individual experience facing the state actions. The main argument was that the experience is a combination of prior subjective characteristics and formal and informal state actions. The state actions are not neutral, and the experience resulting from encountering those contextual factors affects public policy performance. Developing this research was a challenge from a theoretical perspective, involving psychological and environmental fields, but it was primarily challenging in terms of empirical approach. To address the research questions, I found and worked with databases from various sources and different types, using various techniques. This empirical work was challenging but also highly educational, resulting in articles that robustly address the research objectives from multiple viewpoints.