

Administrative Burden in public contracting: are bidders looking away?

Pedro Espallat, Joan Manuel Batista, Germà Bel & Marc Esteve
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ABSTRACT

Countries devote significant public resources to procurement, yet the processes remain complex and hindered by participation barriers. This experimental study innovatively draws on the administrative burden literature, presenting a real solicitation (higher burden) and a behaviourally intervened version (lower burden). Findings reveal that higher experiencing of burden reduces willingness to collaborate with government, even when eligibility is met. Although subject to boundary conditions, the effects are modestly attributable to state actions and underscore their role in shaping business-state interactions, while also offering preliminary steps to tackle contracting processes accessibility. Procurement research can benefit from underused behavioural and individual level approaches.

Keywords: public procurement, administrative burden, SEM, behavioural-public administration

Introduction

Public contracting is integral to the functioning of government. Countries typically spend 12–20% of GDP on acquiring goods, services, and public works (OECD 2023). Much of the existing literature debates the conditions under which contracting out enhances or hinders service delivery (Bel, Fageda, and Warner 2010; Brown and Potoski 2004, 2005). Under heightened competition, both theory and evidence indicate that public contracting has a higher potential to deliver effective, efficient, and high-quality goods and services (Bel, Fageda, and Warner 2010; Girth et al. 2012).

Nevertheless, high levels of participation and competition remain uncommon nationally and locally (Atkinson 2020; Girth et al. 2012; U.S. GAO 2017). Single-bid awards exceed desired levels in the European Union and the United States (European Union 2023; U.S. GAO 2017). Scholars have explored this issue and identified various costs and barriers to public procurement participation, such as transaction costs (Levin and Smith 1994; Pototski et al. 2023), contract design (Atkinson 2020; Tátrai et al. 2024), bureaucratic discretion (Kang and Miller 2022),

political influence and corruption (Broms, Dahlström, and Fazekas 2019; Fazekas 2017), and firm-specific barriers and capabilities (Ancarani et al. 2019; Flynn and Davis 2017; McManus 1991).

Yet the public procurement literature rarely incorporates individual-level characteristics or draws theories from organisational behaviour and psychology (Hudon, Dumas, and Garzón 2021). This study addresses this gap using the administrative burden framework as a new lens to understand and tackle the persistent participation problem. Administrative burden arises from individuals' onerous interactions with government bodies and can be operationalised into learning, compliance, and psychological costs (Burden et al. 2012; Herd and Moynihan 2018). Such burdens have been shown to reduce participation in programs, entitlements, and services, even among those who are eligible or targeted (Christensen et al. 2020; Herd and Moynihan 2022). Thus, *this research examines the impact of administrative burden on the willingness to bid (i.e., participate) in public contracts.*

While the administrative burden literature has focused on citizen-state interactions within safety-net programs (Shybalkina 2020), there is a recognised potential to apply this lens to a business-state context. Ntaliani and Costopoulou (2018) documented the learning costs and monetary burdens that rural businesses incur when accessing services and complying with regulations. Petersen, Hansen, and Houlberg (2024) empirically demonstrated how state actions, such as contract size and procedure type, influence the learning and compliance costs businesses incur in public contracting. These studies reveal that companies, like individuals, face administrative burdens when engaging with the government. However, they do not include cornerstone aspects of the framework, such as the individual's experience of the burden as a deterrent, the role of human capital in navigating burdens, and the psychological costs component (Herd and Moynihan 2018).

The study is a survey experiment in which participants—whose hypothetical business meets all eligibility criteria—are randomly assigned to either a higher (real solicitation) or lower-burden (intervened version) public tendering scenario. Participants come from a demographically representative sample of 676 U.S.-based individuals. Specific steps, such as attention checks, warnings, engagement tracking, fair compensation, and pre-registration of survey design and hypotheses, have been taken to mitigate concerns about data quality and source bias. The analysis employs Structural Equation Modelling to enhance construct validity and minimise measurement errors.

The empirical analysis reveals a statistically significant overall negative relationship between administrative burden and individuals' organisational decision to collaborate with the government. Compared to the lower-burden group, the higher-burden condition yields a significant but modest decrease in willingness to bid. The results also show, to a lesser extent, that higher levels of education and an intrinsic tolerance of burdens can lessen the bite of administrative burden. Overall, the results are indicative that state actions in contract design increase the level of burden in public contracting and reduce willingness to collaborate, while individual characteristics marginally lessen the perception of administrative burdens.

The study offers valuable contributions for researchers and practitioners by filling the gap in the use of behavioural perspectives and individual-level factors in public procurement. Furthermore, it applies administrative burden as a novel and underutilised framework in business-state interactions to understand participation barriers, even when eligibility is fully assumed. Our findings suggest that less legalistic-oriented solicitations, redesigned to offer a more human and business-centred approach, can mitigate the adverse effect of administrative burden on public contracting participation.

A participation problem

There is widespread agreement among scholars and practitioners that increased competition has a positive impact on public contracting, leading to improved effectiveness, efficiency, and quality (Bel, Fageda, and Warner 2010; Brown and Potoski 2004). The adverse effects of market concentration and weakened competition have been empirically shown in public procurement (Onur, Özcan, and Taş 2012). Low competition levels increase collusion and corruption (Broms, Dahlström, and Fazekas 2019) and incumbency advantages by reducing the probability of alternation (Albalade et al. 2022). High competition and participation are seldom achieved at national and local markets (Atkinson 2020; Girth et al. 2012; U.S. GAO 2017) or at desired representative levels (Ancarani et al. 2019; European Union 2023). There are also higher-than-desired single-bid processes, with most EU countries exceeding the less than 10% target and the U.S. at 14% (European Union 2023; U.S. GAO 2017).

Participation and competition issues in public contracting have primarily been analysed through transaction costs, principal-agent, political economy, and resource-based views. Firms may avoid public contracting due to high entry costs and the complexities of working with the government (Casady et al. 2023; Levin and Smith 1994; Pototski et al. 2023) or the anticipated low probability of success (Estache and Iimi 2011). Contract design and characteristics (e.g., size, duration, and award mechanism) influence the number of bids (Atkinson 2020; Tátrai, Vörösmarty, and Juhász 2024). Additionally, contract managers may use discretion to promote less competitive processes, such as sole-source, urgency, and renewals (Kang and Miller 2022). Political actors and context can also limit the process (Broms, Dahlström, and Fazekas 2019; Fazekas 2017).

Ample attention has been given to firms' resources and capabilities, particularly for small businesses, as significant factors that determine participation in public procurement (Ancarani et al. 2019; Flynn and Davis 2017). The participation problem is exacerbated by the size of firms, and small businesses are found to be underrepresented in many economies (Ancarani et al. 2019; European Union 2023; National Equity Atlas 2021). Scholars have demonstrated that barriers to participation are more pronounced depending on firm size (Di Mauro et al. 2020; Loader 2015), but can also be present across firms (Loader 2015; McManus 1991). Smaller firms commonly grapple with higher levels of search costs, restrictive requirements, onerous bureaucracies, and limited procedural capacity or resources. They also encounter issues such as size bias, financial constraints (e.g., access to funds or late payments), and uncertainty regarding fair competition, all of which hinder their effective participation.

The entrepreneur/owner's "positive attitude and perceptions" toward public sector opportunities and their willingness to engage are also crucial and not tied to the firm's size (Woldesenbet and Worthington 2019). Firms are sometimes not interested in engaging with the government, as they deem the processes too onerous, with high transaction costs and uncertainty (Casady et al. 2023; Pototski et al. 2023). There are also opportunity costs to dedicating resources to public opportunities rather than private clients, which are higher for small businesses (Di Mauro et al. 2020). Although barriers and enablers vary by country due to differences in firm characteristics and procurement practices (Di Mauro et al. 2020), several common barriers persist across countries, regions, and firms (Brunjes and Rodriguez-Plesa 2023; Loader 2015; Table A1, Appendix).

Why focus on Administrative Burden?

When Burden et al. (2012, 741) defined the concept of administrative burden as ‘an individual’s experience of a policy implementation as onerous’, they marked a significant shift from the prevailing research focus on rules and regulations (Bækgaard and Tankin 2022). Building on this definition, Moynihan, Herd, and Harvey (2015) clarified the concept by categorising administrative burden experiences into learning, compliance, and psychological costs—three distinct costs that arise from interactions with the government. Learning costs are associated with the search and information-gathering processes. Compliance costs comprise the material burden of adhering to administrative rules and procedures. Psychological costs include negative emotions, such as stress and frustration.

Business-state interactions have been predominantly analysed from the perspective of red tape within the frictions literature. References to businesses and government often evoke a strong association with red tape. Kaufman (1977) initiated decades of research on this topic, defining red tape as ‘rules, regulations, and procedures that remain in force and entail a compliance burden for the organisation but make no contribution to achieving the rules’ functional objectives’ (Bozeman 1993, 283). Administrative burden offers a more neutral stance, acknowledging that even well-intentioned and necessary rules can be burdensome and thus detrimental (Bozeman and Youtie 2020; Herd and Moynihan 2018). This reality speaks to the procurement context, given the prevalence of burdensome aspects that still fulfil public and organisational objectives (e.g., transparency, legal compliance). Participation in public contracting has not been fully explored from any friction lens. Existing research has identified barriers related to administrative burdens, such as a lack of knowledge, onerous processes, frustrations, and disillusionment (Atkinson 2020; Loader 2015; Table A1, Appendix), but these have not been studied within a friction framework.

The administrative burden literature has made significant conceptual and empirical progress in exploring the participation problem in various contexts, such as voting access (Burden et al. 2012) and enrollment in social programs (Heinrich 2018; Herd and Moynihan 2018). Administrative burden considers the significance of various individual characteristics and types of human capital (e.g., education, cognitive resources) in shaping individuals' ability to navigate the frictions associated with government interactions (Christensen et al. 2020; Herd and Moynihan 2018). More practically, it allows leveraging behaviourally-based solutions to reduce administrative burdens (Herd and Moynihan 2022). In this context, it enables the exploration of how individuals' characteristics and cognitive resources within firms influence decision-making. A well-established tradition in the organisational literature (e.g., Ansell and Gash 2008; Cyert and March 1963; Hambrick and Mason 1984; March and Simon 1958; Simon 1947) has emphasised that the individual characteristics of top managers are determinants in the decision-making process of organisations. Esteve et al. (2013) provide empirical evidence on the effects that individuals have in deciding whether organisations will engage in collaborative ventures. Therefore, by studying the characteristics of individuals, scholars can develop a more nuanced understanding of organisational decision-making processes (Esteve et al. 2013).

An administrative burden approach also directs attention to the costs associated with bureaucratic processes and rules (formal and informal) as well as other state actions beyond those considered "red tape" (Bozeman and Youtie 2020; Petersen et al. 2024). Moreover, it encompasses political and social dimensions, detailing how state actions can intentionally or unintentionally impede or promote public and organisational goals, including procedural fairness, transparency, and inclusion (Heinrich 2018; Herd and Moynihan 2018). Transaction cost theory is the most used approach in public procurement research (Trammell et al. 2020). Nevertheless, it overlooks the

policy and human factors that underpin state and business actions, such as entrepreneurs' perceptions, experience of the burdens, and street-level bureaucrats' implementation latitudes. A key distinction offered by administrative burden is between the state actions (i.e., objective burdens) and the subjective experiences of individuals facing those burdens.

Hypotheses: The tendering process as an Administrative Burden

While administrative burden aligns with business-state interactions, existing research has primarily focused on citizen-state contexts in social welfare (Shybalkina 2020), with calls to extend this focus to other contexts (Halling and Baekgaard 2024). Few studies have examined business-state interactions from the perspective of administrative burden. Ntaliani and Costopoulou (2018) documented the learning costs associated with accessing services and complying with regulations for rural European businesses. Petersen et al. (2024) empirically linked state actions to higher learning and compliance costs in public procurement. Undeniably, businesses and the individuals within them experience administrative burdens across various activities (e.g., registering a business, obtaining permits, and filing taxes). This study focuses on the public solicitation context, specifically the effect of the tender document on willingness to bid. While the procurement process involves several steps (see Potoski et al. 2023), we focus on the seller's revision of the tender document, as it is a key moment at which a firm must decide whether to dedicate time and resources to preparing and submitting a bid. Thus, it strongly captures *willingness to bid*. Furthermore, the tender document elicits various reported participation barriers to public procurement (see Table A1).

A conceptual evaluation of the components of administrative burden reveals their alignment with the tendering process, specifically with the tender review and bid submission (Table 1). Applicants must invest time and effort in acquiring knowledge about the contracting

opportunity (learning costs), fulfil numerous requirements, and submit relevant documentation (compliance costs). Furthermore, this process can evoke negative emotions, including frustration and stress with the process and the tender (psychological costs).

Table 1 here

Based on the conceptual alignment of administrative burden and the public tendering process, we anticipate that, as in the case of social programs, higher levels of experienced administrative burden will make applicants less willing to participate.

Hypothesis 1: Experiencing higher levels of administrative burden in the public tendering process makes applicants less willing to bid for public contracts.

Moreover, bureaucratic procedures have been shown to shape the levels of administrative burden in public procurement (Petersen et al. 2024). In our survey experiment, we modified an actual request for proposal (i.e., the tender) document to decrease its administrative burden, dividing participants into two conditions: higher and lower burden. A successful manipulation will imply that those participants in the higher-burden condition report higher levels of administrative burden. This intervention highlights a crucial and understudied distinction in the administrative burden literature: the difference between what the state does (i.e., how the tender is designed) and what the individual experiences as a result (Halling and Baekgaard 2024). Corollary, we expect that being part of the higher-burden condition moderates the effect of administrative burden on the applicant's willingness to bid. In other words, participants in a higher-burden condition will be less willing to bid than those in a lower-burden condition.

Hypothesis 2a: Individuals' experiences of administrative burden in the tendering process increase as a result of state actions.

Hypothesis 2b: The impact of administrative burden on willingness to bid is moderated by the higher-burden condition.

Although individual characteristics are important factors in this analysis, they are not treated as hypotheses, as their relationship to administrative burden has been established (see Christensen et al. 2020; Herd and Moynihan 2018). Instead, the following section provides a detailed description and explanation of them.

Research design and methodology

Survey experiment and data

To test the hypotheses, a survey experiment was conducted, with two conditions: higher and lower administrative burdens. The survey was administered on Qualtrics, and participants were recruited from Prolific, an online recruitment research platform. This study employed a U.S. representative sample encompassing individuals from various age groups, sexes, and ethnicities. Prolific constructs the sample based on the U.S. Census Bureau national distribution¹. Of the 707 recruited participants, 31 failed comprehension checks or behaved aberrantly, resulting in a final sample of 676. Table A2 confirms the sample's representativeness in terms of the U.S. national distribution.

This study explores participation barriers in public contracting from a behavioural standpoint. Our interest is in understanding how individuals perceive tender proposals and how these can be modified to increase their willingness to bid. To this end, we chose a U.S. representative sample to capture a population-wide behavioural effect more accurately across

different age, sex, and ethnic groups. Furthermore, 83.1% of the sample have experience in either or both sectors: 60.2% have owned or worked for a small business, while 60.0% have been public employees or private contractors.

The survey design and initial hypotheses were preregistered on OSF² on October 10, 2022, and updated on December 2, 2022, to include the final sample size, determined via a power calculation from a pilot study with 80 participants³. Using GPower, 600–1,100 participants were estimated as needed to achieve significant effects with a power of 0.90. Thus, we set a goal of 700 participants. The final experiment was conducted on December 11, 2022. To address concerns about using online platforms for data collection, we followed recommended practices, including attention checks, warnings, and fair compensation (Newman et al. 2021). The survey included three attention checks and three retention questions on the content of the tender, tracked document link clicks, warned participants about dismissal if documents were not viewed, asked to self-report what percentage of the tender document was read (mean = 60% of content), and compensated them above Prolific's average hourly rate.

The survey experiment had three parts. The first section included a consent form and gathered background information on education and experience working in the public sector (in general and specifically with government contracts). Participants' prior-experience variables were coded as dichotomous. Education levels were collected using the categorical coding applied by the American National Election Studies time-series survey.

The second part of the survey experiment involved a scenario setting. Participants were presented with a scenario in which a small business was considering a request for lawn care and maintenance services from a government agency. It was emphasised that the small business met all the experience, qualifications, and requirements needed to provide these services and that it

was a new entrant to public contracting. The company had a stable business flow and could afford to wait for another contract opportunity (see appendix for details on the prompt and scenario). These scenario factors address common participation barriers such as restrictive requirements, financial needs, and limited capacity (Loader 2015). Focusing on a small business scenario more realistically captures decision-making by one individual⁴, controlling for firm-size biases. Di Mauro et al. (2020) found, in a survey of SMEs, that 84% had fewer than one full-time employee dedicated to searching and preparing tenders. By holding these characteristics and barriers constant across conditions, the scenario allows for the approximation of how individual-level factors and the behavioural intervention document could shape organisational decision-making.

Participants were randomly assigned to higher or lower burden conditions following the scenario setting. In the higher-burden condition, the objective was to identify a request for proposals (RFP) that met specific criteria. The selected RFP had to be recently published, accessible, with an easy-to-understand scope of work, and have a high administrative burden. Petersen et al. (2024) have shown that service contracts generally have a higher administrative burden than other types of contracts, and Tátrai, Vörösmarty, and Juhász (2024) linked service contracts with fewer bids. Several service-oriented RFPs were assessed using these criteria. The chosen lawn-care RFP met these specifications—it was published in 2020, was freely accessible, and had a high administrative burden but an easily understood scope of work. This RFP pertained specifically to landscaping services for two government buildings in a local jurisdiction. Accordingly, the higher-burden condition (HAB) employed this original RFP, which comprised 18 pages and 5,574 words.

The categorisation of administrative burden costs into learning and psychological costs in the literature has created opportunities to use behavioural sciences to mitigate these burdens (Herd

and Moynihan 2022). A behavioural approach is used to reduce administrative burden and establish a lower-burden condition (LAB) by explicitly manipulating learning and psychological costs. The level of compliance costs was not manipulated explicitly, as such costs encompass several rules and requirements that are more difficult to change. The length of the document was likely to prevent participants from perceiving these changes, and we did not ask participants to prepare a bid. This decision not to explicitly manipulate compliance costs aligns with practitioners' recommendations on making changes easily replicable by a contract manager without requiring legal or policy changes (Harvard GPL 2022). The administrative burden literature recognises that its three components affect one another, as reductions in one can spill over (Herd and Moynihan 2018). Thus, we expect the perception of compliance costs also to be affected.

Despite a lack of behaviourally-informed research in the literature (Battaglio et al. 2019; Hudon, Dumas, and Garzón 2021), this study draws on insights from behavioural public administration, previous administrative burden experiments, and recommendations from Harvard GPL. Specifically, four main changes were applied to the lower administrative burden (LAB) document. First, a simplified cover page was written to provide clear and concise information, highlighting key details for potential bidders. The cover page length remained constant in both conditions at 283 words. Second, a submission checklist was included to facilitate retention of information. Third, the document's layout was improved with clearer section headings, the removal of repetitive headings, and the addition of a table of contents. Research indicates that individuals are more likely to engage and experience lower learning costs when presented with clear and concise instructions (Linos, Quan, and Kirkman 2020). Additionally, simplified information layouts with prominent titles and clear organisation can reduce psychological frictions

(Bhargava and Manoli 2015). Checklists, a type of mnemonic device, help reduce cognitive errors and are widely used in various settings (Chew et al. 2016).

The plain language movement has long focused on the legal aspects and jargon of public documents, advocating for simplification to enhance accessibility and comprehension (Steinberg et al. 1991). A strong legal tradition has historically shaped public procurement, often creating trade-offs between public values, such as transparency and due process, and the resulting rigidity, red tape, and regulatory barriers faced by firms (Bosio et al. 2022; Fazekas 2017; Kovacic 1992). Many tender documents, including the one in this study, contain extensive legalistic sections. In line with practitioners' recommendations, we sought to make these legal elements less prominent at this stage, as they can confuse and deter applicants. The neutral stance of administrative burden allows for the classification of such legal specifications as burdensome without implying that they are unjustified. Accordingly, legal sections were moved toward the end of the RFP, while the scope of work was placed earlier. We treat these modifications as equivalent to state actions, as such changes would need to be made by a government actor.

The lower administrative burden condition consists of 18 pages and 5,350 words, a difference of 224 words from the higher-burden condition. This small difference safeguards that any found effect is unrelated to the document length. Table 2 outlines the key modifications to the original contract document aimed at reducing its administrative burden, and these changes are further presented in the appendix. The terms 'lower-burden' and 'higher-burden' are used intentionally to acknowledge that a contract document involves some fixed administrative burden. Although the intervention aims to reduce the administrative burden, the condition variable has been coded 1 to represent the higher-burden condition (HAB) and facilitate comprehension.

Table 2 here

The final part of the survey captures the variables of interest collected after participants have reviewed the tender document in their assigned condition. These variables are willingness to bid, learning costs, psychological costs, compliance costs, and burden tolerance. Willingness to bid was assessed using a 7-point Likert scale, with responses ranging from ‘not at all willing’ to ‘completely willing’. To code the components of administrative burden, we drew inspiration from the administrative burden literature (Aarøe et al. 2021; Döring et al. 2022; Herd and Moynihan 2018). The coding and language were adapted to the context of public tendering, with a 7-point Likert scale used to enhance measurement variability.

To measure learning costs, three items were used to assess the participants’ perceptions of document difficulty in relation to understanding, navigation, and finding information. Psychological costs were measured through emotions that are commonly mentioned or tested in the administrative burden literature and suppliers’ surveys. Participants were asked whether the RFP made them feel frustrated, confused, anxious, stressed, or overwhelmed, and if they *worried* about completing it accurately. Compliance costs were assessed using a single item that captured participant perceptions of the process as burdensome, time-consuming, and complicated. This cost was not manipulated explicitly as participants did not submit a bid, and the hypothetical firm fulfilled all requirements; a single item was used to capture it. Table A4 in the appendix includes variable coding.

Estimation method and model

Structural equation modelling (SEM) was applied to the three cost variables to construct a latent variable representing the overall administrative burden measure. The model (Figure 1) was

estimated using the LISREL package. SEM has seen limited application in the field of public administration, particularly in the context of administrative burden (apart from Döring and Madsen 2022). However, methods closely related to the measurement component of SEM, such as dimensionality reduction through factor and principal-component analyses, are commonly used (Bækgaard et al. 2021; Burden et al. 2012). As a burgeoning field, administrative-burden research still lacks a standardised way of measuring its elements and constructs (Bækgaard and Tankink 2022). This issue can be explicitly addressed through a SEM process that involves two main steps. The first step consists of specifying a measurement model, typically a confirmatory factor model, to establish the construct validity of the latent variables by examining the relationships between observed indicators and their corresponding latent factors. This step ensures the indicators are reliable and valid measures of the underlying constructs.

The second step involves fitting the structural model, specifying the hypothesised relationships (paths) between latent variables representing the construct of interest. This step enables the testing of hypotheses and the examination of direct and indirect effects among the latent variables. By integrating measurement and structural models, SEM provides a comprehensive framework, enabling the assessment of construct validity and the examination of theoretical relationships simultaneously.

The model incorporates two measures of capital: human and administrative. Human capital is represented by age and education level, while administrative capital is assessed using prior government or contracting experience (*GovExp* and *ContractExp*). According to Christensen et al. (2020), age-related cognitive decline is associated with a reduced ability to manage administrative burden. We, therefore, anticipate a positive relationship between age and perceived administrative

burden. Higher levels of education are associated with lower administrative burdens (Christensen et al. 2020). Sex and race, the other demographic variables, are control variables.

Figure 1 here

Concerning administrative capital, the literature suggests that specialised knowledge and prior experience in navigating administrative processes can make it easier to deal with administrative burdens (Döring and Madsen 2022; Masood and Azfar Nisar 2021). Petersen et al. (2024, 6) initially hypothesised that businesses with more government contracting experience would have a lower administrative burden. However, their findings did not yield significant results; instead, they revealed a perplexing trend: prior experience could either increase or decrease learning and compliance costs. In the present study, the relationship between administrative capital and administrative burden and its effect on willingness to bid is considered exploratory. In the procurement literature, Flynn and Davis (2017) have found evidence that procedural capability, which pertains to the ability to navigate the tendering process and contract administration effectively, is developed through firsthand experience. They have also established a positive relationship between procedural capability, business participation, and success rates in public bidding processes. Thus, the present study anticipated a positive relationship between administrative capital and willingness to bid.

Burden tolerance is an individual's willingness to passively allow or actively impose administrative burdens on others (Bækgaard, Moynihan, and Thomsen 2021, 185). While the literature has primarily centred on factors that make policymakers and society more willing to proactively impose burdens (Halling, Herd, and Moynihan 2023), the present study focuses on the passive component. Individuals with higher burden tolerance are expected to perceive fewer administrative burdens. To our knowledge, this relation has not been explored empirically.

Results

Table A3 in the appendix presents the summary statistics and bivariate correlations. The latent variables—administrative burden, learning costs, and psychological costs—have been measured using their corresponding factor-score coefficients obtained through maximum likelihood estimation.

Table 3 presents independent t-test results comparing the higher and lower burden conditions. The findings indicate that the manipulation/state action to reduce administrative burden has been effective. Participants in the lower-burden condition report significantly lower administrative burden levels than those in the higher-burden condition, confirming hypothesis 2a. Similarly, learning, compliance, and psychological cost components are significant and lower in the lower-burden condition. These statistically significant differences suggest that even superficial interventions in a proposal request can reduce the experience of administrative burden while keeping actual compliance costs constant. This finding is encouraging, as it demonstrates that targeted and simple changes can mitigate the burden experienced by participants in the tendering process without requiring any explicit rule changes.

Compliance costs showed weaker significance, reflecting the actual unchanged procedures and requirements across conditions. While the primary strategy aims to decrease administrative burden by reducing learning and psychological costs, this intervention influences participants' perceived compliance costs. This significance level captures that our manipulation effect on compliance cost was weak, as expected, and highlights the spillover effect between administrative burden components (Herd and Moynihan 2018).

No statistically significant difference was found for burden tolerance, which we consider a positive outcome. According to Bækgaard, Moynihan, and Thomsen (2021), personal experience

with burdens and ideology can shape burden tolerance. Furthermore, Aarøe et al. (2021) have shown that personality influences burden tolerance. The present study sees burden tolerance as akin to a personality trait, which is unlikely to undergo significant changes following exposure to a single burdensome scenario. We also compared the time it took to complete the survey across conditions and found no significant differences.

Table 3 here

In structural equation modelling, the interpretation of results follows a sequential process, with an initial focus on assessing goodness of fit before estimating the final structural model.

This research benefits from relatively high statistical power, as indicated by the sample size of $N = 676$. The indicators used in the measurement model demonstrate high reliability (see Table A3 in the Appendix). In addition, the model specification employed is parsimonious (see Figure 1). Therefore, if the model were to be rejected based on a global fit index, such as the Satorra-Bentler Scaled Chi-Square (39 df) = 77.3 (p-value = 0.000251), it would be inconclusive and likely attributable to very minor misspecifications. This is supported by the satisfactory values of other overall fit indexes, including a Root Mean Square Error of Approximation (RMSEA) of 0.0384, with a 90% confidence interval of (0.0257; 0.0509) and a p-value for the Test of Close Fit (RMSEA < .05) of 0.935. Additionally, the Standardised Root Mean Square Residual (SRMR) is 0.0372 and the Comparative Fit Index (CFI) is 0.990, indicating a very good fit for the model. These findings provide strong support for the adequacy of the model.

Figure 2 presents the SEM standardised estimates, which make the global results easier to understand. From -1.0 to 1.0, these estimates can be interpreted as effect sizes. This figure also provides the factor loadings of the three components of administrative burden.

Figure 2 here

In line with the literature, the standardised effect of education on administrative burden is negative and significant. This result confirms that higher educational attainment is associated with lower perceived administrative burden. The control variables of sex and race have no significant effect in the present study; contrary to the original expectations, age does have a negative effect. Christensen et al. (2020) noted that age-related cognitive decline is associated with a reduced ability to cope with administrative burdens. The study sample, with a median participant age of 47 (only 11.9% were 65 or older), suggests that the relatively young age distribution may have attenuated this age-related cognitive effect. Additionally, participants engaged with a digital survey platform, which may have introduced some sample bias related to cognitive health.

The *HB-Condition* variable, representing the higher-burden condition, is statistically significant and positive in the SEM model, providing further evidence of successful manipulation and confirming that state actions influence the experiences of burden (Hypothesis 2A). Interestingly, while the factor loadings of the three components of administrative burden are relatively close, compliance costs exhibit the highest loading. This suggests that individuals display a stronger association between compliance and administrative burden.

The results demonstrate a significant negative effect, supporting Hypothesis 1. A one-standard-deviation increase in reported administrative burden leads to a half-standard-deviation reduction in willingness to bid. Furthermore, supporting Hypothesis 2b, the higher-burden condition acts as a negative moderator on the main effect of administrative burden. For each one-standard-deviation increase in experienced administrative burden, being in the higher-burden condition results in an additional decrease in willingness to bid by -0.049 standard deviations compared to the lower-burden condition. While the moderation effect is subtle, it remains meaningful, especially if considering a context where the manipulation of an 18-page document

may have been less noticeable to participants. Stated more positively, even weak contract-tender manipulation seems to influence participants' willingness to bid.

Other effects requiring clarification are the impact of prior area-specific experience (having participated in a contract before) and general experience (having worked with or for the government) on administrative burden and willingness to bid, respectively. In line with Petersen et al. (2024), prior experience has no significant effect on administrative burden in public contracting⁵. General experience working with the government is positively associated with willingness to bid. The association between contract experience and willingness to bid is positive but not statistically significant. Additionally, we explored the interaction between levels of administrative burden and prior-experience variables. Contract experience and government experience have a modest and negative interaction with the overall effect of administrative burden on willingness to bid, at -0.167 and -0.230, respectively. These results reveal a dual effect: individuals with prior experience are more inclined to have their organisation engage in contract applications due to their familiarity with government procedures. However, if they perceive processes as highly burdensome, it diminishes their willingness to participate compared to those perceiving lower burden levels.

Discussion

The primary aim of this study is to investigate the effects of administrative burden on willingness to bid in the context of public contracting. Overall, the findings provide valuable insights into administrative burden and its impact on organisational decisions by individuals over whether to engage in business-state partnerships. The results show that the public tendering process involves administrative burden, reducing willingness to collaborate with the government, even among eligible firms fulfilling necessary requirements. This reduced willingness, in turn, undermines the

potential for market dynamization through heightened competition. Without robust competition in public contracting, the desired benefits of enhanced effectiveness, efficiency, quality, and reduced corruption become more elusive (Bel, Fageda, and Warner 2010; Brown and Potoski 2004; Girth et al. 2012).

These findings also support the argument that burdensome encounters arise in response to state actions (Bækgaard et al. 2021; Herd and Moynihan 2018). According to Petersen et al. (2024), state actions related to contract design, administration, and awarding shape the administrative burdens associated with conducting business with the government. The present study makes a further contribution by presenting empirical evidence that the experience of administrative burden can be reduced by simplifying and clarifying the process and deemphasising legal technicalities to enhance the user-friendliness of contracting documents. Although this effect is modest in magnitude, it is noteworthy given the subtlety of the manipulation.

The present study aligns with emerging research on the influence of individual-level factors on administrative burdens (Christensen et al. 2020). It fills a gap in the procurement literature by examining this level and incorporating psychological costs within a business-state interaction context. Including individual characteristics in research on organisational decision-making processes enables scholars to gain a more comprehensive and nuanced perspective on public-private collaboration (Esteve et al. 2013). The findings corroborate that human capital influences an individual's ability to navigate administrative burdens (in line with existing evidence on social programme take-up). Education emerges as a straightforward human capital tool that facilitates the navigation of burdens.

In public procurement, less attention has been given to administrative exclusion at the decision-maker level. Brodtkin and Majmundar (2010) highlight that non-participation must be

distinguished between individual preference/eligibility (i.e., willingness to engage) and unwanted exclusion from organisational practices. The procurement literature has emphasised exclusion through firm-level barriers and high entry and transaction costs (Casady et al. 2023; Flynn and Davis 2017). We demonstrate that in a simulated scenario where a firm has low barriers (i.e., it meets the requirements of the tender) and has no financial need, individual experiences of administrative burden influence organisational bidding decisions. These results also underscore that while organisations do not incur psychological costs, individuals within them do. By relying on the administrative burden framework, we complement the procurement literature by empirically accounting for individual factors and psychological costs in organisational decision-making.

This study also sheds light on perplexing findings regarding the insignificance of administrative capital (measured by prior experience) and its bidirectional effects on administrative burden, as previously observed at the firm level by Petersen et al. (2024). At the individual level, prior experience working or contracting with the government does not significantly impact administrative burden. However, our findings corroborate that prior government experience has a direct, positive effect on willingness to bid. Delving deeper into this phenomenon, we interacted administrative capital with administrative burden and discovered that it negatively moderates willingness to bid. This highlights a duality: prior experience encourages participation due to familiarity, yet simultaneously heightens sensitivity to bureaucratic procedures with higher burdens, reducing willingness to engage with such processes. Future research should investigate how previous and repeated exposure to administrative burdens affects engagement, whether firms adapt, disengage, or advocate for reforms.

The overall findings have practical implications for practitioners and suggest areas for further research for scholars. Focusing on individual perceptions and bounded rationality can

reduce perceived levels of administrative burden. Manipulating psychological heuristics and the learning experience can alleviate the burden of compliance rules and red tape, even if these do not change objectively. Understanding this can empower governments to change their actions and reduce burdens. By writing clearer and more user-friendly documents, they can mitigate the burden on applicants without requiring substantial changes to the existing rules. It also avoids prescribing changes to needed but likely burdensome requirements that advance desired public values such as transparency and accountability. Instead, it asks governments to assist firms in navigating this red tape by decreasing learning and psychological costs. The changes introduced in this study were subtle and readily implementable—such as providing a clearer cover letter and a requirements checklist—aligning with both practitioner and academic recommendations to improve tender documentation to boost participation, while also empirically validating their combined effect (Flynn 2018; PPG 2025). This simplicity is essential given the demand by civil servants to adopt solutions that are both actionable and cost-effective (Harvard GPL 2022).

Beyond tendering, future research should explore administrative burden across the procurement cycle, including contract management and vendor retention. Studies could also assess whether higher burden environments reinforce incumbency advantages. Additionally, procurement failure—such as bid cancellations—can be examined through an administrative burden lens. Casady, Petersen, and Brogaard (2023) highlight how cancellations have been understudied and can be driven by a lack of competition. They can also result in lower business engagement and credibility issues with the government. Future research could examine whether cancelled processes are linked to both objective and perceived levels of administrative burden, for instance, by exploring associations between high-burden procedures, supplier capacity, and bid disqualification rates.

While our findings are drawn from a U.S. context, research suggests that procurement burdens and low participation are global issues (Brunjes and Rodriguez-Plesa 2023; Hoekman and Onur Taş 2022; Kidalov and Snider 2011). Tender complexity and other barriers remain a common challenge worldwide (AFIC-OCP 2023; European Commission 2021; Loader 2015; OECD 2018) and are linked to administrative burden elements (Table A1, Appendix). Thus, while regulatory environments vary and matter, the procurement process consistently revolves around three main phases—preparation, procurement, and delivery (Patrucco et al. 2024). Thus, while caution must be taken to account for the heterogeneous characteristics of businesses, procurement practices and regulatory environments, our results can inform a global audience.

Further research can evaluate how state capacity and cultural factors interact with administrative burden and exclusion. The administrative burden literature in social welfare has explored these topics (see Masood and Nisar 2021; Peeters et al. 2018) and moved beyond the global north (Halling and Baekgaard 2024). Furthermore, low trust and corruption are vital research agendas in public procurement (Broms, Dahlström, and Fazekas 2019) and are a more salient barrier to participation and success in the global south (AFIC-OCP 2023).

Additionally, our design focuses on a paper-based tender and submission (although accessed via an online platform). This setting fails to recognise the positive effect on participation that e-procurement systems have had on access and participation and the removal of tendering barriers (Albano et al. 2015; Schmitz and Wimmer 2024), but makes our findings more applicable to a broader audience. In the U.S. local context and in many countries, procurement remains highly paper-based. Chen et al. (2022) report that only 33% of a sample of 459 American cities reported e-procurement adoption. Future studies should investigate whether e-procurement reduces burden

or shifts it from administrators to vendors (Bozeman & Youtie 2020; Ntaliani and Costopoulou 2018), particularly for smaller firms that may struggle with digital skills (Akenroye et al. 2020).

Furthermore, our study is based on a single service, limiting the generalizability of our findings. Grounds/lawn maintenance was selected given its easily understood scope of work. Hefetz and Warner's (2012) seminal article offers guidance as to what other services exhibit similar levels of contract complexity. The selected service ranked below average in asset specificity and contract management difficulty but above average in competition levels among the 67 assessed services. Kang and Miller (2022) found that administrative hurdles have a limited impact on IT and telecommunication public contracts. Given this sectoral ambivalence, the complexity of contracts warrants further exploration under an administrative burden lens, as the effects of their interaction are not yet evident. For example, a more complex contract with high asset specificity will likely administratively exclude more firms, given specialisation, but can also lead to more relational contracting practices that result in contract co-creation and service co-production (Brown et al. 2016; Farr 2016; Girth et al. 2012).

Finally, there is a need to incorporate behavioural public administration (BPA) insights into the public procurement literature to assist governments in improving contracting practices. Hudon, Dumas, and Garzón (2021) review a sample of 743 articles from the public procurement literature and find that only 3% use theories drawn from organisational behaviour and psychology. The few public administration studies that apply a behavioural lens to public procurement have focused on the buyer/government side (see Igarashi, Boer, and Pfuhl 2017; Preuss and Walker 2011). More user-friendly designs for contract documents are being researched and applied in private purchasing (Waller, Passera, and Haapio 2022), while similar approaches are increasingly

being promoted by public sector practitioners (see PPG 2025). We encourage future scholars to use BPA in public procurement challenges from the seller/business side.

Limitations

Our study presents several limitations to consider. First, it does not isolate the effects of specific behavioural interventions within the tender document. We focused on whether behaviourally manipulating administrative burden decreased participation rather than isolating particular interventions. Given the limited behavioural research in public procurement (Hudson et al. 2021), we lacked a starting point; future studies can disentangle the impact of different tender modifications. Additionally, compliance costs were measured using a single item, as participants were not required to submit a bid, and the hypothetical firm fulfilled all requirements. Nevertheless, high factor loadings and SEM construct validity reduce bias concerns. Moreover, Petersen et al. (2024) confirm the negative relationship between administrative burden and compliance costs.

A key methodological consideration is whether a U.S. nationally representative sample accurately reflects the administrative burden experienced by business decision-makers. While an ideal sample would include business owners or managers, low response rates, population representativeness, and engagement in firm-level surveys (Ntaliani and Costopoulou 2018; Potoski et al. 2023) make this approach challenging. Moreover, restricting the sample to business owners risks omitting representative individual characteristics (e.g., education levels) and average behavioural effects, which are typically examined using broader representative samples.

Representative samples are widely used to infer decision-making and corresponding biases across contexts. For example, Aksoy et al. (2024) use a Prolific U.S. representative sample to study workplace attitudes toward transgender managers. Thomsen et al. (2020) use a Danish national

sample to evaluate psychological costs in public service citizen co-production. Platform samples combined with experimental methodologies provide a cost-effective approach to approximating real decision-making, allowing future research to expand and retest findings (e.g., Prospect theory was widely tested with undergraduates. See Barberis 2013). By applying a behavioural approach to a representative sample, we can engage with and capture individuals' perceptions and contributing factors to decision-making, which have seldom been explored in public procurement.

Furthermore, our sample is well-suited to capture the individual experience of administrative burden, whether faced by an owner or an employee, as it closely reflects the U.S. workforce. Additionally, 83.1% of respondents have experience with government workings and/or small business operations, enhancing the relevance of their perspectives. A demographic comparison with U.S. small business owners (Table A2, Appendix) shows that both groups are predominantly White and highly educated, though women are overrepresented, and older individuals are underrepresented. Given that age correlates with a higher administrative burden due to cognitive limitations (Christensen et al. 2020), any potential effect of underrepresentation by age would be to underestimate the administrative burden effect. We found no significant effect of sex in our results in the presence of a more gender-equal distribution.

Nevertheless, this study relies on an experimental survey using a hypothetical scenario that simulates—but does not replicate—an actual solicitation process and uses self-reported indicators. It focuses on a single context with a one-off implementation, supported by a pilot phase. We have been transparent about the study's design limitations and have taken several steps to enhance the robustness of our results. Recruitment was constrained by the inherent difficulty of capturing actual and potential participants in public contracting who share a common area of operations. We approximate a behaviour by using a demographically representative sample and accounting for

individual capacities and exposure. Future research should further investigate the impact of administrative burdens on bidding behaviour across diverse contexts.

Despite these limitations, our study contributes to enriching the understanding of barriers in business-state interactions and encourages the broader application of behavioural and individual-level approaches in procurement research. Administrative burden impedes collaboration, and our findings highlight the importance of reducing these barriers to foster greater participation, competition, and equity in public procurement.

Conclusion

In this article, we used a random assignment survey experiment, preregistered the experimental design and initial hypotheses, and applied recommended checks when using online platforms. The application of structural equation modelling has allowed the study to address measurement errors, establish construct validity, and provide global interpretations. Additionally, utilising a representative U.S. sample in terms of sex, age, and ethnicity enhances the ability to capture an overall behavioural effect and approximate the experience of individuals new to government procurement.

This research sheds light on the influence of state actions in contract design on increasing administrative burden. Consistent with the existing literature, we recommend that governments shift the burden inward and improve contract design, highlighting that many actions implemented in the study are feasible and low-cost. This study demonstrated that even subtle behaviourally informed changes, such as simplifying information and spotlighting the business case over legal and procedural compliance, can modestly reduce administrative burden. Thus, practical interventions and improvements can be implemented without the need for drastic alterations to current processes.

Our study highlights that administrative burden is likely more pronounced in small businesses, which have fewer resources and higher entry barriers (Loader 2015) and are akin to administratively disadvantaged (Brodkin and Majmundar 2010). In smaller firms, procurement burdens often fall on a single individual. In Canada, fewer than one full-time employee typically tracks public sector opportunities (Di Mauro et al. 2020), and in the U.S., 63.7% of businesses have fewer than five employees (U.S. Census Bureau 2022d). Larger firms also face bureaucratic hurdles, though decision-making is distributed across multiple individuals, raising new questions about how burden perceptions interact or combine in group settings.

Recent discussions among procurement scholars advocate treating public contracting as a strategic activity beyond legal compliance and operational effectiveness. This perspective emphasises a more stakeholder-centred approach, leveraging procurement to support economic development and address societal challenges (Patrucco et al. 2024). The final message for practitioners and scholars is this: contracts should not be written from a narrow legal and compliance angle if we expect more people to engage and manage them effectively.

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

Documents regarding ethics

The Committee for the Use of Human Subjects in Research of the authors' institution, in its meeting of 18/05/2022, has reviewed the research proposal presented by the authors and full ethical approval was granted.

Notes

¹ Information on how Prolific constructs representative samples can be found at <https://researcher-help.prolific.com/en/article/e6555f>. Only UK and U.S. representative samples are available.

² Anonymised pre-registration at: https://osf.io/qa4fm/?view_only=b1634551a01d4807897b7066e89e9486.

³ Pilot participants were not included in the final sample, as they came from Prolific global sample and not the U.S. representative sample.

⁴ In the U.S., approximately 63.7% of businesses have fewer than five employees, while an additional 16.2% have between five and nine employees (U.S. Census Bureau 2022d).

⁵ Following SEM convention, non-significant results are not displayed in Figure 2.

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In-text tables and figures.

TABLE 1. *Administrative burdens in public procurement bid tendering and reported barriers.*

	<i>Description</i>	<i>Barriers reported in sellers' surveys</i>
Learning costs	Businesses must find or be notified of the contracting opportunities available to them. They must learn the specific contracting process for their jurisdiction, the conditions they need to satisfy, and how to apply.	1) Inability to determine appropriate contacts, 2) Lack of knowledge about procedures and opportunities, 3) Payment needed to access information, 4) Lack of/poor feedback, 5) Lack of standardised procedures/templates, 6) Restrictive and one-way communication, 7) Legal jargon and unclear/vague tender language.
Compliance costs	Businesses must provide extensive information and documentation (detailing their financial situation, professional experience, track record, compliance with insurance, OSHA, and other regulations) and respond to discretionary administrative demands.	1) Difficulty being included on a preapproved supplier list, 2) Restrictive requirements, 3) Need to demonstrate a track record (financial and length of time), 4) Time-consuming and costly bid preparation, 5) Excessive bureaucracy and document requirements.
Psychological costs	In the bidding process, there is uncertainty about being awarded, a lack of sufficient time for bid preparation (especially for newcomers), and documents/questions that are unclear, overly prescriptive, and strenuous to complete. These experiences and interactions can lead to mental discomfort and negative feelings.	1) Uncertainty around the bid being awarded, 2) Unprofessional procurers, 3) Disillusion with slow decision making, 4) Narrow definition of value that fails to appreciate work/potential (with price as the main factor), 5) Frustration and exasperation with the document/questions, 6) Perception that processes are unfair/discriminatory, 7) Narrow specifications that prevent access/disqualify firms, 8) Lack of time to prepare bid.

Source: Authors' compilation; barriers adapted from Loader (2015) and Table A1, Appendix.

TABLE 2. *Changes that create a lower administrative burden condition.*

Changes that Reduce Administrative Burden	Rationale
Section I (the Cover Page) has been transformed from a largely procedural section to a more informative and helpful executive summary.	Simplified and clear instructions are given, as well as practical details upfront, including RFP intent, the evaluation procedure, and summary steps of the process. The cover page is also made more visually appealing to draw attention and inviting to reduce psychological frictions.
A submission checklist has been added, listing the required documentation and submission requirements.	This checklist aims to help readers navigate and retain information and reduce cognitive errors.
Changed the layout to be clearer	Added a table of contents to assist in navigating and understanding the document layout. Wrote clearer headings and moved some content to fall appropriately.
The order of the sections has been changed to focus on the <u>Business Case</u>, the purpose and scope of work, rather than the <u>legal</u> and compliance aspects.	This change implements practitioners' recommendations to deviate from the traditional approach of starting with sections in legalese (general and financial conditions); instead, it prioritises the Business Case at the beginning, with the legalese moved towards the end of the document.

Examples of the changes and links to both documents are provided in the appendix as supplemental materials.

TABLE 3. Independent sample T-Test.

Variable	Condition	N	Mean	SD	SE	t	Cohen's d
Administrative Burden	Higher Burden	332	4.09	1.51	.08	3.32***	.26
	Lower Burden	344	3.72	1.44	.08		
Learning Costs	Higher Burden	332	3.56	1.57	.09	3.74***	.29
	Lower Burden	344	3.12	1.48	.08		
Compliance Costs	Higher Burden	332	4.44	1.85	.10	1.77*	.14
	Lower Burden	344	4.19	1.82	.10		
Psychological Costs	Higher Burden	332	4.17	1.73	.09	3.20***	.25
	Lower Burden	344	3.74	1.72	.09		
Burden Tolerance	Higher Burden	332	4.69	1.51	.08	.06	.004
	Lower Burden	344	4.68	1.53	.08		

*p<.10; **p<.05; ***p<.001 (2-tailed).

Learning, psychological costs, and administrative burden were scaled (1–7) based on components' weight in the factor analysis.

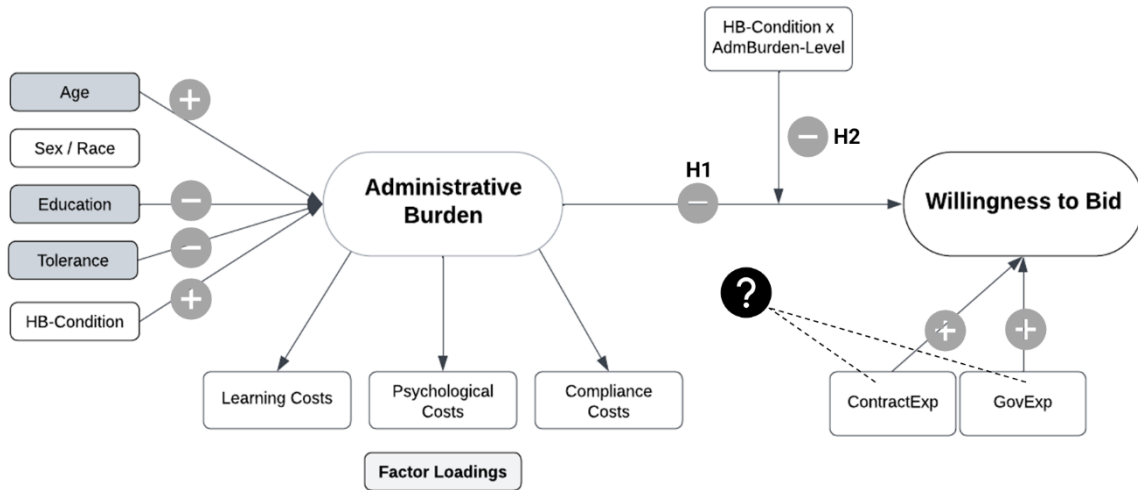
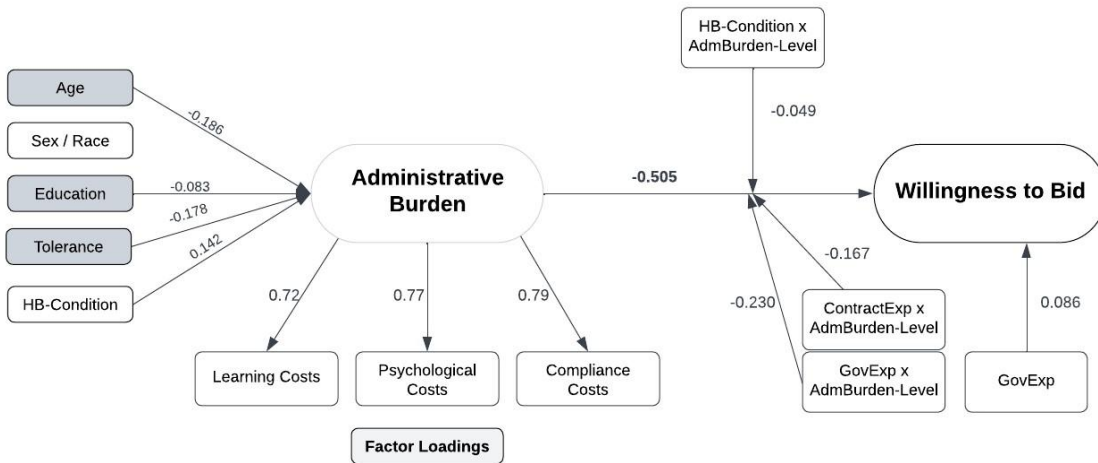


FIGURE 1. *Structural model.*



Satorra-Bentler Scaled Chi-Square = 77.300 (df= 39; p-value = 0.000251) | RMSEA = 0.0384, 90% CI (0.0257; 0.0509), P-Value for Test of Close Fit (RMSEA < 0.05) = 0.935.
 Comparative Fit Index (CFI) = 0.990 | Goodness of Fit Index (GFI) = 0.982.

FIGURE 2. *SEM standardised estimates of the global model.*

Appendix

TABLE A1. *Identified barriers to (small) business participation.*

Barriers	U.S. ¹	U.K. ²	Canada ³	Chile ⁴	EU ⁵	OECD ⁴	Africa ^{6*}
<u>Higher search costs</u>	x	x	x	x	x	x	x
<u>Communication barriers</u>	x	x	x	x	x	x	x
<u>Procedural capacity/ resources (e.g., cost and ability to prepare bid)</u>	x	x	x	x	x	x	x
<u>Unclear/difficult-to-understand tender documents</u>	x	x	x	x	x	x	x
<u>Restrictive and over-prescriptive requirements</u>	x	x	x	x	x	x	x
<u>Onerous and highly bureaucratic process</u>	x	x	x	x	x	x	x
<u>Uncertainty of award/future opportunities</u>	x	x	x		x		
<u>Perception of unfairness / corruption</u>	x	x	x		x	x	x
<u>Financial sustainability (e.g., slow/late payments)</u>	x	x	x		x	x	x
<u>Competition (price vs. MEAT)</u>	x	x	x	x	x	x	
Performance capability (e.g., can meet technical requirements/have experience)		x	x	x	x	x	
Social capital/relation	x				x		x
Firm size bias	x	x	x		x		x
Financial access/barriers	x		x	x	x	x	x
Size of tender	x	x	x	x	x	x	

Sources: Authors' compilation based on ¹McManus 1991; Sharma et al. 2025; Theodos et al. 2024; ²Loader 2015; ³Ancarani et al. 2019; Liao et al. 2017; Di Mauro et al. 2020; ⁴OECD 2018; ⁵Ancarani et al. 2019 (Hungary and Italy); European Commission 2021 (Italy, Netherlands, Poland, Romania, and Sweden); ⁶AFIC-OCP 2023 (Ethiopia, Kenya, Rwanda, Tanzania, and Uganda). Some barriers are clearly listed in some reports and others are mentioned in testimonials, conclusions, or other parts of the report. Notes: MEAT is the most economically advantageous tender. "x" means barrier is present. Underlined are barriers that match administrative burden components. **Bolded are barriers that can be associated/experienced from the tender document and process.** *The research focused on women-owned small businesses. Most sources refer to small businesses or SME barriers, but Ancarani et al. (2019), McManus (1991), and Sharma et al. (2025) surveyed/included firms of all sizes. Theodos et al. (2024) compiled U.S. SMB barriers with an additional focus on entrepreneurs of colour.

The barriers identified above are not meant to be exhaustive but to illustrate how barriers to participation in public procurement have a close conceptual match with the components of administrative burden. Higher search costs, communication barriers, and procedural ability directly relate to learning costs. Uncertainty about getting the award and perception of unfairness are directly related to negative emotions highlighted in psychological costs. Similarly, late payments can cause financial and psychological stress. Awards based on price have been flagged as causing frustration, as small businesses feel they cannot compete or highlight their added value. Other identified barriers can simultaneously increase more than one cost. For instance, low procedural capability can increase frustration (PC), the bid's time and cost (CC), and the amount of learning to complete it (LC). Similarly, a process that is considered onerous can elicit negative emotions (PC) and increase compliance costs. Unclear and over-prescriptive tenders can be reflected across the three costs. The list is not exhaustive but demonstrates how barriers are prevalent across regions and closely match administrative burden components.

LC: Learning costs, PC: Psychological costs, and CC: Compliance costs.

TABLE A2. *The full sample compared with the U.S. national distribution and U.S. small businesses distribution.*

	Study Sample	SMB (employer firms)	SMB (All firms)	American Public
Age				
18–24	9.2%	0.3%	n.a	9.1%
25–34	16.3%	5.0%	n.a	13.5%
35–44	13.2%	17.4%	n.a	13.4%
45–54	14.0%	25.0%	n.a	12.1%
55–64	17.6%	29.5%	n.a	12.5%
65+	11.9%	22.8%	n.a	17.7%
Sex				
Male	48.7%	61.0%	52.7%	49.5%
Female	51.3%	21.6%	42.1%	50.5%
Ethnicity				
White (includes white Hispanics)	77.8%	82.0%	74.1%	71.0%
Black	12.8%	2.7%	14.5%	14.2%
Asian	6.1%	10.9%	8.6%	7.2%
Other	3.3%	4.3%	2.8%	7.6%
Education				
High school or lower	0.4%	20.7%	n.a	37.9%
Some college or associate degree	41.7%	24.5%	n.a	27.1%
Bachelor's degree or higher	57.9%	54.9%	n.a	35.0%

Notes: Study sample, N = 697 for age, 701 for sex, 702 for ethnicity, and 705 for education (self-reported). Employer firms refer to those with one or more employees. All refer to non-employer and employer firms. The presented data is based on the owners of the firms. Small businesses (SMB) (0-99 employees) represent 98.3% employer firms in the U.S and 99.9% of all – 2021 SUSB. SMB (employers and all) sex, ethnicity and education are based on the 2022 Annual Business Survey, Census Bureau. For owners' data, joint ownership firms are not disclosed. American public: Age, sex, ethnicity and education (18+) are based on the U.S. Census Bureau National Distribution estimates for 2021.

TABLE A3. Summary statistics and bivariate correlations.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Female	.515	.500	1													
2 Age	45.59	16.02	.007	1												
3 Education	6.42	1.44	.004	.168**	1											
4 Non-white	.231	.422	.027	-.096*	.027	1										
5 Government experience	.600	.491	.034	.027	.086*	.020	1									
6 Contract experience	.190	.392	-.140**	.073	.157**	.022	.235**	1								
7 Small business experience	.602	.490	-.033	.131**	.002	-.042	.036	.192**	1							
8 Higher burden (condition)	.491	.500	-.095*	.040	-.044	.024	.070	.069	.037	1						
9 Willingness to bid	4.39	1.76	-.097*	-.001	-.001	.042	.075	-.009	.025	-.071	1					
10 Administrative burden	3.90	1.49	.068	-.176**	-.110**	-.032	.005	-.055	-.096*	.127**	-.438**	1				
11 Learning costs	3.34	1.54	-.033	-.179**	-.053	.024	-.003	-.017	-.092*	.142**	-.292**	.784**	1			
12 Psychological costs	3.95	1.73	.127**	-.193**	-.105**	-.032	.028	-.050	-.100**	.122**	-.400**	.919**	.605**	1		
13 Compliance costs	4.31	1.84	.027	-.074	-.111**	-.058	-.024	-.067	-.051	.068	-.410**	.846**	.556**	.634**	1	
14 Burden tolerance	4.68	1.52	.005	.089*	.027	.026	.085*	.029	.087	.002	.277*	-.166**	-.159**	-.093*	-.207**	1

Notes: N = 676 (for Age = 666 and for Sex = 670) | *p<0.05; **p<0.01 (2-tailed).

Learning, psychological costs, and administrative burden were scaled (1–7) based on the weight of components from the factor analysis

TABLE A4. *Variable coding.*

Variable	Question	Scale	Scale Description
Condition	Random Assignment in Qualtrics	Binary	L. B. (0) and H. B. (1)
Willingness to Bid	How willing are you/your company to submit a bid/proposal for this contract?	7-point Likert	Not willing at all to completely willing
Learning Costs	Aggregate of LC_Understand, LC_FindScope, LC_Requirements		
LC_Understand	The document itself is difficult to understand; it is hard to grasp important information.	7-point Likert	Strongly disagree to strongly agree
LC_FindScope	The document makes it difficult to understand the specific responsibilities and services to be performed.	7-point Likert	Strongly disagree to strongly agree
LC_Requirements	The document makes it difficult to understand which requirements businesses must complete to submit a bid/proposal.	7-point Likert	Strongly disagree to strongly agree
Psychological Costs	Aggregate of Psychological Costs Document, Worry, and Self-Reflective		
Psychological Costs Document	To what degree did reviewing the document make you feel _____? (List of emotions provided: Frustrated, Confused, Anxious, Stressed, Overwhelmed)	7-point Likert	Not at all to extremely
Worry	If you personally had to submit a bid/proposal for this opportunity, would you be worried about accurately completing and filling out all of the required paperwork?	7-point Likert	Not at all to extremely
Compliance Costs (perceived)	Single-item		
CC_Submit	Submitting a bid/proposal refers to a business taking the time to complete the proposal document (RFP), put together the required information/documents, and calculate an estimated price (the bid) to deliver the services requested. Note that submitting a bid does not guarantee that the business will be awarded the final contract, as there are usually other bidders. Based on the document, the process of submitting a bid/proposal is unnecessarily complicated.	7-point Likert	Strongly disagree to strongly agree
Burden Tolerance	It is fair that when businesses apply to work with the government, they have to make significant efforts to get such contracts.	7-point Likert	Strongly disagree to strongly agree
Age	Prolific collected	Continuous	
Female	Prolific collected	Binary	Female (1)
Education	What is the highest level of schooling you have completed or the highest degree you have received?	Ordinal (1–10)	1 (Less than 8th grade) to 10 (PhD)

Non-White	Constructed. Prolific collects ("White," "Black," "Asian," "Mixed," "Other")	Binary	Non-White (1)
Gov Exp	Throughout your career, have you ever worked in the public sector (as a public employee or private contractor)?	Binary	Yes (1)
Contract Exp	Have you personally applied for or been involved in a government contract?	Binary	Yes (1)
SMB Exp	Throughout your career, have you ever owned or worked for a small business?	Binary	Yes (1)

FIGURE A1. *Scenario prompt and instructions.*

Scenario

Now we are starting the scenario. Carefully read all of the information below!

You are a small business and have to **evaluate** a government request for lawn-care and lawn-maintenance services from a government agency.

Your small business has all the required experience, qualifications, insurance, and licenses needed to provide lawn-care and lawn-maintenance services to both private and public clients.

Keep in mind: Your company has never before applied for a government contract or worked with the government.

- You currently have a good flow of business and can afford to wait for another contract opportunity to work with a government agency.

Carefully read all of the information below!

Task: Please **open and review the document** link below and decide if you want to submit a bid* for a contract to work with this government agency.

You are only evaluating whether getting the contract is worth the effort; there is no need to fill anything in.

The document will open in another tab. If you do not open and review the document, your response will not be valid.

[Link: RFP for Lawn Care and Lawn Maintenance Services due March 01 2023](#)

Some comprehension questions will be asked using the document content.

**Submitting a bid/proposal refers to a business taking the time to fill out the proposal document (the RFP), putting together the required information/documents, and calculating an estimated price (the bid) to deliver the services requested. Note that submitting a bid does not guarantee that the business will be awarded the final contract, as there are usually other bidders.*

RFP Manipulation to create the lower burden condition.

FIGURE A2. Cover letter manipulation.

Higher-burden (original)

SECTION I – INTRODUCTION and INTENT of RFP

Notice to Vendors

The Housing Authority of the City of Wichita Falls (hereinafter “HA”). In keeping with its mandate to provide efficient and effective services, the HA is now soliciting **sealed proposals, from** qualified, licensed and insured entities to provide the above noted services to the HA. All proposals submitted in response to this solicitation must conform to all of the requirements and specifications outlined within this document and any designated attachments in its entirety.

**REQUEST FOR PROPOSAL
Lawn Care and Lawn Maintenance Services**

Proposals will be accepted until **Wednesday, March 01, 2023 at 2:00 P.M.** at the Wichita Falls Housing Authority in the Main Office Building, 511 Bourbon or P.O. Box 312, Wichita Falls, Texas 71312. Complete specifications and instructions are attached herewith.

The HA plans to contract for Lawn Care and Lawn Maintenance Services at all locations throughout the HA. This Request for Proposal is for Lawn Care and Lawn Maintenance Services ONLY. We expect the selected Contractor to begin work on April 01, 2023.

Proposal documents may be obtained from the front desk, at the Wichita Falls Housing Authority Office Building, 511 Bourbon, Wichita Falls, TX 71312.

Proposals shall be submitted on the standard forms furnished by the HA and shall be submitted in a sealed envelope identifying the Contractor’s name, the RFP title, and the RFP due date on the face of the envelope.

Submission of a proposal signifies the Contractor’s agreement that its’ proposal and the content thereof are valid and will become part of the contract that is negotiated between HA and the successful Contractor. All prices submitted with the proposal shall remain in effect for the contract period.

Lower-burden (manipulated)

SECTION I – INTRODUCTION and INTENT of RFP

Notice to Interested Parties

**REQUEST FOR PROPOSAL
Lawn Care and Lawn Maintenance Services**

Intent: The Housing Authority of the City of Wichita Falls (hereinafter “HA”) is now soliciting sealed proposals, from qualified, licensed, and insured entities to provide lawn care and lawn maintenance services for its buildings.

The HA invites and encourages participation in this Request for Proposals process by businesses owned by minorities, women, disabled, disabled business enterprises, and non-profit work centers for the blind and severely disabled.

Requested services: The HA plans to contract for Lawn Care and Lawn Maintenance Services for the two HA building locations. This Request for Proposal is for Lawn Care and Lawn Maintenance Services ONLY, no tree removal service is needed. We expect the selected Contractor to begin work on April 01, 2023. The contract is for one (1) year with renewal options for three (3) additional years.

A detailed list of work activities expected from the contractor is included in SECTION II – Scope of Work.

Evaluation of proposals: The proposals will be evaluated on a “best overall value” basis including, but not limited to: 1) completeness and content of the submitted proposal, 2) Contractor’s price/bid, 3) demonstrated quality, 4) the Contractor’s ability to follow contract’s specifications, 5) the Contractor’s ability to provide a team of skilled, trained employees, and 6) the Contractor’s experience with similar projects.

Submission process: Proposals will be accepted until Wednesday, March 01, 2023 at 2:00 P.M. at the Wichita Falls Housing Authority in the Main Office Building, 511 Bourbon, Wichita Falls, Texas 71312. Proposals may be submitted by mail or delivered in person.

Complete proposal submission instructions can be found in SECTION VII.

FIGURE A3. Submission checklist.

Higher-burden (original)

SECTION II – SCHEDULE:

WICHITA FALL HOUSING AUTHORITY

**Lawn Care and Lawn Maintenance Services Request for Proposal Schedule
(Tree service excluded from this contract)**

Sunday, 08, & 15 January, 2023	RFP notices e-mailed, mailed to potential Contractors and placed local publication.
Thursday January 26, 2023 10:00 A.M.	Pre-proposal meeting and tour of facilities. Meeting begins at 10:00 A.M. in the Commissioners Meeting Room located in the HA main Administration Building, 511 Bourbon, Wichita Falls, TX 71312. Vendors must sign in.
Thursday February 09, 2023 5:00 P.M.	Last day for questions. Questions must be signed and submitted in writing by 5:00 P.M. Questions may be delivered either by mail, e-mail or fax.
Thursday February 16, 2023 5:00 P.M.	Last day Addendum will be posted. All questions will be clarified through an addendum. Addendum will be posted at The HA Main office by 5:00 P.M.
Wednesday March 01, 2023 2:00 P.M.	Proposal receipt deadline. Proposals opened. All proposals are due at the HA main Office by 2:00 PM. No late proposals will be accepted.
April 01, 2023	Contract term begins

Lower-burden (manipulated)

SECTION III – RFP SCHEDULE / SUBMISSION CHECKLIST

WICHITA FALL HOUSING AUTHORITY

Lawn Care and Lawn Maintenance Services Request for Proposal Schedule

Sunday, 08 & 15 January 2023	RFP issued. Notices e-mailed or mailed to potential Contractors and placed in local publications.
Thursday, January 26, 2023 10:00 A.M.	Pre-proposal meeting and tour of facilities to be served. The meeting begins at 10:00 A.M. in the Commissioners Meeting Room located in the HA main Administration Building, 511 Bourbon, Wichita Falls, TX 71312.
Thursday, February 09, 2023 5:00 P.M.	Last day for questions on this Proposal. Questions must be signed and submitted in writing by 5:00 P.M. Questions may be delivered either by mail, e-mail, or fax.
Thursday, February 16, 2023 5:00 P.M.	Questions Addendum will be posted. All questions will be clarified through an addendum. The addendum will be posted at The HA Main office by 5:00 P.M. and on the HA website.
Wednesday, March 01, 2023 2:00 P.M.	Proposal receipt deadline. Proposals opened. All proposals are due by 2:00 PM. <i>No late proposals will be accepted.</i>
April 01, 2023	Contract term begins / Start of service

Here is a **Proposal Submission Checklist** for your reference:

- | |
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| <ul style="list-style-type: none"> <input type="checkbox"/> Proposal submitted by Wednesday, March 01, 2023, at 2:00 P.M. <input type="checkbox"/> The submitted proposal contains, in this order: <ul style="list-style-type: none"> <input type="checkbox"/> Proposal Cover Page (<i>copy and fill Addendum A</i>) <input type="checkbox"/> Bid Proposal (with your calculated price/bid offer for services) (<i>copy and fill Addendum B</i>) <input type="checkbox"/> Responses to Section V – Mandatory Questions (<i>attach them to your proposal</i>) <input type="checkbox"/> Contractor Information (<i>copy and fill Addendum C</i>) <input type="checkbox"/> Proof of Insurance (<i>attach to your proposal</i>) (Information on insurance requirements under Section VIII – General Conditions) <input type="checkbox"/> If applicable, disclosure of any Conflict of Interest (see Section VIII – General Conditions) <input type="checkbox"/> Understand and comply with all specifications, conditions, and requirements presented in this document and its addendums. |
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Higher-burden condition document:

[RFP_HighBurdenCondition.pdf](#)

Lower-burden condition document:

[RFP_LowBurdenCondition.pdf](#)