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The administrative burden of doing business with the government: Learning and compliance costs in Business-Government interactions

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Abstract

Administrative burdens are widespread and likely to generate unequal opportunities in access to government programs and other important entitlements. Whereas a large body of research has examined administrative burdens in citizen-state encounters, little is known either theoretically or empirically about burdens in business–government interactions. In this article, we argue that private businesses, just like individual citizens, experience administrative burdens in encounters with the government, and that these burdens are the result of bureaucratic procedures as well as the administrative capital resources in the businesses themselves. We present empirical evidence from an original study of Danish businesses' learning and compliance costs in government purchasing contracts. The findings suggest that businesses' learning and compliance costs are shaped more by bureaucratic procedures and requirements than by the administrative capital resources businesses can mobilize in response. We propose steps governments can take to reduce administrative burdens and harness public values in business-government interactions.

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1 | INTRODUCTION

Administrative burdens are the result of onerous encounters with the state and its representatives in the form of public bureaucracies and elected governments (Herd & Moynihan, 2019; Masood & Nisar, 2021). These government actors design policies and administrative procedures which intentionally or unintentionally may produce unequal access to programs, services, and other crucial entitlements (e.g., voting, citizenship) (Baekgaard et al., 2021; Barnes, 2021). Administrative burdens—and the related concepts of red tape, sludge, and ordeal mechanisms (Madsen et al., 2022)—can significantly impede core public sector values, such as legitimacy, equal opportunities, and procedural fairness in encounters between citizens and organizations, on the one hand, and state actors on the other (Bozeman & Feeney, 2014; Christensen et al., 2020; Heinrich, 2016). Perhaps just as importantly, but less scrutinized until now, administrative burdens are also likely to fundamentally influence interactions between two of society's core institutions: bodies of government and private businesses.

While the administrative burden framework has much to offer research in business–government interactions, the reverse also holds true. Governments formulate the basic rules of the game for market exchange via general regulations, corporate taxes, competition law, and other formal and informal institutions (North, 1990). But governments themselves are also one of the main sources of commercial activity in modern democracies: Government purchasing of services, goods, and public works contracts accounts for 12% of national GDP and between 20% and 44% of total public expenditure (OECD, 2019, 134). Today, hardly any local, regional, or national government accomplishes its core mission without involvement of private businesses. Think, for example, of surgical equipment in hospitals, laptops and office equipment in administrative work, police cars, and the weapons and missile defense systems used by the armed forces. Administrative burdens in business–government interactions constitute not only a societal cost but also a cost governments themselves may ultimately pay for through excess spending of taxpayers' money.

Existing research has investigated the costs of private businesses when contracting with governments using the transaction cost perspective (De Schepper et al., 2015; Petersen et al., 2022), however, we argue that administrative burdens offer an important and new perspective on these costs. While the transaction cost framework (Williamson, 1996) has informed analyses of governments choosing between making or buying public services (Brown & Potoski, 2003; Malatesta & Smith, 2014), the administrative burden framework turns the focus to the costs of bureaucratic rules and procedures in government-business interactions. Conversely, studies on administrative burdens have extensively focused on learning, compliance, and psychological costs in citizen-state interactions (Moynihan et al., 2015), with little application of the burden framework to organizations in general (although see Heinrich, 2016), and to private businesses in particular. Compared to the transaction cost approach, focusing on administrative burdens may especially be important in a public administration setting because the goal of bureaucracies is not only improved efficiency but also important public values, such as procedural fairness, accountability, and transparency in collaborations with private actors (Reynaers & Grimmelikhuijsen, 2015; Willems, 2014). While the red-tape literature has focused on both public and private organizations (e.g., Bozeman & Feeney, 2014; De Jong & Van Witteloostuijn, 2015; Scott & Pandey, 2000), to the best of our knowledge, no previous study has examined administrative burdens in interaction between governments and businesses.

To narrow this conceptual and empirical gap in the administrative burden literature, this article examines businesses' learning and compliance costs in purchasing contracts with government agencies. We develop and test novel hypotheses that fall into two categories. Our first group of hypotheses concerns how administrative requirements and procedures affect businesses' learning and compliance costs when businesses seek government contracts. This includes governments' choice of contract design and award procedures. The second group of hypotheses focuses on how businesses' human and administrative resources—equivalent to the Masood and Nisar (2021) administrative capital concept—influence businesses' learning and compliance costs in government contracts. We test these hypotheses using comprehensive data on 491 Danish businesses' learning and compliance costs in purchasing contracts with local, regional, and national governments.[1] We combine survey data, administrative registers, and official

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contract data for the entire population of Danish businesses that acquired purchasing contracts over a 5-month period and collected unique and detailed information that we use to measure businesses' learning and compliance in contract encounters with the government.

The study offers two contributions to the existing research on administrative burdens. First, while this literature has focused extensively on citizen–state interactions, it has paid little attention to how administrative burdens are perceived by organizational entities in general and private businesses in particular. Although Heinrich (2016, 216) defines burdens as being significant to citizens and organizations alike, subsequent research has focused almost entirely on individuals, and no studies have studied burdens from the perspective of private businesses. Our study offers a conceptual and empirical extension of the administrative burden framework from citizen–state to business–state interactions. In so doing, we reveal how the administrative burden framework can be extended from individuals to organizations' experiences with burdensome encounters with public bureaucracies and the government.

Second, research has to date tended to focus on administrative burdens resulting from deliberate political and administrative decisions—politics by other means (Herd & Moynihan, 2019)—with a small but growing literature focusing on recipients' human resources (Christensen et al., 2020) and administrative capital (Masood & Nisar, 2021). Our study more firmly connects these two perspectives on administrative burdens as the result of "deliberate policy choices" and "administrative capital resources" by developing and testing novel hypotheses relating to both perspectives. Our empirical findings suggest that businesses' learning and compliance costs largely result from administrative procedures and requirements, whereas businesses' administrative and human resources have little impact on their administrative costs. These findings are important for public administration research by indicating a significant potential for reduced administrative burdens through improved administrative procedures for awarding government contracts. Although these learning and compliance costs are initially borne by the businesses, governments have a clear interest in reducing these burdens as they may end up paying these costs themselves through higher prices in exchanges with the market.

The remainder of the article is structured as follows. The following section reviews the theoretical literature on administrative burdens, extends the concept to business–government interactions, and develops hypotheses about learning and compliance costs in government purchasing contracts. We then present the data and methods, which is followed by a presentation of the empirical results and visualizations of the findings. The final section concludes the article with a summary of the results, discussion of limitations, and suggestions for future research.

2 | THEORY: ADMINISTRATIVE BURDENS IN BUSINESS–GOVERNMENT INTERACTIONS

Administrative burdens are the learning, compliance, and psychological costs that citizens and organizations incur in encounters with government bodies (Heinrich, 2016; Masood & Nisar, 2021; Moynihan et al., 2015). Learning costs arise from collecting and processing information about government programs and eligibility requirements. Compliance costs arise from complying with administrative procedures and requirements to attain program access. Finally, psychological costs arise from the frustration of dealing with administrative processes, stigma, and loss of power and autonomy in interactions with governments and bureaucracies. Recent applications of this framework include administration of government programs (Herd et al., 2013; Madsen & Mikkelsen, 2022; Masood & Nisar, 2021), access to voting (Burden et al., 2012), and admission to public services (Christensen et al., 2020).

An important insight from existing research is that administrative burdens are the result of deliberate political and administrative actions (Baekgaard et al., 2021, 808). Politicians, bureaucrats, and frontline workers can deliberately design and implement policies in ways that increase or reduce learning, compliance, and psychological costs for program recipients (Carter et al., 2018; Herd & Moynihan, 2019). Nevertheless, human capital resources (e.g., knowledge, education, experience, cognitive and physical functioning) can also explain how they experience administrative burden (Christensen et al., 2020). This also includes administrative capital; that is, how individuals or

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organizations understand bureaucratic rules, processes, and behaviors (Masood & Nisar, 2021: 56). Here, we focus on *contract encounters* between businesses and the state, defined as the process of searching, bidding, negotiating, and signing contracts for the delivery of goods, services, or public works to government agencies. These contract encounters represent a major activity in public organizations and have potentially major implications for government effectiveness and costs given the vast amount of economic resources governments devote to market interactions (De Jong & Van Witteloostuijn, 2015; OECD, 2019).

The administrative burden framework provides a useful conceptual lens for linking political and bureaucratic requirements with businesses' administrative costs. To acquire contracts with government agencies, businesses must learn the public purchasing procedures, document eligibility to participate in contract bids, prepare and contract proposals, negotiate the proposal with the buying government, and apply legal expertise to review and sign contracts. These activities may produce significant costs, not only in the purchasing agencies but in the businesses themselves. The administrative burden perspective offers several conceptual extensions of the transaction cost framework, which has traditionally been applied to contract exchanges between governments and businesses (Malatesta & Smith, 2014; De Schepper et al., 2015; Petersen et al., 2019). First, whereas transaction cost economics focuses on how companies can economize on the sum of production and transaction costs (Williamson, 1996), administrative burden frames government-business encounters more explicitly within the political and bureaucratic context in which these exchanges take place. Thus, the administrative burden framework focuses on the interaction between policy design and bureaucratic procedures and the experience of government encounters as burdensome. Second, whereas transaction cost theory primarily focuses on the relationship from the buyer's perspective, the administrative burden framework shifts the focus to how selling businesses encounter the relationship with the government. Both transaction cost and administrative burden focus on understanding the cost of engaging with other organizations, and the two frameworks thereby complement each other. Yet, the administrative burdens perspective helps to better understand these costs in the public sector context and how policies and bureaucratic procedures condition the administrative costs business incurs in contract encounters with the government.

To characterize the administrative burden of contract encounters and to link them with theoretically relevant categories, we draw on the classification of administrative costs developed by Moynihan et al. (2015): learning costs, compliance costs, and psychological costs. Here, we limit our inquiry to businesses' learning and compliance costs, because these costs are most tangible in an organizational context, whereas psychological costs—which are more intrinsic to individual humans—are reserved for further research and discussed in the final section of the article.[2]

First, businesses experience *learning costs* to seek information about what governments are purchasing, which contract procedures are being followed (e.g., lowest costs, negotiated procedures), which documentation requirements exist, and how and when to submit a contract proposal. Businesses have sales departments that invest time and energy in the gathering of information and learning which products and services public customers' demand. Many businesses that sell to public customers subscribe to a tender monitoring system, which provides the business with day-to-day information when public customers announce a new contract offering within the business' area of operations. All of these activities are necessary to obtain knowledge about prospective government contracts, to understand what the public organization is requesting, and to understand the procedure for preparing and submitting a compliant bid. Taken together, these activities represent the learning costs of doing business with the government.

Second, businesses seeking government contract opportunities may encounter a range of *compliance costs*. To be eligible for a contract, a business needs to prepare and propose a written offer that meets the needs and requirements of the buying government agency. The offer must also document the businesses' eligibility to solve the task, such as financial solidity and prior experience with similar contracts. A negotiation phase commonly follows after submitting the contract offer, where the purchasing government clarifies issues related to the contract proposal, the business may revise its offer to accommodate government requirements, and any additional documentation is provided. The bidding and negotiation process ends with a contract signing, where businesses draw on internal and/or external legal advice to ratify the contract terms, after which the signed contract is returned to the government agency. Together, these documentation and negotiation activities represent the compliance costs businesses incur in contract encounters with government agencies.

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TABLE 1 Learning and compliance costs in businesses' contract encounters with governments

Learning costs	Searching for contract opportunities, contacting prospective public customers, learning about product requirements, reading tender documents, question-and-answer phase, and clarifying contract terms
Compliance costs	Writing and submitting bids, negotiations and adaption to government purchaser requirements, providing information about eligibility, checking and signing the contract

Table 1 provides examples of learning and compliance costs incurred by businesses in their contract encounters with governments.

This brief overview has summarized key concepts in the administrative burden literature and applied them to learning and compliance costs in contract encounters between businesses and governments. While existing literature has extensively applied the framework to citizen–state interactions, there is limited knowledge about administrative burdens in the organizational context, and no prior study has examined administrative burdens in business–government interactions. Here, we argue that the administrative burdens of businesses are likely to vary with both administrative requirements and procedures (e.g., contract procedures and legal design) and the human and administrative capital resources (e.g., human skills and administrative competencies) in the businesses themselves. In the next section, we develop these arguments and formulate testable hypotheses.

3 | HYPOTHESES

Administrative burdens are fundamentally linked to political and bureaucratic decisions about rules, procedures, and documentation requirements (Brodkin & Majmundar, 2010; Carter et al., 2018; Herd & Moynihan, 2019). Likewise, when purchasing a service or product from the market, governments are required to follow general procurement rules and regulations (Tadelis, 2012). Within these overarching regulations, governments have leverage in choosing how they design the procurement process, what contract terms they put in place, and which documentation requirements they place on prospective suppliers. When designing a contract purchase from the private market, the government agency may decide to aggregate demand in a single large contract or divide the purchase into several smaller lots. This choice has implications for businesses' administrative burden because, for each new contract encounter, each business needs to invest time in searching the market, reading product specifications, drafting bids, and signing the contract. Some of these learning and compliance costs (e.g., reading product specifications, documenting financial eligibility to bid) are likely to be fixed, meaning that businesses are likely to experience larger administrative burdens relative to the contract size when doing business for small than for large contracts.[3] Conversely, contracts with a greater financial value are likely to involve economies of scale due to the selling businesses' declining marginal costs of learning about and complying with the government agency's contract requirements. This leads to our first hypothesis.

> **Hypothesis 1.** *Businesses experience relatively lower administrative costs when doing business for larger contracts compared to smaller contracts, all other things being equal.*

Second, drawing on recent insights that governments can purposively design programs in ways that either reduce or increase administrative burdens (Baekgaard et al., 2021; Herd and Moynihan, 2019), we expect the choice of government contract award processes may impact businesses' learning and compliance costs. For instance, Fox et al. (2020) show how making it easier to enroll in a program reduces the cognitive burden, thereby increasing program participation (see also Baekgaard et al., 2021; Carter et al., 2018). One way that governments can reduce administrative burdens is to shift the burden to itself (Herd et al., 2013), for example by shifting documentation requirements and other onerous procedures to the government agency itself. This is highly relevant for contracts

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between businesses and governments, as the latter may invest more or fewer resources in preparing detailed product descriptions and smoothing out the award procedure. Here, an important distinction can be drawn between cost-only and combined price-and-quality contracts. While cost-only contracts require governments to provide a complete description of the product it wishes to purchase (whereby businesses must only submit their price), combined price-and-quality contracts require each contract bid to provide detailed descriptions of the product in addition to price. When choosing the contract award procedure and related requirements, governments can thereby take the administrative costs on themselves or shift these costs to the businesses. This leads to our second hypothesis.

Hypothesis 2. *Businesses experience relatively higher administrative costs when contracting for combined price-quality contracts compared to simpler cost-only contracts, all other things being equal.*

Our third hypothesis concerns the link between businesses' administrative capital and administrative burdens. The resource-based theory focuses on the value of businesses' human capital resources (Barney, 1991; Barney et al., 2011). Administrative capital denotes the capacity of individuals and organizations to understand bureaucratic rules, processes, and behaviors (Masood & Nisar, 2021; Moynihan et al., 2015). To do business with the government, for example, businesses must search the market for tenders, read product specifications, write contract offers, and negotiate terms of exchange. All of these activities require specialized knowledge and expertise that larger businesses are more likely to possess (Teodoro & Switzer, 2016). Larger businesses are also likely to benefit from functional specialization, such as dedicated sales managers, calculation and bid divisions, and contract-writing teams, and access to administrative back-office functions (e.g., proofreading, layout, quality assurance). All else equal, we therefore expect larger businesses to prevail over more administrative resources, enabling them to curb the administrative burden of interacting with the government. Larger businesses are in other words expected to have more administrative capacity and capital resources than smaller businesses. Our third hypothesis is as follows.

Hypothesis 3. *Larger businesses with more administrative resources experience lower administrative costs than smaller businesses with fewer administrative resources when doing business with government agencies, all other things being equal.*

Finally, our fourth hypothesis focuses on the role of organizational learning in reducing administrative burden. It is well established in the administrative burden literature that to access government programs, citizens must learn about these programs and comply with documentation requirements (Baekgaard et al., 2021). These learning and compliance costs may be substantial but are likely to wane with repeated execution of similar tasks (e.g., filling out forms, document eligibility for benefits) (Barnes, 2021; Masood & Nisar, 2021). Just like citizens are likely to learn from past encounters, we expect businesses to learn from repeated exchanges with governments. In the context of bidding for government contracts, organizational learning is especially important because public procurement regulations set detailed procedures for contract negotiations and awards (Tadelis, 2012) with which businesses must comply to be eligible. When bidding for government contracts, businesses may reuse previously written materials, such as product descriptions and price calculations, possibly reducing learning and compliance costs. Organizational learning may stem from interactions with specific government agencies (e.g., Department of Defense contracting) and/or generic government contract procedures and requirements. The importance of learning for administrative burdens provides the basis for our fourth hypothesis.

Hypothesis 4. *Businesses that have more experience in doing business with the government have lower administrative costs, all other things being equal.*

These four hypotheses form the basis for our analysis of the administrative burden of doing business with the government. The first two hypotheses contribute to debates about program design and the resulting administrative

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costs for clients (here, businesses), while the latter two hypotheses offer insights into the link between the human capital resources of recipients (here, businesses) and administrative burdens. While not an exhaustive list of the potentially relevant hypotheses, they may serve as a starting point for expanding the study of administrative burden from individuals to organizations, using private businesses as the empirical setting.

4 | DATA AND METHODS

To test these hypotheses regarding administrative cost, we draw on data from a comprehensive survey of Danish businesses' costs of bidding for government contracts. Private businesses do not systematically register their costs of doing business with the government, which means that data is not available from business accounts or any administrative registers. We therefore use the survey questionnaire to collect these unique cost data, which we then enrich with data from several sources. We collaborated with the Danish Competition and Consumer Agency to monitor the official Tenders European Daily (TED) procurement database for the full population of contract awards by Danish government authorities (public authorities in EU are required to publish contract awards in the TED database). These contracts were tendered according to the common EU procurement directives, which apply to government purchasing in all of the 27 EU member states—a region of 446 million people with common purchasing rules—beyond a minimum threshold limit of €139,000 for general supplies and services contracts and €5,350,000 for public works contracts (1€ = 1.14$). To minimize the risk of common source bias (Favero & Bullock, 2015), we enrich the survey data with official contract data from the contract notices and administrative register data we manually collect from the Danish Central Business Register ("CVR-registret").

To obtain a complete list of businesses doing business with Danish government agencies, we monitored all public contract award notices from January 1 to May 31, 2018 and registered all businesses winning a contract with any government agency (national, regional, local, public utility business) during this period. We registered all information in the contract notices together with business name and contact information for all winning businesses, thereby enabling us to distribute the survey questionnaire to the full population of businesses winning a government contract during this period. Moreover, to reduce possible recall bias (Clottey & Grawe, 2014) due to time between contract award and answering our questionnaire, we distributed the survey to all businesses winning a contract with the government at the end of each month. The electronic survey was therefore distributed in five rounds: one for each month from January through May 2018.

The targeted respondents for the survey were bid managers in the businesses. Bid managers are responsible for managing the bidding process and obtaining contributions from the company's departments (e.g., price calculation, quality descriptions, legal assistance) and therefore suited to provide information concerning their business' learning and compliance costs. We contacted 2044 businesses and received 574 complete answers, which represents an effective response rate of 28.1%.[4] The well-known challenges of obtaining survey responses from private businesses (Brogaard, 2019; Li et al., 2013) and the fact that data on private businesses' administrative costs is not available from any other sources makes us consider this response rate acceptable for this analysis. Moreover, we enrich the survey data with administrative data collected from each official contract notice in the TED database (e.g., contract value, award procedure, contract duration) and business data we extracted from the Danish Central Business Register. Our final dataset consists of survey responses, contract data, and administrative register data for 491 unique private businesses with full information for all variables we use in the analysis.

4.1 | Dependent variables

We use three dependent variables to measure businesses' administrative costs of doing business with the government: learning costs, compliance cost, and the sum of these, which we label total administrative costs. To obtain a

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comprehensive measure of these costs in accordance with our theoretical constructs, we did the following. First, we use questions that asked respondents to disclose their time consumption for all of the categories of employees and managers involved in the preparation, presentation, and negotiation of contract bidding, multiplied by their hourly salary cost plus any additional expenses for external legal advice, consultants (e.g., bid specialists), materials, and insurance. We pilot-tested and improved the survey measures and their associated response scales in seven face-to-face qualitative interviews with bid managers in various industries to ensure that the survey items provides a comprehensive measure of businesses' costs and that the targeted survey respondents were able to respond to survey items relating both to the costs of employees and managers involved in the contract bid and additional organizational costs for legal advice, external consultants, materials, and insurance.

Second, in the survey we asked respondents to divide these costs into specific categories of activities, which relate to our measure of businesses' administrative costs to the theoretical constructs of learning, compliance, and total administrative costs, as specified in Table 1. We define businesses' *learning costs* as expenses for searching for contract opportunities, contacting prospective customers, reading tender documents, and clarifying product requirements and contract terms, while *compliance costs* are expenses for writing and submitting bids, presentations and negotiations, adapting terms to purchaser needs, documenting eligibility and track record, and signing the contract. For each of these pre-defined activities, we asked respondents to assign the percentage of their businesses' costs. This produced three dependent variables, respectively, for businesses' *learning costs*, *compliance costs*, and *total administrative costs*.

Third, to obtain a standardized measure of administrative costs across different industries and contract sizes, we divided these costs by the value of the contract. This produced a standardized measure of each measure as a percentage of the contract value of each the responding businesses' government contracts. A learning cost of $50,000 and a compliance cost of $40,000 for a contract worth $1,000,000 thereby represents a learning and compliance cost of, respectively, 5% and 4% of the contract value. The total administrative cost would be 9% of the contract value, meaning that for every dollar in revenue from government contracts, the business spends nine cent on administrative burdens; money that businesses cannot use to deliver the service or product to governments and citizens.

4.2 | Independent and control variables

To examine whether businesses experience relatively lower administrative costs when competing for larger contracts (Hypothesis 1), we extract data about the exact monetary value of each contract from the TED database of contract notices. The variable *contract size* focuses on economies of scale when businesses navigate administrative burden and measures the value of each contract encounter in Danish Kroner (DKK).

Next, we examine whether governments' administrative procedures for contract award may shift the burdens to businesses (Hypothesis 2) by including two independent variables measuring governments' contract design and award procedure. The independent variable *contract design* is a dummy variable measuring whether the contract was a price-only or combined price-and-quality procedure with the theoretical expectation that governments may shift administrative burdens to the businesses by using the combined price-and-quality procedure, which involves less work for the governments and more contract writing and product specification for the businesses. Moreover, we include the variable *administrative procedure* measuring whether the contract award procedure was the open procedure (the simplest procedure) or the more complex two-stage restricted or negotiated procedure. Our expectation is that the additional requirements of the two-stage procedures involve more work and consequently higher administrative burdens for the businesses. We draw the data for the contract design and administrative procedure variables from the official contract notifications in the TED database.

Additionally, to examine whether businesses' administrative capital resources (Masood & Nisar, 2021) enable them to reduce administrative burdens (Hypothesis 3), we use the number of full-time employees in each business as an indicator of the business' *administrative resources*. We hereby assume that larger businesses are more likely to

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possess specialized knowledge and expertise (Teodoro & Switzer, 2016) and that larger businesses generally have more administrative resources than smaller businesses. We draw data on the number of full-time employees from the Central Business Register, which provides detailed information about employees in all businesses registered under Danish tax legislation. We also considered measuring business size as the annual turnover but consider the number of fulltime employees a more valid measure of administrative resources because business turnover can be influenced by other factors, such as extraordinary revenue in a specific year and/or issues relating to tax registration in more than one country.

Moreover, to measure whether prior experience reduces businesses' administrative burden of doing business with the government (Hypothesis 4), we draw on data from the official TED contract database. Experience may enable businesses to draw on past contract encounters to learn about formal and informal procedures and requirements for doing business with the government. We measure the variable *prior experience* as the number of contracts each business has had with the government agency in the 3 years prior to our survey (2015–2017).

Finally, we include control variables for the type of government agency, the number of bidders for each contract process, contract length, the product type, and whether the contract was a standalone contract or part of a joint framework contract. *Public authority* is a set of dummies measuring whether the government is a local, regional, or central government, or a publicly owned company, with local governments as the reference category. The variable *framework agreement* is a dummy variable measuring whether each business' encounter with the government concerned a standalone contract or part of a joint framework contract, with standalone contracts as the reference category. The variable *product type* is a set of dummy variables measuring whether the government encounter concerns a service, goods, or public works contract, with the latter as reference category, whereas *contract duration* is a continuous variable measuring the contract length in months. Finally, the *competition* variable is a continuous variable measuring the number of bidders for each business' contract with the government. Descriptive statistics is provided in Table 2.

4.3 | Estimation methods

Because our dependent variable is a fraction bound between 0 and 1, we use fractional logit regression instead of standard OLS regression (Papke & Wooldridge, 1996; Villadsen and Wulff, 2021). We use fractional regression over beta regression because there are single observations with zero and because fractional regression has proven more robust in Monte Carlo simulations (Meaney & Moineddin, 2014). The coefficients of fractional logit regression are on the logit scale and not easily interpretable. To ease the interpretation of the effect sizes of our independent variables on the dependent variables, we calculate average marginal effects (AMEs). The AMEs can be interpreted as the percentage-point change in each dependent variable from a one-unit increase in each independent and control variable when holding all other variables constant at their mean. We estimate all models in Stata.

5 | EMPIRICAL FINDINGS

Table 3 presents the results of our fractional regression analysis of businesses' learning costs (Model 1), compliance costs (Model 2), and total administrative costs (Model 3). The columns on the left side in each model provide the fractional logit coefficients, while the right-side columns provide the AMEs. The coefficients for *contract size* show that businesses' learning, compliance, and total administrative costs are significantly smaller for larger contracts than for smaller contracts, consistent with Hypothesis 1 and indicating scale economies in navigating the burdens of doing business with the government. The AMEs show that a change in ln contract size by one million dollars is associated with a 0.49, 0.41, and 0.91 percentage point reduction in businesses' learning, compliance, and total administrative costs, respectively.

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TABLE 2 Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Dependent variables					
Learning costs (%)	491	0.7823	2.0713	0.0013	30.0000
Compliance costs (%)	491	0.9340	1.7561	0.0013	19.9183
Total administrative costs (%)	491	1.7163	3.3226	0.0025	33.3333
Independent variables					
Contract size (ln)	491	15.6368	1.7794	8.6995	20.5474
Contract design					
Price-only contracts (ref.)					
Combined price-and-quality contracts	491	0.4033	0.4911	0	1
Administrative procedure					
Open procedure	491	0.7169	0.4510	0	1
Restricted procedure	491	0.2200	0.4146	0	1
Competitive negotiated procedure	491	0.0631	0.2435	0	1
Administrative resources (#employees)					
1–9 (ref.)					
10–19	491	0.1079	0.3106	0	1
20–49	491	0.1466	0.3541	0	1
50–99	491	0.1221	0.3279	0	1
100–199	491	0.1466	0.3541	0	1
200–499	491	0.0713	0.2576	0	1
+500 Employees	491	0.2811	0.4500	0	1
Prior experience (ln)	491	1.0530	0.9096	0	4.2627
Control variables					
Public authority					
Local government (ref.)	491	0.2790	0.4490	0	1
Regional government	491	0.2301	0.4214	0	1
Central government	491	0.1996	0.4001	0	1
Public company/law body	491	0.2912	0.4548	0	1
Framework agreement	491	0.6864	0.4644	0	1
Product type					
Public works contracts (ref.)	491	0.1690	0.3752	0	1
Service contracts	491	0.5540	0.4976	0	1
Goods contracts	491	0.2770	0.4480	0	1
Competition (#bids)	491	7.3667	10.7137	1	59
Contract duration (# months)	491	34.4110	16.7611	1	120

The variables related to administrative procedures and award criteria show that the coefficients for *contract design* are negative and significant for compliance and total administrative costs, as expected in Hypothesis 2, suggesting that governments can reduce the administrative burden of businesses by using the relatively simple price-only contract design. The AMEs show that price-only contracts are associated with, respectively, 0.81, and 1.00 percentage-points lower compliance costs and total administrative costs than contracts awarded as combined

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TABLE 3 Fractional logit regression of the administrative costs of doing business with the government

	Model 1: Learning costs		Model 2: Compliance costs		Model 3: Total administrative costs	
	Coef.	AMEs	Coef.	AMEs	Coef.	AMEs
Independent variables						
Contract size (ln)	−0.661*** (0.046)	−0.49	−0.451*** (0.046)	−0.41	−0.563*** (0.042)	−0.91
Contract design (price-only contracts)	−0.241 (0.215)	−0.18	−0.946*** (0.201)	−0.81	−0.638*** (0.180)	−1.00
Administrative procedure (ref.: open procedure)						
Restricted procedure	0.310* (0.126)	0.24	−0.065 (0.110)	−0.06	0.107 (0.106)	0.17
Competitive negotiated procedure	0.894*** (0.228)	0.92	0.566+ (0.325)	0.66	0.731** (0.282)	1.56
Administrative resources (ref.: 1–9 employees)						
10–19 employees	0.694*** (0.184)	0.65	0.219 (0.226)	0.22	0.474* (0.186)	0.90
20–49	0.370* (0.180)	0.30	0.159 (0.204)	0.16	0.257 (0.173)	0.44
50–99	0.089 (0.257)	0.06	−0.068 (0.217)	−0.06	0.000 (0.226)	0.00
100–199	−0.094 (0.305)	−0.06	−0.405 (0.315)	−0.31	−0.236 (0.288)	−0.32
200–499	0.340 (0.252)	0.27	0.218 (0.213)	0.22	0.308 (0.196)	0.54
+500 employees	−0.220 (0.222)	−0.13	−0.056 (0.271)	−0.05	−0.089 (0.246)	−0.13
Prior experience (ln)	0.054 (0.161)	0.04	0.165 (0.123)	0.15	0.142 (0.130)	
Control variables						
Public authority (ref.: local government)						
Regional government	0.298 (0.283)	0.27	0.027 (0.240)	0.03	0.116 (0.239)	0.21
Central government	−0.532+ (0.272)	−0.33	−0.453 (0.330)	−0.37	−0.492+ (0.267)	−0.69
Public company/law body	−0.133 (0.181)	−0.10	−0.180 (0.219)	−0.17	−0.146 (0.168)	−0.24
Framework agreement contract	0.052 (0.154)	0.04	0.183 (0.137)	0.17	0.132 (0.125)	0.21
Competition (#bids)	−0.048*** (0.013)	−0.04	−0.064*** (0.015)	−0.06	−0.058*** (0.014)	−0.09
Product type (ref.: public works contracts)						
Service contracts	0.960*** (0.215)	0.55	0.198 (0.199)	0.18	0.522** (0.173)	0.76
Goods contracts	0.785* (0.323)	0.41	−0.062 (0.225)	−0.05	0.286 (0.225)	0.37
Contract duration (#months)	−0.002 (0.006)	−0.00	0.003 (0.005)	0.00	0.002 (0.005)	0.00

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TABLE 3 (Continued)

	Model 1: Learning costs		Model 2: Compliance costs		Model 3: Total administrative costs	
	Coef.	AMEs	Coef.	AMEs	Coef.	AMEs
Constant	4.020*** (0.771)		2.313** (0.850)		4.043*** (0.697)	
Observations	491		491		491	
Chi^2	50624.26		6110.84		36297.47	
P for model	0.000		0.000		0.000	
N Clusters	40		40		40	

Note: Robust standard errors in parentheses clustered at 40 unique product codes. Coef. are the coefficients of the fractional logit regression. AMEs are the discrete percentage-point changes from the base level of each independent and control variable. $^{+}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Pseudo R^2 is 0.169, 0.085, and 0.133 for the three models, respectively. For similar OLS-models, the adjusted R^2 is 0.324, 0.239, and 0.359, respectively.

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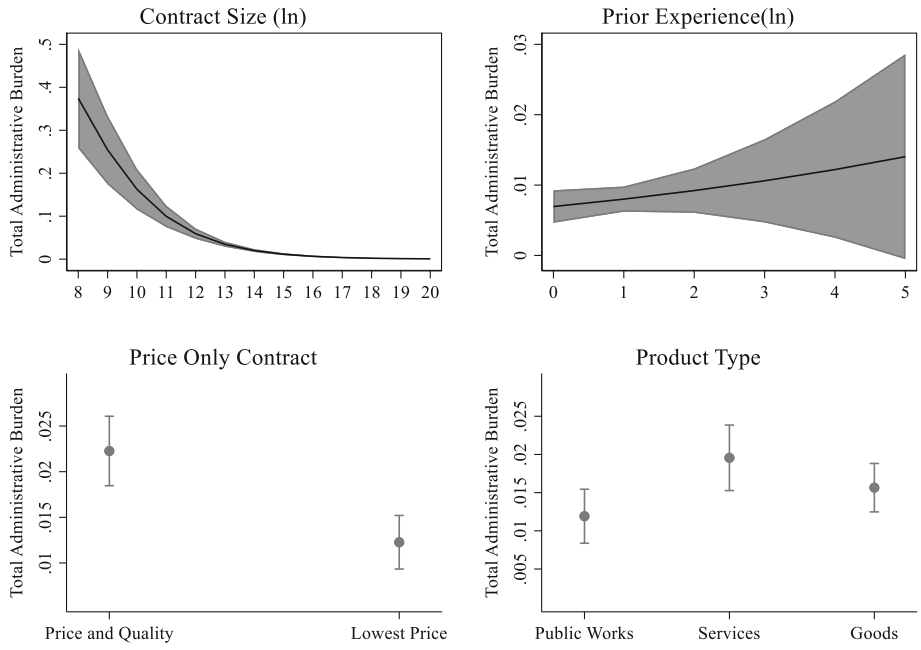


FIGURE 1 Predicted margins of the total administrative Burden of doing business with the government with 95% CIs

price-and-quality contracts. The margin plot in Figure 1 for price-only contracts illustrates that the administrative burden of businesses is around twice as high when contracting for combined price-and-quality contracts than when contracting for lowest-price contracts.

Moreover, the coefficients for *administrative procedure* (measuring whether the procedure is a relatively simple open procedure, or a more complex two-stage restricted or negotiated procedure) indicate that the restricted and negotiated procedure involve significantly higher learning costs than the simpler open procedure, which makes sense because both procedures involve a formal pre-qualification process before entering the bidding process. The negotiated procedure is also associated with higher total administrative costs (AME: 1.56 percentage points), possibly because the negotiated procedure requires substantial adoptions and negotiations before signing the final contract. These findings suggest that governments may significantly reduce administrative burdens in contract encounters by defining the quality features of the product in advance (using price-only contracts) and by awarding the contract using more simple administrative procedures (using the open procedure).

Turning to the variables relating to the administrative and human resources in the businesses themselves, most of the coefficients for *administrative resources* measured as firm size are not statistically significant, which is contrary to Hypothesis 3. There is a tendency towards higher administrative costs for businesses with 10–19 and 20–49 employees compared to businesses with 1–9 employees, which is the reference category. A plausible interpretation for this result is that small businesses with 1–9 employees may bid for a narrower portfolio of contracts, thereby enabling them to specialize in specific sub-fields of an industry (e.g., offering a narrow catalog of office supplies or selling a few types of management consulting services). Moreover, in contrast to our expectations in Hypothesis 4, the coefficients for *prior experience* are not statistically significant in any of the models. Although we use very precise administrative data of businesses experience in contract encounters with the government agency, the results suggest no association with learning, compliance and total administrative costs. One possible explanation is that experience from previous encounters with the government may theoretically work in opposite directions, which we discuss further in the conclusion section.

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Finally, a number of the coefficients for the control variables are statistically significant. Looking first at the *public authority* variable, businesses seem to incur relatively lower learning and total administrative costs in contract encounters with *central government* authorities. The control for the framework agreement contract is insignificant in all models. The coefficients for *service contracts* and *goods contracts* suggest that businesses incur significantly higher learning cost than in public works contracts: and higher total administrative costs in service contracts than in public works contracts. The coefficient for *competition* is statistically significant and negative in all three models, suggesting that businesses incur fewer learning, compliance, and total administrative costs in contracts with many competitors, even when controlling for the impact of open, restricted, and negotiated procedures. Finally, the coefficients for contract duration are not statistically significant in any of the models.

Figure 1 visualizes the predicted margins of businesses' total administrative costs for the contract size, prior experience, and price-only contracts. In addition, we visualize the product type variables to show the difference in administrative costs for different types of product governments purchase from private businesses. Similar visualizations for learning costs and compliance costs are provided in Figure 2.

5.1 | Robustness checks

We conduct a series of robustness checks and alternative specifications. First, as learning and compliance costs are operationalized as a percentage split of the total administrative costs, we run SUR models to check for possible correlations between the error terms of the learning and compliance costs. Second, we run mixed effects models for each dependent variable with fixed effects coefficients and a random effects intercept specified at the level of product codes to adjust for the nesting of businesses in our data (not shown due to length, can be obtained from the authors). These alternative model specifications produce largely similar results, albeit with a few notable differences. In Model 1 for learning costs and in Model 3 for total administrative costs, the coefficient for prior *experience* is statistically significant in the mixed effects model, in contrast to the fractional logit regressions. Besides this, the differences are mainly related to the control variables, such as competition (#contracts). Moreover, the SUR model for learning costs in Model 1 is also statistically significant, in contrast to the main model. These alternative specifications suggest need for caution when interpreting the prior experience variable, to which we return in the discussion section. The results for all other independent variables are similar across model specifications.

6 | DISCUSSION AND CONCLUSION

This article contributes to the administrative burden literature by conceptualizing and empirically examining learning and compliance costs in business–government interactions. By focusing on organizations (in our case businesses), the study brings new insights to the administrative burden framework by expanding the framework from citizen–state to business–state interactions, and by empirically studying these administrative burdens in the context of contract encounters between businesses and governments. The findings indicate that onerous administrative requirements and procedures are associated with significantly higher learning and compliance costs for businesses. More specifically, our findings indicate that contract size is negatively correlated with businesses' learning and compliance costs, suggesting that larger contracts are relatively less cost-intensive for bidding businesses. Moreover, our findings indicate that businesses incur lower learning and compliance costs when governments choose to award contracts based only on price instead of the combined price-and-quality procedure. Taken together, the results indicate that how governments design purchasing policies and administer contracts (e.g., regarding size, bureaucratic procedure, and contract design) significantly influence the administrative burden of doing business with them. Contrary to our hypotheses, however, the findings indicate that businesses' administrative resources and prior experience—which can be seen as important indicators of

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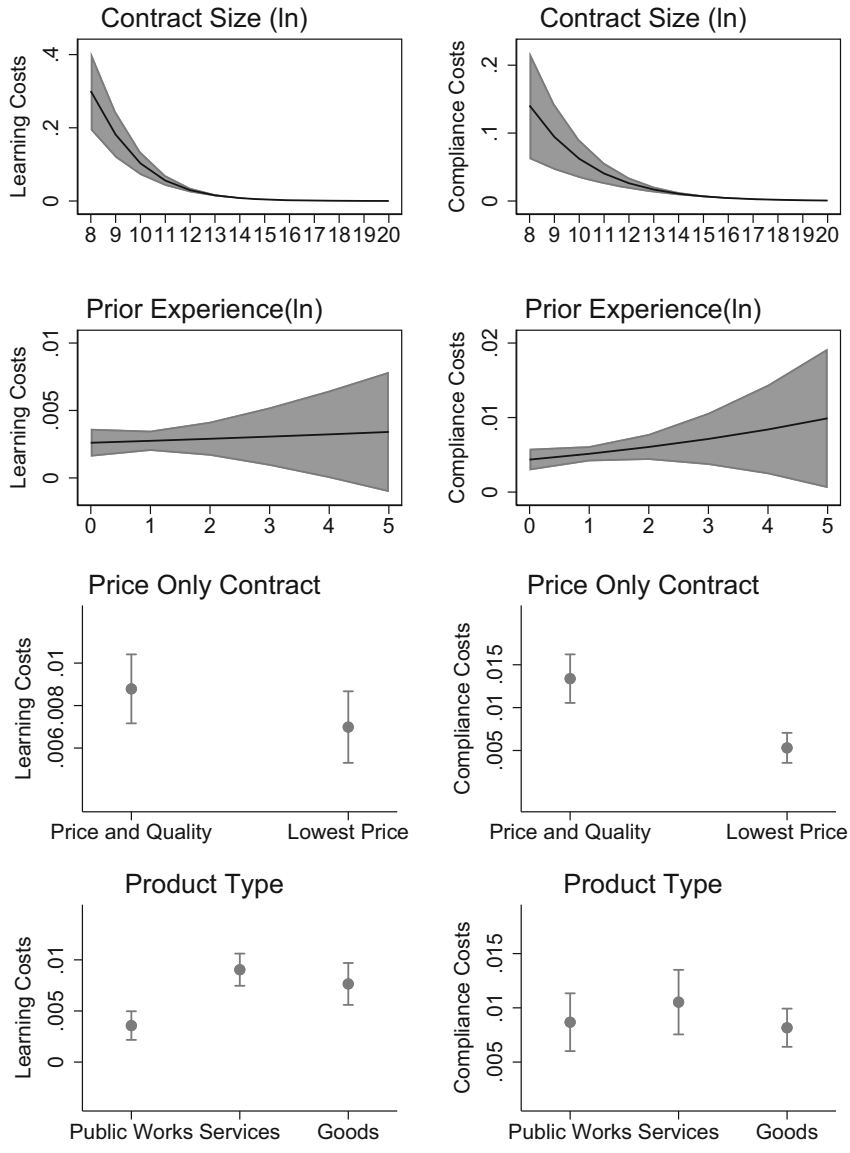


FIGURE 2 Predicted margins of learning and compliance costs of doing business with the government with 95% CIs

administrative capital in the businesses (Masood & Nisar, 2021)—have little bearing on their learning and compliance costs when doing business with the government.

Our study also contributes to the administrative burden framework by focusing simultaneously on administrative burdens resulting from administration decisions made by the state and public bureaucracies, on the one hand, and the importance of the recipients' human resources and administrative capital on the other (Christensen et al., 2020; Masood & Nisar, 2021). Most existing studies have mainly focused on administrative burdens as "deliberate policy design," whereas few recent studies have focused on "administrative capital resources" (e.g., Masood and Nisar, 2021). Our findings suggest that policy design and bureaucratic requirements influence the administrative burdens of doing business with the government, whereas the administrative and human resources businesses can mobilize

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seem to have little bearing on businesses' learning and compliance cost. When interpreting these findings, it is important to bear in mind that bureaucratic requirements may serve legitimate purposes. For instance, smaller contracts—albeit involving higher learning and compliance costs for the businesses—could potentially open the market for smaller businesses (Cullen, 2012). This exemplifies how administrative burdens should be evaluated against their contribution to other public goals and values, such as accountability, transparency, and equal opportunities in citizens and businesses' interactions with the government (Reynaers & Grimmelikhuijsen, 2015; Willems, 2014).

Another important implication of our empirical findings is that government agencies may be able to shift administrative burdens from businesses to themselves by specifying the quality dimensions—which is necessary in price-only contracts—before putting out purchasing contracts for tender. These findings highlight the link between policy design and administrative requirements, on the one hand, and the resulting administrative burdens for businesses in contract encounters with the government on the other. For example, Herd et al. (2013) have discussed shifting administrative burdens from individuals to the state—similarly, our findings suggest a way to shift administrative burdens from business to the state. Our findings suggest that governments can shift burdens from businesses to the state by investing resources themselves; for example, by describing contracts and products better in advance of announcing the contract tender. Such steps can save businesses resources (and thereby potentially also result in lower prices for the government agencies) and possibly help disadvantaged businesses (Fernandez et al., 2013) by reducing the resources necessary to navigate the administrative burden of doing business with the government.

Importantly, our results indicate that the main drivers of administrative costs are the administrative requirements and procedures from the governments, and less so the human capital resources organizations can mobilize in response to them. Governments can use these findings to reduce burdens and improve government–business interactions. Purchasing governments may take steps to reduce compliance costs, such as by providing standardized templates for how businesses write and submit bids. Another way to reduce compliance costs is by simplifying procurement procedures, especially for small contracts where businesses' administrative burdens are relatively higher. By focusing on administrative burdens and the resulting costs for businesses, governments can try to understand how they influence such costs—especially as this may be unintentional in some cases. Compared to previous studies using transaction cost economics to analyze government-business interactions (e.g., Malatesta & Smith, 2014; De Schepper et al., 2015; Petersen et al., 2022), the administrative burden perspective offers novel insights by focusing explicitly on the link between public policies and procedures and the costs of engaging with the government. The administrative burden perspective thereby extends the more efficiency-oriented transaction cost framework (Williamson, 1996) by emphasizing the link between public policies and administrative procedures, on the one hand, and the resulting economic costs of doing business with the government on the other. Future conceptual work could possibly integrate these two frameworks to provide a stronger and more explicit theoretical underpinning of the administrative burden framework.

The administrative burden perspective also provides important implications for practice by emphasizing the link between contract size and contract award procedure and private businesses' learning and compliance costs. Therefore, public organizations need to consider the use of cost-only instead of price/quality contracts and also the use of larger contract sizes, as this reduces private businesses' administrative burdens. However, businesses' burdens are not the only aspects to consider as this also needs to be balanced with other goals of public organizations. Smaller contract sizes and simpler contracts (like price-only contracts) may increase the number of bidders, enhance small and medium sized businesses' access to contracts, and increase supplier diversity. Changing government contract design and award procedures to reduces administrative costs in the bidding businesses may therefore conflict with other public values of importance to governments and their constituencies. This highlights the inherent—and so far, unsolved—challenge in the administrative burden framework in determining when the costs of bureaucratic rules and procedures are justified by their contribution to the fulfillment of other (sometimes conflicting) policy objectives.

This study also has several limitations. One of the main limitations is that we did not examine the psychological costs of doing business with governments. Such costs can be more complex to conceptualize and measure in an organizational context, as psychological costs can be viewed more as an individual concept. Despite the challenges

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of operationalizing and measuring psychological costs at the organizational level, such endeavor offers an opportunity for further expanding the administrative framework from citizen-state to organization-state encounters. Future research could attempt to solve the theoretical and empirical challenges related to this side of administrative burdens in the context of interactions between businesses and the government, and between organizations and the state more broadly. Another limitation of the study is that we have only examined businesses' costs of bidding for government contracts. The literature on transaction costs suggests that there can be significant costs in the contract delivery phase (Dyer & Chu, 2003; Petersen et al., 2022). Extending the administrative burden lens to the post-award phase of government-business contract encounters will be an important next step of conceptual and empirical inquiry. An important line of inquiry of broader relevance to the administrative burden literature is how burdens in different phases of the encounter are connected—for example, whether investing more learning costs can potentially reduce compliance and psychological costs in later phases of the encounter.

Finally, future research could also benefit from examining other domains in which businesses have administrative encounters with public bureaucracies. This potentially include important domains in which businesses frequently interact with public administrations, such as when they apply for permissions or authorizations from the state, or complain over administrative decisions (e.g., private businesses complaining over contract awards). Future studies could extend the focus to additional areas of government policies, e.g., when businesses apply for permits and subsidies; participate in consultation processes; and comply with regulations (e.g., accounting standards, tax declarations, environmental declarations). Future research should extend this study by looking deeper into the interplay between the two sides of administrative burden; for instance, examining how the "administrative design" and "administrative capital resource" perspectives interact to better understand how different types of human and administrative capital resources influence individuals and organizations' experience of administrative burdens in encounters with the state.

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CONFLICT OF INTEREST

The author declares that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

PEER REVIEW

The peer review history for this article is available at https://publons.com/publon/10.1111/padm.12904.

DATA AVAILABILITY STATEMENT

The data was collected in collaboration with the Danish Competition and Consumer Authority. Data cannot be made publicly available because businesses have been promised that their survey responses will only be published in aggregate form, and where the costs of individual businesses are not disclosed.

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ENDNOTES

[1] The survey data for this study was collected in collaboration with the Danish Competition and Consumer Authority. The data collection focused on the costs of exchanging public goods, services and public work contracts between government

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buyers and selling private businesses. In this study, we use this data to examine private businesses' learning and compliance costs in contract exchanges with government agencies.

[2] Government acquisition processes are lengthy and associated with significant uncertainty about product requirements (which solution the buyer wants), characteristics of the market (how many competitors and whom), and the outcome of the contract award process itself (e.g., the relative weight of different evaluation criteria). This can lead to a loss of power and autonomy, as the evaluation of the tenders and the decision to award the contract lies with the government authority. Government contract award procedures often also involve lengthy processing times, and there may be stigma both internally (in the business) and externally (between businesses in the market) associated with losing the contract to competing vendors. Psychological costs are not easily measured at the organizational level since there is no single organizational persona. One way of solving it would be to do multiple surveys in each business to measure these dimensions across a broader sample of employees and managers. Surveying multiple managers and employees in each firm was unfortunately not possible because we only had access to contact information for bid managers in the 2044 business we contacted for this study.

[3] The equivalent of this in citizen–state interactions is that a citizen seeking access to a public program, such as unemployment benefits, tends to experience greater administrative burdens when the documentation for eligibility is divided into several small steps, each requiring the citizen to understand the documentation requirements and comply with these requirements. In fact, this may be the very reason why the unemployed are required to show up at the employment services, to document a certain number of applications weekly, and to submit documentation of continued entitlement to government unemployment benefits.

[4] In addition to the 574 complete responses, we received 142 partial responses, which did not contain all of the information we needed to construct our variables.

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