The relationship between government contract management and competition

Alice Moore

PhD in Political Science

Department of Political Science

University College London

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I, Alice Moore confirm that the work presented in my thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Abstract

Competition is central to the reasoning behind contracting out public services. In practice, however, harnessing markets to improve public service performance has been a challenge for governments. They struggle to attract and maintain competition and the promised efficiencies from markets are often illusory. This thesis examines these challenges through the lens of contract management. It aims to answer the question: How do contract management approaches and market competition affect one another in the context of government contracts? I argue that contract management approaches, especially those that prioritize developing close working relationships, deter competing suppliers. Meanwhile, competition itself encourages public servants to manage contracts in ways that involve less flexibility and closer monitoring, which may prevent them from realizing the benefits of contracting.

The thesis employs a range of quantitative methods. First, I examine the impact of strong buyer-supplier relationships on competition for government contracts in the UK. I use machine learning to construct a dataset of contracting relationships in the UK and use a combination of regression techniques to identify the association between prior relationships and the number of bids received. I find evidence that stronger prior relationships are associated with lower competition and that this relationship is produced by bureaucratic discretion. Next, I further probe the effect of contract management approaches on competition through a conjoint experiment with suppliers. I assess the impact of performance-based payment and relational governance on bidding decisions and find that both discourage participants from choosing a contract, when compared to fixed-price contracts and new contracts without a relationship history respectively. Finally, I examine the impact of market environment on contract

management through a vignette experiment with public managers. The results suggest that high competition encourages more rigid management styles that may undermine the expected gains from contracting out.

Impact statement

This thesis contributes both to academic literature on government contracting and to its practice. It brings together two existing research agendas: on contract management; and on competition in contracting markets. It presents the finding that, as well as the individual challenges of managing contracts and markets that are documented in these literatures, governments may face an additional difficulty in resolving tensions between the two tasks. The research expands the focus of contract management scholarship beyond dynamics *within* the contract relationship to include its *wider* impact on other market actors. It also extends the study of contracting markets, which has so far concentrated on competition's influence on *suppliers'* performance, to consider effects on *contract managers'* behaviour.

The thesis offers an explicit theorization of how two types of contract management—relational governance and performance-based payment—shape competition, as well as a theoretical model of suppliers' bidding decisions. It also presents a theory of the effects of competition on approaches to managing contracts. These theories, and the central finding that there may be a trade-off between effective contract management and competition, offer potential explanations for findings and open questions from previous literature. The possibility that contract management approaches deter competing suppliers could account for the tendency for contracting markets to consolidate over time. Meanwhile, the possible counterproductive effects of competition on contract management could explain the mixed evidence for competition's effect on performance.

In addition to presenting theories and findings that future academic studies can use and build upon, this research also contributes original data to the field. I construct and analyze a novel dataset from administrative data about UK contract awards and generate new survey experimental data. The former dataset may be especially useful to future scholarship in examining the evolution of relationships between government buyers and suppliers.

The thesis also has several contributions to make to practice. Ways of managing contracts and of introducing more competition into contracting markets are at the forefront of both national and international procurement policy agendas. The research has also been produced in collaboration with government and professional organizations, who will be involved in disseminating its findings. The central conclusion—that contract management best practice, which focuses on developing productive relationships with *one* supplier, may be incompatible with promoting competition *between* suppliers—suggests that governments must pay attention to the interplay between these two activities. Initiatives that seek to improve the performance of current suppliers or to maximize competition among potential suppliers may not have the desired outcomes if they do so without regard to the other task.

In addition to identifying a potential trade-off for governments between managing contracts and managing markets, the research explores ways in which governments could navigate these conflicting demands. The thesis suggests ways of mitigating the tensions identified through approaches to the design, award, and management of contracts. The thesis also questions governments' use of competition as a universal rationale for the practice of contracting.

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Introduction

On 26 February 2021, the Doncaster Children's Services Trust in the UK received allegations from whistleblowers that disabled children at a home run by a private supplier, the Hesley Group, were suffering abuse and neglect (Child Safeguarding Practice Review Panel, 2022). Subsequent reviews, including a criminal investigation, revealed that children were mistreated at all three of the homes run by the company. One report identified "physical abuse and violence, neglect, emotional abuse, sexual harm, and medical needs not being met", including misuse of medications and the overuse of restraints and confinement (Child Safeguarding Practice Review Panel, 2022, p. 12). It found that management at the Hesley Group's facilities had been "inadequate", that it had created a "culture of poor practice and misconduct", and that they had provided insufficient staffing and "poor-quality training, support and supervision" (Child Safeguarding Practice Review Panel, 2022, p. 14). These failures received considerable attention in the media and prompted fierce criticism of both central and local governments (Butler, 2022; Plimmer & Louch, 2023).

The scandal is an example of the risks governments take when they provide public services through external suppliers and the extent to which things can go wrong. It also illuminates two of the key challenges governments face when when contracting for public services: managing contracts and managing markets. The local and national investigations that followed the scandal identified critical failures in the way the local authorities who purchased from the

Hesley Group managed their relationship with the company and oversaw the Group's performance as a supplier, as well as fundamental problems with the wider market for children's social care. A report by the Child Safeguarding Practice Review Panel identified poor oversight and management as one of the key contributing factors to the failure. The local governments buying these services struggled with limited management capacity, exacerbated by high staff turnover and workloads. They also placed too much trust in the Hesley Group to provide them with sufficient and accurate information. The report found that the local authorities "put great reliance on the reports provided by the [homes], and did not sufficiently challenge them" (Child Safeguarding Practice Review Panel, 2022, p. 15) even when reporting was "[a]bsent or incomplete" (p. 52).

Meanwhile, following an investigation by the UK Competition and Markets Authority prompted by the scandal, their Chief Executive concluded that "the UK has sleepwalked into a dysfunctional children's social care market" (Competition and Markets Authority, 2022a). The investigation found that, because the market could not provide a consistent supply of the right type of services, local authorities were overpaying for placements, some of which did not meet the needs of the children in their care. It also identified problems with suppliers' financial stability, which increased the risk that they would make a "disorderly exit" from the market and, in turn, do considerable harm to the children using their services (Competition and Markets Authority, 2022b, p. 10). The report attributed the underlying causes of the market dysfunction to governments' inability to shape and manage competition for children's social services. It identified considerable barriers to new suppliers entering the market and to existing suppliers increasing their supply. It also found that local governments were not able to engage effectively with the market or send accurate and reliable signals to suppliers (Competition and Markets Authority, 2022b).

Government organizations at all levels increasingly fulfil their responsibilities to provide public services by acting as buyers in public procurement markets and managing ongoing relationships with suppliers. As this case illustrates, the performance of these services depends on public managers' abil-

ity to navigate and maintain those markets and to manage contracts with their chosen suppliers. When market competition does not work as intended, or contracts are not managed effectively, contracted services can fail the people who use them. These two tasks and the interplay between them are the subject of this thesis. I seek to understand how contract and market management affect one another and explore potential tensions between the two in the context of contracted public services.

Managing relationships with external suppliers and cultivating competition between suppliers are increasingly receiving attention from both scholars and practitioners. As governments have expanded the use of contracting into more complex service areas, where the service to be provided is difficult to define and measure and where pre-existing markets cannot always be found, both tasks have become more challenging (Brown et al., 2010a, 2010b, 2016, 2018; Girth & Lopez, 2019; Girth et al., 2012; Malatesta & Smith, 2014; Petersen et al., 2015). Governments can less easily set and enforce performance standards and must actively foster competition. As a result, contract management and market management have become two of the most prominent topics in literature on government contracting. Questions about how to attract suppliers and manage relationships with them have also become one of governments' central concerns.

Relational governance models have emerged as a potential solution to the increasing complexity of contracted public services. These models emphasize informal and collaborative approaches to managing performance and solving problems based on mutually dependent and trusting relationships, over more formal and adversarial contractual mechanisms (Bertelli & Smith, 2010; Brown et al., 2018; Chuang et al., 2020; Fernandez, 2007; Van Slyke, 2007). Governments have also experimented with holding suppliers accountable during the course of a contract by using financial and other types of performance incentives (Birrell & Gray, 2018; FitzGerald, Fraser, et al., 2023; Romzek et al., 2014; Sanderson et al., 2018; Scarano, 2023; Terman & Feiock, 2016). At the same time, initiatives to make public procurement markets more competitive abound. For example, governments have attempted to reduce barriers to entry for potential

suppliers, with a particular focus on increasing the participation of small and medium-sized enterprises (European Commission, 2021; Flynn, 2018; Loader, 2013; Walker et al., 2006; Young, 2015).

While much attention has been paid to contract management and market management individually, we know less about the relationship between the two. How do the strategies that contract managers employ to build effective working relationships with suppliers shape the wider market? How does the competitive environment influence managers' approaches to regulating suppliers' behaviour? The lack of answers to these questions is a crucial gap in our understanding of contracting for public services. Without knowledge of how contract management and competition relate to one another, we are unable to comprehend the full implications of each. Governments' efforts to build a relationship with one supplier may help or may hinder efforts to foster competition between suppliers. Likewise, introducing more competition into contracting markets may support or may impair relationships with the suppliers who are selected. Consequently, we must investigate whether the two tasks complement one another or come into conflict to discern the impacts of specific contract and market management activities. This understanding can also illuminate how governments navigate the practice of contracting as a whole. The thesis is therefore motivated by the following central research question:

Research question: *How do contract management approaches and market competition affect one another in the context of government contracts?*

By examining the relationship between contract management and competition for government contracts, I find evidence that these two core elements are not independent of one another, but instead involve trade-offs and compromises. I argue that, fundamentally, activities and approaches widely included in best practice for managing contracts with *existing* suppliers are at odds with encouraging competition from *potential* suppliers. Equally, I suggest that the environment created by highly contested markets will produce behaviour in contract managers that departs from such best practice, behaviour which previous studies have shown may reduce governments' ability to real-

ize the promised benefits of contracting. The two tasks that are the subject of this thesis—contract management and market management—have individually been the topic of much research, which has found that each presents its own difficulties for governments. In this thesis, I argue that governments face an additional challenge of resolving the tensions between these two objectives.

1.1 Management and markets: dual contracting challenges

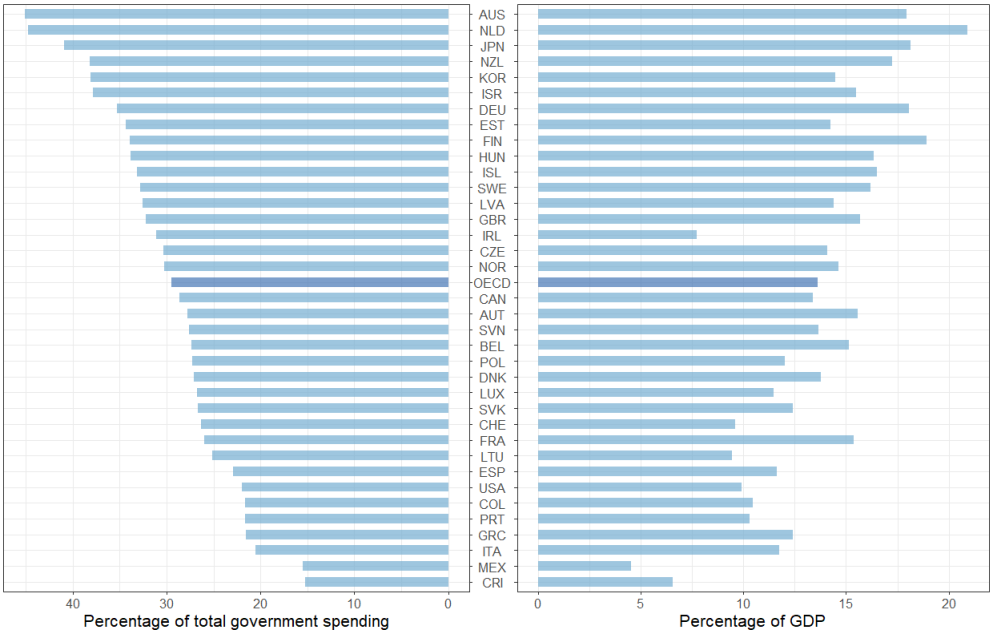
The practice of providing public services through contracts with external organizations has been a feature of government for over forty years. It was one of the core techniques introduced by the wave of market-based reforms that emerged in several countries in the Global North from the 1980s, collectively known as "New Public Management" (Hood, 1991). Proponents of New Public Management advocated contracting out areas of government activity to external suppliers as a way of introducing incentive structures into public service delivery that would promote innovation and efficiency. On this basis, international organizations later advocated its adoption by countries in the Global South (Batley, 2006b; Estrin & Pelletier, 2018; Loevinsohn & Harding, 2004, 2005; Palmer & Mills, 2003; Robinson, 2006). For example, contracting has been implemented as part of (Batley, 2006a; Bhushan et al., 2002; Loevinsohn, 2014; Palmer, 2006; Palmer et al., 2006; Zaidi et al., 2011) and sometimes as a condition of (Knox & Sharipova, 2023; Mothusi & Dipholo, 2008) major international development loans.

New Public Management arguments for contracting out public services drew on public choice and property rights literatures of the 1960s and 1970s (Alonso & Andrews, 2016; Holum, 2018; O'Flynn, 2007; Pollitt & Dan, 2013). Proponents argued that external provision is inherently more efficient than internal provision by government because it harnesses the power of competitive markets (Niskanen, 1968, 1971; Savas, 1977, 1987). Meanwhile, the power of private ownership was also cited as a reason for the superior performance of the private sector over the public sector, as the profit motive creates direct incentives for shareholders to make companies more efficient and ensure they pro-

vide services that are superior to their competitors' (Alchian & Demsetz, 1972; Davies, 1971; Grossman & Hart, 1986; Hart & Moore, 1990; Hart et al., 1997). As the use of contracting has grown, the range of suppliers has expanded to include organizations outside the private sector, such as nonprofit and voluntary organizations, and even other governments (Anguelov & Brunjes, 2023). As a result, competition is more frequently used as a rationale in current debates about contracting (Hood & Dixon, 2015; Stolt & Winblad, 2009).

Figure 1.1 shows spending on procurement as a proportion of total government expenditure and of GDP across OECD countries. It illustrates the extent to which contracts with external suppliers are integral to government activities. In countries that have embraced contracting most keenly, such as Australia, the Netherlands, and Japan, procurement now accounts for over 40% of government expenditure. Even countries that contract less, such as Italy, Mexico, or Costa Rica, still spend between 15% and 20% of their budget through external suppliers.

Figure 1.1: Spending on procurement among OECD countries in 2021.



Note: Figures are for all OECD countries, excluding Turkey, for which data are unavailable. The mean across all OECD countries in the data is given in dark blue.
Source: OECD, 2023

When governments started to expand the practice of contracting, candidates were usually simple, easy-to-measure services for which there was a pre-

existing market, such as waste collection, cleaning, or maintenance. However, as the opportunities to contract out services of this kind have been exhausted and contracting has become normalized, governments have looked for other areas to which they could extend the practice (Petersen et al., 2015). Over the years, the use of contracts has been expanded to core government activities, Many of these activities are difficult to define in a legal contract and produce outputs and outcomes that are difficult to measure, what literature on government contracting describes as "complex" (Brown et al., 2010a, 2010b, 2016, 2018; Chuang et al., 2020; Girth & Lopez, 2019; Malatesta & Smith, 2014). The children's care services discussed at the beginning of this chapter are one example, but contracting has also been used to provide other areas of social care, prisons and probation services, and welfare provision (Alonso & Andrews, 2016; Bauer & Johnston, 2020; Greer et al., 2018; Jilke et al., 2018; National Audit Office, 2016; Petersen et al., 2015).

The extension of contracting into these areas has led to two major problems: the management of government contracts has become more challenging; and it has become harder to generate and maintain competition for them. First, the harder it is to define a service in advance or measure its quality when it is delivered, the greater the opportunity for a supplier to perform poorly in areas that are not defined or measured (Brown et al., 2010a, 2010b; Hart & Moore, 1999; Hart et al., 1997). This basic principal-agent problem, means that government buyers must manage suppliers' performance with more care and skill. Government contract managers are required to pay more attention to negotiating contracts that will set up the right incentives, and to fostering ongoing relationships to ensure that the supplier's aims remain aligned with theirs throughout the contract (Brown et al., 2006, 2018; Van Slyke, 2007).

Second, the use of contracting to provide core government functions—areas in which government has historically been the main or only provider—means that governments have had to generate new markets, rather than tap into those that already exist. Governments are often the only buyer of such services and therefore have to continue to maintain and manage these markets to ensure effective competition once services have been contracted (Girth et al.,

2012; Van Slyke, 2003). These two problems have meant that, while contracting is now an established practice in public management, it is still dogged by problems. Government buyers struggle to manage contracts effectively and to prevent suppliers' opportunistic and even fraudulent behaviour. At the same time, ensuring healthy markets that can supply the services they need at competitive prices remains a perennial challenge.

As a consequence, newspaper headlines are peppered with prominent examples of contracting failures. These failures illustrate the variety and severity of the problems governments contend with when managing contracts and navigating markets. In the UK, contracts with external suppliers have been at the heart of recent public scandals including the leaking of local government benefits and tax data (Alabi, 2023), the closure of schools and other public buildings due to unsafe concrete (Cavendish, 2023), and security failures leading to the death of employees (Gecsoyler, 2023). The abuse in children's care mentioned at the start of this chapter is also not an isolated example. Similar abuse has been found in privately run immigration detention centres (Bancroft, 2023; Gentleman, 2021; Taylor, 2021b; Townsend, 2013; Wallis, 2023) and facilities for young offenders (Financial Times Editorial Board, 2021; House of Commons Justice Committee, 2021). The UK government has also struggled to prevent fraudulent behaviour among its suppliers. For example, the prominent government supplier Serco, was found to have overcharged the Ministry of Justice £12 million for electronically tagging offenders on parole, including claiming to tag people who were already back in prison, had left the country, or were dead (Beioley, 2021; Press Association, 2019; Travis, 2013).

Such scandals are not just confined to the UK. For example, notable contracting failures in the US have included unacceptable living conditions in privately provided military housing, comprising problems with mould, sewage, vermin, and lead paint (Sonne, 2019), and poor service provision by contracted ambulance services (Garrick, 2021). The federal government has also been hit by fraudulent behaviour from suppliers, such as a major supplier, Booz Allen, overbilling them by hundreds of millions of dollars across a range of services (Nakamura, 2023). In Australia, the integrity of new tax laws has even been

compromised, after PwC shared confidential information, acquired through a consulting contract with the government, and used it to pitch to new clients (Crowe, 2023; Karp, 2023; Liang, 2023).

Nor have failures been limited to contracts with the private sector. For instance, in 2015, the UK charity Kid's Company, which provided a range of support services for vulnerable children on behalf of central and local government, hit the headlines when it collapsed due to financial mismanagement (Rawlinson, 2015) and allegations of abuse (Laville & Butler, 2015). Its failure left thousands of vulnerable young people without vital support (Laville, 2015).

Furthermore, problems with contract management have not only led to major fiascos, but also undermined the performance of public services in general. Beyond the scandals above, the UK government has come under scrutiny for recent rises in their contracts failing to meet agreed standards (Allegretti, 2023). Meanwhile, the NHS has been criticized for links between its contracts with private suppliers and higher rates of avoidable deaths (Goodair & Reeves, 2022; Provan, 2022).

Governments have also been criticized for their inability to manage the ultimate cost of their contracts and for wasting public money (Dmitracova, 2019; Pritchard & Lasko-Skinner, 2019). Most recently, mismanagement of contracts for the prominent High Speed Two rail line in the UK has been blamed for the project's vast budget overruns (Plimmer et al., 2023). Performance failures have also resulted in governments picking up the cost in other areas, for example through local governments stepping in to make up for poor services run at the national level (Warrell, 2017).

In discussions of these failures, governments' ability to manage contracts effectively is often called into question. For example, the US federal government has been criticized for allowing pharmaceutical companies to "shift risk and maximize profits", over prioritizing public health goals, when supplying contracts for COVID-19 vaccines (Taylor, 2021a). In the UK, poor contract management has been blamed for delays to the roll-out of the coalition government's flagship welfare policy programme (Davies, 2014), abuse at immigra-

tion centres (Plimmer, 2016), and threats to the reliability of the tax system (Syal, 2015).

Ineffective contract management was even a cause of what has been called "the most widespread miscarriage of justice in UK history" (Peachey, 2022). Over 700 branch managers for the state-owned Post Office were prosecuted for false accounting and theft as a result of faulty information from the accounting and stocktaking system supplied by Fujistu and the failure of those managing the contract to challenge the company. The ultimate consequences were hundreds of wrongful convictions, victims using their own money to plug holes in the accounts, and the government paying out £120 million in compensation (Sweney, 2023; Uddin, 2023).

These critiques have identified consistent problems for government in using performance measurement effectively. They include placing undue burdens on suppliers (Neville, 2016) or encouraging suppliers to prioritize meeting targets over client welfare (Plimmer, 2016). Critiques have also called into question governments' ability to manage risk, citing failures to make clear or equitable allocations and instances of contracts placing the continuity of public services in jeopardy (Hurley, 2023; Syal, 2015; Taylor, 2021a). Finding contract management approaches that can craft effective incentives for suppliers, encourage cooperation over opportunism, and hold suppliers to account is an ongoing struggle for government.

Alongside their challenges in managing suppliers' performance, governments are also criticized for their struggles to attract and appoint the right suppliers in the first place. As the example of the children's social care market illuminated, markets for public services can be fraught with problems that make it hard for government buyers to find and retain good quality suppliers, negotiate competitive prices, and hold suppliers to account. Government procurement markets are notoriously uncompetitive and present structural problems that encourage consolidation and require skilled management. For example, the specificity and technical requirements of many public services can lock governments into relationships with suppliers. This has been a particular problem in

markets for technology contracts, where the design of systems and use of proprietary technology can make it difficult for buyers to switch to a new supplier (Johnston, 2023). As a result, incumbents have become "entrenched" (Vasagar & Neville, 2013), even in the face of major performance problems (Plimmer, 2019).

Furthermore, governments must counter a range of anticompetitive practices by suppliers. For example, in the US, collusion has been reported in the market to supply public programmes providing infant formula (Mark, 2023; Whyte et al., 2023) and suppliers have even given kickbacks in order to secure government contracts (Gregg, 2019). Meanwhile, in Denmark, the major government supplier Falck was accused of sabotaging a competitor after it lost a municipal ambulance contract (Gadd, 2019a). "Land and expand" tactics are also common, where suppliers offer services for free or a very low price to win a contract and then raise their prices once they have established an incumbent advantage (Pickard & Hughes, 2023).

Problems attracting and maintaining competition are often attributed to governments' mismanagement of markets or lack of commercial ability. For example, major public procurements in the UK have either failed to attract bids or have had potential suppliers withdraw. These problems have been attributed to buyers pricing contracts too low (Pickard & Millard, 2023; Plimmer & Neville, 2015) or failing to provide clear information about costs (Neville, 2016). The complexity of bidding processes and the misuse or overuse of procedures that limit competition have also attracted criticism in Denmark (Haw, 2023), the UK (Hurley, 2023), and the US (McCarthy, 2002).

Governments' own favouritism toward suppliers has also been a significant problem. In some cases, governments have been accused of *intentionally* restricting competition. Both UK and US governments have come under criticism for procurement practices that are actively discriminatory against new entrants (Davenport, 2019; Plimmer & O'Dwyer, 2021), and for favouring firms with connections to politicians (Grierson, 2018; Makortoff et al., 2021; Mitib et al., 2023) and public officials (Gregg & Davenport, 2019; Marimow, 2016; Plimmer

& O'Dwyer, 2021). Concerns have also emerged about the use of emergency procurement procedures that exempt government organizations from normal competitive processes. Most notably, accusations of corruption emerged during the COVID-19 pandemic. For example, the "VIP-lane" operated by the UK government—which offered suppliers with connections to government ministers priority for contracts related to the pandemic—has received widespread criticism (Conn & Evans, 2023; Mason, 2022) and been declared unlawful (Siddique, 2022). However, exemptions from competitive procedures in emergency situations have also been extended beyond the COVID-19 response, for instance to contracts providing homes for refugees from the war in the Ukraine (Pickard & Hughes, 2023). Understanding the factors that lead governments to favour some suppliers and how the wider market responds is therefore an important task for research into government contracting.

Lack of effective competition has had damaging consequences for the performance of contracted public services. For instance, the aforementioned "VIP-lane" was linked to major failures in the delivery of public services to tackle COVID-19, such as publicly provided tests that incorrectly gave negative results and a flawed "track-and-trace" system to monitor and contain the spread of the virus (Conn & Evans, 2023; Mason, 2022). Poorly managed markets have also created incentives for suppliers that harm contract performance, such as pressure to offer prices that are too low to supply services of adequate quality (Warrell, 2017). In addition, struggles in managing public contracting markets and the dominance of a few large suppliers have meant that governments have been unable to rid themselves of suppliers responsible for major performance problems (Harris, 2013; Morris & Pells, 2014; Neville, 2014; Plimmer & O'Dwyer, 2022; Staton, 2020). In some cases, governments have even continued to award contracts to firms that have defrauded them in the past (Gadd, 2019b; Kersley, 2023; Stern, 2003).

Failures of both contract and market management have been met with a range of policy initiatives. As a result of the repeated failures of governments to get contracting right and the frequent misbehaviour of suppliers, several types of programmes to improve contract management have been proposed and in-

troduced. For example, within the UK these initiatives have included sharpening performance incentives through the use of performance-based payment structures (Considine et al., 2020; Department for Work and Pensions, 2012; Plimmer, 2018). In particular, there has been a recent shift to rewarding the ultimate outcomes of a contract in order to align incentives with the original policy intent (Birrell & Gray, 2018; FitzGerald, Fraser, et al., 2023; Sanderson et al., 2018). For example, the UK introduced the first social impact bond in 2010, which attracted private investment to provide services for prisoners released from short-term sentences and paid investors according to targeted reductions in rates of reoffending. The scheme was underpinned by an outcomes-based contract between the Ministry of Justice and the Social Impact Partnership, a vehicle set up to hold the investment, contract with individual suppliers, and make payments back to investors (Disley et al., 2011, 2015; FitzGerald, Fraser, et al., 2023). Since then, a further 98 social impact bonds have been implemented in the UK, providing services to over 118,000 people (INDIGO, 2024). There have also been more general calls to improve oversight of contract performance, gather more and better information about performance, and take more decisive action to rectify problems or penalize suppliers (National Audit Office, 2021; Scott, 2023).

Alongside this focus on implementing and strengthening formal performance incentives, there has also been a focus on more informal relationship-building. In particular, the UK government has recognized their interdependence with "strategic suppliers", which provide many services across government and may themselves be financially dependent on government contracts (House of Commons Committee of Public Accounts, 2018). Guidance and best practice for government contract managers has placed emphasis on the careful management of these relationships, under the assumption that these suppliers will remain essential partners in providing public services over the long term (Gash, 2017; National Audit Office, 2016).

Recognizing that their relationships with suppliers are a crucial part of the contracting process, the UK government has also made efforts to improve contract management capability and expertise across the public sector. These

capacity-building initiatives have paid particular attention to: the "soft" skills needed to manage interorganizational relationships successfully; continuity in personnel to facilitate such relationships; and the informal mechanisms for resolving problems and adapting to changing circumstances that are part of relational governance practices (Gash, 2017; National Audit Office, 2016, 2021).

In addition to their efforts to improve contract management, governments have also focused on increasing competition for their contracts. There has been a drive at subnational, national, and international levels to boost competition in public procurement markets. Organizations such as the OECD (OECD, 2015, 2019, 2021), the EU (European Commission, 2016), and several NGOs that promote government transparency (Open Contracting Partnership, 2023; Open Government Partnership, 2023; Transparency International, 2021) have put forward proposals to stimulate and facilitate competition and remove barriers to entry. National procurement strategies, such as those of the Netherlands (Ministry of Economic Affairs and Climate Policy, 2021), Sweden (Ministry of Finance, 2017), and the UK (Cabinet Office, 2020; National Audit Office, 2023), have prioritized increasing the number of bids for government contracts at all levels and breaking the dominance of large suppliers.

Governments have also paid attention to the kind of suppliers they are attracting to bid for their contracts. One particular aim has been to improve the diversity of governments' supplier base, as a means of building supply in the market, accessing a greater range of skills and experience, and reducing their dependence on a few dominant suppliers (House of Commons Committee of Public Accounts, 2018; National Audit Office, 2023; Walker et al., 2006). Another focus of these efforts has been to increase the proportion of government contracts being supplied by small and medium-sized enterprises. Proposals have included: reducing barriers to these suppliers by changing the size and structure of government contracts; reforming contract payment mechanisms; reducing the burdens imposed by procurement procedures; and providing information to these suppliers (European Commission, 2021; Loader, 2013; Young, 2015).

Managing contracts and managing markets are thus two crucial challenges for governments seeking to provide high quality public services through contracts with external suppliers. At the very least, public managers must perform both tasks competently to avoid hitting the headlines. To realize the promised benefits of contracting, they must be highly skilled in both. How these two tasks relate to one another is therefore of central importance to understanding the practice of contracting out. Can governments do both well, or are there tensions between contract and market management? If tensions do exist, what form do they take? Do the practices associated with successful contract management breed competitive markets, or do they interfere with competition? Do competitive pressures facilitate effective contract management or encourage behaviours that may be counterproductive? I seek to answer these questions. I consider how governments' approaches to managing contracts with external suppliers affect and are affected by competition for those contracts and the trade-offs that emerge.

In answering the questions above, I explore a potential problem for governments. I argue that the tasks of managing the performance of *current* suppliers and stimulating competition among *potential* suppliers can come into conflict with one another. I suggest that two management approaches that are becoming popular among governments and have been supported by previous research—relational governance and performance-based payment—may make contracts unattractive to competitors. Likewise, I propose that some features of competitive markets may undermine productive working relationships after a contract has been awarded.

As I detail in the next section, the literatures on contract management and on competition in government contracting markets are both individually very well developed, but the links between them have received less consideration. This thesis aims to advance our understanding of contracting by combining both strands. I argue that governments face trade-offs when attempting to manage contracts and markets effectively. As a result, public managers and scholars must pay greater attention to the ways in which contract and market management influence one another.

1.2 Competition and contract management in the academic literature

The concerns about government contract management that have emerged in the popular media have been echoed by the academic literature. There is a wide body of research on management failures and the capabilities needed to handle contracts successfully. This research has identified that governments often struggle to manage contracts and relationships with suppliers and that this can significantly impact service performance (Andrews & Entwistle, 2015; Provost & Esteve, 2016). The approach governments take to contract management can dramatically influence the overall efficiency of contracting through its effects on transaction costs (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019). Contract management can also affect the working relationship between buyers and suppliers, either inducing cooperative behaviour or encouraging suppliers to act solely in their own interests (Brown et al., 2007, 2018; Fernandez, 2007; Rho, 2013; Van Slyke, 2007, 2009; Warsen et al., 2018, 2019). Finally, the nature of contract management and the skill of contract managers can determine whether governments take advantage of and learn from suppliers' different expertise and ways of working (Ball & Gibson, 2022; Malatesta & Smith, 2014; Romzek et al., 2012, 2014).

One of the major topics of this literature is the difficulty governments face in managing contracts for services that cannot be fully specified in advance and where quality is difficult to verify. Such "incomplete" (Blomqvist & Winblad, 2022; Johnston & Romzek, 2023) or "complex" (Brown et al., 2010a, 2010b, 2018; Chuang et al., 2020) contracts create information asymmetries, which suppliers can exploit for their own aims. For instance, the "quality-shading" problem, in which suppliers neglect elements of quality that are not measured in favour of reducing their own costs, has been demonstrated across several service areas (Domberger & Jensen, 1997; Elkomy et al., 2019; Hart et al., 1997; Jensen & Stonecash, 2005; King & Pitchford, 1998; Lopez-de-Silanes et al., 1997; Sclar, 2000). A related problem is that of "cream-skimming", where suppliers prioritize the easiest tasks or clients to meet targets in areas of performance that are

observed, while "parking" more difficult or unobserved activities. They do this in order to cut costs (Bredgaard & Larsen, 2008; Greer et al., 2018; Jilke et al., 2018; Rees et al., 2014), achieve associated financial rewards (Anderson et al., 1993; Greer et al., 2018; Koning & Heinrich, 2013; Rees et al., 2014), or to retain the contract in future (Greer et al., 2018; Shaw & Rab, 2003).

One of the solutions most often proposed to the challenges caused by complex contracts is to invest in relationships with suppliers that encourage trusting and cooperative behaviour. Ideas of "relational" governance have become popular in the contracting literature to inform the analysis of, and suggestions for, contract management (see for example Bertelli & Smith, 2010; Chuang et al., 2020; Forrer et al., 2014; Gibbons, 2005; Lambright, 2009; Warsen et al., 2019). These studies have described and recommended an approach to contract management that favours relationship-building through repeated interactions, information-sharing, and the development of shared norms and goals over adherence to complicated and often unenforceable contract specifications (Barton et al., 2006; Brown et al., 2007, 2018; Fernandez, 2007; Malatesta & Smith, 2014; Rho, 2013; Smyth & Edkins, 2007; Van Slyke, 2007, 2009; Warsen et al., 2018, 2019).

As well as curbing opportunism, previous studies argue that these approaches provide greater access to suppliers' expertise (Ball & Gibson, 2022; Malatesta & Smith, 2014; Romzek et al., 2012, 2014) and enable better adaptation (Girth, 2014; Malatesta & Smith, 2014), which were some of the original objectives of contracting (Bredgaard & Larsen, 2008; Considine, 1999; Considine et al., 2011; Jantz et al., 2018). Relational approaches also offer a solution to the problem of transaction costs, which are a consistent threat to the efficiency of contracting out (Barthélemy & Quélin, 2006; Bel & Warner, 2008; Bel et al., 2010; Johnston & Romzek, 2023; Perez-Lopez et al., 2015; Zafra-Gómez et al., 2013), because they allow for longer relationships and less intensive monitoring (Brown et al., 2007; Malatesta & Smith, 2014; Van Slyke, 2007). However, these approaches are not without difficulty and require contract managers to spend more time with suppliers and skilfully cultivate cooperative and collaborative working practices (Bertelli & Smith, 2010; Gazley, 2010).

There has also been a substantial focus on the use of performance incentives, both financial and otherwise, to manage suppliers' behaviour. This literature has documented the tools contract managers adopt to apply such incentives and the pitfalls they encounter when doing so. A major theme in this literature is innovation in the rewards and sanctions used, such as a move from outputs-based to outcomes-based targets (Birrell & Gray, 2018; FitzGerald, Fraser, et al., 2023; Negoita, 2018; Sanderson et al., 2018; Scarano, 2023) and an increased adoption of more informal incentives based on reputation and information-sharing (Romzek et al., 2012, 2014; Terman & Feiock, 2016).

Many of these studies have found that crafting the optimal incentive structures to encourage good performance is a major challenge for contracting governments. Buyers have struggled to determine effective performance measures and set targets at the right levels (Dias & Maynard-Moody, 2007; Dubnick & Frederickson, 2010; Lazzarini et al., 2022) and in the process have inadvertently created perverse incentives for suppliers (Dias & Maynard-Moody, 2007; FitzGerald et al., 2019; Heckman et al., 2002; Heinrich, 2007, 2011; Jensen & Stonecash, 2005; Koning & Heinrich, 2013; Lu, 2016). Punishing bad behaviour is often a challenging and costly task because of legal barriers and difficulties proving fault. As a result, many government buyers forgo enforcing sanctions in cases of poor performance (Girth, 2014; Johnston et al., 2004; Lamothe & Lamothe, 2012b; Romzek & Johnston, 2005; Van Slyke, 2007). Again, setting and enforcing contract incentives requires considerable skill from public managers and many governments find it difficult to maintain such capabilities (Brown & Potoski, 2003a; Marvel & Marvel, 2009).

The second topic of this thesis—the dynamics of government procurement markets—is also a major theme in the contracting literature. Structural problems in markets for public services that lead them towards consolidation, resulting in dominance by a few large suppliers, have been extensively documented (Bel & Fageda, 2011; Davies, 2007; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000). The ways in which governments have sought to manage these markets, have also received considerable attention. For example, this literature has analyzed governments' efforts to to break dominant suppli-

ers' control of public contracting markets by stimulating competition through strategic awarding decisions (Amaral et al., 2009; Hansen, 2003; Torfing et al., 2017; Walker et al., 2006). Studies of "concurrent sourcing" have also examined governments' attempts to apply competitive pressure by acting as an alternative supplier themselves (Hefetz et al., 2014; Johnston et al., 2004; Torfing et al., 2017; Warner & Hefetz, 2008, 2012). Scholars have also studied the ways in which government buyers invite competition for their contracts, from the design of procurement processes (Amaral et al., 2009; Kim et al., 2016; Walker et al., 2006), to approaches to publicizing contracting opportunities (Coviello & Mariniello, 2014) and soliciting bids from potential suppliers (Brown & Potoski, 2004; Girth et al., 2012). As with contract management, this literature has emphasized that effective market management requires attention, expertise, and resources and that governments struggle to meet these demands (Johnston & Girth, 2012).

However, at the same time as governments' problems in generating competition has been a concern, scholars have raised doubts about the efficacy of competition in improving service performance. This research has primarily measured the effect of introducing competition into public service delivery, either by comparing contracted provision to in-house provision or by comparing services that are procured through competitive procedures to those that are awarded without competition, for example through a contract extension. The results of these studies have been mixed. There is evidence for the positive effect of selecting suppliers through market competition on both the cost (Blom-Hansen, 2003; Christoffersen et al., 2007; Domberger & Jensen, 1997; Lindholst et al., 2018; Savas, 1977) and quality (Holum, 2018; Rho, 2013) of public services. Others have reported evidence of the opposite effect: that the use of competitive procurement procedures is associated with higher rates of contract termination (Brunjes, 2020, 2022; Sanders & Huitink, 2018) and budget overruns (Brunjes, 2022), as well as lower levels of satisfaction with public services (Dahlström et al., 2018). Another group of studies finds no effect of competition on performance (Alonso et al., 2017; Broms et al., 2020; Fernandez, 2007; Lamothe & Lamothe, 2010; Lamothe, 2015).

A further body of research points to conditional effects of competition on public service performance. These studies have identified, for example, that the type of service being contracted (Petersen et al., 2015), how long the service has been contracted for (Gradus et al., 2016), or the level of management capacity available to govern the procurement process and resulting contract (Andrews & Entwistle, 2015) influence whether exposing public services to competition has a beneficial effect. These findings suggest that, as well as the challenge of creating and maintaining markets, governments also struggle to extract the expected benefits of competition from such markets. However, because most of these studies have measured only the effect of exposing public services to the market and not different levels of competition within that market, it is unclear whether the problem comes from the fact that these markets are uncompetitive or is produced by competition having different or more complex effects than previously thought.

Through the research presented in this thesis, I aim to take the above literatures on contract management and markets for government contracts a step further and examine the relationship *between* contract management and competition. In doing so, I hope to expand the scope of each literature. First, I intend to push the study of contract management beyond its consideration of buyers' relationships with, and the performance of, their current supplier, to look at the implications for the wider market and the behaviour of other potential suppliers. Second, I wish to uncover a potential intermediate step that links competition to contract performance, by considering its impact on public managers' behaviour, where previously studies have focused on the way it influences the actions of suppliers.

In connecting the two literatures and expanding the focus of each, I hope to understand better the interplay between contract management and competition. I aim to expose the trade-offs governments face between cultivating competition for their contracts and building relationships with, or sharpening performance incentives for, their suppliers. I argue that, rather than activities to be pursued in tandem, contract and market management are interrelated and involve difficult choices and balancing acts for government. A central reason

for this is that many activities that are advocated as part of contract management best practice and which focus on developing a good relationship with *one* supplier are not compatible with fostering competition *between* suppliers. Furthermore, I contend that market pressures may encourage management behaviours that previous studies have shown could undermine the benefits from contracting. Specifically, I argue that they will produce less flexible management, which can limit learning and adaptation. At the same time, I propose that competitive markets are likely to encourage more monitoring, which can raise transaction costs and undermine cost-efficiency. I suggest that this could be one reason why competition has not had its intended effect on contract performance.

1.3 Structure of the thesis

I address my central research question through primary experimental and original secondary observational data. The first two empirical chapters focus on the effects of contract management approaches on bids for government contracts. Chapter 2 provides observational evidence based on administrative data from the UK of the existence of a relationship between the two variables and Chapter 3 presents causal survey experimental evidence of the link between contract management and suppliers' decisions to bid. The third empirical chapter examines the relationship between markets and contract management from the opposite perspective. It examines how the competitive environment shapes public managers' approaches to overseeing suppliers' behaviour and performance.

In Chapter 2, I focus on the implications of governments' investments in relationships with their suppliers for future competition. As discussed, both practitioners and the academic literature have placed an emphasis on relationships as a means of managing government contracts and solving some of the problems created by the extension of contracting to more complex services. I use administrative data about contracts awarded in the UK between 2006 and 2019 to construct an original dataset. I use this dataset to establish a relation-

ship between the strength of buyer-supplier relationships within a contract and the number of bids that contract receives. I also explore associations between prior relationships and the length of time for which contracts are advertised, which can indicate government buyers restricting competition.

I find evidence that prior relationships do dampen competition for future awards and that they also encourage contract managers to place restrictions on competition. I suggest that bureaucratic discretion may play a crucial role in this process. The negative relationship with competition is produced when the awarding criteria allow contract managers discretion over which supplier they choose. Conversely, the association between prior relationships and shorter advertisement periods occurs when public managers do not have such discretion in the contract award. These results paint a picture of contract managers either intentionally or unintentionally undermining competition when they have strong relationships with previous suppliers of a contract.

While Chapter 2 provides observational evidence on the relationship between contract management and competition and the potential role of bureaucratic discretion as a mechanism, Chapters 3 and 4 complement these findings by employing survey experimental methods to identify more precise, internally valid causal relationships in a more narrow sample. In Chapter 3, I continue the focus on the implications of relational models of contract management for competition by testing their effect on suppliers bidding decisions using a conjoint experiment. In this experiment, I also test the impact of a different contract management technique that is growing in popularity: performance-based payment. The analysis in Chapter 2 employs methods, such as fixed-effects regression, to remove sources of endogeneity, but cannot establish causality. The analysis presented in Chapter 3 more precisely identifies a causal relationship between contract management and competition, as well as examining a different type of contract management approach.

I present a theoretical model of suppliers' bidding decisions based on suppliers' perceptions of profit they can make from the contract, their likelihood of winning it, and the costs of bidding. Based on this model, I hypothesize

that both performance-based payment and relational governance will reduce contracts' attractiveness to suppliers. I propose that performance-based payment will influence suppliers' perceptions about the profit they expect to make and that relational governance will impact their perceived chances of winning. I argue that the uncertainty that performance-based payment and relational governance introduce—into alternative suppliers' estimation of profit and likelihood of winning respectively—will make contracts where these approaches have been used less attractive to competitors.

I find evidence to suggest that, as hypothesized, relational governance approaches and performance-based payment structure both deter competing suppliers from bidding. Participants perceived fixed-price payment as more attractive than payment linked to their performance. They also avoided contracts where the incumbent supplier had a long history of working with the buyer.

I find evidence to suggest that, as theorized, uncertainty plays a significant role in these decisions and moderates the effects of contract management approaches. Previous research has demonstrated that award criteria that are weighted towards quality signal greater uncertainty in both the award and delivery of contracts. I find that when quality forms the majority of a contract award, participants display stronger preferences for contracts where they can be more confident about winning (new contracts with no incumbent) and for payment structures with the most certain profits (cost-reimbursement contracts). I argue that further signals of uncertainty embedded in the contract award criteria increase suppliers' desire for certainty about the profit they will make and their chances of winning the contract. This chapter demonstrates that the impact of contract management on competition extends beyond the use of relational governance, by adding another type of contract management into the analysis. It also confirms the causal relationships between each approach and suppliers' bidding choices.

Finally, in Chapter 4 I switch my attention to the effects of the market environment on governments' approaches to contract management. Using a

vignette experiment with public managers, I examine how the level and closeness of competition between potential suppliers influences the flexibility public managers are willing to give the selected supplier, and how closely they monitor their behaviour. I argue that the intensity of competition will influence the behaviour of contract managers. I expect that in highly contested markets contract managers will be unwilling to invest in the their relationship with the current supplier, because competition reduces the time horizons of buyer-supplier relationships. I expect that this will prevent them from offering the supplier flexibility and lead them to monitor them more closely.

I also expect competition to alter contract managers' incentives to adopt different contract management styles in ways that lead them to control suppliers' behaviour more tightly when competition is high. For example, managers can better take advantage of competition when they write standardized contracts that allow them to switch suppliers easily, rather than allowing the current supplier the freedom to tailor delivery arrangements to their own strengths. Competition also improves the payoff of monitoring activities, because government buyers are better able to act on the information they gather if there is a wider choice of alternative suppliers in the market.

As hypothesized, I find that when competition is high, public managers are inclined to allow suppliers less flexibility and monitor them more closely. I also find that public managers expect less intensive monitoring when competition is low. The analysis in this chapter builds on the previous two chapters by suggesting that the relationship between market competition and contract management and the tensions between the two operate in both directions. It also identifies contract management as a potentially crucial link between competition and contract performance by demonstrating that the market environment not only influences suppliers' behaviour—the primary concern of the existing literature—but shapes the behaviour of contract managers in ways that may have a knock-on impact on contracting outcomes.

By exploring the conflicting demands of managing contracts and managing markets, this thesis illuminates why governments struggle with both

tasks. In Chapters 2 and 3, I suggest that governments cannot invest in productive working relationships with, or give robust performance incentives to, their current suppliers without undermining competitive pressures. Likewise, I indicate in Chapter 4 that fiercer competition could encourage contract managers to control suppliers' behaviour more tightly. If, as previous research has shown, this is counterproductive, improving the competitive conditions in public procurement markets may lead to failures elsewhere. This research suggests that practitioners and scholars alike must pay more attention to these trade-offs. Furthermore, it casts doubt on the ability of governments to complete both tasks well in contexts where accountability for performance is a challenge or markets are weak.

2

How do buyer-supplier relationships shape markets for government contracts?

An analysis of UK contract awards, 2006-2019

The benefits of competition are foundational to arguments for contracting public services out to external suppliers. These arguments state that competition creates incentives for suppliers to minimize cost and maximize quality, because they may be replaced by rivals if they underperform (Niskanen, 1968, 1971; Osborne & Gaebler, 1992; Savas, 1977, 1987). Without competition, governments and public managers are incentivized to maximize their budgets, by increasing demand for their services and reducing the elasticity of that demand. In doing so, they neglect the interests of service users in favour of enlarging their budgets and furthering their own interests. In contrast, suppliers in a competitive market are incentivized to offer a service that is both cheaper and better quality than their competitors (Niskanen, 1971).

While not universally supported, there is evidence that opening up public service provision to market competition can improve the performance of public services in terms of both cost (Blom-Hansen, 2003; Christoffersen et al., 2007; Domberger & Jensen, 1997; Lindholst et al., 2018) and quality (Holum, 2018; Jung et al., 2018; Rho, 2013). Previous research also suggests that it can enable governments to tap into outside expertise and innovation (Donahue & Zeck-

hauser, 2011; Jung et al., 2018). Moreover, the rationale of introducing market forces into public service delivery is still widely used in political discourse to support the practice of contracting out (Hood & Dixon, 2015; Stolt & Winblad, 2009).

An emphasis on competition as a key determinant of the performance of contracted public services has been a feature of the literature from its inception. In contrast, the focus on the quality of contracting relationships is a more recent development, driven by changes in governments' contracting practices. As contracting out has become a more established practice, governments have looked beyond low-hanging-fruit, such as cleaning, maintenance, and other "technical" services to those that are more complex and for which contracts are harder to specify fully (Alonso & Andrews, 2016; Brown et al., 2006; Petersen et al., 2015). The risks that suppliers exploit gaps and ambiguities in these contracts and shirk on the aspects of quality that cannot be measured (Hart et al., 1997) has produced a new interest in the potential benefits for governments in developing close relationships with their suppliers.

Literature on the management of contracts for complex public services draws on management scholarship on relational governance (for example, Barney & Hansen, 1994; Lee & Cavusgil, 2006; Macneil, 1987; Poppo & Zenger, 2002) to argue that relationships are an essential tool for discouraging opportunism and avoiding heavy monitoring costs (Ansell & Gash, 2008; Bertelli & Smith, 2010; Brown et al., 2007; Chuang et al., 2020; Forrer et al., 2014; Gibbons, 2005; Lambright, 2009; Malatesta & Smith, 2014; Van Slyke, 2007; Warsen et al., 2019). Such research has also suggested that stronger relationships can prompt greater information-sharing and learning (Amirkhanyan et al., 2012; Bertelli & Smith, 2010; Blomqvist & Winblad, 2022; Girth, 2014; Grafton & Mundy, 2017; Lamothe & Lamothe, 2012b; Young et al., 2021) and allow for more flexibility and better adaptation (Amirkhanyan, 2009; Amirkhanyan et al., 2012; Bertelli & Smith, 2010; Blomqvist & Winblad, 2022; Gibbons, 2005; Lamothe & Lamothe, 2012b; Malatesta & Smith, 2014; Young et al., 2021).

Both competition and relationships have thus become important strands in the literature on the management and performance of government contracting. However, we do not yet have a good understanding of how they impact one another, specifically how the new emphasis on relationships might affect the competitive environment. By only considering the benefits to governments of investing in supplier relationships, we may be missing their unintended consequences. Similarly, if close relationships are needed to ensure good or adequate performance, we may be unaware that the logic of competition is no longer applicable in these instances.

The primary purpose of this chapter is to assess how prior relationships between government buyers and suppliers shape the future market environment. I argue that we should expect strong pre-existing relationships to dampen competition. When the people responsible for managing government contracts have spent time working with and getting to know a supplier, or set of suppliers, they are incentivized to favour them in future competitions for the contract. Precisely because prior relationships benefit contract management, we can expect contract managers to value them in future awards, thus advantaging current or former suppliers.

I argue that relationships will harm competition primarily through the mechanism of bureaucratic discretion. I propose that the incentives for contract managers to stick with a supplier they know and trust may lead them to spend less effort advertising the contract. Furthermore, contract managers may use discretion afforded them by the contract award criteria to account for the value of previous relationships and thereby favour suppliers with whom they have already worked. I contend that these decisions to award the contract to the same supplier or set of suppliers then send signals to the market that dissuade potential competitors.

I test this theory using a novel dataset describing relationships between UK government organizations and their suppliers between 2006 and 2019, and the level of competition at each contract award. The data were derived from UK procurement announcements published in the *Official Journal of the Euro-*

pean Union (European Union, 2023). I identify relationships between organizations awarding and those awarded public sector contracts using supervised learning techniques and construct variables that describe the strength of those relationships. I use this original dataset to test whether the strength of prior relationships (measured by the proportion of previous contracts won by suppliers with a pre-existing relationship) affects the level of competition (measured by the number of bids received). I estimate a model of the association between prior relationship strength and competition, with fixed effects for contract, awarding organization, and time. I also investigate bureaucratic discretion as a plausible mechanism linking relationships and competition and reject alternative mechanisms based on governments' buying power and revolving doors.

As hypothesized, I find a significant negative association between the strength of previous buyer-supplier relationships and the number of bids received. The results also suggest that this relationship is produced, at least in part, by government buyers considering the value of prior relationships in their awarding decisions when they have the discretion to do so, and thereby dissuading potential competitors from bidding. I also find some evidence that contract managers restrict competition in how they advertise contracts when they have stronger relationships with previous suppliers. When government buyers are not able to consider their history with suppliers in their awarding decisions through subjective award criteria, stronger relationships are associated with shorter deadlines for suppliers to bid. The findings suggest that by developing strong relationships with suppliers and considering those relationships in their contract award decisions and the way they advertise contracts, public managers may be intentionally or unintentionally undermining competition.

This chapter makes several contributions to literatures on relationships in government contracting and on competition in markets for government contracts. It presents an original dataset documenting the evolution of contracting relationships in the UK. In addition, it advances scholarship on relational governance by exploring the potential trade-off between competition and in-

vesting in relationships with existing suppliers. In this way, it responds to calls for more investigation of the negative consequences of close alliances between governments and external suppliers (Entwistle & Martin, 2005; McEvily et al., 2003; Zaheer & Harris, 2006) that has so far been lacking from this literature. The findings discussed in this chapter suggest that there is indeed a trade-off between investing in existing relationships with suppliers and engaging with others in the market to stimulate competition and that, by prioritizing the former, governments may limit competition for their contracts. Furthermore, this chapter contributes to the study of uncompetitive markets for government contracts. It offers a possible explanation for the market consolidation that has been observed in the UK and similar countries (Bel & Fageda, 2011; Davies, 2007; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000). The findings also present a plausible reason why initially competitive markets often become less so over successive rounds of contracting (Dijkgraaf & Gradus, 2008).

2.1 Relationships and competition for government contracts

Concern that suppliers will exploit gaps in government contracts has long been a focus of the literature on public service contracting (Brown et al., 2010b; Hart et al., 1997; Sclar, 2000). When some elements of the service cannot be measured or specified in a written contract, the contract is incomplete and suppliers have little incentive to perform well in these areas. Without information about their performance, a buyer can neither punish a supplier for failure nor reward them for success. As a result, rather than behaving consummately and aiming to perform well in all areas, the rational course of action for a supplier is to focus instead on the smaller portion of the service that can easily be evaluated and cut costs elsewhere. What is often termed "quality shading" in the literature is a common occurrence in government contracting, as public services frequently comprise elements that are hard to measure (Domberger & Jensen, 1997; Elkomy et al., 2019; Hart et al., 1997; Jensen & Stonecash, 2005; King & Pitchford, 1998; Lopez-de-Silanes et al., 1997; Sclar, 2000).

Furthermore, the trend to contract out increasingly complex public services, such as social care, prisons and probation, and welfare programmes, observed especially in anglophone and Scandinavian countries (Alonso & Andrews, 2016; Bauer & Johnston, 2020; Greer et al., 2018; Jilke et al., 2018; Petersen et al., 2015), has intensified the literature's preoccupation with the risks of incomplete contracts and quality shading. The examples of contracting failures given in Chapter 1 are particularly common in these complex service areas and illustrate the ways in which suppliers can exploit the gaps in government contracts and the resulting information asymmetries. In the UK they have included excess deaths in health services (Goodair & Reeves, 2022; Provan, 2022), and mistreatment of detainees in the immigration (Bancroft, 2023; Gentleman, 2021; Taylor, 2021b; Townsend, 2013; Wallis, 2023) and youth justice systems (Financial Times Editorial Board, 2021; House of Commons Justice Committee, 2021).

Unsurprisingly, practitioners and scholars alike have looked for ways to mitigate these risks and to encourage government suppliers to focus on all aspects of performance. A major strand of the literature has emphasized the value of strong prior relationships in navigating contracts for complex services and preventing contract failure. These studies have drawn on ideas of relational governance from the wider study of interorganizational alliances, which posits that a prior relationship—in which parties can develop a range of relational assets, including trust, knowledge of each other's working practices, and a common understanding of a service's objectives—gives both sides confidence that their counterparts will not exploit the ambiguities in a contract (Lee & Cavusgil, 2006; Macneil, 1987; Ouchi, 1980; Poppo & Zenger, 2002; Vandaele et al., 2007). Scholars of government contracting and other cross-sector collaborations have understandably found these ideas useful in the study of the public sector, where the nature and context of relations between governments and their external partners are becoming increasingly complex (Beinecke & DeFillippi, 1999; Bertelli & Smith, 2010; Brown et al., 2016; Chuang et al., 2020; Van Slyke, 2007; Young et al., 2021). Crucially, scholars of relational governance in both public sector and other contexts agree that continuity of relationships is

both a necessary condition for relational governance to function and a natural result of the collaboration that it encourages (Bertelli & Smith, 2010; Grafton & Mundy, 2017; Poppo & Zenger, 2002; Poppo et al., 2008).

A supplier's history of working with a buyer, and the expectation that this relationship will continue in the future, encourages that supplier to adopt practices that improve performance. When a buyer has built a strong relationship with a supplier, that supplier is more likely to make specialized investments to improve performance, for example in staff training or new equipment (Felli et al., 2011; Van Slyke, 2007). The supplier is also more likely to be open about problems and share information at an earlier stage, which leads to quicker resolution and greater possibilities for learning (Amirkhanyan et al., 2012; Barney & Hansen, 1994; Bertelli & Smith, 2010; Blomqvist & Winblad, 2022; Girth, 2014; Grafton & Mundy, 2017; Lamothe & Lamothe, 2012b; Lee & Cavusgil, 2006; Young et al., 2021). Government buyers may also be able to give suppliers more flexibility in how they deliver the contract, when they have built trust in each other over the course of their relationship. This allows suppliers to adapt delivery arrangements to changing circumstances more easily or to apply their own expertise and learning (Amirkhanyan, 2009; Amirkhanyan et al., 2012; Bertelli & Smith, 2010; Blomqvist & Winblad, 2022; DeHoog, 1990; Gibbons, 2005; Lamothe & Lamothe, 2012b; Lee & Cavusgil, 2006; Malatesta & Smith, 2014; Young et al., 2021).

While the benefits of prior relationships have been well documented by this literature, the risks and costs are less well studied. This chapter investigates one possible trade-off for public managers: between maintaining a competitive market and investing in relationships to manage incomplete contracts. Examining this trade-off is an important starting point in investigating the unintended consequences of prioritizing relationships in contract management. As I outline at the start of this chapter, the benefits of introducing market forces into public service delivery are core to the original argument for contracting public services and are still widely used by politicians and government organizations to justify the practice. If governments must compromise on market competition in order to develop the relationships needed to manage gaps in a contract, this

brings into question the applicability of competition as rationale for contracting out complex public services.

For the purposes of the following analysis, I adopt a definition of prior relationships implied by the above literature on their benefits: organizations' experience of working together to deliver a contract. It is this experience of working together that facilitates the repeated interactions necessary to develop mutual understanding and trust, thus encouraging consummate behaviour (Amirkhanyan et al., 2012; Ansell & Gash, 2008; Bertelli & Smith, 2010; Brown et al., 2016; Forrer et al., 2014; Gazley, 2008; Rho, 2013; Van Slyke, 2009). When a contract's history is dominated by one supplier or set of suppliers, those suppliers will have had greater opportunities for repeated interactions with the awarding institution than those who have spent less or no time delivering that contract. We can therefore expect the former to have developed more of those relational assets that are beneficial in managing complexity and incompleteness.

The above definition implies a relationship between *organizations* that exists within the domain of a *single contract*. An example of this might be a contract for home care for people with disabilities that is awarded by a municipal government every five years. The contract will result in relationships between the government and each supplier that is awarded the contract. There are many possible definitions of a prior relationship that are broader and encompass the professional or personal connections of individual managers working on a contract or organizations' experiences of working together on other contracts or in other capacities. For instance, the scenario above may also produce other relationships and interactions which are not within the scope of this definition. One or more of the contract's suppliers may also provide or have provided residential care to the same government through a different contract, or individual contract managers and supplier employees may have worked together for different organizations.

Adopting this relatively narrow definition here is appropriate for both theoretical and methodological reasons. First, working relationships between

organizations persist over the lifetime of a contract, while individual employees come and go. It is primarily interorganizational relationships that are the subject of the existing literature on relational governance and my theory focuses on the influence of these relationships on competition. Second, as already mentioned, previous literature on the value of relationships emphasizes their use in navigating the gaps in a specific contract. As it is this benefit that I suggest produces their dampening effect on competition, it follows that I should focus on relationships developed within a single contract. Finally, accounting for the influence of individual career trajectories and the history of interorganizational relationships across multiple contracts would lead to an overly complex and impractical measurement strategy.

While individually both competition and strong relationships between governments and suppliers have been shown to enhance performance, improving one may come at the expense of the other. In fact, when we examine the conditions that are necessary for each, competition and strong prior relationships do not appear to be compatible. Competitive markets are characterized by relationships between buyers and suppliers that are begun and ended relatively easily (Brown & Potoski, 2004; Williamson, 1981, 1985b). In contrast, developing a close, trusting relationship requires a considerable investment on both sides and a commitment to a shared future (Blau, 1986; Macneil, 1987; Ouchi, 1980; Poppo & Zenger, 2002; Poppo et al., 2008; Uzzi, 1997). Environments that foster close working relationships are thus markedly different to those in which competition flourishes; intuitively we should expect one to undermine the other. Here, I set out in detail why this should be the case and present a central hypothesis that competition and relationship strength are negatively associated. I argue that the primary mechanism driving this relationship is bureaucratic discretion and present a set of hypotheses that I will use to test this theory. I also consider alternative mechanisms and ways they may be ruled out.

Theories from transaction cost economics, and in particular Oliver Williamson's concept of "asset specificity", are helpful in understanding the trade-off between relationships and competition. Williamson (1996) defines

asset specificity as "the degree to which an asset can be redeployed to alternative uses and by alternative users without the sacrifice of productive value" (p. 59). Relational assets such as trust and accumulated knowledge about another party's goals, motivations, and ways of working fit this description, as they are almost useless when deployed outside the relationship in which they were acquired (see also Williamson, 1971, 1975, 1985b, 1996). Therefore, when a government invests in their relationships with a supplier, they increase the asset specificity of the contract they have with them.

Asset specificity increases transaction costs—the costs to both parties of the contract changing hands—and thereby produces an advantage for current or former suppliers. A supplier, having invested in the relationship, loses out if they are replaced before they have had a chance to recoup their costs. At the same time, the buyer must begin afresh with a new supplier and take the risk that this supplier does not cooperate or make an equivalent investment in the relationship. The buyer arguably stands to lose most. Not only will they lose their investment in the old relationship, they must also start building a relationship from scratch with a new supplier. In the meantime, they must also bear the costs of working with a supplier whom they do not know. When working with a supplier who has held the contract before, each side has knowledge that would not exist in a new relationship: understanding of the other's internal procedures, ways of working, and the most effective ways of communicating. Likewise, the tacit understanding the current supplier has developed of the buyers' objectives for the contract and the service's particular history and context will be lost if that supplier is replaced. Buyer-supplier pairs who have worked together before can draw on their investments in the prior relationship from the beginning of the contract, thereby saving time and money and facing a lower risk of potentially costly miscommunications.

As a result of the high transaction costs caused by asset specificity, Williamson et al. (1981) argue, contracting parties "will make special efforts to design an exchange relation that has good continuity properties" (pp. 1546–1547). This process is what Williamson (1985b) refers to as the "fundamental transformation" of an initially competitive market into a noncompetitive bilat-

eral exchange relationship. In other words, buyers have strong incentives to continue working with suppliers with whom they already have a relationship.

It is precisely the benefits of strong working relationships that mean they are likely to undermine competition. When they have developed stable relationships with a supplier or set of suppliers, contract managers are encouraged to continue working with those same organizations. New challengers therefore face a harder task than past suppliers in bidding for the contract, as they must not only outperform their competitors, but also make up for the cost and risks of starting a new relationship. It is important to note that a supplier's prior relationship with a buyer need not be wholly positive for the relational assets described above to be developed and for that supplier to possess an advantage over competitors. In service areas with high levels of risk, complexity, or uncertainty, simply being a known quantity may constitute a considerable advantage.

The predictions made by transaction cost theory are consistent with several studies of relationships in government and business-to-business contracting, which note that commitment to a shared future is a crucial ingredient for developing collaborative working relationships and facilitating cooperation (Amirkhanyan et al., 2012; Bertelli & Smith, 2010; Brown et al., 2007, 2010b, 2016; Chuang et al., 2020; Forrer et al., 2014; Gazley, 2008; Ouchi, 1980; Poppo & Zenger, 2002; Van Slyke, 2007; Vandaele et al., 2007; Young et al., 2021). In order to cooperate, parties must anticipate that the relationship will continue long enough for them to derive some benefit from cooperation (Ansell & Gash, 2008; Edelenbos & Klijn, 2007; Grafton & Mundy, 2017; Poppo et al., 2008). Furthermore, repeated interactions between parties to a contract over an extended period of time enable both sides to develop a better understanding of each other's objectives and to formulate shared goals (Amirkhanyan et al., 2012; Ansell & Gash, 2008; Bertelli & Smith, 2010; Brown et al., 2016; Forrer et al., 2014; Gazley, 2008; Rho, 2013; Van Slyke, 2009).

The relationship a supplier has with a government buyer may even increase asset specificity in other areas by giving the supplier confidence to make

further specialized investments, for example in equipment, new premises, or staff training (Felli et al., 2011; Van Slyke, 2007). If this happens, potential competitors are doubly disadvantaged. They will have neither the relational assets of previous suppliers nor the additional assets that incumbents have acquired on the strength of their relationship with the government.

When public managers have the discretion to do so, we can therefore expect them to favour suppliers who have worked on a contract before. Recent studies have found that public managers do exercise discretion available to them to advantage incumbents (Coviello et al., 2018; Volker & Schotanus, 2023), as well as firms with political connections (Boland & Godsell, 2021; Szucs, 2023). One option available to public managers is to put off re-advertising the contract, perhaps by extending the current contract (Brown et al., 2007). After all, why engage in a costly award process when you have little interest in changing supplier? Public managers may also devote less time and money to advertising the contract or engaging with the market (Fazekas & Kocsis, 2020). For example, they may refrain from additional marketing activities such as attending or organizing events where they might meet potential suppliers.

This chapter adds to existing research that examines the effects of bureaucratic discretion on contract managers' behaviour by examining downstream effects on future competition. I hypothesize that when governments invest in existing relationships and favour a known supplier or set of suppliers, competition for future awards of that contract will suffer. Through the discretion they have in how they invite and assess bids, public managers can actively prevent or dissuade potential suppliers from competing. They may restrict competition *ex ante*, for example, by advertising the contract for a shorter period of time. They may also factor relationship history into their award decisions *ex post*, sending a signal to the market for future contract awards that suppliers without a long-standing relationship are at a disadvantage. The first and central hypothesis of the chapter is therefore:

Hypothesis 1: *Stronger prior relationships are associated with lower competition.*

I am also able to investigate both *ex ante* and *ex post* mechanisms linking prior relationship strength to future competition through bureaucratic discretion. First, I consider how public managers may influence competition for government contracts through their engagement with the market in *advance* of a contract award. When they have invested in a relationship or relationships with one supplier or set of suppliers, I expect contract managers to be less inclined to engage in the activities necessary to stimulate competition for a contract, which are often costly (Johnston & Girth, 2012). Why would they go to the effort, when they expect to derive little benefit from switching and could jeopardize the relationships they already have?

One way of testing this is to examine how prior relationships influence the length of time government buyers give potential suppliers to submit bids. Longer advertisement periods entail a greater investment of time and effort on the part of government buyers, as they require staff to answer queries from potential suppliers and time to evaluate the additional bids received. They also demand greater forward planning by governments to avoid delays to projects, or interruptions in services, that are dependent on the contract being fulfilled. Therefore, when governments face lower incentives to attract new suppliers because they have strong relationships with their previous suppliers, we can expect them to advertise contracts for shorter periods of time.

Reducing or refraining from engagement with the market can have a profoundly limiting effect on competition, as potential competitors may either remain unaware of the opportunity or take the lack of effort as a discouraging signal. Most markets for public service contracts require some degree of market management by public managers to maintain competition. Neglecting this can have a considerable detrimental impact on the market environment (Brown & Potoski, 2004; Brown et al., 2006; Girth et al., 2012; Johnston & Girth, 2012; Van Slyke, 2003).

Short advertisement periods may reduce the number of bids a government receives in several ways. First, they restrict the number of suppliers who are aware of the contract, as suppliers without inside knowledge may not see

the advertisement in time to bid. Second, they reduce the ability of competing suppliers to submit a bid of sufficient quality, as suppliers who are less familiar with the contract and have not had advance warning of the advertisement will require more time to produce a bid. Finally, shorter deadlines signal to the market that the buyer may already have a preferred supplier in mind and is less open to competing offers. For these reasons, previous research has shown that short advertisement periods are associated with fewer bids and are an indicator of corruption in government procurement (Fazekas & Kocsis, 2020; Fazekas & Tóth, 2016; Fazekas et al., 2016).

By offering potential suppliers shorter deadlines to submit bids, government buyers may therefore restrict competition *ex ante* and advantage suppliers with whom they already have a relationship. In doing so, they both avoid the costs of longer advertisement periods and are able to prioritize their relationships with existing suppliers, who will have advance notice that a contract is coming to an end and greater familiarity with the contract requirements. If this mechanism is in operation, we would expect to see a negative association between prior relationship strength and the length of the advertisement period. Consequently, a second hypothesis is:

Hypothesis 2: *Contracting organizations will advertise contracts for shorter time periods when they have stronger prior relationships.*

Contract managers may also influence the competitive environment for a contract through their evaluation of bids *after* the contract has been advertised. Some jurisdictions, such as the US, allow the official contract award criteria to incorporate a consideration of a supplier's past performance delivering that contract (Federal Acquisition Regulation, 2023, Pt 15.304(c)). However, even if this is not the case—as under EU rules, for example (Directive 2014/24/EU, 2014)—public managers are afforded a level of discretion when the criteria by which bids are assessed include quality measures. Quality measures are necessarily subjective and therefore prior knowledge of a supplier may come into play when interpreting and assessing suppliers against these criteria.

When contract managers have discretion over the contract award, potential competitors may be dissuaded from bidding if they know that one or a small number of rivals already have an established history providing that contract. Bidding for a government contract requires a considerable investment of resources from potential suppliers (Brown & Potoski, 2003a; Brunjes, 2020; Petersen et al., 2022; Potoski, 2008), therefore existing competitors and potential new entrants may look elsewhere for opportunities if they think they are unlikely to be successful. In this way a combination of prior relationships and the criteria by which bids will be evaluated could dampen competition for future contracts by sending discouraging signals to the market.

I am able to test this mechanism by comparing contracts with and without quality criteria. Contracts may either be awarded to the lowest bidder or by a combination of price and quality criteria. For this mechanism to operate, the criteria used to award a contract must allow for some degree of discretion in choosing a supplier. When contracts are awarded based on price alone, there is no such discretion, so this mechanism cannot apply. Therefore, if this mechanism does contribute to a negative association between prior relationship strength and competition, the effect of relationship strength will be greater in contracts awarded on the basis of both price and quality, compared to price alone. The following hypothesis provides a test for this mechanism:

Hypothesis 3: *Stronger prior relationships will have a larger negative association with competition when contract awards include quality criteria.*

Several rival mechanisms that may account for an observed negative relationship between the strength of prior buyer-supplier relationships and competition must also be considered. One is that strong prior relationships could alter the competitive conditions of future contract awards through governments' substantial buying power. Governments often have considerable monopsony or oligopsony power in the markets from which they buy public services. They frequently must create or develop markets for services they wish to contract out and thus act as the only buyer, or one of a small number of buyers, in those markets (Brown & Potoski, 2004; Girth et al., 2012; Krachler & Greer, 2015;

Lamothe, 2015; Sclar, 2000). This is especially true for specialized or complex public services (Van Slyke, 2003), which is the very same context in which contracts are likely to be incomplete and in which pre-existing relationships will be a particular asset to contract managers. Governments' buying choices can therefore substantially shape the market and the range of opportunities available for potential competitors. Continually awarding contracts to a few trusted suppliers could therefore lead to the financial failure of those suppliers not chosen, or force them to abandon that particular market.

Likewise, government buyers can reduce the number of opportunities in a market by designing larger contracts and advertising them less frequently. Public managers responsible for managing contracts might do this when prioritizing the development and maintenance of relationships with their suppliers, because of the effort it takes to cultivate close working relationships (Brown et al., 2007). Managing commercial relationships is a skilled and time-intensive task (Lamothe & Lamothe, 2012b) and governments are frequently under-resourced in this area (Brown & Potoski, 2003b; Provost & Esteve, 2016; Rubin, 2006; Young & Macinati, 2012). Consequently, they may attempt to reduce the number of relationships to a manageable level by bundling services together into larger contracts. Indeed, several studies have observed a trend for public contracts to increase in scope over time, resulting in market consolidation (Bel & Fageda, 2011; Davies, 2007; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000).

Collectively, this behaviour would reduce the number of opportunities in the market and limit the number of suppliers who could bid, as many may not have the skills or capacity to fulfil larger, more varied contracts. This rival mechanism does not depend on the presence of subjective award criteria. Government buying power and changes in contract specifications can produce market consolidation regardless of the criteria by which contracts are awarded. If we observe a negative association between prior relationship strength and competition for contracts awarded on price alone, as well as those that include quality criteria, this mechanism may be in operation. I therefore reflect on this possibility when discussing the results in Section 2.5.

Alternatively, prior relationships could dampen competition through a revolving-door mechanism. Barbosa and Straub (2020) identify that, in the case of Brazilian health procurement, the government buys more from a supplier at equal or larger prices when former employees of that supplier move into the administration. They suggest that these public managers may be restricting competition as a favour to their previous employers. Supplier-to-government career moves are likely to be more common when the organizations have a closer working relationship, therefore a negative association between relationship strength and competition could be produced via this route.

While a revolving-door mechanism may be plausible, it is unlikely to be responsible for any associations observed in the following analysis. The identification strategy I use to examine this chapter's central hypothesis (H1), discussed further in Section 2.4, renders improbable the possibility that a revolving-door mechanism accounts for anything but a trivial part of any relationship. Including contract-level fixed effects means that were this mechanism in operation, any negative association identified by the analysis would have to be produced by within-contract movements. In other words, the association would be the result of individuals who formerly supplied a specific government contract going on to manage the advertisement and award of that very same contract. I make the assumption that such instances are rare enough to render negligible their contribution to any associations I observe. In the UK case, which has consistently low scores on indicators of corruption in its procurement market (Fazekas & Tóth, 2016; Wachs et al., 2020) and where civil servants are bound by the Civil Service Code to disclose and avoid such conflicts of interest (UK Civil Service, 2015), instances of this type of supplier-to-government move are especially implausible and therefore such an assumption seems justifiable.

Furthermore, in the same paper, Barbosa and Straub (2020) find a positive effect on the efficiency of public procurement when government employees go on to work for supplier organizations, as public managers wish to signal competence to potential employers. Rather than favouring supplier organizations with which they have relationships, and for which they hope to work in the

future, they actually run more evenhanded procurement processes. If revolving doors are responsible for changes in competition for government contracts, then these two effects should neutralize one another.

There is no reason to suspect that one of these effects would prevail over the other in the data used in this chapter. If anything we might expect government-to-supplier moves to be more common, as the private sector in the UK offers a wage premium for high-skilled jobs such as commercial management, compared to the public sector (Office for National Statistics, 2020). Therefore, while this mechanism could be investigated through other identification strategies and using other data, it is unlikely to account for any influence of prior relationships on competition observed in the analyses presented here. The following section further describes the context of UK public procurement and motivates the use of the UK as a case to test this chapter's hypotheses.

2.2 Public procurement in the United Kingdom

Contracting out has become common practice in UK public service delivery. Since it was introduced in the 1980s, the proportion of public services provided by private and nonprofit suppliers has continued to grow. The UK now spends more on contracting than on providing services itself (National Audit Office, 2016) and by 2021-22 the total value of central government procurement spend was £259 billion per year (National Audit Office, 2023). The UK has also been one of the countries at the forefront of the trend to expand the use of contracts into core and highly complex public services (Petersen et al., 2015). These include, but are not limited to, health and disability assessments, probation services, and mental health services (House of Commons Committee of Public Accounts, 2014).

In recent years, the UK government has also made a concerted effort to improve the practice of contract management across the civil service and wider public sector. Following a series of prominent contract failures, and motivated by a desire to eliminate sources of waste in public budgets in the wake of the Global Financial Crisis, the coalition government under David Cameron insti-

tuted a series of reforms to the government's commercial activity (Gash, 2017). These initiatives included strands focusing on both relationship management and developing closer working relationships with suppliers, and on more active management of markets for public services (see for example National Audit Office, 2016).

The UK presents several advantages for studying the effect of relationships on competition for government contracts over time. First, the extent of contracting out in the UK means that there are an abundance of data across different types of services and government organizations. Second, the UK's status as an early adopter of contracting means that these data stretch back far enough to assess how competition changes when the same contracts are awarded repeatedly. I am therefore able to examine the role of buyer-supplier relationships in this process and their evolution over time. The introduction of Compulsory Competitive Tendering by the Thatcher government rapidly expanded the UK market for public services. This sharp increase in the 1980s meant that by the time the data considered here start in 2006, the UK contracting landscape had become relatively stable compared to other countries who moved later. While there have been economic and political shocks during the period under consideration—and I account for these in my analysis—the UK data represent a picture of contracting out in its established form.

We can therefore expect the findings from the UK context to apply to other countries with an established practice of contracting out operating under similar procurement rules. This includes countries that began later than the UK but have since developed a stable contracting practice, such as the Netherlands or Scandinavian countries. While the UK is no longer part of the EU, during the period covered by the data, it was either a member state or was bound by EU procurement rules. Therefore, we would expect to find similar contracting environments in other EU countries and countries that operate under similar procurement procedures.

In many ways, the UK case sets a high bar for the theory presented in this chapter. Firstly, EU regulations are some of the most stringent in the world and

are aimed directly at eliminating anticompetitive practices, in order to facilitate cross-border trade within the bloc (Telles, 2022, pp. 216–217). The maintenance of fair and open competition is prized highly in the EU system, in contrast to others that aim to strike a balance between flexibility, discretion, and competition. For example, under US federal procurement rules, government organizations may include past performance as part of their official selection criteria (Federal Acquisition Regulation, 2023, Pt 15.304(c)). However, the way in which experience with a supplier can be considered in the award decision is much more narrowly defined under EU law. Past performance can only be used to exclude a supplier from bidding, and only then when failings have been "significant or persistent" and have led to "early termination of that prior contract, damages or other comparable sanctions" (Directive 2014/24/EU, 2014, Art. 57(4)).

Notwithstanding very recent scandals during the COVID-19 pandemic, which are not included in the data, the UK has also been one of the strictest adherents to EU principles. Perhaps because of its history as a proponent of the benefits of competition in public service delivery, it has consistently low scores on indicators of corruption in its procurement market (Fazekas & Tóth, 2016; Wachs et al., 2020). If prior relationships have an influence on contracting decisions and practices in the UK, then this influence is likely to hold in countries with more relaxed procurement rules and where public officials are more likely to bend, or even break, those rules.

2.3 Data

The data comprise contracts for public services awarded in the UK between 2006 and 2019. I constructed a novel dataset from procurement announcements published in the *Official Journal of the European Union* and online in *Tenders Electronic Daily* (European Union, 2023). Publication is compulsory for contracts with values above certain thresholds, which depend on the type of contracting

authority and the kind of good or service to be provided.[1] In the period considered here, the UK operated under EU procurement rules and was therefore required to publish contracts meeting these thresholds. A subset of contracts for services that were awarded by UK government organizations was taken from the dataset published by the EU online.[2]

I used a supervised learning approach to identify instances of the same government buyers and supplier organizations, in order to assign them consistent identifiers. Using these, I was able to identify instances of the same contract being awarded over time and ongoing relationships between suppliers and buyers. I also linked the resulting dataset with data on the length of contract advertisement periods generated by the DIGIWHIST project[3] in order to test H2.

Contract advertisements that were cancelled before a supplier was appointed were excluded, as were contracts awarded through a third-party, for example through a framework agreement or joint procurement. The latter decision rests on the assumption that relationships formed through the delivery of previous contracts were unlikely to play a role in award decisions taken by actors other than those involved in the day-to-day management of those contracts. The experience of buyers and suppliers working together to provide an ongoing service is central to the theory presented above, therefore only contracts for services, as opposed to those for works or supplies, are included. This yielded an initial dataset of 178,105 contract awards.

2.3.1 Identifying and measuring prior relationships

In the original published procurement notices, government organizations awarding contracts and the winning supplier or suppliers are given by a raw text string at the contract award level rather than by unique identifiers. This creates a problem when seeking to analyze relationships between buyers and

[1] The thresholds for services contracts in 2019 were €144,000 for central government (excluding defence), €443,000 for defence and utilities, and €221,000 for other contracting authorities, such as local governments.

[2] Data are available to download at https://data.europa.eu/euodp/en/data/dataset/ted-csv.

[3] For further information and to download data, see https://digiwhist.eu/resources/data/.

suppliers over time, as those organizations are not consistently recorded in successive contract awards. Generating unique identifiers is a considerable computational challenge. For a dataset of N potentially distinct organizations, up to N^2 comparisons may be required. As an indication, the data used here contain 60,237 potentially unique buyers and 103,127 potentially unique suppliers, resulting in the region of 14 billion necessary comparisons. I therefore create an algorithm to identify strings referring to the same buyers and suppliers in the data, following the approach outlined by Christen (2012). Full details of these steps are given in Appendix A.1.

The resulting data allow me to identify ongoing relationships between government buyers and suppliers over successive contract awards with much greater confidence than using exact matches of the original raw text strings. To illustrate, identifying organizations based on unique name matches yields 8,005 unique buyers and 40,873 unique suppliers. By comparison, my approach identifies 4,149 unique buyers and 25,693 unique suppliers.

While errors remain, I do not expect them to lead to systematic bias or overestimation in the analysis. There are no reasons to suspect that instances of Type I errors—identifying relationships where there are none and thereby overestimating their strength—or Type II errors—disregarding buyer-supplier relationships that are present and thereby underestimating their strength—should be correlated with any of the dependent variables considered. Nevertheless, readers should remember that this is an assumption of the analysis when interpreting the results.

To identify the same service being repeatedly contracted over time, I grouped contract awards by their awarding entity and the service to be delivered, and then ordered them by the date of award. I distinguished between services using the main Common Procurement Vocabulary code listed for the contract. These codes describe specific products and services to be provided through a public contract (European Commission, 2008). I assume that contract awards with the same code awarded by the same organization represent a single contract being awarded over time. While this is a strong assumption,

I expect that prior relationships developed through different contracts in the same domain will operate similarly in terms of their effect on market competition, as theorized in Section 2.1.

I measure the strength of governments' prior relationships with their suppliers ($Relationships$) as the proportion of contract awards made to a supplier who had previously held that contract. This was calculated by looking back at past instances of the contract and generating a cumulative tally for the number of winning suppliers who also won the contract in an earlier time period. I then divided this number by the total cumulative tally of awards made up to that time. Table 2.1 illustrates how this variable is constructed for a hypothetical contract with multiple winners. While this measurement of relationship strength is not as intuitive as other measures, such as duration of the relationship with the incumbent or a simple count of previous contracts won by the incumbent, it has several major advantages.

First, reliable information about contract duration is not available in the original contract award data. Information about contract duration is either not present at all or is a prediction made with varying accuracy at the time of advertisement. Second, my measurement strategy is able to deal with contracts awarded to multiple suppliers, which as I have already noted, is a common occurrence in the data. Looking at individual relationships with each supplier would produce multiple measures of relationship strength for each contract. In contrast, taking contract awards made to suppliers with a prior relationship as a proportion of total awards made to date generates a single variable that is also comparable with instances of awards to a single bidder (see Table 2.1). Finally, calculating relationship strength as a proportion of all previous awards accounts for relationships across the full range of a contract's history, rather than focusing only on the incumbent supplier in any one time period. This captures situations in which there are a small number of suppliers with strong relationships with a buyer, where the incumbent might change between awards, but there nevertheless exist a set of favoured suppliers.

Table 2.1: Indicative example of the construction of the $Relationships$ variable with multiple suppliers.

	Award date	Winners	Tally of winners with prior relationship	Tally of total winners	Relationship strength
t_1	Jan 2006	Supplier A Supplier B Supplier C	*NA*	*NA*	*NA*
t_2	Mar 2008	**Supplier A** Supplier D	1	2	$\frac{1}{2} = 0.500$
t_3	Feb 2012	**Supplier B** **Supplier C** Supplier E	3	5	$\frac{3}{5} = 0.600$
t_4	Dec 2017	**Supplier A** **Supplier B**	5	8	$\frac{5}{8} = 0.625$
t_5	Nov 2019	**Supplier A** Supplier F Supplier G	6	11	$\frac{6}{11} = 0.545$

Note: Suppliers with a prior relationship are indicated in bold

2.3.2 Market competition

While on the surface market competition may appear to be a relatively simple concept to operationalize, considerable diversity in measurement still exists. When discussing problems associated with lack of competition, the literature tends to conceptualize competition as a continuous variable indicating the level of concentration in a market or the number of bids received for a contract (Brown et al., 2010b; Dijkgraaf & Gradus, 2008; Girth et al., 2012; Johnston & Girth, 2012; Kettl, 1993; Warner & Hefetz, 2008). However, when measuring the effects of competition on performance, studies have tended to operationalize competition either as a binary variable—indicating whether a service is delivered in-house or through the market (see for example Alonso et al., 2015; Domberger and Jensen, 1997; and Lindholst et al., 2018)—or a categorical variable—describing the extent to which procedures used to award the contract encourage competing bids (see for example Brunjes, 2020; and Lamothe, 2015).

Although related, the level of market competition and the use (or not) of competitive procurement procedures are distinct variables in the contracting process. The competitiveness of a procurement exercise is determined by the method by which bids are solicited and assessed, whereas competition within

a market is determined by the number of potential suppliers and their relative market shares. A notable recent exception in the literature assessing the effects of competition is Broms et al. (2020), who recognize this difference and assess the effects of competition on the quality of Swedish residential care facilities using a continuous measure: number of bids.

As I am ultimately interested in the competitiveness of the market, not the degree to which a contract was exposed to that market, I follow Broms et al. (2020) and measure competition as the number of bids received each time the contract is awarded ($Bids$).[4] Unfortunately, information about the market shares of competitors who submitted bids or those in the wider market is not available in the data, meaning that I cannot use a measure such as the Herfindahl-Hirschman Index that would take this aspect of market competition into account. Nor do the data contain information about the quality of bids that would allow me to assess how close the competition was between suppliers.

2.3.3 *Ex ante* restrictions

To understand whether past relationships encourage contract managers to restrict competition *ex ante* through the deadlines they set for bids (and test H2), I use data published by the DIGIWHIST, or "digital whistleblower", project. DIGIWHIST is an EU Horizon 2020 project which collects and structures micro-level data on public procurement transactions in the EU and neighbouring countries. The variable measuring the length of the advertisement period ($Advert\_length$) is defined as the number of days between a contract being advertised and the deadline for potential suppliers to submit bids. It is one of the five corruption indicators identified by Fazekas and Kocsis (2020) that significantly predict contracts receiving and being awarded to only one bidder (see also Fazekas & Tóth, 2016; Fazekas et al., 2016).

[4]This measure describes the number of full bids (tenders) that the government buyer received. Where a two-stage procedure is used, for example those that include a preselection stage, only the suppliers who progress to the second stage and submit a full bid are counted.

Short advertisement periods indicate that the awarding organization is not genuinely seeking competition for the contract and do not give potential suppliers sufficient time to find the advertisement and write a high-quality bid. Shorter advertisement periods also advantage incumbent suppliers, who usually have forewarning that the contract is coming up for award. I employ the continuous measure of advertisement period, rather than the binary "red flags" constructed by Fazekas and Kocsis (2020) to indicate corruption. The continuous measure is more appropriate for this research, as my aim is not to uncover serious wrongdoing, but to analyze the often subtle effects of prior relationships on market competition and contracting practices that evolve over time.

2.3.4 *Ex post* award discretion

Finally, a measure of the inclusion of subjective quality criteria in contract awards is needed, in order to examine the role of contract managers' *ex post* discretion in discouraging potential competitors (and test H3). Thankfully, the original procurement announcements provide information on the kind of criteria used to make the award. The type of criteria used to award a contract can take two values: "Lowest price" when the contract is awarded to the supplier that submits the lowest quote; and "Most economically advantageous tender" where the buyer combines a price criterion with an assessment of quality, which may be more subjective.

While the language of "economically advantageous" may suggest a primarily financial calculation, the purpose of this option is to allow government organizations to determine which bid is the most cost-effective, by factoring in a range of criteria that describe a bid's quality. Public managers awarding the contract then consider such quality measures alongside the price quoted to determine a price-quality ratio for each bid, which enables them to compare bids and identify a winner. I transform this information about the criteria used to award a contract into a dummy variable ($Quality$), which takes a value of 1 if quality criteria are used and 0 if a contract is awarded purely on the basis of price.

2.4 Methods

After identifying groups of contracts and computing the $Relationships$ variable, I excluded contracts for which there was insufficient history. These comprise one-off contracts and first awards of recurring contracts, which have no earlier instances in the data. I also excluded second awards of recurring contracts, as the regression models include a lagged independent variable. The whole process resulted in 34,961 observations of contract awards for analysis. Descriptive statistics are shown in Table 2.2. The length of advertisement period ($Advert\_length$) is only available for 1,368 of these observations and the same information is given for this subset in Appendix A.2.

Table 2.2: Summary statistics.

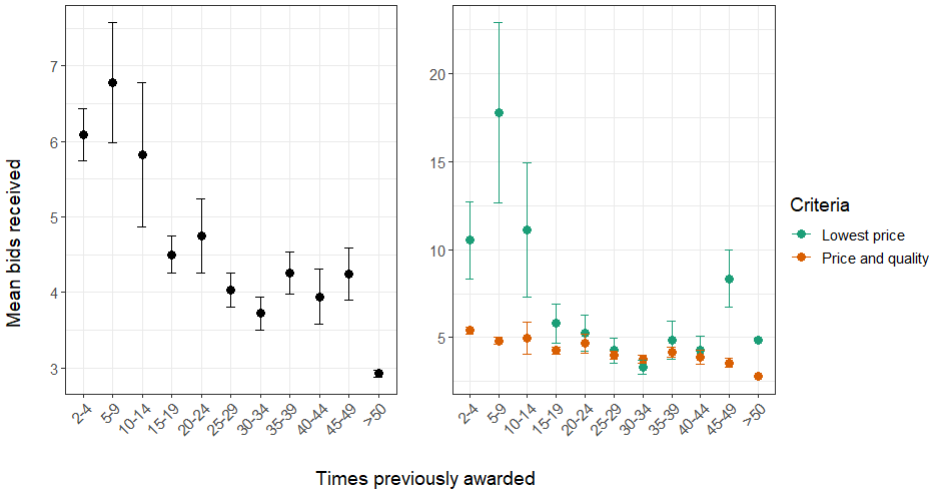
Variable	Mean	Standard deviation
Contract value (million €)	292.68	53 483.61
% previous winners with prior relationship	70.06	35.12
Bids received	3.87	16.29
Awards made	1.57	5.29

$N = 34\,961$

Figure 2.1 shows the average bids received against the number of times a contract has previously been awarded, overall (left) and by awarding criteria (right). In line with previous findings (Bel & Fageda, 2011; Davies, 2007; Dijkgraaf & Gradus, 2008; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000), competition for contracts represented by these data appears to decline over time. Interestingly this decline is more pronounced for contracts awarded solely based on price. Competition for such contracts starts out markedly higher than competition for contracts that include quality criteria, but the levels converge as time goes on.

An obvious source of confounding that could bias tests of this chapter's hypotheses is the possibility that smaller markets will themselves lead to higher values of prior relationship strength, presenting a problem of reverse causation. In more concentrated markets, governments are more constrained in their

Figure 2.1: Change in competition for contracts over time.



Note: Points represent the mean number of bids for contracts depending on the number of times they have previously been awarded and bars represent their standard errors.

choices and therefore more likely to award contracts to previous winners. If this bias is not corrected, then any association we observe between prior relationship strength and competition may simply be the result of already uncompetitive markets causing repeated awards to the same suppliers.

Another concern may be that underlying time trends, such as market contraction during the 2007-2008 Global Financial Crisis and the recession that followed, may account for declining competition between successive awards of the same contract. Competition may decline over time at the same time as buyer-supplier relationships develop, but the former may instead be the result of wider economic decline that leads suppliers to exit the market.

To account for these and other unobserved sources of time- and unit-invariant confounding, I estimate a two-way fixed-effect model with the following specification:

$$\log(Bids_{ijt}) = \gamma + \delta_i + \phi_j + \alpha_t + \beta_1 Relationships_{it-1} + \varepsilon_i \tag{2.1}$$

where $Bids_{ijt}$ is the number of bids received by awarding organization j for contract i at award period t, δ_i are contract-level fixed effects, ϕ_j are organization-level fixed effects, and α_t are time fixed effects. $Relationships_{it-1}$

is the lagged strength of prior relationships, which represents the strength of prior relationships at the point the contract was advertised.

This model provides an initial test of the chapter's main hypothesis, that stronger prior relationships erode market competition. The analysis compares changes in competition for the same contract over time. Therefore the effects estimated are identified from comparisons of awards of the same contract for which the level of prior relationship strength changes between time periods.

In order to test H3, I add an interaction term to the above model to assess the influence of subjective quality criteria on the association between relationship strength and market competition. This interaction model is specified as:

$$\begin{aligned}\log(Bids_{ijt}) = \gamma + \delta_i + \phi_j + \alpha_t + \beta_1 Relationships_{it-1} \\ + \beta_2 Quality_{it} + \beta_3 Relationships_{it-1} * Quality_{it} + \varepsilon_i\end{aligned} \tag{2.2}$$

I also add controls to both basic and interaction models for contract-level covariates that may change over time and therefore still produce confounding within the fixed-effect models. These models have the following specifications:

$$\log(Bids_{ijt}) = \gamma + \delta_i + \phi_j + \alpha_t + \beta_1 Relationships_{it-1} + \beta_2 X_{it} + \varepsilon_i \tag{2.3}$$

$$\begin{aligned}\log(Bids_{ijt}) = \gamma + \delta_i + \phi_j + \alpha_t + \beta_1 Relationships_{it-1} + \beta_2 Quality_{it} \\ + \beta_3 Relationships_{it-1} * Quality_{it} + \beta_4 X_{it} + \varepsilon_i\end{aligned} \tag{2.4}$$

where X_{it} is a vector of controls for contract value and procurement procedure, which are both contract- and time-varying.

Finally, to test H2, I estimate a linear regression model using contract awards for which there is a record of advertisement period duration. As these data no longer represent individual contracts being awarded over time, but rather a subset of the original data, they do not have a panel structure. Consequently, fixed-effect regression is no longer appropriate, so I estimate a multivariate linear model with controls at the contract (i) and organization (j) levels, as well as a time trend (T). This model is given by the following:

$$Advert\_length = \alpha + \beta_1 Relationships + \beta_2 X_i + \beta_3 X_j + \beta_4 T + \varepsilon \tag{2.5}$$

I also add an interaction term for $Quality$ to the above model, in order to examine how the availability of *ex post* discretion, in the form of subjective quality criteria, influences the use of *ex ante* discretion. This allows me to assess whether the extent to which contract managers limit or encourage competition at the advertisement stage is related to the level of discretion they have over the contract award. In addition, I estimate linear regression models of the relationship between advertisement duration and the logged number of bids, to verify that shorter advertisement periods do indeed restrict competition.

2.5 Results

Results of the two-way fixed-effect models, which constitute evidence for the main association between prior relationship strength and market competition, are displayed in Table 2.3. The central theory, that stronger prior relationships erode competition (H1), finds support. Models 1 and 2 show negative associations between the measure of buyer-supplier relationship strength and the number of bids for the contract, significant at the 0.05 level. Furthermore, the R^2 and adjusted R^2 indicate that these models have high explanatory power, suggesting that the influence of awarding decisions offers a good explanation for the decline in competition for government contracts observed in these data and by others (Bel & Fageda, 2011; Davies, 2007; Dijkgraaf & Gradus, 2008; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000). Contract-level controls do little to change this relationship, suggesting that changes over time at the contract- and organization-level in procurement procedure or contract value do not exert considerable influence on the number of bids received, when considered alongside prior relationships. Furthermore, these findings are robust to alternative measures of prior relationships. Results of identical model specifications, with prior relationships measured by a simple count of previous contracts won by the incumbent supplier in time t, are reported in Appendix A.3 and show significant results in the same direction as those reported in Table 2.3.

Table 2.3: Two-way fixed-effect regression estimates of effects prior relationship strength and quality criteria on number of bids.

	Dependent variable:			
	Log number of bids			
	(1)	(2)	(3)	(4)
Prior relationship strength	-0.077^{**}	-0.078^{**}	0.427^{***}	0.317^{***}
	(0.031)	(0.031)	(0.057)	(0.056)
Quality criteria			0.350^{***}	0.236^{***}
			(0.040)	(0.039)
Prior relationship strength × quality criteria			-0.546^{***}	-0.429^{***}
			(0.053)	(0.053)
Contract fixed effects	✓	✓	✓	✓
Organization fixed effects	✓	✓	✓	✓
Time fixed effects	✓	✓	✓	✓
Contract-level controls		✓		✓
Observations	34 961	34 961	34 961	34 961
R^2	0.483	0.488	0.484	0.489
Adjusted R^2	0.413	0.418	0.414	0.419

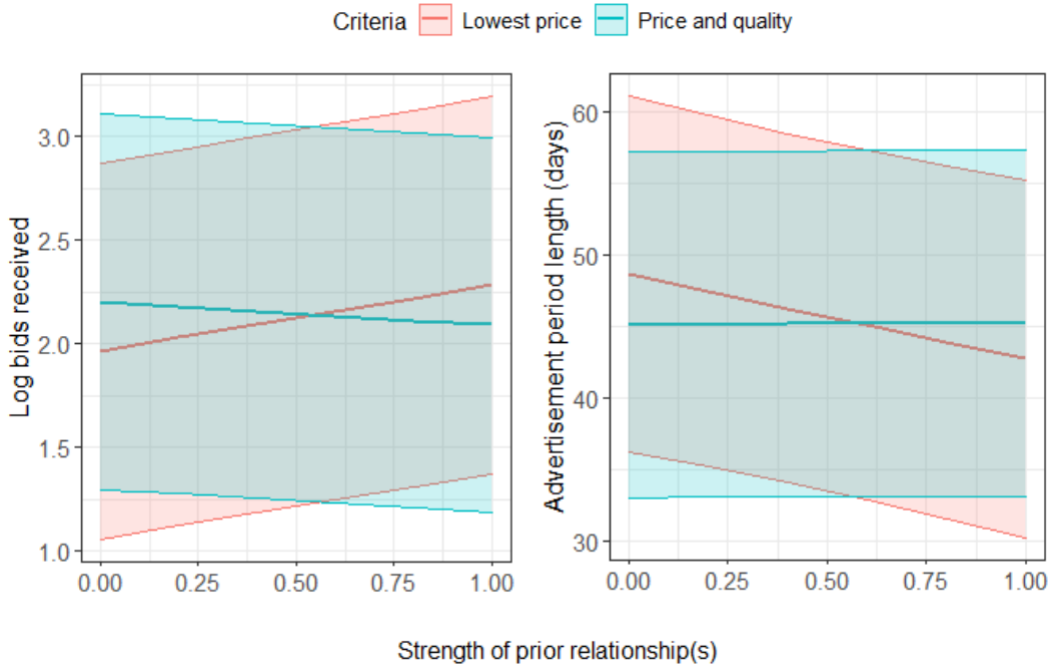
Note: *p<0.1; **p<0.05; ***p<0.01

Standard errors are panel-corrected and clustered at the organization level.

Turning to the theory that this relationship is underpinned by bureaucratic discretion, the addition of an interaction with $Quality$ in Models 3 and 4 allows us to understand the influence of *ex post* discretion in the contract award and test H3. I find support for the explanation that public managers send discouraging signals to the market, when contract award criteria offer them discretion to favour one or a small number or suppliers repeatedly. Once the interaction term is added, the negative association between prior relationship strength and competition is only retained for contracts where quality criteria are included. In other words, the restrictive influence of pre-existing contracting relationships on the number of bids received is driven entirely by contracts where the criteria used to assess those bids include subjective measures, which allow considerations of relationship history to come into play. This interaction is presented in the left pane of Figure 2.2. It is important to note that these results do not confirm that contract managers are in fact using quality criteria to privilege existing suppliers, but only that the negative association between the measures of relationship strength and competition only occurs in the presence

of this option. This finding suggests that the discretion managers have over contract awards is a plausible mechanism by which prior relationships dampen future competition.

Figure 2.2: Relationship strength and award criteria interactions.



Note: Lines represent predicted values and bars their 95% confidence intervals.

Models 3 and 4 also provide evidence to exclude the rival explanation that strong prior relationships cause market contraction by reducing the number of opportunities available to potential competitors, as discussed in Section 2.1. The effect of prior relationships on bids received becomes positive for contracts awarded on the basis of price alone, once the interaction term is added. When contract awards include no element of subjective judgement, repeated awards to a small number of suppliers are associated with *more* competition. This result suggests that government buying power does not act as a route by which repeated awards to the same supplier or suppliers harm competition.

Rather, this result aligns with neoclassical economic theories of market equilibrium, which predict that as a market becomes more concentrated, price competition reduces and the market becomes more attractive to new entrants, restoring equilibrium. Lowest-price contracts better enable this process, as bar-

riers to entry are relatively low. Bidders must only compete on price, rather than demonstrate the skills, previous experience, or investment in assets that would enable them to perform better than their competitors. This finding does however leave an open question about the dramatically downward trend in competition for lowest-price contracts depicted in Figure 2.1. If the prioritization of prior relationships is not driving this tendency, then what does account for it? Future research may usefully investigate this question.

When we turn to the way contract managers might influence competition *ex ante* through the length of time they allow potential suppliers to submit bids (H2), the results are more nuanced than originally hypothesized. Table 2.4 reports regression estimates of the effect of prior relationships on the length of contract advertisement periods. Models 5 and 6 show no significant overall associations between past relationships and the duration of the advertisement period. However, accounting for the kind of award criteria used reveals more complex dynamics. While H2 is not supported for contracts awarded on the basis of both price and quality, it is for contracts awarded based on price alone, when contract- and organization-level controls are included. This interaction is presented in the right pane of Figure 2.2. When contract managers do not have discretion over the award through subjective quality criteria and must give the contract to the lowest bidder, stronger prior relationships are associated with shorter advertisement periods.

A possible explanation for this finding is that *ex ante* and *ex post* discretion represent alternative methods by which contract managers seek to retain their earlier investment in building relationships with suppliers. When they are able to factor the value of prior relationships into their awarding decisions *ex post* through quality criteria, they have no need to restrict competition at the advertisement stage. Whereas, when contracts are awarded solely on the basis of price, contract managers may take steps to ensure that they only receive the bids that they want by setting short deadlines and giving their preferred suppliers advanced notice.

Table 2.4: Regression estimates of effects of prior relationship strength and quality criteria on advertisement period length.

	Dependent variable:			
	Advertisement period length			
	(5)	(6)	(7)	(8)
Prior relationship strength	0.409	−0.400	−2.294	−5.893**
	(0.846)	(0.793)	(2.895)	(2.606)
Quality criteria			−4.921***	−3.491**
			(1.669)	(1.406)
Prior relationship strength × quality criteria			2.414	6.006**
			(3.028)	(2.742)
Time trend	✓	✓	✓	✓
Contract-level controls		✓		✓
Organization-level controls		✓		✓
Observations	1 368	1 368	1 368	1 368
R^2	0.003	0.163	0.014	0.166
Adjusted R^2	−0.001	0.152	0.009	0.154

Note: *p<0.1; **p<0.05; ***p<0.01
Standard errors are clustered at the organization level.

Alternatively, managers may opt to award a contract only on price when they are able to restrict competition *ex ante*. Assessing bids on qualitative criteria is more labour-intensive than awarding contracts on the basis of price alone, however, it comes with the trade-off of less discretion over the ultimate contract award. Therefore, government buyers may risk using the easier option of selecting the lowest bidder when they are able to exert more control over the bids they receive by limiting competition *ex ante*. Further research is needed to explain this result fully and determine which, if either, of the above explanations is valid. Here, a greater understanding of how decisions about advertisement duration and award criteria are taken in different types of government organization is required. Specifically, we need to know the relative costs of such decisions, who makes them, and in what order. For instance, to what extent can contract managers who work with suppliers day-to-day influence elements of the contract award process, such as the deadline for bids, and are these decisions taken before or after award criteria are written?

To confirm that reducing the length of time potential suppliers have to submit bids does indeed limit competition in the way suggested by previous

Table 2.5: Regression estimates of effects of advertisement period length on number of bids.

	Dependent variable:	
	Log number of bids	
	(9)	(10)
Advertisement period length	0.005**	0.006***
	(0.002)	(0.002)
Time trend	✓	✓
Contract-level controls		✓
Organization-level controls		✓
Observations	1 368	1 368
R^2	0.050	0.083
Adjusted R^2	0.045	0.076

Note: *p<0.1; **p<0.05; ***p<0.01
Standard errors are clustered at the organization level.

studies (Fazekas & Kocsis, 2020; Fazekas & Tóth, 2016; Fazekas et al., 2016), I estimated linear regression models of the association between advertisement period length and the number of bids. The results of these models are shown in Table 2.5. I find a positive relationship, indicating that, as expected, shorter bidding deadlines are associated with fewer bids and longer deadlines with more.

However, it is important to remember that even if contract managers are attempting to restrict competition *ex ante*, through the advertisement period, when they do not have any *ex post* discretion over the contract award, these actions do not appear to produce the desired effect. As shown in Table 2.3, prior relationships are associated with higher, not lower, competition for lowest-price contracts. It could be that, while shorter advertisement periods are associated with fewer bids overall, the market dynamics produced by price-only awards outweigh that relationship. As previously mentioned, awarding solely on price may better enable more concentrated markets to attract new entrants—as predicted by neoclassical economic theories of market equilibrium—and this could override any dampening influence from the advertisement period. Again, more research is needed to investigate these dynamics and understand how suppliers

respond to different combinations of signals from governments' past awarding decisions and from how governments invite and assess bids.

Taken together, these results suggest that, as hypothesized, there may be a trade-off for contract managers between valuing ongoing relationships with suppliers and maintaining a competitive market for public contracts. Prioritizing existing relationships with suppliers by repeatedly awarding in their favour appears to erode competition over time. While evidence for the discretion mechanism laid out in Section 2.1 is more complicated than originally hypothesized, the results suggest that *ex post* discretion, facilitated by the use of quality criteria, plays a role. The negative association between the measure of buyer-supplier relationships and market competition is produced entirely by contracts where managers are afforded a degree of discretion in assessing bids and selecting a winner. This supports the explanation that, when contract managers can factor the value of established relationships into their awarding decisions, these decisions deter potential competitors from bidding.

Contract managers also appear to restrict competition *ex ante* through shorter advertisement periods when they do not have the flexibility to influence the award decision *ex post*. However, this behaviour does not seem to be particularly effective in limiting the number of bids they receive. While overall shorter advertisement periods are associated with fewer bids, stronger prior relationships are associated with more, not less, competition for contract awards based on price alone. Figure 2.2 summarizes these findings. It depicts the interactions between prior relationships and award criteria for the number of bids received and the length of the advertisement period.

2.6 Conclusions

Both competition and buyer-supplier relationships play central roles in theories of public sector contracting. However, the relationship between the two is hitherto unstudied and undertheorized. This chapter presents initial evidence that investment by government organizations in close, long-lasting relationships with their suppliers may undermine competition for future contract awards.

I have presented analysis of an original dataset comprising announcements of contract awards in the UK between 2006 and 2019 that identifies relationships between government organizations and suppliers over time. Through analysis of these data using two-way fixed-effect regression, I demonstrate an overall negative association between a measure of the strength of prior relationships and the number of bids government organizations receive for their contracts. I also assess and provide evidence for the potential explanation that public managers discourage potential competitors from bidding by employing discretion allowed them in the contract award to favour known suppliers.

The findings contribute to scholarship on relationships within, and on competition for, government contracts. I offer a possible explanation for the widespread consolidation experienced in public procurement markets (Bel & Fageda, 2011; Davies, 2007; Dijkgraaf & Gradus, 2008; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000). I also provide evidence to suggest that buyer-supplier relationships play a role in this process, facilitated by the discretion contract managers have over choosing a supplier.

Interestingly, my findings suggest that this decline is not produced by government buyers reducing the number of contracting opportunities through bigger and longer contracts. Previous studies have observed that market consolidation has been brought about by governments increasing the size and scope of their contracts over time (Bel & Fageda, 2011; Davies, 2007; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000). The findings presented here do not contradict those results, but suggest that buyers attempting to preserve relationships with existing suppliers is unlikely to play a part in that process. There is, after all, an overall downward trend in the number of bids received for all contracts, regardless of the composition of their award criteria. The findings of previous studies suggest that changes governments make to the number and kind of opportunities within a market may account for this, albeit not as a result of prior relationships.

In examining the influence of past awarding history on competition, I explore a possible downside for governments of investing in building relation-

ships with their external suppliers. The chapter therefore advances scholarship on the nature of cross-sector relationships, which has so far focused almost exclusively on the *benefits* of close, trusting alliances (Entwistle & Martin, 2005; McEvily et al., 2003; Zaheer & Harris, 2006). I identify that a core feature of relational governance—long-lasting relationships—could erode competition over time and thus identify a potential drawback for contract managers of engaging in this kind of approach.

My findings therefore add a caution to the literature on relational governance, which has so far emphasized the positive impacts of contracting approaches based on relationships in curbing opportunism, facilitating learning and adaptation, and reducing transaction costs (Beinecke & DeFillippi, 1999; Bertelli & Smith, 2010; Brown et al., 2016; Chuang et al., 2020; Van Slyke, 2007; Young et al., 2021). This chapter joins a small but growing number of studies that point out the challenges and dangers governments face when engaging in such approaches (Ling et al., 2014; Lonsdale et al., 2016; Wadmann et al., 2019). Together our results suggest that this literature must give more consideration to the potential pitfalls of relational governance. Future research in this field could usefully explore other risks and downsides, to advance our understanding of how these approaches work in practice.

Moreover, the findings presented here are of direct relevance to practitioners in that they identify a trade-off for contract managers between building their existing relationships with suppliers and stimulating healthy competition. The knowledge generated by this research—that governments may unwittingly limit competition for their contracts by prioritizing relationship-building—can usefully inform contract management practice. It can support contract managers seeking to maintain competitive markets and understand factors that could reduce competition. The chapter also contributes an original dataset that could be used in further analysis of UK government organizations' relationships with external suppliers.

The results presented in this chapter indicate that more investigation is needed into the possible mechanisms linking past relationships and future

competition. Future research could develop our understanding of the interplay between *ex ante* and *ex post* discretion in facilitating the preservation of relationships and their effects on competition. Here, in-depth qualitative research into decisions about the advertisement and award of government contracts would be valuable to unpick the steps involved and uncover possible variation across different types of organizations and services.

For simplicity, I restricted my analysis to relationships developed during previous instances of the same contract. However, future research could also investigate the possibility that relationships developed during the delivery of a contract for one service may come to bear on a contract for another. Likewise, scholars could examine whether and how reputation or recommendations may allow for a supplier's history with one government buyer to influence their chances of winning contracts with others and the implications for wider market conditions.

As I outline in Section 2.1, revolving doors in public procurement, like those found by Barbosa and Straub (2020), are unlikely to account for the findings I present here—strengthening the evidence that contract managers' desire to preserve their relationships with suppliers is a key factor. However, revolving doors might intensify the association between prior relationships and competition. Buyer-supplier moves could be another route by which relational governance dampens competition, if such approaches make those moves more likely. Exploring this possibility may also be a fruitful avenue for future research.

It would also be valuable to consider other potential mechanisms that could account for the associations observed. For example, the theory presented here has focused on a rational calculation about the potential contract management benefits of assets developed in previous contracting relationships. However, relationships also introduce cognitive biases that may favour past suppliers. Having formed a positive impression of a supplier, contract managers may interpret future performance more favourably. For example, evidence from the private sector suggests that, when companies trust a supplier, they are more

likely to attribute dips in performance to external factors than they are to reconsider their original assessment of the supplier's competence and honesty (Patzelt & Shepherd, 2008). On top of the rational desire to avoid transaction costs, these biases may further advantage previous winners. Future research that could distinguish between these two mechanisms would be valuable.

Research into the ramifications of these dynamics on contract performance is also essential to understand fully their implications for practitioners. The benefits of competition constitute a core rationale for the practice of contracting out, but declining market competition may not necessarily threaten contract performance in the presence of strong buyer-supplier relationships. Governments' trust in suppliers with whom they have worked previously may be well-founded and the beneficial effect of sticking with a known quantity may outweigh the potential negative effects of market consolidation. Brunjes's (2020) finding that prior relationships are more valuable in preventing acute contract failure than competitive procurement procedures indicates that this could be the case. If true, politicians, public managers, and scholars will need to rethink the central role of market theories in rationales for contracting and do more to understand other reasons why governments might benefit (or not) from contracting out.

On the other hand, declining competition or biases created by prior relationships could have grave consequences for the quality of public services delivered through contracts. For instance, there is evidence from the private sector that overly close relationships can encourage organizations to persist with alliances when they are suboptimal or even actively damaging (Gargiulo & Benassi, 2000; Inkpen & Ross, 2012; Patzelt & Shepherd, 2008). Studies that report positive effects of stable long-term relationships on the performance of collaborations between governments and other sectors tend to rely on measures of *perceived* performance (Brunjes, 2020; Koppenjan & de Jong, 2018; Warsen et al., 2019; Ysa et al., 2014). If prior relationships do indeed introduce cognitive biases in favour of existing suppliers, then these studies may have failed to uncover more deleterious effects of relationship strength on the performance of these alliances.

Another threat to performance when markets shrink as the result of strong existing relationships is the possibility that previously high-performing suppliers may begin to shirk once government has few alternatives. The major government contracting scandals detailed in Chapter 1 provide anecdotal evidence of the dangers of becoming overly reliant on one supplier. Further investigation into whether and how declining competition threatens quality and cost outcomes for contracted public services, or increases the risks of contracting out, is an important task for the field.

Finally, it is important to note that the research presented in this chapter draws on observational data and examines associations between the key variables of interest, rather than causal effects. While the methods of analysis I use, such as including time and unit-level fixed effects, reduce the potential for omitted variable bias, they cannot exclude all sources of confounding. This research can provide evidence that points to strong buyer-supplier relationships eroding competition for government contracts in the UK, but it cannot confirm that one causes the other. I also cannot verify that the relationship I find is directly produced by suppliers responding to signals sent by buyers through their awarding decisions.

In the next chapter, I employ experimental methods to estimate more precise causal effects and to test whether suppliers do indeed respond to the signals that governments send to the market in the way I have theorized. I also expand my consideration of contract management to include a contrasting technique—performance-based payment—in order to understand whether the tensions I have identified in this chapter apply to another type of contract management.

3

What encourages and discourages suppliers to bid for government contracts?

Evidence from a conjoint experiment with current and potential government suppliers

How do potential competitors decide whether or not to bid for a government contract? Public procurement processes are complicated and require a significant investment of time and resource from bidders. There are also a huge number of contracts to choose from. As an example, approximately 735,000 public procurement notices are published through the EU every year, with a total value of €670 billion (European Union, 2023). On top of government contracts, companies have opportunities to supply customers in other sectors. Potential suppliers must therefore be selective about which opportunities they pursue.

At the same time, public managers seek to attract qualified and competitive bidders for their contracts. Often, they do not succeed. Lack of competition is a perennial problem for governments (Brown & Potoski, 2004; Davies, 2007; Johnston & Girth, 2012; Krachler & Greer, 2015; Lamothe & Lamothe, 2009), leaving them struggling to ensure that contracted services are value for money (Dijkgraaf & Gradus, 2008; Girth et al., 2012; Sclar, 2000) and to realize the promised benefits from contracting (Girth, 2014; Johnston & Romzek, 2023). Despite this long-documented problem, suppliers' calculations when deciding when to bid for a contract have received little attention in the public administra-

tion literature (notable exceptions are Coviello & Mariniello, 2014; and Zitron, 2006).

If government buyers are to generate and maintain competition for their contracts, they must think about how their actions influence potential suppliers' bidding decisions. There is a wide body of literature on the *intentional* strategies that *government organizations* adopt to manage the markets for their contracts, from soliciting bids (Brown & Potoski, 2004; Girth et al., 2012), to tactical contract awards (Amaral et al., 2009; Hansen, 2003; Torfing et al., 2017; Walker et al., 2006), to retaining delivery capacity themselves (Hefetz et al., 2014; Johnston et al., 2004; Torfing et al., 2017; Warner & Hefetz, 2008, 2012). Yet, the ways in which their actions could *unintentionally* influence the market are less well understood. There has also been little attention paid to *suppliers'* responses to governments' actions, specifically how those actions influence whether suppliers bid. This applies both to deliberate measures by which government buyers shape the market and to other activities that could do so inadvertently. One set of actions that may affect suppliers' decision-making when selecting contract opportunities is the approaches governments take to managing contracts.

In Chapter 2, I provided evidence that one way in which governments might inadvertently dampen competition is by investing in close relationships with their existing suppliers and considering this investment in their awarding decisions. In this chapter, I delve further into that relationship by examining it from the perspective of competing suppliers, using experimental methods to estimate causal effects. This allows me to generate more precise evidence of a causal relationship between contracts' awarding histories and suppliers' decisions to bid for future contracts. I am able to investigate whether suppliers do indeed receive the signals buyers send to the market through their awarding decisions and respond to them in the ways suggested in the previous chapter.

This Chapter also adds another contract management approach—performance-based payment—to the analysis. In doing so, it demonstrates that the impacts of contract management on markets for government contracts

may extend beyond those that prioritize relationship-building to other forms of management from contrasting governance styles.

Government contract design and management practices are continually evolving in response to changing policy environments, emerging performance concerns, and the expansion of contracting to new services (Brown et al., 2006; Kim & Brown, 2012; Romzek & Johnston, 2002; Sanderson et al., 2018). A large body of literature exists on the impacts these changes have on the dynamics within the buyer-supplier relationship, but much less exists on their effects on the wider market outside that relationship. Different contract management approaches set up different incentives for the current supplier, for example through financial rewards and penalties or expectations about their future working with the government. However, they might also change the incentives and expectations of potential competitors. For instance, if an incumbent is confident in the strength of their relationship with the government buyer, it follows that prospective suppliers may be less confident in their chances of winning the contract. If governments are to act as effective buyers in public contracting markets, it is essential that they understand the implications of management innovations on suppliers' decisions to bid for their contracts.

In this chapter, I explore how resource-constrained suppliers choose between contracts, and how contract management affects their decisions. I examine the effects of two contract management approaches that are gaining prominence—performance-based payment and relational governance—on suppliers' decisions to bid for government contracts. The popularity of both practices has grown in recent years and they are increasingly recommended as responses to emerging accountability challenges in public contracting, either individually or in combination (Lu, 2016; Rho, 2013; Sanderson et al., 2018).

I develop a simple theoretical model of the bidding decision based on potential suppliers' perceptions of their expected profit, likelihood of winning, and costs of bidding. From this model I draw and then test a set of hypotheses about the effects of performance-based and relational governance approaches on suppliers' decisions to bid. I argue that the basis on which a supplier is paid

and the relationship between the government and the incumbent will both affect a contract's attractiveness to potential bidders. The financial uncertainty inherent in performance-based payment structures will make them less attractive to suppliers, compared to fixed-price contracts, which provide a more even balance between risk and reward. Similarly, I contend that potential competitors will prefer contracts where the award history does not indicate that the incumbent has an established relationship with the buyer, as this influences their perceptions of their chances of success.

I employ a forced-choice conjoint experiment, fielded through an online survey of 513 former, current, and potential government suppliers.[1] I find support for the argument that performance-based contracts and relational governance practices deter potential competitors. Participants show a dislike for contracts where the supplier's fee will be based on performance (and prefer a fixed price to other payment structures) and avoid contracts where the incumbent has a long history of winning.

Furthermore, I present evidence that these results are produced by the way in which suppliers deal with uncertainty when making bidding decisions. I do this by examining the moderating role of award criteria. Award criteria are a strong indicator the level of uncertainty in both the award and delivery of the contract, with a greater role for quality measures signalling greater uncertainty. When quality accounts for the majority of award criteria, participants are more likely to choose contracts where the supplier's profit and chances of winning are more certain. This is expressed by increases in preferences for new contracts with no award history and cost-reimbursement contracts respectively.

This chapter advances the study of government contracting by combining two strands of existing scholarship: the literature on market management; and the literature on contract management. In doing so, I extend scholarship on market management beyond its current focus on governments' intentional efforts to attract bids, by examining possible consequences for the market of

[1]The hypotheses and experimental design presented in this chapter were preregistered with the Open Science Framework at https://osf.io/xpfa3. Any deviations from the preregistration are indicated in footnotes.

their other actions, such as the way they manage contracts. I also expand the study of the effects of contract management beyond its implications for performance within the buyer-supplier relationship to encompass consequences for the wider market and the responses of potential competitors. In doing so, the research contributes a new perspective—the supplier's—to discussions about public contracting markets. It offers a theoretical model of their calculations when evaluating contracting opportunities and presents data from a sample that includes current and former government suppliers. By explicitly focusing on the supplier's perspective, the study contributes to our understanding of how government contracting markets function and to contracting as a whole.

3.1 Linking contract management and competition

Attracting and maintaining competition for their contracts has long been a challenge for government organizations. Several studies have shown that competition tends to decline over the lifetime of public contracts (Dijkgraaf & Gradus, 2008) and that features of public procurement markets naturally lead them towards consolidation (Bel & Fageda, 2011; Davies, 2007; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000). Thin markets are a problem for governments who contract out their activities, because many of the promised benefits originate from the competition the practice introduces into service delivery (Greene, 2002; Hood, 1991; Osborne, 1993; Peters, 1996; Savas, 1987). Contracting can give governments access to skills, knowledge, and ideas from other sectors (Donahue & Zeckhauser, 2011; Jung et al., 2018). However, when the market lacks competition and they have a limited selection of suppliers from which to choose, finding a supplier who can offer the expertise they require is more challenging.

Once a contract is awarded, competition is theorized to drive the incumbent supplier to perform well in order to retain the contract (Niskanen, 1971; Osborne, 1993; Savas, 1987). Pressure from a competitive market both incentivizes suppliers to reduce the cost to government of providing public services (Blom-Hansen, 2003; Christoffersen et al., 2007; Domberger & Jensen, 1997;

Lindholst et al., 2018) and to improve their quality (Holum, 2018; Jung et al., 2018; Rho, 2013). When there is little competition and the government has few or no alternatives, that threat of replacement is removed, reducing governments' ability to ensure they receive a fair price and services of adequate quality (Johnston & Romzek, 2023). Because they are at the mercy of the incumbent supplier, lack of competition can also cause governments problems in obtaining the information necessary to monitor performance (Johnston & Romzek, 1999) and in sanctioning poor performance (Girth, 2014; Johnston et al., 2004; Lamothe & Lamothe, 2012b; Romzek & Johnston, 2005; Van Slyke, 2007). Finally, and perhaps most importantly, the presence of multiple competing bidders is an essential safeguard against corruption in public procurement (Fazekas & Kocsis, 2020; Fazekas & Tóth, 2016; Wachs et al., 2020).

In response to these problems, public managers often adopt strategies to stimulate a market, for example by actively soliciting bids (Brown & Potoski, 2004; Girth et al., 2012) or increasing publicity (Coviello & Mariniello, 2014). However, such activities are themselves costly (Johnston & Girth, 2012) and may undermine the efficiencies of contracting out. Any impacts that new approaches to contract management have on contracting markets is therefore likely to be an important determinant of their effects on contract performance. The benefits of management innovations may be undermined if such changes make contracts less attractive to potential suppliers. The finding of Girth et al. (2012), that contract markets initially assessed as competitive often do not generate the expected number of bids, suggests that features of government contracts themselves can deter potential competitors. The impact on competition of the way contracts are designed and managed therefore requires more attention if we are to understand the full implications of contract management practices.

I focus on the impacts of two major trends in contract management: performance-based contracts; and relational governance. Both approaches are growing in popularity and are increasingly advocated as best practice, either individually or in combination (Lu, 2016; Rho, 2013; Sanderson et al., 2018). They have been introduced in response to new performance management challenges

resulting from the expanding scope and complexity of government contracting (Alonso & Andrews, 2016; Brown et al., 2006; Petersen et al., 2015).

While both performance-based payment and relational governance have received substantial attention in the public administration literature, as with other contract management approaches, their impact on competition has been relatively neglected. The growing prevalence of these two practices makes them ideal cases with which to explore the relation between contracting markets and management techniques. Understanding their impact on competition is a crucial task to ensure the practices have their intended influence on contract performance.

Moreover, performance-based contracts and relational governance are associated with contrasting modes of contract management. Performance-based contracts are associated with traditional contractual governance focused on rules, performance measures, and risk allocation. Relational governance is associated with interdependence, collaboration and relationship-building (Lamothe & Lamothe, 2009, 2012b; Mu et al., 2023; Poppo & Zenger, 2002; Uzzi, 1997). As a result, each provides a representative case of markedly different contract management styles.

Furthermore, while they represent different governance logics, performance-based and relational governance are frequently combined in practice (Girth, 2017; Poppo & Zenger, 2002; Van Slyke, 2007) and can even be mutually reinforcing (Amirkhanyan et al., 2012; Marvel & Marvel, 2009). Several scholars have argued that explicit performance measurement and targets are still needed even when governments pursue a relational approach to contract management (Amirkhanyan, 2011; Barlow et al., 2013; Romzek & Johnston, 2005). Previous research has also found that the two complement one another, with strong relationships facilitating the use of high-powered financial incentives (Marvel & Marvel, 2009; Xu et al., 2022) by encouraging suppliers to take on the associated risk (Ahmad et al., 2020; Warsen et al., 2019) or enabling the negotiation of more effective performance indicators and greater information-sharing (Amirkhanyan, 2009).

Other studies point to evidence of the two approaches being combined with less success. These studies identify tensions between relational governance's emphasis on informal relationships and the formal contract controls imposed by financial performance incentives, especially when the latter are imposed by the wider legal or institutional environment (Needham et al., 2022; Romzek et al., 2012). Whether successful or unsuccessful, the common use of relational governance alongside financial performance incentives provides another motivation for examining the impact of these two approaches on contracting markets. Any effects they have separately may be compounded when they are employed in concert.

A final reason to examine the potential effects of these innovations is that they are themselves responses to a lack of competition in markets for public contracts and the consequent absence of accountability for performance (Dubnick & Frederickson, 2010; Heinrich, 2002; Johnston et al., 2004; Posner, 2002; Romzek et al., 2012). Each approach compensates for inadequate market pressures by adding an additional form of accountability. Relational governance provides accountability from close, cooperative relationships (Walker et al., 2006), while performance-based payment contributes managerial accountability through within-contract financial incentives (Brown & Potoski, 2004).

However, competition is still important when either or both approaches are used. As outlined earlier in this section, the availability of alternative suppliers is necessary for government to access the expertise they need, secure a fair price, and to prevent corruption. Moreover, without alternatives, governments are at the mercy of incumbent suppliers. When a government re-awards a contract, they may not be able to impose performance-based payment structures if the incumbent does not agree to them. Alternatively, when a government is dependent on an incumbent supplier, that supplier may be less inclined to cooperate in relational governance processes. As a result, investigating the implications of these contract management methods on competition is important. If governments meet low competition with measures that further reduce interest from alternative suppliers, they may aggravate the very problem they seek to solve.

3.1.1 Performance-based contracts

Financial incentives, such as sanctions and bonuses have long been a part of a public contract manager's toolbox (Kelman, 2002), but their use is becoming more widespread (Collins-Camargo et al., 2011; Considine et al., 2020; Koning & Heinrich, 2013; Lu, 2016; Negoita, 2018; Taylor & Shaver, 2010). As FitzGerald, Fraser, et al. (2023) articulate, performance-based contracts are "interorganizational contractual arrangements which use results-linked monetary incentives to alter individual and organizational behaviour in the delivery of public services" (p. 330). The performance measures on which a supplier's payment is based may capture adherence to a set of procedures, achievement of quality standards, volume or speed of service outputs, attainment of ultimate policy outcomes, or a mixture of the above. They provide sharper incentives for contract performance within the contract term by linking supplier revenue to performance during the course of the contract and not just when the contract comes up for renewal.

Evidence for the success of performance-based contracts in improving supplier performance is mixed. Several studies have found that performance-based payment results in the desired improvements in contract outcomes (Alonso & Andrews, 2018; Alonso et al., 2015; de Bruin et al., 2011; Hufen & de Bruijn, 2016; Klijn & Koppenjan, 2016; Lewis & Bajari, 2011; Terman & Feiock, 2016). Other evidence is more qualified, finding that financial incentives only improve some areas of performance (Heinrich & Choi, 2007; Lambright, 2009; Lu, 2016; McBeath & Meezan, 2010; Van Herck et al., 2010) or that their effects are contingent on other factors, such as the type of service (Girth & Lopez, 2019), adequate management capacity (Heinrich, 2002; Heinrich & Choi, 2007; Heinrich & Kabourek, 2019; Heinrich & Marschke, 2010), or the supplier's baseline performance levels (Van Herck et al., 2010).

Research into performance-based contracts has also identified considerable challenges in constructing effective measures (Dias & Maynard-Moody, 2007; Dubnick & Frederickson, 2010; Lazzarini et al., 2022; Rees et al., 2014) and preventing gaming behaviour (Dias & Maynard-Moody, 2007; FitzGerald

et al., 2019; Heckman et al., 2002; Heinrich, 2007, 2011; Jensen & Stonecash, 2005; Koning & Heinrich, 2013; Lu, 2016). Notably, research into the effectiveness of performance-based payment has not investigated the level of competition such contracts attract and whether or not this differs from contracts using other types of payment structure.

Despite the critiques of performance-based payment practices, they continue to garner widespread political support and are growing in prevalence (Sanderson et al., 2018; Warner, 2013). Furthermore, they are a central part of recent innovations in public services contracting and commissioning. Recently, their popularity has been boosted by a focus on outcomes-based contracting, which is intended to focus suppliers' attentions on ultimate policy outcomes, as opposed to intermediate processes or outputs (Birrell & Gray, 2018; FitzGerald, Fraser, et al., 2023; Negoita, 2018; Sanderson et al., 2018; Scarano, 2023). Performance-based pay is also an integral part of social impact bonds—financial structures that invite private investment into public policy challenges with returns measured by the achievement of outcomes—and the contracts that sit within them (Berndt & Wirth, 2018; Cooper et al., 2016; Edmiston & Nicholls, 2018; FitzGerald, Fraser, et al., 2023; FitzGerald et al., 2019; Warner, 2013).

The growing prevalence of performance-based payment structures means that understanding their implications for contracting markets is a crucial task for scholars and practitioners. The willingness of suppliers to bid for performance-based contracts is currently unclear. Initially, we might assume that the opportunities for greater financial rewards may entice potential bidders. However, there is some evidence to suggest that suppliers are not comfortable with the level of financial risk such practices entail (Albalate et al., 2013; Pauly & Swanson, 2017; Romzek & Johnston, 2005; Terman & Feiock, 2016). This indicates that the uncertainty inherent in performance-based contracts may deter potential competitors from bidding for them. If performance-based payment structures do act as a deterrent to potential competitors, they could undermine their beneficial effects on contract performance, or further exacerbate the problems identified by previous studies. In this chapter, I attempt

to address this gap by explicitly examining suppliers' reactions to performance-based contracts in their decisions to bid.

3.1.2 Relational governance

The second major trend in contract management that I consider is the move to more relational modes of governance. Relational governance has received growing attention from academics and governments as a potential solution to problems caused by incomplete contracts (Bertelli & Smith, 2010; Chuang et al., 2020; Forrer et al., 2014; Gibbons, 2005; Lambright, 2009; Warsen et al., 2019). As contracting has expanded into service areas and public projects in which outputs and outcomes are difficult to define *ex ante* or monitor *ex post*, government contracts have become increasingly incomplete (Alonso & Andrews, 2016; Bauer & Johnston, 2020; Brown et al., 2006; Petersen et al., 2015). Governments also operate in an uncertain environment, where factors that affect service delivery, such as the needs and behaviours of service users, can change rapidly, creating problems in specifying requirements and possible eventualities in advance (FitzGerald, Hameed, et al., 2023; Potoski, 1999). These developments have produced gaps in government contracts that suppliers can exploit (Hart et al., 1997; Sclar, 2000; Williamson, 1971).

Rather than attempting to write ever more complicated contracts that specify every requirement and eventuality, and which require ever closer monitoring and enforcement, many government organizations have preferred to manage incomplete contracts through relational approaches (Brown et al., 2007, 2018; Malatesta & Smith, 2014; Smyth & Edkins, 2007; Van Slyke, 2007; Warsen et al., 2018, 2019). Scholars and practitioners have advised implementing relational governance on the basis that it prioritizes building a relationship over time where both parties develop shared goals and a commitment to cooperate beyond the legally enforceable terms of a written contract (Barton et al., 2006; Fernandez, 2007; Rho, 2013; Van Slyke, 2009). Particular benefits include: improved access to suppliers' skills and expertise (Ball & Gibson, 2022; Malatesta & Smith, 2014; Romzek et al., 2012, 2014); better information-sharing and more collaborative and effective problem-solving (Girth, 2014; Malatesta &

Smith, 2014); and reductions in monitoring costs (Brown et al., 2007; Malatesta & Smith, 2014; Van Slyke, 2007).

Much of this literature talks about "relational contracts" or "relational contracting". However, for the purposes of the following analysis, I use the term "relational governance" to refer to a governance style that prioritizes collaboration, ongoing negotiation, and the maintenance of long-term, stable relationships. Such governance arrangements may be pursued within a relational contract: a contract which itself is written with the express aim of facilitating relationship-building, for example by deliberately omitting specifications and contingencies or making legal provisions to encourage repeated interactions (Frydlinger et al., 2021). Or, as mentioned above, they may be implemented alongside more formal contractual specifications. The latter approach is more common in the context of public contracts, as government contract managers are often required to write precisely specified contracts as a result of the regulatory environment and the norms and risk appetite of their institutions (De-Hoog, 1990; Needham et al., 2022; Romzek et al., 2012). Relational governance is therefore a more appropriate term when talking about government contracts, because it encompasses both explicitly relational contracts and relational approaches to management in general. Relational governance is distinct, however, from the natural but unintentional development of relationships as a by-product of suppliers delivering a contract, as it entails "a deliberate decision about contract design and management" (Van Slyke, 2009, p. 148).

To define relational governance, I follow Mu et al. (2023). Their definition encapsulates most of the main components emphasized in previous literature on the topic. They define relational governance as, "an informal coordinative mechanism, in which the public and private partners carry expectations of continuous cooperation and take facilitating actions to develop a trustworthy, interdependent, and flexible relationship" (p. 117). The features of relational governance identified in existing literature and captured by the above definition are:

1. informal rather than legally enforceable governance mechanisms (Bertelli & Smith, 2010; Chuang et al., 2020; Forrer et al., 2014; Gazley, 2008; Gibbons, 2005; Romzek et al., 2014);
2. long-term, stable relationships (Amirkhanyan et al., 2012; Bertelli & Smith, 2010; Chuang et al., 2020; Forrer et al., 2014; Gazley, 2008; Ouchi, 1980; Poppo & Zenger, 2002; Van Slyke, 2007; Vandaele et al., 2007; Young et al., 2021);
3. trust between parties (Amirkhanyan et al., 2012; Petrie, 2002; Van Slyke, 2007; Young et al., 2021);
4. mutual interdependence, shared norms, and common goals (Amirkhanyan et al., 2012; Lamothe & Lamothe, 2012b; Ouchi, 1980; Sclar, 2000); and
5. flexibility and negotiation in response to changing circumstances and problems (Amirkhanyan, 2009; Amirkhanyan et al., 2012; Bertelli & Smith, 2010; Blomqvist & Winblad, 2022; Gibbons, 2005; Lamothe & Lamothe, 2012b; Young et al., 2021).

A further feature, which is not explicitly mentioned in Mu et al.'s (2023) definition, but is often included in descriptions of relational governance is:

6. open exchange of information (Amirkhanyan et al., 2012; Bertelli & Smith, 2010; Blomqvist & Winblad, 2022; Lamothe & Lamothe, 2012b; Young et al., 2021).

This could come under the banner of "facilitating actions" in the above definition, but is worth mentioning explicitly, as it is a commonly cited feature of relational governance in its own right.

While research and theory that documents or advocates the benefits of relational governance is abundant, its downsides are less well explored. Investigating potential drawbacks is essential to developing a full understanding of any management practice. This chapter contributes to our understanding of relational governance by investigating the potentially negative effect of continuity

in buyer-supplier relationships on competition. Continuity is consistently identified as a core feature of relational governance (Bertelli & Smith, 2010; Grafton & Mundy, 2017; Poppo & Zenger, 2002; Poppo et al., 2008), but, as I explain in more detail in Section 3.2.2, long-term, stable relationships are intuitively incompatible with competitive, contested contract awards.

As with performance-based contracts, there have already been some suggestions that relational governance approaches may have a detrimental effect on competition, but causal effects are yet to be identified. Some qualitative studies have suggested that maintaining an open and competitive market is at odds with a relational approach that fosters long-term, stable relationships and that contract managers struggle to balance both tasks (Needham et al., 2022; Romzek et al., 2012). A recent case study of the Danish ambulance service by Wadmann et al. (2019) illustrates the dangers of striking the wrong balance, recounting how the government's relationship with a long-term incumbent eroded the market and ultimately forced them to bring the service back in-house. This example identifies a potential conflict between relational contract management and fostering competition, as well as the pitfalls of pursuing the former at the expense of the latter. Further investigating potential competitors' attitudes to long-term relationships with incumbents is therefore important to confirm this effect and identify actions contract managers could take to mitigate such an effect.

3.2 Suppliers' bidding decisions

To understand how contract management approaches might influence competition, it is helpful to start with a model of a supplier's bidding decision. It is unusual that a supplier can simply bid for every contract that they find. Each bid takes time and effort to write (Brown & Potoski, 2003a; Brunjes, 2020), so suppliers must decide whether the expected return from a contract it is worth the costs of bidding. Bidding costs are primarily determined by the procurement process the government buyer has chosen to use and how burdensome it is for bidders (Petersen et al., 2022; Potoski, 2008). A supplier's expected return

is determined by three main factors: the potential profit a supplier expects to make; the probability of realizing that profit; and the probability of winning the contract in the first place.

It is helpful to separate potential profit from suppliers' confidence in achieving that profit because the total profit available and the likelihood of obtaining it are altered in different ways by the payment structure used. For example, cost-reimbursement contracts provide a guaranteed profit margin, so the probability of making that profit is very high, but the agreed margin is usually much lower than might be achievable with other types of contracts (Brunjes, 2018). On the other hand, performance-based contracts offer the opportunity to make a much larger profit if the supplier performs well but come with a greater degree of uncertainty, including the possibility of making a loss (Pauly & Swanson, 2017). As well as accounting for any uncertainty in the profit they expect to earn, suppliers must also consider their probability of winning the contract, to determine whether submitting a bid would be a sound investment. Incorporating these three factors gives the following model of a supplier's calculation of the return on bidding for a contract:

$$\begin{aligned} Return\,on\,bid = {} & Potential\,profit \times Probability\,of\,profit \\ & \times Probability\,of\,winning - Bidding\,costs \end{aligned} \tag{3.1}$$

It is not necessarily sufficient for a supplier to determine whether a contract has a positive return on bidding; they must also consider other opportunities. Suppliers are constrained in both their bidding and delivery resources, so bidding for one contract may prevent them from bidding for another, now or in the future. As a result, suppliers must also factor in the opportunity cost of bidding (Zitron, 2006). The final bidding decision can therefore be expressed as one *between* multiple contracts. For example, a supplier considering two contracts, A and B, will bid for A if its return on bidding is greater than that of B:

$$Return\,on\,bid_A > Return\,on\,bid_B \tag{3.2}$$

Next we can move on to ask how the two contract management approaches described above might affect these calculations. Intuitively, performance-based contracts are likely to have a bearing on suppliers' expectations about profit, affecting both their overall estimation of the potential profit available and their certainty in that estimate. The significance of relational governance is less obvious but, as I will explain in Section 3.2.2, a reasonable expectation is that its requirement for long-term, stable relationships will influence potential competitors' estimations of their chances of winning a contract. The rest of this section lays out the theoretical bases for these expectations and specifies hypotheses to be tested in the empirical analysis that follows.

3.2.1 Performance-based contracts and profit expectations

Performance-based contracts alter how a supplier's payment is determined. It follows that they will alter suppliers' *expectations* about their *likely* profit. Different payment structures influence both the overall profit a supplier can hope to make ($Potential\,profit$) and the certainty of that estimate ($Probability\,of\,profit$). I compare performance-based payment with the two other most common payment structures used in government contracts: cost-reimbursement; and fixed-price (Kim & Brown, 2012; Kim et al., 2016; Malatesta & Smith, 2011; Tadelis, 2012). Each contract design offers a different level of opportunity to make profit and a different rate of financial uncertainty. Much like a classic investment decision, no one design maximizes both potential profit and the probability of making that profit. Rather each presents suppliers with a compromise between the two.

Starting with cost-reimbursement contracts, these agreements give suppliers the greatest level of certainty about the profit they can expect to make, but that profit is constrained, as they cannot earn more than the rate specified in the contract by making efficiencies or improving their performance (Kelman, 2002; McAfee & McMillan, 1986; Suhonen et al., 2019). The fee a supplier receives is based on their costs in delivering the service—including costs of supplies, labour, training, and any infrastructure needed—plus an agreed profit margin or fee. However, there are usually limits placed on the profit that suppliers can

earn in these contracts. Limits are generally set below the average profit of the industry in question, to account for the risk assumed by the government (see for example Federal Acquisition Regulation, 2023, Pt 15.404-4(c) in the US; and Ministry of Defence, 2023 in the UK). As a result, cost-reimbursement contracts are associated with a high probability of making a profit, as it is determined in advance and guaranteed in the legal contract, but a lower potential profit than the other two types of payment structures.

A potentially more lucrative, but less certain option is a fixed-price contract. A fixed price transfers more financial risk to the supplier than cost-reimbursement arrangements, because while revenue from the contract is certain, suppliers are liable for any changes in costs (Brunjes, 2018; Kim & Brown, 2012; Kim et al., 2016; Piatak & Pettijohn, 2021). Suppliers thus have the opportunity to increase their profit through efficiencies (Bajari & Tadelis, 2001; Malatesta & Smith, 2011; Suhonen et al., 2019; Tadelis, 2012) or, as early critics of contracting have pointed out, by shirking on unobservable elements of quality (Domberger & Jensen, 1997; Hart et al., 1997; Sclar, 2000). However, they also face the possibility that they may make little or no profit, or even a loss, if their costs are higher than expected. A variety of factors may affect cost, and many are beyond suppliers' control, such as changes in client needs (Kim et al., 2016) or the external economic environment (Piatak & Pettijohn, 2021). Nevertheless, in a fixed-price contract, suppliers are responsible for their own costs and must deal with this uncertainty. As a result, the potential profit is higher when a supplier is paid a fixed fee compared to cost-reimbursement designs, but the probability of realizing it will be lower.

Finally, performance-based contracts offer yet more opportunity to make profit, but the level of financial uncertainty faced by suppliers is the highest of the three main types (FitzGerald et al., 2019). Performance-based contracts incentivize good performance by offering suppliers who meet the agreed standards higher profits than they could earn from the other two contract types. However, it is also crucial that suppliers' revenue suffers if their performance does not meet the required standards (de Bruin et al., 2011; French et al., 2023; Koning & Heinrich, 2013; Scarano, 2023). As both revenue and costs are vari-

able, the supplier has the least certainty about the profit they can expect to make. Suppliers face the same possibility, as in fixed-price contracts, that their costs may be higher than anticipated, but also the possibility that they will not meet their performance targets and receive the associated payments. Suppliers have a degree of control over their own performance, but, as with costs, external factors, such as service demand or client needs, can also affect performance outcomes (Considine et al., 2020; Koning & Heinrich, 2013; Rice et al., 2018). Furthermore, suppliers are dependent on government buyers assessing their performance accurately. Previous research has identified that governments often struggle to do this (Dias & Maynard-Moody, 2007; Dubnick & Frederickson, 2010; Lazzarini et al., 2022), introducing another source of uncertainty for suppliers.

Indeed, the financial uncertainty suppliers face has led to many of the gaming problems associated with performance-based contracts. As previous studies have pointed out, behaviours such as "creaming" easy-to-serve clients and "parking" those with more complex, and therefore costly, needs can be a financial necessity for suppliers working under high-powered performance incentives (Greer et al., 2018; Koning & Heinrich, 2013). Compared to the other two contract types, therefore, the potential profit from performance-based contracts is high but, due to their inherent uncertainty, the probability of realizing that profit will be low. Table 3.1 shows the characteristics of each of the three payment structures and the profit expectations that result from them.

Table 3.1: Profit expectations of different contract payment structures.

Payment structure	**Features**	$Potential\,profit$	$Probability\,of\,profit$
Cost-reimbursement	Fixed profit	Low	High
Fixed-price	Fixed revenue Variable costs	Medium	Medium
Performance-based	Variable revenue Variable costs	High	Low

I expect that suppliers will weigh up the opportunity to make profit presented by a contract's payment structure against the probability that they will realize that potential profit. While suppliers may want adequate scope to make

a profit, I expect them to balance this with the possibility that they will not realize that profit, or even make a loss. First, I anticipate that the certainty offered by cost-reimbursement contracts will not be sufficient to make up for the lower financial return. Making profits below the industry average, as are offered by typical cost-reimbursement contracts (Federal Acquisition Regulation, 2023, Pt 15.404-4(c); Ministry of Defence, 2023), could be damaging to a supplier's share price (Mao, 2023; Narayanan, 1985; Terry, 2023). Despite their name, nonprofits also value the ability to make a return on contracts they supply to government, as it allows them to fund other activities that do not generate revenue and to contribute to organizational overheads (James, 2003; Park et al., 2022). For these reasons, I expect that the level of certainty offered by cost-reimbursement contracts will not be sufficient to outweigh small profits and that suppliers will prefer fixed-price contracts.

However, I also anticipate that the opportunity for profit offered by performance-based payment will not compensate for the accompanying financial uncertainty. This assumption is supported by evidence that suppliers struggle to manage the instability involved in being paid according to performance targets. As Romzek and Johnston (2005) identify, shifting risk to suppliers can cause them financial difficulties and undermine their ability to provide a quality service (see also Albalate et al., 2013; Pauly & Swanson, 2017; Terman & Feiock, 2016). Furthermore, as mentioned above, the gaming behaviour associated with performance-based payment can be interpreted as evidence of suppliers' desires to avoid the fiscal pressure that comes from such arrangements (Greer et al., 2018; Koning & Heinrich, 2013). Previous research would therefore suggest that suppliers, along with their investors or funders, may struggle with the level of financial uncertainty presented by performance-based payment and that the potential for more profit will not compensate for the lower probability of making that profit. I therefore expect that suppliers will also prefer fixed-price contracts compared to those that use performance-based payment. This leads to the chapter's first hypothesis:

Hypothesis 1: *Suppliers will prefer fixed-price contracts to the other two types of payment structures.*[2]

3.2.2 Relational governance and chances of winning

Next I turn to relational governance and its influence on potential bidders' expectations of their likelihood of winning a contract. I anticipate that relational governance practices' requirement for continuity will affect alternative suppliers' estimations of their chances of success. Foundational theories of relational governance agree that continuity is crucial for such arrangements to function (Blau, 1986; Macneil, 1987; Ouchi, 1980; Poppo & Zenger, 2002; Uzzi, 1997). Indeed, of the features of relational governance I lay out in Section 3.1.2, the maintenance of long-term, stable relationships is the most widely cited.

Long-term relationships are important for two reasons. First, a prior history of repeated interactions is necessary to build the trust, shared goals, and norms that facilitate relational governance (Amirkhanyan et al., 2012; Brown et al., 2016; Forrer et al., 2014; Gazley, 2008; Johnston & Romzek, 2005; Rho, 2013; Van Slyke, 2009; Young et al., 2021). Second, the expectation that a relationship will continue and the value of it doing so are the key mechanisms that encourage cooperative behaviour in relational governance (Bertelli & Smith, 2010; Grafton & Mundy, 2017; Poppo et al., 2008). As Gibbons (2005) puts it, "the value of the future relationship must be sufficiently large that neither party wishes to renege" (pp. 236–237). Poppo et al. (2008) find that, while both the former "shadow of the past" and the latter "shadow of the future" are needed for the development of relational practices, the "shadow of the future" is the critical component and mediates effect of the past. In other words, prior history encourages cooperation because it generates expectations of a future relationship.

Other features of relational governance, such as the flexibility given to suppliers and the open exchange of information, may increase the asset speci-

[2] In the preregistration, this hypothesis focused only on the probability of making a profit. Given the inverse relationship between the probability of profit and the amount of profit itself, I have adapted this hypothesis to include suppliers' consideration of the potential rewards from a contract.

ficity of a contract and therefore the length of contractual relationships. As discussed in Chapter 2, asset specificity—the degree to which investments in one business relationship can be transferred to others without losing value—increases the transaction costs of a contract changing hands, as those investments must be made again (Williamson, 1971, 1975, 1985a, 1996). When asset specificity is high, contracting parties therefore prioritize continuity in order not to lose the value of their investments (Williamson, 1981). Relational governance both requires and encourages such investments from both sides. For example, the open exchange of information in relational contracts allows suppliers to accumulate knowledge that will advantage them in future award rounds. The flexibility given to them can also enable incumbents to tailor provision to their strengths (Lamothe & Lamothe, 2012b). Expectations of a future relationship may even induce suppliers to make investments in assets such as equipment, training or infrastructure that are specific to the contract and further entrench their position (Felli et al., 2011; Van Slyke, 2007).

A natural consequence of relational governance practices is therefore long relationships with, and repeated contract awards to, incumbent suppliers (Li & Yang, 2020; Petrie, 2002; Van Slyke, 2009). However, while these long-term relationships may be vital to enable the collaboration and flexibility inherent in relational governance, they are unlikely to make contracts appealing to potential competitors. As recent literature from the construction industry identifies, suppliers consider the competitiveness of other bids to estimate their own chances of success, when deciding whether to bid for a contract (Kalan & Ozbek, 2020; Li et al., 2020; Marzouk & Mohamed, 2017; Oyeyipo et al., 2016; Perera et al., 2021). This can be translated as $Probability\,of\,winning$ in the formula presented earlier.

The number of times the incumbent supplier has won the contract in the past is a strong indication of their competitiveness and, as a result, the probability that an alternative supplier will be able to make a successful challenge. This is especially the case in government contracts, which are often subject to procurement regulations that require them to be re-advertised at the end of the contract term and limit when and how long they can be extended without

competition (Bovis, 2012; Brunjes, 2022). For this reason, it is possible that a government buyer is perfectly happy with their current arrangement and are only inviting bids because they are legally obliged to do so.

To avoid the wasted effort of submitting a bid for a contract where the incumbent is a strong favourite, shrewd suppliers must therefore pay attention to past awarding decisions. Potential bidders might reasonably assume that their probability of winning a contract is lower when an incumbent has won it many times before and higher when the incumbent is relatively new or when the contract is being advertised for the first time. This leads to a second hypothesis:

Hypothesis 2: *Suppliers will prefer contracts when the current supplier has won fewer previous contracts.*

3.2.3 The moderating role of uncertainty

Both H1 and H2 rest on suppliers' calculations of uncertainty, either about the profit they expect to make from a contract or about the chance that their bid will be successful. Uncertainty acts a mechanism linking contract management to suppliers' bidding decisions, through $Probability\,of\,profit$ for performance-based payment and $Probability\,of\,winning$ for relational governance. One way of testing this mechanism is to examine the way in which signals about uncertainty over the delivery and award of a contract moderate the effect of the two contract management approaches considered. Such signals can come from the type and weighting of criteria used to award the contract, which government buyers are generally required to state in the contract advertisement (see for example Directive 2014/24/EU, 2014; and United States Code, 2020, Pt 41.3306).

Government buyers can award contracts based on price alone or on price and a combination of quality measures. With the latter option, they also decide how much weight to give the criteria. As I will explain, larger weights given to quality criteria indicate greater degrees of uncertainty over both contract delivery and the award itself. The balance of award criteria will consequently influence suppliers' calculations of their probability of making a profit and thus their responses to different payment structures. Criteria weighting will also

influence suppliers' estimations of their probability of winning and with it their responses to buyers' prior relationships with incumbents.

Applied to the type of payment structure, a greater role for quality in the award criteria signals that the delivery of the contract is likely to be less predictable. Contracts may be simple to specify and outputs easy to measure, which means that both buyer and supplier can be relatively certain about what is to be delivered, or they may be "complex", with inputs difficult to predict in advance and outcomes difficult to measure (Brown et al., 2010a, 2010b, 2016; Tadelis, 2002).

Previous research has established a clear link between the complexity of contract delivery and the proportion of the award decision that is given to quality. For example, Schotanus et al.'s (2022) analysis of public procurements in the Netherlands found that quality formed a much larger part of award criteria in contracts for more complex services, such as community, social and personal services, compared to more simple contracts, such as hospitality and transport services.[3] Lundberg and Bergman (2017) find that Swedish government organizations allocate higher weights to quality criteria in award processes when the costs of delivery are less certain and when performance is less easily measured (see also Waara & Bröchner, 2006). A greater role for quality criteria therefore signals to suppliers that their cost estimates may be less reliable, increasing this component of uncertainty in fixed-price and performance-based designs, where the supplier is liable for changes in costs (Kim & Brown, 2012). Moreover, it indicates greater uncertainty about how their performance will be assessed, and therefore how much a supplier will earn under a performance-based structure.

Turning to relational governance and the long-term relationships with which it is associated, the role of quality criteria is also likely to be an influential signal about the predictability of the award outcome. While price is an objective measure, assessments of quality are at the discretion of public managers

[3]They reported that, on average, price accounted for 27.6% of the award decision for "Community, social and personal services" and 58.8% for "Distributive trade services; accommodation, food and beverage services; transport services; and utilities distribution services" (Schotanus et al., 2022, p. 4).

awarding the contract, who are often those responsible for its ongoing management and building relationships with selected suppliers (Fazekas & Kocsis, 2020). As explained in more detail in Chapter 2, when contract managers have discretion over contract awards, they may favour certain suppliers over others (Boland & Godsell, 2021; Szucs, 2023), including those with whom they have an established relationship (Coviello et al., 2018; Volker & Schotanus, 2023).

Contract award processes involving multiple criteria are also inherently more uncertain. Different decision-making systems that can be used to manage multiple criteria and different combinations of bidders can produce dramatically different outcomes (Schotanus et al., 2022). A greater weighting towards quality measures therefore produces greater uncertainty over the outcome of a contract award, as well as greater scope for a prior relationship with an incumbent to come into play.

When the uncertainty inherent in the contract is higher, we can expect tolerance for further uncertainty to be reduced. I predict that under high uncertainty, potential suppliers will be more sensitive to additional uncertainty and show a greater preference for payment structures and award histories that offer higher probabilities of making a profit and winning the contract. Cost-reimbursement contracts and new contracts with no incumbent offer the greatest certainty over profit and chances of winning respectively. I therefore expect preferences for these kinds of contracts to increase when award criteria are weighted towards quality. A third hypothesis is therefore:

Hypothesis 3: *When quality forms a majority of the award criteria, suppliers will prefer contracts where uncertainty is low.*[4]

3.3 Data and methods

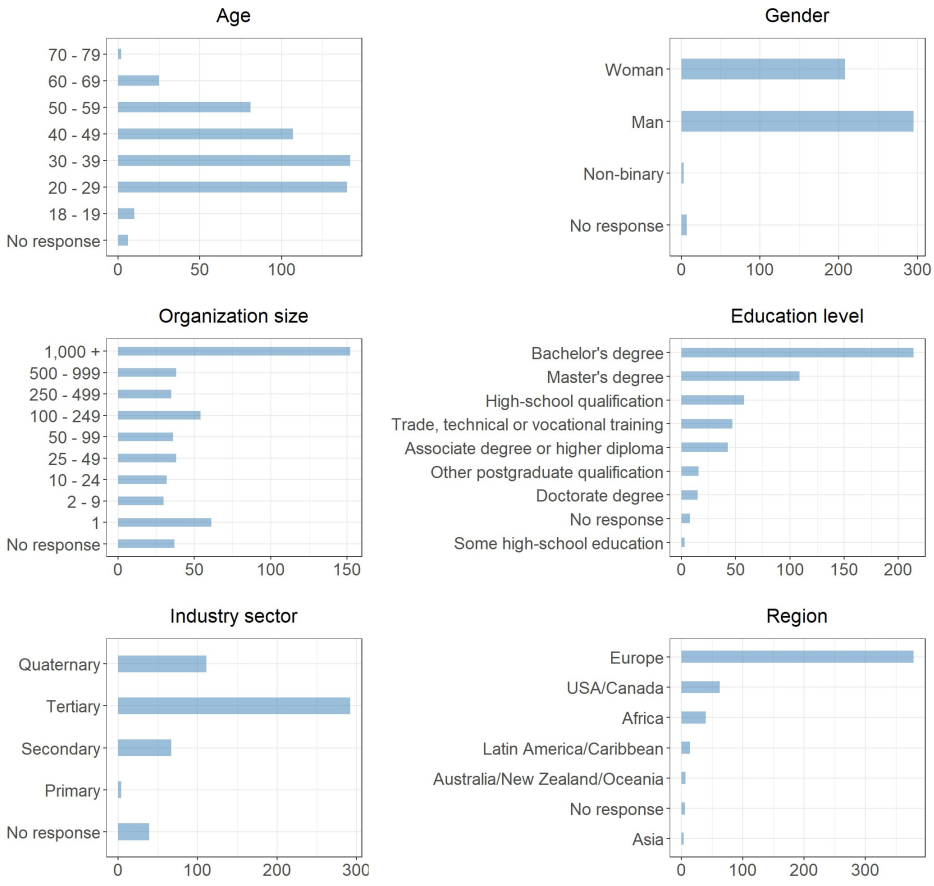
3.3.1 Data collection

To test the hypotheses set out in the previous section, I conducted an online survey experiment, employing a conjoint design in which participants chose

[4]This hypothesis was not included in the preregistration.

between three pairs of contract profiles. The design allows me to test a range of contract attributes and values while keeping the required sample size manageable (Hainmueller et al., 2014). The experiment was conducted through an online survey fielded on the Qualtrics platform between November 2021 and December 2022. I recruited 513 participants through a survey recruiter—Prolific Academic—and through an international professional body for people who manage commercial relationships—World Commerce & Contracting.[5] Figure 3.1 shows the distribution of participants by age, gender, organization size, level of education, industry sector, and geographical region.

Figure 3.1: participant numbers by age, gender, organization size, education, industry, and geographical region.



Participants recruited through the professional body all had direct experience of bidding for or supplying government contracts, while participants re-

[5]The preregistration only mentioned recruitment through professional organizations. However, due to difficulties reaching a sufficient sample size through these channels, I also invited paid participants through Prolific Academic.

cruited through the online survey recruiter had experience of negotiating and managing external relationships in general, but not necessarily with governments. Participants recruited through Prolific Academic had indicated in the recruiter's screening questionnaire that they had experience of "buying or supplying services or products to another organisation, relationship management, negotiation, [or] make-or-buy decisions". While this does not necessarily mean that these participants have direct experience of bidding for government contracts, they do have expertise within the wider domain of commercial and relationship management.[6] Furthermore, in the analysis presented below I test the robustness of my results to experience by examining variation in responses between participants with and without direct experience of supplying contracts to government and find no significant differences. Finally, I also ensured that participants were currently working outside the public sector, to avoid recruiting participants who were buyers rather than suppliers of government contracts.[7]

3.3.2 Experiment design

The experiment followed a conjoint design. In each experimental task participants chose between two contract profiles that varied in the type of payment structure used and the buyer's relationship history with the incumbent, as well as other attributes, such as the mix of criteria used to make the award, that are relevant to suppliers' choice of contracts and which I explain in more detail later. While conjoint experiments are an established method in the social sciences in general, they are relatively underused in the study of public administration (recent exceptions are Jilke & Tummers, 2018; and Oliveros & Schuster, 2018).

[6]Participants recruited through World Commerce & Contracting followed the procedure included in the preregistration and were screened out if they indicated that they had not had experience of working on government contracts. However, due to the availability of information about participants' relevant experience provided by Prolific Academic's screening survey, I retained all participants recruited through this channel and checked for differences in experience in the analysis.

[7]I excluded from the sampling frame participants who had reported their current employment sector as, "Government and Public Administration", "Medicine","Military", or "Policing" in the recruiter's screening questionnaire.

Conjoint analysis has several advantages over other experimental methods in assessing how different attributes influence participants' decisions. First, it allows researchers to assess participant preferences across a range of features using a smaller sample size than required by full factorial analysis (Hainmueller et al., 2014). Second, because conjoint analysis enables the inclusion of a greater range of relevant attributes and allows greater variation within those attributes, it presents participants with fuller profiles that more closely resemble real-world options. It can therefore improve the external validity of experiments through its "unique ability to help researchers systematically examine various decision-making processes faced by individuals in the real world" (de la Cuesta et al., 2022, pp. 43–44; see also Hainmueller et al., 2015). In the context of this research, the design has the advantage of closely replicating the bidding decision modelled in Section 3.2, in which suppliers weigh up the relative returns of bidding on contracts in a pairwise comparison.

I employ a forced-choice conjoint design with two alternatives. Participants were asked to compare two contracts and select the one for which they would prefer to submit a bid. They were asked to imagine the following scenario in which they are a manager of a resource-constrained team responsible for writing bids:

> You work for Sigma, a technology company that supplies services to the public sector. You manage a small team that is responsible for writing bids for contracts. At the moment, the team is very busy and only has capacity to respond to one more tender.
>
> On the following pages you will be shown three pairs of contracts that your team could bid for. The contracts are similar in all respects apart from the features listed. For example, they have similar technical requirements and require the same expertise. You are not the current supplier for any of the contracts and haven't bid for them in the past.
>
> For each pair of contracts, select one contract you would instruct your team to bid for.

Before completing the conjoint tasks, participants were asked questions about a range of pretreatment variables, such as their current and past experience of supplying contracts to the public sector. Following the experimental tasks, the survey gathered demographic information about the participants.

Each pair of contract profiles differs on five attributes: basis for payment; the contract's awarding history; the weighting of criteria to be used in the award; the bidding procedure; and their engagement with the buyer about this contract. Table 3.2 lists all five attributes and their possible values. The first two attributes allow me to test the two central hypotheses of the chapter (H1 and H2), while the third allows me to test the moderating effect of award criteria and thus provide evidence for the mechanistic role of uncertainty (H3). I use the two further attributes—bidding procedure and engagement with the buyer—to explore measures that governments could take to mitigate any effects of contract management on competition. I explain below that they may do this through their influence on suppliers' expectations about the costs involved in bidding and their chances of success respectively.

The design is fully randomized, with each level assuming an equal probability of being displayed within each manipulated attribute. No combinations of attribute values are excluded from the design. This means that it is possible for attributes to take the same value in both contract profiles being compared (see the criteria weighting attribute in Table 3.3 for an example). A limitation of this design is that it uses uniform distributions of attribute values, rather than distributions that reflect their prevalence in the real world. As de la Cuesta et al. (2022) identify, setting distributions of attribute values that mirror the rates at which they actually occur can boost the external validity of conjoint analysis, albeit at the expense of some statistical efficiency. Readers should therefore be aware that the design assumes even distributions of attribute values and interpret the results accordingly. The order in which the attributes appear to each participant were also randomized to eliminate ordering effects, but fixed for each participant in order to reduce cognitive load (Hainmueller & Hopkins, 2015).

Table 3.2: Conjoint treatment attributes.

Attribute	Value
Basis for payment	"Your fee will be based on your costs in delivering the contract."; "Your fee will be a fixed price."; "Your fee will be based on your performance in delivering the contract."
Incumbent relationship	"This is a new contract, so there is no current supplier."; "The current supplier won this contract for the first time last time it was awarded."; "The current supplier won this contract the last two times it was awarded."; "The current supplier won this contract the last three times it was awarded."
Criteria weighting	"Awarded based 100% on price."; "Awarded based 70% on price and 30% on quality."; "Awarded based 30% on price and 70% on quality."
Bidding procedure	"You and any other supplier can submit a full bid now."; "You and other suppliers must first complete a standard questionnaire and be selected to submit a full bid."; "You and other suppliers must first submit a detailed proposal and be selected to submit a full bid."
Engagement with buyer	"You haven't had any previous engagement with the buyer about this tender."; "You and the buyer have had informal conversations about this tender at events."; "You've been invited to bid for this tender directly by the buyer."

The first attribute is the basis for determining the supplier's payment, which will provide a test for H1. This attribute has three levels: cost-reimbursement; fixed-price; and performance-based. As discussed above, I consider the first of these to entail the least financial uncertainty for the supplier as they are protected against cost overruns, and it guarantees at least some profit. Fixed-price contracts entail more uncertainty, as costs must be estimated accurately to ensure profit, while performance-based contracts are the least certain for suppliers as both costs and revenue are uncertain and performance assessment is at the discretion of the buyer. The baseline category for this attribute, to be used in calculating effect estimates, is a fixed-price contract, as it is the most commonly used of the three payment structures and is usually the default option for government contracts (Brunjes, 2018; Kim & Brown, 2012; Tadelis, 2012).

The second attribute describes the government buyer's relationship with the incumbent supplier, if one exists. This is operationalized as the number of

times an incumbent has won the contract previously and provides a test of H2. As outlined in Section 3.1.2, continuity in buyer-supplier relationships is a core feature and manifestation of relational governance practices. The number of prior awards to the incumbent is an indicator of such continuity. I chose the incumbent's history of winning the contract, as opposed to the overall duration of the relationship, as it is a stronger signal of the buyer's commitment to continuing with the current supplier.

Furthermore, prior award history does not give any information about the length of the contract currently being advertised and therefore should not change participants' assessment of the value of the contract, whereas the duration of the relationship with the current supplier might. The length of time an incumbent has been working with the buyer could suggest to participants that the current contract also has a lengthy term. The duration of the advertised contract naturally changes its total value to a supplier—with longer contracts producing higher estimates of the total potential profit than shorter ones—and is therefore likely to influence their willingness to bid. For this reason, I hold the length of the contract constant and instead use awarding history to describe the buyer's relationship with the incumbent. For this attribute, I use a new contract with no incumbent supplier as a baseline by which to calculate effect estimates for an incumbent having won the contract once, twice, and three times previously.

A third attribute, describing the weighting of award criteria, enables me to test H3 by examining interactions with payment structure and award history. Criteria may be entirely based on price (the baseline category), include quality but be weighted towards price, or be weighted towards quality. It is very rare, and in many cases entirely prohibited for contracts to be awarded solely based on quality. For example, a price element is required both by EU procurement rules and the WTO Government Procurement Agreement, which governs major parts of public procurement in twenty signatory countries plus the EU and its member states (Directive 2014/24/EU, 2014; World Trade Organization, 2012). Therefore at least some of the criteria weighting is allocated to price in all three values of this attribute.

I include a further two attributes which previous literature suggests governments may alter in order to attract competition, and which could affect suppliers' decisions to bid: bidding procedure; and the buyer's engagement with the prospective supplier about the contract. Previous research has identified governments' choice of procurement process as one of the ways they attempt to encourage more bids (Amaral et al., 2009). There is also evidence that different procedures impose different burdens on prospective suppliers, thereby influencing the costs to them of bidding (Petersen et al., 2022; Potoski, 2008). The bidding process is thus a key determinant of $Bidding\,costs$ in the decision modelled above. The values of this attribute are based on types of bidding procedure covered by the Government Procurement Agreement (World Trade Organization, 2012), EU procurement regulations (Directive 2014/24/EU, 2014, Arts 27-31), and US federal procurement procedures (Federal Acquisition Regulation, 2023, Pt 6.1-2), so correspond to processes suppliers typically follow when bidding for government contracts.

The level of engagement the prospective supplier has had with the buyer about the advertised contract is also likely to influence their decision to bid by increasing their estimated probability of winning. This feature takes three levels: no engagement about the contract; informal conversations with the buyer at industry events; and a direct invitation to bid from the buyer. Literature on contract managers' market management strategies tells us that these are some of the activities they engage in to generate and sustain competition (Brown & Potoski, 2004; Coviello & Mariniello, 2014; Girth et al., 2012). For simplicity, this attribute does not mention any previous relationships delivering this or other contracts together, as doing so could create confusing and unrealistic scenarios and produce complex interactions when combined with the buyer's relationship with the current supplier.

I also hold constant several factors that may affect participants' perceptions of the attributes of interest and in turn may influence bidding decisions. For example, suppliers may expect contracts with more burdensome procurement procedures to be of greater financial value and may choose to bid for them on that basis. Participants are informed in the preamble that the techni-

cal requirements and expertise needed are similar for all contracts, as previous research has shown that the alignment between contract requirements and suppliers' own skills is an important factor in their bidding decisions (Alsaedi et al., 2019; Kalan & Ozbek, 2020; Li et al., 2020). Moreover, contract requirements may affect participants' perceptions of the likely costs involved in supplying the contract, thereby influencing their expected profit. I do not assess the effect of this variable, as I assume the scope and nature of the service being contracted is largely out of the control of those assigned to manage that contract. In addition, the primary purpose of this study is to examine the effects of *how* government contracts are managed and not decisions about *which* government activities are contracted out.

As mentioned earlier, I hold constant the contract duration, as this affects the total value of the contract to suppliers. Contract duration could also affect participants' perceptions of the relationship with the incumbent, thereby complicating the interpretation of any effects of that variable. Finally, the estimated annual value of the contract is fixed, as I anticipate it to be extremely influential in suppliers' decisions, and several of the manipulated attributes, such as criteria weighting or biding procedure, may affect participants' perceptions of value. As with the scope of the contract, manipulating a contracts' value is rarely an option open to government buyers, as increasing value to attract more bidders would undermine the cost-efficiencies that are a central goal of contracting out.

I present the *estimated* value and not a price that the government is committing to pay. This allows participants' perceptions of the potential profit they could make and the probability of realizing that profit to vary according to the basis for payment, as discussed in Section 3.2.1. For example, in a fixed-price contract the supplier's costs may vary, thus determining their profit, and in a performance-based contract the supplier's revenue can also exceed or fall below the estimated value according to their performance.

I specify both contract duration and estimated annual value explicitly within the contract profiles. They are simple to display in this manner and

doing so reduces the amount of information participants must remember from the preamble, thereby minimizing cognitive load. Table 3.3 displays an example pair of contract profiles. Note that the criteria weighting is the same in both profiles, as attributes can take on the same value in each pair of contracts.

Table 3.3: Example conjoint treatment.

	Contract A	**Contract B**
The way your fee will be determined	Your fee will be based on your performance in delivering the contract	Your fee will be a fixed price
The buyer's relationship with the current supplier	The current supplier won this contract for the first time last time it was awarded	The current supplier won this contract the last three times it was awarded
Criteria weighting	Awarded based 70% on price and 30% on quality.	Awarded based 70% on price and 30% on quality.
Bidding procedure	You and any other supplier can submit a full bid now	You and other suppliers must first submit a detailed proposal and be selected to submit a full bid.
The buyer's engagement with you about the tender	You and the buyer have had informal conversations about this tender at events.	You've been invited to bid for this tender directly by the buyer.
Estimated annual value	$500,000	$500,000
Contract length	3 years	3 years

The survey was designed in collaboration with the professional body, World Commerce & Contracting, to ensure that the design was clear and comprehensible to a general audience of contracting professionals from a range of sectors and with a range of experience. I also pretested the survey with six participants, who were current or former suppliers to a range of government organizations. They completed the survey and I then conducted interviews with them to check their understanding of the scenarios, treatments, and questions. I also asked about the degree to which the experiment mimicked actual decisions they might make in the course of their work. I used the interviews to revise potentially ambiguous language, to improve the realism of the scenario and tasks, and to make the survey easier to navigate.

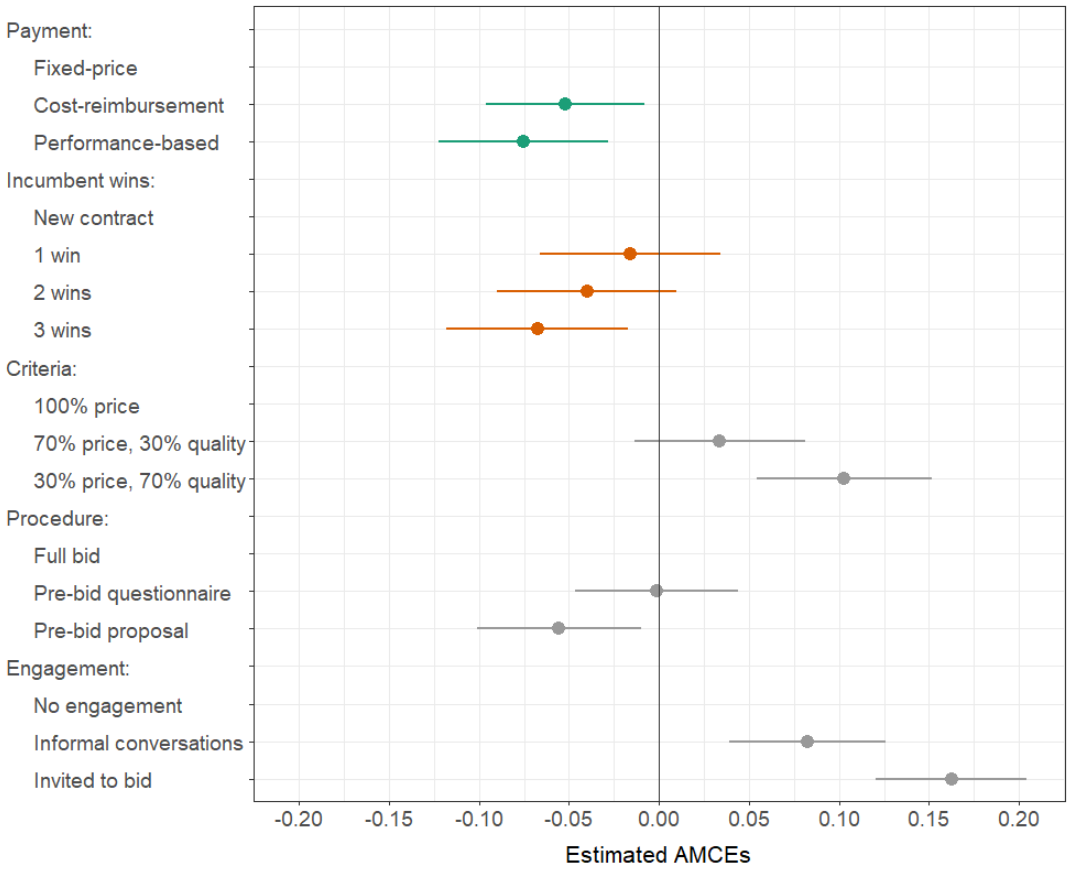
3.4 Results

To understand how contract managers' choices about supplier payment and relationship management influence competition, I estimated linear probability models of the effects of a contract's basis for payment and the incumbent's relationship history on participants' contract choices. Table 3.4 shows estimated average marginal component effects (AMCEs) for the five contract attributes. Figure 3.2 displays these results as point estimates with 95% confidence intervals. Standard errors are clustered at the participant level, as participants each chose between three pairs of contract profiles.

The AMCE defines the effect of an attribute taking on a certain value relative to some reference category when all other attributes are averaged out (Hainmueller et al., 2014). To take award history as an example, the AMCE captures the probability that a participant will choose a contract where the incumbent has won previously (once, twice, or three times) over an otherwise identical contract that is being advertised for the first time (the reference category). I also report estimates of the marginal means for each attribute value, which represent the overall probability that a participant will select a contract profile when a contract attribute takes on a specific value (Clayton et al., 2021; Leeper et al., 2020; Miwa et al., 2021). Figure 3.3 shows marginal mean estimates for each attribute value, again with 95% confidence intervals and standard errors clustered at the participant level. A full table of these estimates is given in Appendix B.1.

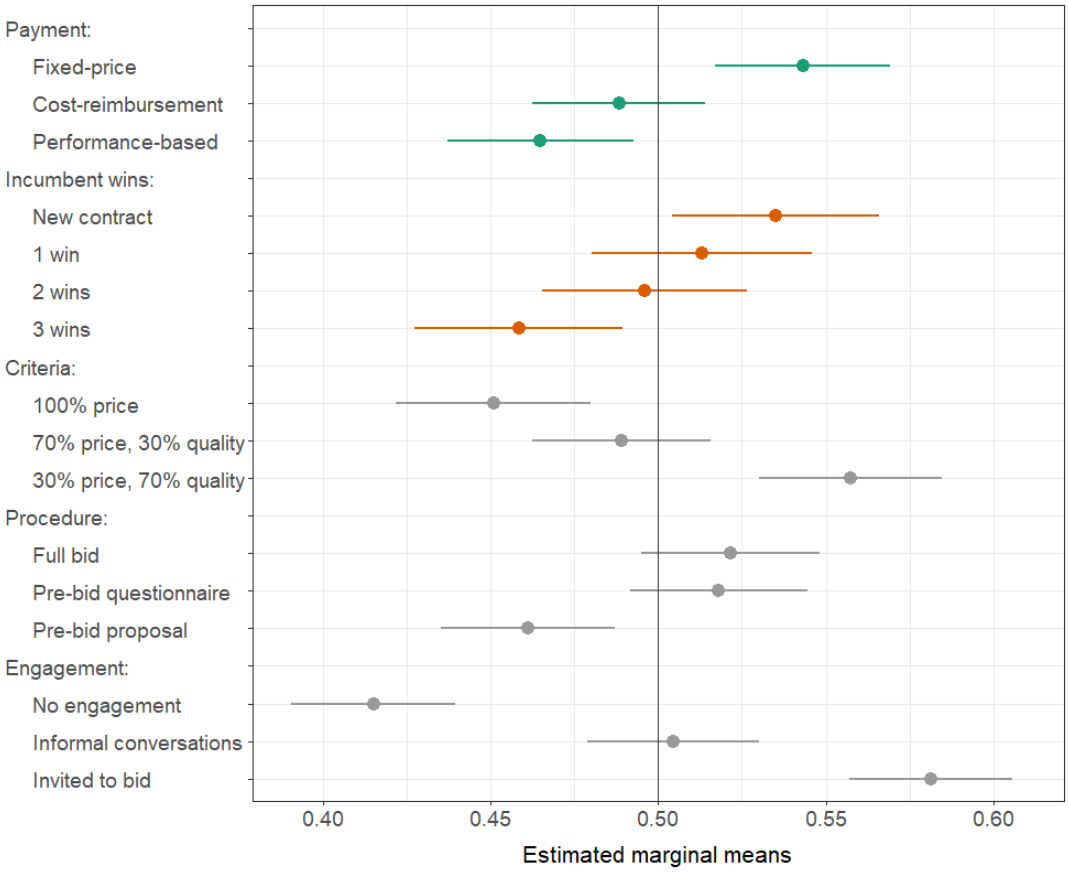
Looking first at the basis for payment, H1 is supported. Both performance-based (-7.6%) and cost-reimbursement contracts (-5.2%) deter participants from choosing a contract compared to a fixed-price payment structure. The results suggest that participants neither maximize certainty of return nor opportunity for profit, but appear to prefer a middle ground between the total potential profit and the probability of making that profit. This finding is interesting when considered in combination with previous studies that find that governments employ cost-reimbursement contracts in markets where they have less power and therefore need to attract suppliers to bid (Brunjes, 2018;

Figure 3.2: AMCE estimates of contract attributes on bidding decisions.



Note: Points represent estimates of AMCEs compared to the baseline category and bars represent their 95% confidence intervals.

Figure 3.3: Marginal mean estimates for bidding decisions dependent on contract attributes.



Note: Points represent estimates of marginal means and bars represent their 95% confidence intervals.

Table 3.4: AMCE estimates.

Attribute	Value	AMCE	Standard error
Payment	Fixed-price	–	–
	Cost-reimbursement	-0.052^{**}	(0.023)
	Performance-based	-0.076^{***}	(0.024)
Incumbent wins	New contract	–	–
	1 win	-0.016	(0.026)
	2 wins	-0.040	(0.025)
	3 wins	-0.068^{***}	(0.026)
Criteria	100% price	–	–
	70% price, 30% quality	0.034	(0.024)
	30% price, 70% quality	0.103^{***}	(0.025)
Procedure	Full bid	–	–
	Pre-bid questionnaire	-0.001	(0.023)
	Pre-bid proposal	-0.056^{**}	(0.023)
Engagement	No engagement	–	–
	Informal conversations	0.082^{***}	(0.022)
	Invited to bid	0.162^{***}	(0.021)
Observations	1,539		
participants	513		

Note: *p<0.1; **p<0.05; ***p<0.01
Standard errors are clustered by participant.

Kim et al., 2016; Malatesta & Smith, 2011). The result suggests that governments may be adopting the wrong strategy and that potential profit may be as important to suppliers as certainty about making a profit. Participants do not seem to avoid uncertainty at all costs. Instead, fixed-price contracts appear to be the more attractive balance of risk and reward.

The results do suggest, however, that participants' expectations about the probability of making a profit still play a role and that participants are less willing to bear the level of uncertainty involved in performance-based contracts, compared to that of fixed-price contracts. This finding aligns with the concern of previous literature that such contracts, and the financial uncertainty that they entail, may be damaging for suppliers (Albalate et al., 2013; Pauly & Swanson, 2017; Romzek & Johnston, 2005; Terman & Feiock, 2016) and that they will take measures to avoid such risks (Greer et al., 2018; Koning & Heinrich, 2013). Importantly, it supports the argument made in this chapter that managing supplier performance through financial incentives could deter potential suppliers from bidding, thereby reducing competition.

Turning to the buyer's relationship with the incumbent, which I use as a proxy for relational governance approaches, H2 finds support. Repeated awards to the same supplier discourage participants from choosing a contract. This effect only becomes significant after three awards to the incumbent supplier (-6.8%), suggesting that, in practice, the effect may take some time to accumulate. The finding suggests that government buyers may safely stick with the same supplier for one or two awards but should be wary of remaining with a familiar incumbent for too long if they want to maintain competition. It is reasonable to assume that we would see even larger effects for more repeated awards, which is not uncommon, especially in markets with only a few suppliers (Girth et al., 2012; Siemiatycki, 2011; Van Slyke, 2003). Meanwhile, participants demonstrate a marked preference for contracts being advertised for the first time and, as shown in Figure 3.3, were more likely than not to select new contracts.

Overall, these results offer a potential explanation for previous findings that markets for government contracts become less competitive as contracts are re-awarded (Bel & Fageda, 2011; Davies, 2007; Dijkgraaf & Gradus, 2008; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000). They suggest that repeated awards to the same supplier may prompt existing competitors to exit the market, as well discouraging new entrants. This contrasts with an alternative scenario in which participants viewed higher numbers of previous awards to an incumbent as an indicator of low competition and therefore higher chances of winning. In this scenario, new contracts would indicate higher competition and therefore lower probabilities of winning and we would see the opposite of the results presented here. These findings suggest that this is not the case, or at least that prior award history is a more powerful signal of incumbent advantage and that this determines participants' contract choices. The findings also provide evidence for the mechanism I suggest in Chapter 2, that close relationships between government buyers and suppliers depresses competition through discouraging signals sent to the wider market.

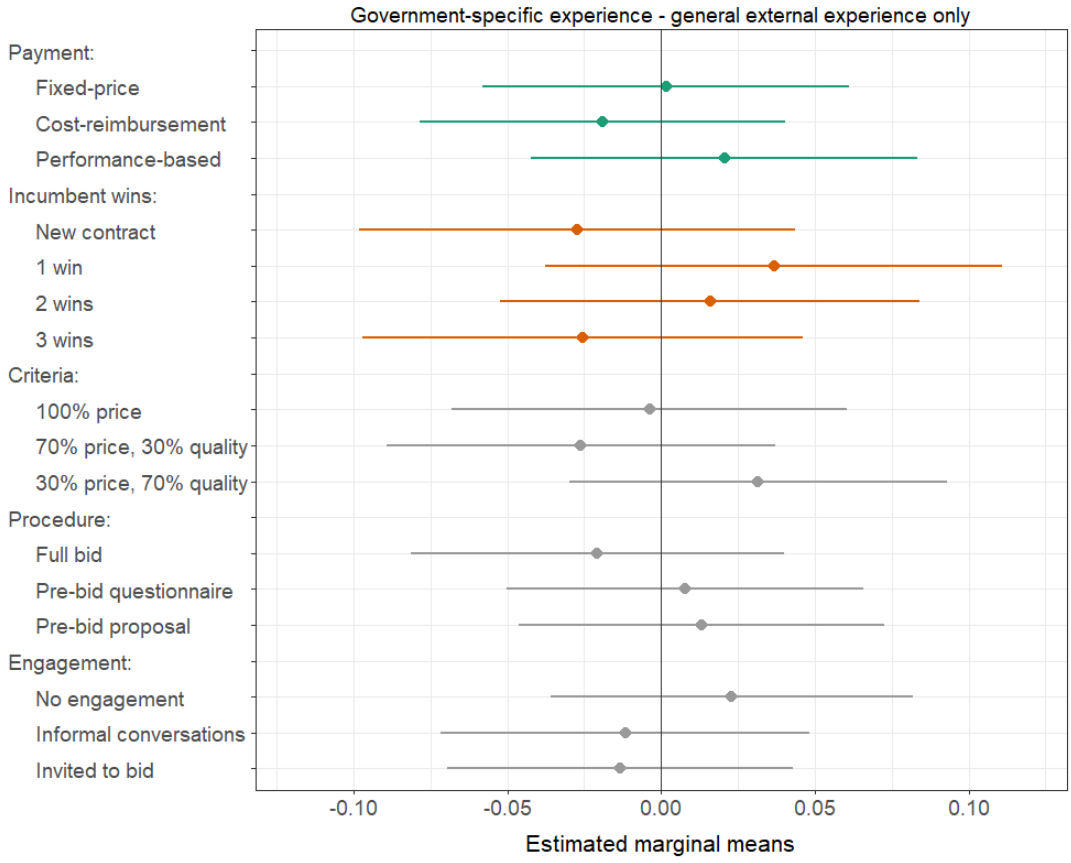
3.4.1 Robustness to participant experience

As discussed in Section 3.3.1 above, some participants in the sample do not have direct experience of bidding for or supplying government contracts and only have experience managing external relationships and negotiations in general. One might worry that these two groups exhibit different preferences, which would threaten the external validity of the findings. To investigate this possibility, I estimate interactions between participants' contracting experience and the attributes of interest.

For this analysis I use the marginal mean as the quantity of interest. While the AMCE is valuable in determining effect sizes and their statistical significance for simple comparisons between attribute values, its sensitivity to the baseline category makes it unsuitable for measuring heterogeneous effects. As Leeper et al. (2020) demonstrate, differences in preferences for the baseline category can produce misleading results when investigating interactions with other variables using the AMCE. In contrast, marginal means are not relative to a reference category, but to an overall mean probability of 0.5 and consequently do not suffer from this problem. For this reason, they are preferable to the AMCE when analyzing interactions in conjoint experiments (Clayton et al., 2021; Leeper et al., 2020; Miwa et al., 2021). I therefore report marginal mean estimates in the following analyses of interaction effects.

Figure 3.4 displays differences in marginal mean estimates between participants with government contracting experience and those with more general experience of external relationship management and negotiation (see Appendix B.2 for a full table of estimates and standard errors). I did not detect any statistically significant differences between the two groups. As Figure 3.4 depicts, across all contract attributes and values, differences in marginal means are not significantly different from zero. It is therefore reasonable to assume for the purposes of this research that participants without government-specific contracting experience exhibit similar preferences to those with experience of supplying to government.

Figure 3.4: Differences in marginal mean estimates dependent on experience of supplying government contracts.

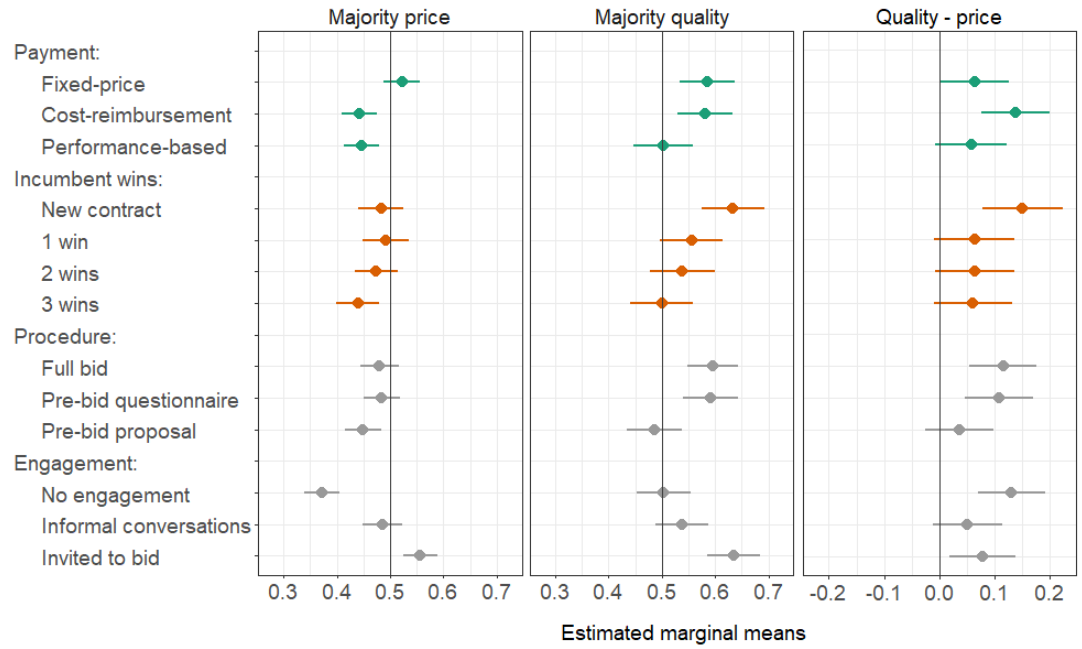


Note: Points represent the difference in marginal mean estimates between participants with experience as a government supplier and to those without (baseline) and bars represent their 95% confidence intervals.

3.4.2 Interaction with uncertainty

We can now examine whether payment structure and relationship history with the incumbent influence participants' contract choices through the mechanism of uncertainty. To do this, I estimated interactions with the weighting of quality criteria used to assess bids, as a proxy for uncertainty in both the award and delivery of a contract. Figure 3.5 displays marginal mean estimates for the four remaining attributes for contracts where price make up the majority of criteria and where quality is the majority, as well as estimates of the differences in marginal means (Table B.3 in Appendix B.3 gives these estimated differences and their standard errors). H3 is supported by the data, in that preferences for contracts with less uncertainty, namely cost-reimbursement contracts and new contracts with no award history, are significantly higher when quality forms the majority of award criteria.

Figure 3.5: Marginal mean estimates for bidding decisions dependent on criteria weighting.



Note: Points represent marginal mean estimates and bars represent their 95% confidence intervals.

While fixed-priced contracts are clearly preferred by participants when criteria are weighted towards price—signalling lower uncertainty—when quality is more influential in the award, participants are as likely to select cost-

reimbursement contracts as they are to select fixed-price contracts. This result partly aligns with previous findings that uncertainty and complexity in contract delivery increases the likelihood that a cost-reimbursement structure will be used (Brunjes, 2018; Kim et al., 2016). However, participants' preference for cost-based payment structures only increased to the level of that for fixed-price contracts in majority-quality awards. A possible explanation for the deviation from previous literature is that these studies have examined negotiated contracts, whereas I focus on preferences at the bidding stage. Suppliers may prefer to compete on a fixed price rather than their profit margin when bidding, but negotiate payment based on costs once they have won the contract. More research is therefore needed to investigate how suppliers' preferences and behaviour change between bidding and negotiation and any differences that emerge between the advertised contract and the one that is signed.

For majority-quality awards, participants were also significantly more likely to choose new contracts—where a prior relationship with the incumbent does not threaten their chances of winning—than they were for majority-price awards. Where the weighting of award criteria signifies greater uncertainty, a high probability of winning appears to be a bigger draw than when criteria suggest less uncertainty. This is a particularly interesting finding given that relational governance is often employed when contracts are difficult to specify and quality is difficult to verify (Brown et al., 2007, 2018; Malatesta & Smith, 2014; Smyth & Edkins, 2007; Van Slyke, 2007; Warsen et al., 2018, 2019) and that these are also the circumstances under which majority-quality criteria are required (Lundberg & Bergman, 2017; Schotanus et al., 2022; Waara & Bröchner, 2006). Ironically, under conditions of uncertainty, where the literature suggests that relational governance is most needed, potential competitors have an even greater preference for contracts without a relationship history. Overall, the interactions of award criteria with payment structure and the incumbent's prior relationship with the buyer indicate that uncertainty may play an important role in suppliers' bidding calculations, both in their assessment of their chances of winning the contract and in the probability that they will make a profit from delivering it.

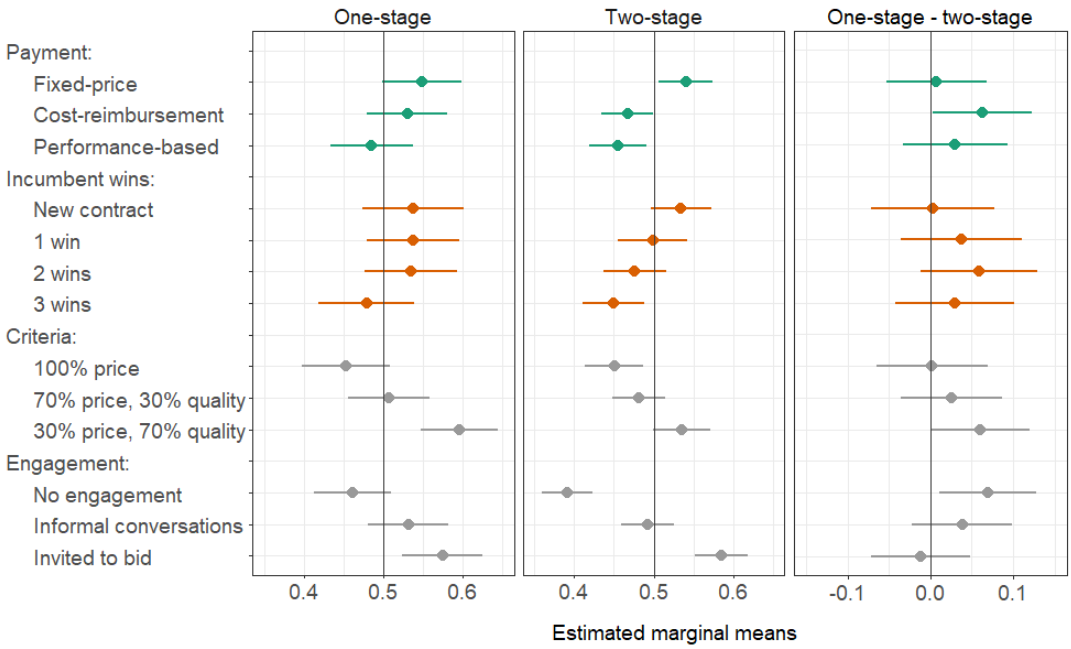
3.4.3 What can governments do?

Faced with the knowledge that two growing trends in contract management—performance-based payment and relational governance—may dampen competition for their contracts, what can governments do? As discussed in Section 3.1, there are valid reasons that contract managers may still wish to engage in these practices. Taking steps to mitigate the effects of these approaches on competition may be more desirable than abandoning them altogether. To identify possible mitigations, I examine two further interactions: with bidding procedure; and with active bid solicitation.

First, to induce potential competitors to bid, governments could reduce the costs to suppliers of bidding. Expected bidding costs are a central element of the decision modelled above, with lower values theoretically improving the expected return from submitting a bid. One way in which contract managers have control over bidding costs is through the procurement procedure they select. Previous literature has identified that changes in procedures can substantially influence the costs to potential suppliers of engaging with a contracting process (Petersen et al., 2022; Potoski, 2008) and that governments consider this when attempting to attract bids (Amaral et al., 2009). I therefore estimate the interaction of bidding procedure with other contract attributes.

Figure 3.6 displays a comparison in marginal mean estimates between one- and two-stage award processes (see Table B.4 in Appendix B.3 for estimated differences in marginal means and their standard errors). These results suggest that altering the bidding procedure may not be an effective strategy for contract managers looking to compensate for the effects of performance-based contracts and relational governance on competition. The only significant increase in participants' likelihood of choosing a contract is for cost-reimbursement structures, suggesting that reducing the expected bidding costs may make up for the low potential profit from these contracts. However, it does not make a significant difference to participants' attitudes towards performance-based payment or incumbent relationship history.

Figure 3.6: Marginal mean estimates for bidding decisions dependent on bidding procedure.



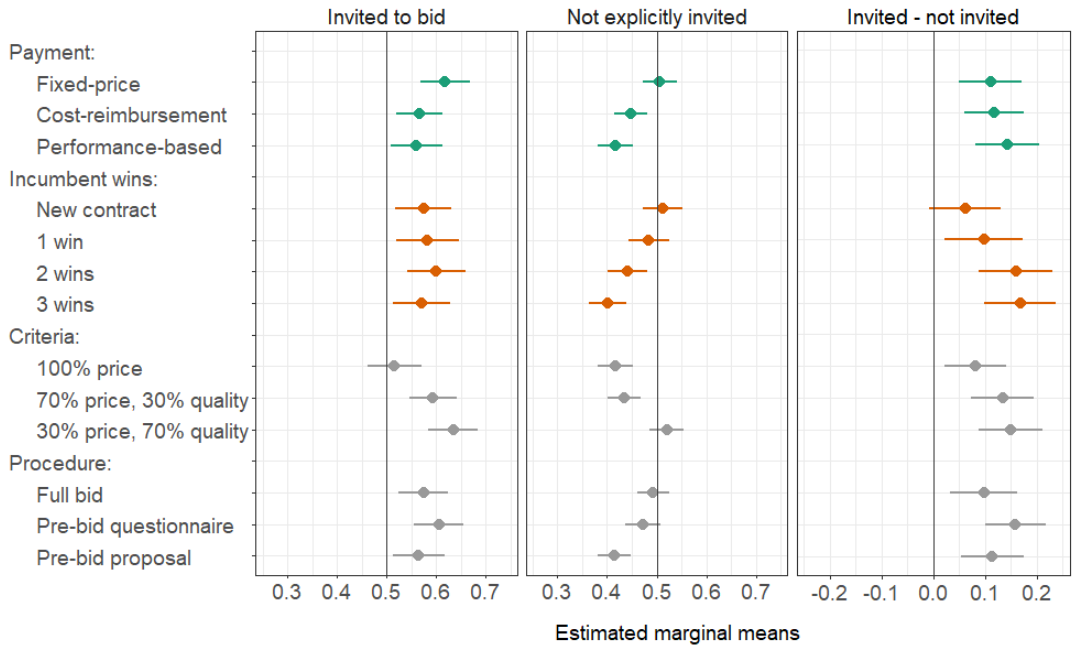
Note: Points represent marginal mean estimates and bars represent their 95% confidence intervals.

Second, contract managers could offset any damaging effects of their contract management approaches on competition by raising potential competitors' estimations of their chance of winning the contract. As previously mentioned, governments may invite bids from suppliers directly in order to generate competition (Brown & Potoski, 2004; Girth et al., 2012). This may signal to the market that a government is serious about considering competing bids, rather than already having a supplier in mind. Furthermore, direct engagement with the buyer may improve a supplier's confidence that they can win the contract by signalling that their particular bid is welcome.

Figure 3.7 shows the impact on marginal mean estimates for the remaining contract attributes of a buyer having invited the supplier to bid (Table B.5 in Appendix B.3 lists the estimated differences in marginal means displayed and their standard errors). Perhaps unsurprisingly, almost across the board, a direct invitation to bid raises the likelihood of a participant selecting a contract. The impact on the three different payment structures is relatively uniform, indicating that, while explicit invitations to bid can improve the appeal

of performance-based contracts, they may not do so relative to the other two types.

Figure 3.7: Marginal mean estimates for bidding decisions dependent on invitations to bid.



Note: Points represent marginal mean estimates and bars represent their 95% confidence intervals.

What is most interesting, however, is that a direct invitation to bid effectively neutralizes the effect of relationship history with the current supplier. Bid solicitation does not make a significant difference for new contracts, but its effect increases with more awards to the current supplier. It would seem therefore that the detrimental effects of repeated awards to an incumbent may be counterbalanced by the positive impact of bid solicitation through its influence on suppliers' estimated probability of winning.

3.5 Conclusions

This chapter has examined the effects of two prominent contract management approaches—performance-based payment and relational governance—on the probability that a supplier will decide to bid for a government contract. I have constructed and experimentally tested a model of potential competitors' bid-

ding decisions based on their perceptions about the profit they will make from a contract, their chances of winning, and the costs of the bidding process. From this model, I suggest that both performance-based contracts and relational governance have the potential to dampen competition. I argue that performance-based payment structures will reduce potential competitors' certainty about the profit they will generate from the contract and that relational governance approaches will make them less certain that they will win the contract in the first place.

The chapter presents an analysis of a conjoint experiment with current and potential government suppliers, which supports this argument. Performance-based payment structures and repeated awards to an incumbent supplier—which previous research suggests is a manifestation of relational governance practices—both deterred participants from choosing a contract. I also present evidence to suggest that uncertainty plays a major role in suppliers' decision-making and that governments may be able to offset some of the negative effect of repeated awards to the same supplier through active bid solicitation. The findings in this chapter corroborate those of Chapter 2 and provide further causal evidence of the relationship between different styles of contract management and market competition.

The findings suggest that each contract management approach comes with a trade-off, in the form of reducing competition in the wider market. More broadly, they suggest that governments must pay attention to the market implications of their management strategies if they are to act as effective buyers. Given the centrality of competition to arguments for contracting, and its core role in delivering many of the benefits associated with the practice, governments must be aware that any gains from a contract management approach could be cancelled out by reductions in competition. Promoting competition in public service delivery may not be a government's only goal when contracting out their activities (Caldwell et al., 2005). For example, they may seek to gain innovative ideas or expertise from external organizations or access more flexibility in resourcing. However, if their contract management strategies inhibit

competition, they may need to consider whether they can realize these other benefits without a competitive market.

The two management approaches considered here are often implemented as substitutes for underpowered market accountability. However, they still require some degree of competition to function effectively. First of all, some competition is required to keep suppliers' prices at an acceptable level, to ensure that public contracts remain cost effective. Previous research has pointed to the danger of prices creeping up when an incumbent does not face a credible threat from the market (Parker & Hartley, 2003).

Second, both performance-based pay and relational governance rest on incentives for the current supplier that only operate if the government to has access to alternative suppliers. If no alternative suppliers are available, incumbents may not continue to accept the level of financial uncertainty that performance-based contracts entail. As Johnston and Girth (2012) point out, when competition is low or absent contract managers face greater pressure to retain their current supplier, by offering them favourable contractual terms or by enforcing the current terms less stringently. A lack of competitive pressure also hampers contract managers in executing the terms of performance-based contracts. As previous research has shown, dependence on a supplier can reduce governments' ability and willingness to follow through with financial performance incentives, even though they are specified in the formal contract (Girth, 2014; Johnston et al., 2004; Lamothe & Lamothe, 2012b; Romzek & Johnston, 2005; Van Slyke, 2007).

Similarly, the incentives to cooperate created by relational governance are dependent on governments' access to alternative suppliers. While confidence that the relationship will continue is a key element of this style of contract management, it also requires some possibility that the relationship may end. As Bertelli and Smith (2010) put it: "The centerpiece of managing relational contracts is *credibility*: Public managers must skillfully terminate some relationships without losing the credibility to develop and enhance others" (p. i23). Without access to alternative suppliers, governments lose such credibility. If a

supplier is completely certain of a buyer's dependence on them, they face, and may ultimately give in to, the temptation to exploit such a power imbalance (Brown et al., 2007; Dijkgraaf & Gradus, 2007; Lamothe & Lamothe, 2012a). The payoffs of cooperation can also change suddenly as a result of exogenous shocks (Bertelli & Smith, 2010). Maintaining at least some competition in the market is therefore imperative for governments to insulate themselves against the risk of supplier opportunism, even when employing a relational approach to contract management. The case of the erosion of the market for the Danish ambulance service described by Wadmann et al. (2019), which was a result of relational governance strategies and ended in a costly re-internalization process, illustrates the dangers to governments of not doing so.

It is even more important to consider the impact of these management approaches on potential suppliers' bidding decisions because both approaches are responses to uncompetitive markets. The results presented here suggest that performance-based payment structures and relational government practices both have the potential to reduce competition for government contracts. Therefore, applying either of these strategies without consideration of their wider impacts on the market environment could lead public managers into a vicious cycle of meeting low competition with measures that themselves reduce competition. To understand how governments might avoid such a cycle, I have also evaluated some measures they might take to counteract the effects identified. While I do not find evidence that reducing bidding costs through the selection of procurement procedure will be particularly effective, I do find that inviting potential suppliers to bid may neutralize the effect of incumbent relationships, and boost the popularity of contracts overall.

The findings contribute to the study of the payment structures used in government contracts. The study advances our understanding of the problems associated with performance-based payment beyond the issues they raise *within* a contract, such as difficulties constructing effective measures (Dias & Maynard-Moody, 2007; Dubnick & Frederickson, 2010; Lazzarini et al., 2022; Rees et al., 2014) and preventing gaming behaviour (Dias & Maynard-Moody, 2007; FitzGerald et al., 2019; Heckman et al., 2002; Heinrich, 2007, 2011; Jensen

& Stonecash, 2005; Koning & Heinrich, 2013; Lu, 2016). I identify a different source of concern, namely that these approaches could deter other potential suppliers, thereby reducing pressure from the market at the same time as they apply pressure through financial incentives.

Some studies have pointed towards the potential for performance based-payment structures to create problems in public procurement markets, for example by jeopardizing suppliers' financial stability. However, these studies still focus primarily on *existing* suppliers and the potential that they will not accept the proposed payment structure (Pauly & Swanson, 2017; Terman & Feiock, 2016), reduce their effort (Romzek & Johnston, 2005; Terman & Feiock, 2016), or game performance targets (Greer et al., 2018; Koning & Heinrich, 2013). This research therefore expands the focus of the literature to consider how the financial concerns of other suppliers in the market might influence competition.

The results presented here also contribute to scholarship on the use of cost-reimbursement contracts. Notably, the finding that suppliers appear to prefer the balance of risk and reward offered by fixed-price contracts over the certainty presented by cost-reimbursement structures runs counter to previous findings that governments offer the latter type of contract when they need to court potential suppliers (Brunjes, 2018; Kim et al., 2016; Malatesta & Smith, 2011). A crucial difference between this and previous research is that I measure preferences about payment structure at the bidding stage, whereas previous studies assess contracts that have been negotiated. The difference in results suggests that governments are either adopting the wrong strategy to attract suppliers, or that payment structures, and suppliers' preferences for them, change between bidding and negotiation. Future research could explore these possibilities, as well as integrating performance-based payment structures into such comparisons.

In addition, this chapter, along with Chapter 2, advances our understanding of the pitfalls of relational governance. In providing causal evidence to suggest that a core feature of relational governance—continuity in relationships—deters competing suppliers, I highlight that governments may limit compe-

tition by engaging in such approaches. The chapter adds further weight to nascent concerns by scholars such as Wadmann et al. (2019) that the literature has so far overlooked the dangers that governments face when pursuing relational governance. The findings in this and the previous chapter suggest that future research on relational governance could benefit from adopting a more critical perspective.

The results also strengthen the arguments made by previous studies that governments cannot rely on markets to work their "magic" when contracting (Heinrich et al., 2010; see also Lamothe & Lamothe, 2009, 2010). In situations when relational governance is needed to curb opportunism, allow flexibility, or facilitate learning, governments may have to deal with weak competition. Therefore other justifications for contracting, may be more appropriate in such contexts.

This study has a number of limitations that may be addressed by further research on the topic. First, I have taken a relatively narrow view of contract management, to prioritize parsimony and facilitate the experimental tests used. This study has only considered two approaches to contract management and has operationalized each as a single variable. Other developments in contract management and design, such as alliance contracting, prime contracting, framework agreements, or public-private partnerships, may have different influences on contracting markets. The results of this study suggest that contract management plays a role in determining market dynamics, so future research could usefully examine whether this extends to other forms and practices. Similarly, other elements of the two approaches studied here may also have different influences on contracting markets. For example, the use of output or outcome measures in performance-based contracts, or the degree of flexibility offered to suppliers through relational approaches, could have different impacts on potential competitors' assessment of contracting opportunities.

Second, the outcome measure used in this study—participants' choice between two contract profiles—is a relatively simplistic conceptualization of competition. Future studies could take a wider view of competition and consider,

for example, the quality (not just quantity) of bids received, market stability and turnover of suppliers in the market, or the distribution of competitors' market shares. I am also unable, through the research design employed, to connect the specific contract features studied here with suppliers' perceptions of their chances of winning, expected profit, and costs of bidding. While I am able to present some evidence that suppliers' calculations about uncertainty inform their decision-making, more could be done to test explicitly the mechanisms linking contract management and suppliers' decisions to bid.

Finally, the research focuses on one kind of service and supplier. While participants worked for a range of organization types, the experimental scenario prompted them to think about a private company looking to bid for technology contracts. We may therefore observe different results when participants imagine the preferences of a different type of supplier in a different context, for example a nonprofit choosing between contracts for very simple services. This is most relevant in the case of payment structure, as companies incentivized to maximize profit may behave differently to nonprofit or public sector suppliers. Future research could therefore consider how preferences vary across types of supplier.

These comparisons could also include different types of company. As Broms et al. (2023) show, the ownership of private suppliers makes a difference to their performance, because publicly traded companies and those owned by private equity firms face greater incentives to maximize short-term profit, and therefore cut costs, than private limited liability companies. We may therefore expect similar dynamics to play out when suppliers weigh up different types of payment structure. Suppliers who face greater incentives to return a profit above the industry average to shareholders or investors may prefer the potential rewards that come with performance-based payment. Conversely, we may observe greater preference for cost-reimbursement contracts among nonprofits, as the pressures they face could lead them to prioritize financial security over potential return. Future research could investigate these possibilities further.

This research contributes to literatures on the management of, and markets for, public contracts. It examines the effects of contract management on wider market dynamics beyond the buyer-supplier relationship. In doing so it explores how, in addition to the intended consequences of their market management activities, contract managers' actions can also have unintended consequences for competition. Furthermore, I examine public contracting markets from a new perspective—that of the supplier—and offer a theoretical model of potential competitors' bidding decisions that can be used and tested by future research. Finally, the study makes a methodological contribution by extending the use of conjoint analysis within public administration scholarship.

Having examined how contract managers' can influence competition, in the next chapter, I turn this relationship around and look at how different levels of competition might impact contract managers' behaviour. I explore the possibility that as well *shaping* markets, governments' contract management approaches may also be *shaped by* the market environment. The current chapter, together with Chapter 2, has explored a downside for government of pursuing particular contract management approaches: reduced competition. In the chapter that follows, I investigate the reverse relationship and consider a possible drawback of increasing competition: counterproductive management behaviour.

4

How do market conditions influence contract management?

Experimental evidence for the effect of competition on flexibility and monitoring intensity

Chapters 2 and 3 focused on the problematic impacts of contract management on competition. They presented evidence that two prominent contract management approaches come with potential downsides for government, because they can reduce the attractiveness of their contracts to competing suppliers. In this chapter, I switch my focus to view the interaction between contract and market management from the opposite perspective. Here I investigate the impacts of market conditions on the behaviour of contract managers. Examining both sides of the relationship between contract management and market competition enables a fuller understanding of the interplay between the two. Certain contract management approaches may preclude highly competitive markets, but equally, contested markets may limit governments' ability or willingness to engage in particular styles of management. Furthermore, understanding whether and how such tensions are produced in both directions can help governments better understand how to navigate them.

I outlined in Chapters 2 and 3 the benefits of competition and the problems that come with too little competition in public contracting markets. In-

troducing market pressures into public services is at the heart of arguments to contract out delivery to private companies or other suppliers. Competition was a core philosophy of New Public Management, of which contracting is a principal reform (Hood, 1991). The incentives generated by alternative suppliers competing to win a contract should lead suppliers to maximize efficiency in terms of both cost and quality. Moreover, the threat that they might be replaced in future rounds of competition should compel the winning supplier to maintain, if not improve, their performance (Niskanen, 1968, 1971; Osborne, 1993; Osborne & Gaebler, 1992; Savas, 1987).

More recently, there has been a renewed focus on increasing competition in public contracting from national and transnational bodies, as well as NGOs. For example, the OECD has repeatedly called for more competition to improve the outcomes of public procurement (OECD, 2015, 2019) and as part of its wider position on competition policy (OECD, 2021). The EU has prioritized stimulating competition and widening market access in its procurement regulations (European Commission, 2016). Meanwhile, promoting competition has been at the heart of national procurement policies, such as those of the Netherlands (Ministry of Economic Affairs and Climate Policy, 2021), Sweden (Ministry of Finance, 2017), and the UK (Cabinet Office, 2020; National Audit Office, 2023). The UK government even claim that they could generate savings of up to £7.7 billion by increasing competition for their contracts (Cabinet Office, 2022). Creating more competitive markets for public contracts is also a focus of several international transparency NGOs, who have advocated it as an anti-corruption and government efficiency measure (Open Contracting Partnership, 2023; Open Government Partnership, 2023; Transparency International, 2021). Given the political pressure to insert more competition into public contracting markets, it is important to understand what the implications might be for the management of these contracts.

Contracting problems associated with low competition are well understood. They include suppliers' lack of accountability for performance (Johnston & Romzek, 2023; Romzek & Johnston, 2005; Van Slyke, 2007), governments' overdependence on a small number of suppliers (Greasley, 2019; Walker et al.,

2006), and risks of corruption (Fazekas & Kocsis, 2020; Fazekas & Tóth, 2016; Wachs et al., 2020). However, the effects of *increasing* competition beyond an adequate level are less clear, as empirical evidence about the benefits of competition has been mixed. Some studies report positive effects from introducing competition on the cost of public services (Blom-Hansen, 2003; Christoffersen et al., 2007; Domberger & Jensen, 1997; Lindholst et al., 2018; Savas, 1977) and their quality (Holum, 2018; Rho, 2013). At the same time, others find that the beneficial effects of competition are contingent on other factors, such as management capacity (Andrews & Entwistle, 2015) or the type of service being contracted (Petersen et al., 2015). Other work has found that the promised improvements from competition are eroded over time (Gradus et al., 2016) or do not materialize at all (Alonso et al., 2017; Broms et al., 2020; Fernandez, 2007; Lamothe & Lamothe, 2010; Lamothe, 2015).

There is even evidence that competition can have a negative influence on public service performance. Studies report competition raising the likelihood of cost overruns (Brunjes, 2022) and rates of the most serious cases of underperformance resulting in contract termination (Brunjes, 2020, 2022; Sanders & Huitink, 2018). Others argue that market consolidation may actually be a positive development, as poor-quality competitors are weeded out and the remaining suppliers can achieve economies of scale (Wang & San Miguel, 2013).

Existing studies on the effects of competition have understandably focused on its impacts on suppliers' behaviour, both in the way they provide services and the prices they charge. However, we know little about how the market environment effects the behaviour of government contract managers. While supplier behaviour is the ultimate determinant of contract performance, it is important to understand the effects of competition on both sides of the contracting relationship, as the way public managers interact with suppliers can have a substantial impact on their behaviour and performance (Andrews & Entwistle, 2015; Dahlström et al., 2018; Lamothe & Lamothe, 2010; Provost & Esteve, 2016). Competition may encourage contract management styles that foster productive buyer-supplier relationships. However, if competition encourages behaviour in contract managers that hampers the working relation-

ship between them and their suppliers, competitive markets could paradoxically worsen supplier performance. Furthermore, the approach of government organizations to elements of contract management, such as monitoring, can substantially influence the transaction costs involved in contracting and therefore its overall efficiency (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019). Contract management is thus a potentially crucial link between competition and contract performance. Understanding the ways in which it is shaped by the competitive environment may provide insights into the mixed findings reported by previous studies.

In this chapter, I test the effect of competition on two crucial aspects of contract management: the level of flexibility given to suppliers in implementing the contract; and the closeness with which they are monitored. I argue that we can expect that when competition is high, contract managers will control suppliers' behaviour more tightly—through less flexibility and more monitoring—and that when competition is low, they will allow suppliers more freedom and monitor them less intensively. I test this theory by analyzing data from an online survey experiment with 576 public managers, conducted between October 2021 and December 2022, in which information about the market environment of a contract is randomly manipulated through a vignette.[1] I find support for three of the chapter's four hypotheses. I present evidence to suggest that high competition leads public managers to allow a supplier less flexibility in how they deliver a contract and to monitor them more intensively. I also find evidence to suggest that competition leads public managers to reduce their monitoring activities.

The chapter contributes to literature on the role and effects of competition in public sector contracting and to scholarship on contract management. By examining the management implications of increasing competition for government contracts, I expose an intermediate step in the chain between competition and performance. The finding that high competition leads public managers to adopt a more rigid approach to contract management is a potential

[1]The hypotheses and experimental design presented in this chapter were preregistered with the Open Science Framework at https://osf.io/jt3d5. Any deviations from the preregistration are indicated in footnotes.

explanation for the contradictory evidence about the effect of competition on contract outcomes, as previous research has shown that such approaches can undermine the gains from contracting. For example, a lack of flexibility can prevent governments from making the most of suppliers' specialist expertise and responding to changing contexts and demands (Considine et al., 2011; Finn, 2011; Fuertes & Lindsay, 2016; Marston & McDonald, 2008; Tomkinson, 2016). Similarly, excessive monitoring can undermine collaboration (Poppo & Zenger, 2002; Van Slyke, 2007) and the economic benefits of contracting (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019).

The results presented are also relevant to policymakers who call for increased competition for public contracts and to public managers who are called upon to generate competition. They indicate that governments must pay attention to the way in which the market environment shapes contract management approaches. The findings suggest that governments need to strike a balance between sharpening pressure on suppliers through competition and managing in a way that allows them to realize other benefits from contracting out.

4.1 Management responses to market conditions

There is already a wide body of literature on management responses to *uncompetitive* markets. This literature has covered the strategies governments adopt to engage with potential suppliers (Brown & Potoski, 2004; Coviello & Mariniello, 2014; Girth et al., 2012), how they design contracts and procurement processes (Amaral et al., 2009; Kim et al., 2016; Walker et al., 2006), and how they manage markets through their sourcing decisions (Girth et al., 2012; Hansen, 2003; Hefetz et al., 2014; Johnston et al., 2004; Ohemeng & Grant, 2014; Torfing et al., 2017; Warner & Hefetz, 2008, 2012). As mentioned in Chapter 3, other studies have focused on ways in which contract managers deal with the accountability problems that come with a lack of market pressure and compensate with other forms of relational (Posner, 2002; Romzek et al., 2012; Walker et al., 2006)

or financial (Brown & Potoski, 2004; Dubnick & Frederickson, 2010; Heinrich, 2002) accountability.

However, the effects on contract management of markets with lots of competition, or of increasing levels of competition, are less well examined. This is perhaps understandable, as government contracts are more likely to struggle with too little competition than too much (Bel & Fageda, 2011; Davies, 2007; Dijkgraaf & Gradus, 2008; Girth et al., 2012; Kang & Miller, 2022; Krachler & Greer, 2015; Lamothe & Lamothe, 2009). Yet, in the context of persistent calls to increase competition for government contracts, it is important to understand the management consequences of more contested markets. After all, there is evidence that competition may not always be beneficial (Brunjes, 2020, 2022; Sanders & Huitink, 2018) and that too much competition could produce other problems, such as supplier instability (Romzek & Johnston, 2005), increased burdens on public managers awarding contracts (Walker et al., 2006), and difficulties generating efficiencies (Wang & San Miguel, 2013).

I focus on two elements of contract management that previous research has found have considerable potential to shape contract performance, and which I argue could be influenced by competition: the flexibility contract managers are willing to give suppliers; and the closeness with which managers monitor their behaviour. The level of flexibility contract managers allow may influence the extent to which governments can take advantage of suppliers' expertise (Ball & Gibson, 2022; Malatesta & Smith, 2014; Romzek et al., 2012, 2014). The intensity of monitoring activities affects the costs of managing a contract and therefore its efficiency (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019). The level of monitoring can also impact the working relationship between supplier and buyer (Poppo & Zenger, 2002; Van Slyke, 2007).

In the remainder of the section I describe these two variables and their links with contract performance and hypothesize how they might be affected by the market environment. I argue that more competition is likely to limit flexibility by altering contract managers' expectations about their future rela-

tionship with a supplier, and that it will encourage more intensive monitoring by increasing the returns on such activities.

4.1.1 Allowing flexibility

Public managers may offer suppliers considerable flexibility in how they deliver a contract or may tightly control what they must and must not do. They can do this both through the manner in which they specify the formal contract and the way in which they enforce it (Lamothe & Lamothe, 2012b). The amount of freedom a supplier is allowed influences the degree to which they can make changes based on their expertise or in response to shifts in the external environment. For example, if suppliers are constrained by standard procedures, they may not be able to experiment with potential improvements, modify delivery methods based on their experience, or adapt to variations in the needs of public service clients (Malatesta & Smith, 2014; Tomkinson, 2016). The degree of flexibility offered to suppliers can also affect front-line employees. We know from literature on street-level bureaucracy that administrative structures, such as contracts, dictate the actions that public-facing staff are able to take and how responsive they can be to individuals' needs and circumstances (Fuertes & Lindsay, 2016; Rice, 2013; Rice et al., 2018; Zacka, 2017).

Stimulating innovation in public services was one of the original goals of contracting. Alongside competition, disaggregation of large and inflexible bureaucracies and delegation to specialized delivery units were two of the key pillars of the New Public Management philosophy of which contracting was part (Hood, 1991; Osborne & Gaebler, 1992). The intention was for suppliers with domain-specific expertise and more dynamic working practices to produce more agile, responsive, and better quality services. A key requirement was for government to grant suppliers sufficient flexibility to apply their knowledge and skills and to adapt service delivery to client needs. In this model of contracting, governments set the overall policy priorities and the outputs to be delivered but leave the supplier free to decide how to achieve those goals (Bredgaard & Larsen, 2008; Considine, 1999; Considine et al., 2011; Jantz et al., 2018).

Some studies have found that governments have been able to access valuable skills, knowledge, and ideas through contracting (Donahue & Zeckhauser, 2011; Jung et al., 2018). Others have found that contracting has not lived up to its promise to stimulate innovation and adaptation and has instead produced greater standardization and routinization in public service provision (Bailey & Davidson, 1999; Bredgaard & Larsen, 2008; Considine et al., 2011, 2020; Fuertes & Lindsay, 2016). Research frequently cites restrictive contract specifications and management as a primary driver of this trend (Considine et al., 2011; Finn, 2011; Fuertes & Lindsay, 2016; Marston & McDonald, 2008; Tomkinson, 2016). Other scholars have argued that, where contracting has managed to produce agile and innovative public services, the freedom governments give their suppliers has been a key determinant of success (Ball & Gibson, 2022; Girth, 2014; Malatesta & Smith, 2014; Romzek et al., 2012, 2014). Flexibility in contract management has therefore emerged as a crucial factor influencing contract performance.

The market environment may affect the degree of flexibility contract managers offer suppliers. Different levels of competition produce different expectations about the future of buyer-supplier relationships. When competition is high, supplier turnover is also likely to be high, as there are many suitable alternatives who could easily win the contract each time it is awarded. Conversely, when competition is low, incumbents face less threat of replacement and governments are likely to continue working with the same supplier for longer (Brown & Potoski, 2004; Lamothe & Lamothe, 2010; Parker & Hartley, 1997).

The difference competition produces in the length of buyer-supplier relationships has important implications for flexibility in contract management. Flexible contract management takes time to develop and perfect. For the relationship to be successful, both sides must invest time in building trust (Amirkhanyan et al., 2012; Brown et al., 2016; Van Slyke, 2007, 2009; Young et al., 2021) and developing shared goals and working practices (Amirkhanyan et al., 2012; Lamothe & Lamothe, 2012b; Ouchi, 1980). Continual negotiation and joint problem-solving—as a replacement for adherence to rigid contractual

terms—is also required to facilitate adaptation and thus realize one of the primary benefits of flexible contract management (Amirkhanyan, 2009; Bertelli & Smith, 2010; Blomqvist & Winblad, 2022; Gibbons, 2005). However, such activities require a greater investment in management capacity and greater capability on the part of the government buyer (DeHoog, 1990; Fernandez, 2007; Romzek & Johnston, 2005; Van Slyke, 2007).

Without such an investment in the relationship, governments run the risk that suppliers will exploit the freedom they are given. While more flexibility gives suppliers greater scope to bring their expertise to bear on contract delivery, it also gives them scope to pursue their own objectives, such as making profit. "Quality shading"—suppliers neglecting service quality in favour of cost-cutting—is a well-documented problem in contracted services (Domberger & Jensen, 1997; Elkomy et al., 2019; Hart et al., 1997; Jensen & Stonecash, 2005). So too is "cream-skimming"—prioritizing the easiest tasks or clients at the expense of challenging problems or user groups (Anderson et al., 1993; Bredgaard & Larsen, 2008; Brodkin, 2007; Courty & Marschke, 1997; Greer et al., 2018; Jilke et al., 2018; Koning & Heinrich, 2013; Rees et al., 2014; Shaw & Rab, 2003). Indeed, Considine et al. (2011) identify that one of the reasons for the increased routinization of contracted public services is that "firms used the flexibility they enjoyed under early contracts to undermine key public policy goals in the interests of increasing their profits" (p. 826, see also Finn, 2011). Contract managers cannot therefore afford suppliers flexibility and step back, but must make a continued investment in aligning suppliers' goals with their own.

When the time horizons of contractual relationships are short, as they are in competitive markets, making the investments in a relationship needed to enable flexible contract management may not be a rational choice. Government procurement rules mean that contract managers do not have complete discretion over awarding the contract. As such, if there are superior alternatives in the market, government buyers will be obliged to switch suppliers and will not have the option to protect the value of their relationship with the incumbent (Carril, Rodrigo et al., 2022; Romzek & Johnston, 2005). Contract managers

may even anticipate more opportunistic behaviour on the part of the supplier, because the buyer cannot give the supplier security that the relationship will continue, which is one of the key ingredients for enabling cooperation in flexible contractual arrangements (Bertelli & Smith, 2010; Blau, 1986; Gibbons, 2005; Macneil, 1987; Ouchi, 1980; Poppo & Zenger, 2002; Uzzi, 1997). I therefore predict that buyers in competitive markets will give their suppliers less freedom, because neither side has, or expects to have, the time to build the kind of relationship needed to navigate such flexibility.

Conversely, when there is little competition in the market for a contract and changes of supplier are less common, government buyers and suppliers can expect to work together for long periods of time. There is therefore greater incentive to invest in the relationship, as such investments have time to bear fruit (Ansell & Gash, 2008; Edelenbos & Klijn, 2007; Grafton & Mundy, 2017; Poppo et al., 2008). Under low competition, it may be worthwhile for a buyer to give a supplier flexibility in how they deliver a contract to realize the aforementioned benefits, because they have the time to develop the kind of collaborative relationship required.

The market environment may also influence contractual flexibility, because flexibility affects the transaction costs associated with changing supplier. Any incumbent supplier has an advantage over competitors because of the investments in human or physical assets they make in the course of supplying a contract—what Williamson (1985b) calls the "fundamental transformation". When suppliers take on a greater responsibility for the design of a service, they can further widen the gap between themselves and potential competitors by tailoring the service to their expertise and skills. Standardized contractual arrangements that are enforceable by third parties facilitate switching between suppliers with minimal transaction costs, whereas contract relations that are bespoke to the current supplier and offer flexibility based on mutual understanding impose higher transaction costs, therefore limiting the benefits of competition (Brown et al., 2004; Patterson, 2010). Contract managers may therefore limit the freedom they afford suppliers in more competitive contracting mar-

kets because they want to minimize the costs of switching and thus maintain their ability to take advantage of competition.

In weak markets there is less reason to do this. The likelihood of changing supplier is much lower, therefore there is less need to standardize contracts. In this case, contract managers may prefer to prioritize the benefits that can come with affording suppliers flexibility, even if this comes at the price of higher costs when switching, because they are much less likely to incur those costs.

I predict that the short time horizons created by competitive markets and the need to limit transaction costs in order to benefit from competition will make it less likely that public managers grant suppliers flexibility under such conditions. Meanwhile, when competition is low, I expect contract managers to give suppliers more freedom, in order to take advantage of their expertise and allow for greater adaptation. In this scenario, their relationship with a supplier is more likely to continue long enough for the investments needed to facilitate flexibility to pay off. Furthermore, increasing transaction costs associated with switching suppliers may be less of a concern, because there are few alternatives in the market. The first set of hypotheses proposed in this chapter are therefore:

Hypothesis 1a: *Buyers will give suppliers more flexibility in how they deliver the contract when competition is low.*

Hypothesis 1b: *Buyers will give suppliers less flexibility in how they deliver the contract when competition is high.*

4.1.2 Monitoring performance

Another aspect of contract management that has important implications for performance is the degree to which contract managers monitor suppliers' behaviour in delivering a contract. Monitoring is an important means of ensuring suppliers execute work to a high, or at least adequate, standard. As previously outlined, there are a range of ways in which suppliers can act opportunistically and neglect service quality. Gathering information about a supplier's behaviour and performance is consequently an important tool for contract managers in curbing such opportunism, both by detecting quality failures when

they occur and by applying pressure on suppliers to perform well to begin with (Barthélemy & Quélin, 2006; Brown & Potoski, 2005).

Conversely, insufficient monitoring can lead to deterioration in contract performance and even more serious problems, such as fraud (Johnston et al., 2004; Van Slyke, 2003). I cite many examples of this in Chapter 1. Such failures not only harm the quality of public services, but also jeopardize the efficiency of contracting when governments are forced to step in and rectify problems (Dijkgraaf & Gradus, 2008). Monitoring thus has a major impact on contract performance when it allows government principals to detect quality failures and it creates incentives for suppliers to perform to the required standards.

Nevertheless, monitoring comes at a price. Gathering accurate performance information is resource-intensive for government buyers (Brown et al., 2007; Girth, 2014; Johnston et al., 2004; Van Slyke, 2007), especially when quality is difficult to verify, as it frequently is in public contracts (Brown & Potoski, 2003b, 2003c, 2005; Johnston & Romzek, 2023; Petersen et al., 2019). Despite the fact that governments often engage in contracting to reduce their budgets (Brown & Potoski, 2003a; López-Hernández et al., 2018; Provost & Esteve, 2016; Rubin, 2006; Young & Macinati, 2012), the practice frequently fails to produce the promised savings (Bel & Warner, 2008; Bel et al., 2010) and can even increase financial burdens on the public (Park & Moon, 2023). Transaction costs, such as those involved in performance management, are a major determinant of the financial efficiency of public contracts (Barthélemy & Quélin, 2006; Bel & Warner, 2008; Bel et al., 2010; Johnston & Romzek, 2023; Perez-Lopez et al., 2015; Zafra-Gómez et al., 2013) and expenditure on monitoring often erodes the expected cost savings from contracting (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019). Excessive monitoring can therefore harm the overall performance of a contract. Managers must strike a balance between preventing supplier opportunism and containing transaction costs.

As with flexibility, there are reasons to believe that the level of competition may affect contract managers' monitoring behaviour. First, the availabil-

ity of other suitable suppliers influences the potential returns for the government from monitoring activities. Competition enables governments to impose sanctions on suppliers for poor performance, such as terminating the contract, because the market can supply suitable alternatives (Van Slyke, 2007). Performance management becomes difficult when there are few viable substitutes, because suppliers do not face the threat of replacement even in the event of poor performance (Johnston & Romzek, 1999) and governments' dependence on the incumbent inhibits their ability and willingness to impose sanctions (Girth, 2014; Johnston et al., 2004; Lamothe & Lamothe, 2012b; Romzek & Johnston, 2005; Van Slyke, 2007). As contract managers are less able to hold suppliers to account in uncompetitive markets, the value of monitoring is lower than it would be in the presence of competition. In this situation, they may avoid spending precious resources generating performance information on which they would struggle to act. Instead, they may resort to what Johnston and Girth (2012) call "managing with resignation" (p. 17).

Conversely, when markets are competitive and suppliers face a credible threat of replacement, the returns on monitoring are higher. Buyers can more effectively hold suppliers to account for missing performance targets, because suppliers face the real possibility of losing the contract at the next award. Furthermore, buyers are in a better position to apply within-contract sanctions. As they have access to alternative suppliers, they are not dependent on the current supplier continuing to bid and would face fewer problems terminating the contract. Because they are better able to act on performance information, I expect contract managers to be more willing to bear the expense of monitoring activities in competitive markets.

The second reason that the level of competition may influence contract managers' monitoring behaviour is the effect that it could have on their relationship with the supplier. In uncompetitive markets, contract managers not only attempt to solicit competition from outside, but also make efforts to retain their current supplier (Johnston & Girth, 2012). Intensive monitoring can harm a relationship because it signals distrust (Poppo & Zenger, 2002; Van Slyke, 2007) and places onerous burdens on the supplier (Lambright, 2009; Van Slyke,

2007). When the market for a contract is weak, government buyers may therefore be reluctant monitor a supplier closely. If the supplier decides not to bid for the contract in future, for example because the burdens of providing performance information are too high, the government will be left with even fewer options (Johnston & Girth, 2012). A good working relationship with a supplier is also of greater value when government buyers expect to be working with a supplier for a long time. Consequently, contract managers may be more wary of souring such relationships through monitoring or by applying other performance management measures (Lamothe & Lamothe, 2012b; Marvel & Marvel, 2009).

In contrast, contract managers operating in competitive markets do not need to be as careful about maintaining the goodwill of their current supplier. They can more easily switch to an alternative supplier if monitoring happens to damage their relationship. Moreover, when government buyers face less pressure to retain their current suppliers, they may also be more comfortable imposing the larger burdens on suppliers that come with intensive monitoring.

The different returns from monitoring in different types of market, together with the way in which competition shapes government buyers' dependence on an incumbent, lead me to predict that highly contested markets will produce more monitoring, while markets with little competition will produce less. In competitive markets, contract managers have more reason to monitor—because they can more readily use performance information—and have less reason to worry about the downsides of monitoring—because they can access other suppliers if the relationship sours or the current supplier does not bid in future. Conversely, in weak markets, the payoffs from monitoring are smaller. Because they are more dependent on maintaining good relations with their current supplier, contract managers are less able to act on performance information and the potential disbenefits are more consequential. Accordingly, a second set of hypotheses are:

Hypothesis 2a: *Buyers will monitor contracts less closely when competition is low.*

Hypothesis 2b: *Buyers will monitor contracts more closely when competition is high.*

4.2 Data and methods

4.2.1 Data collection

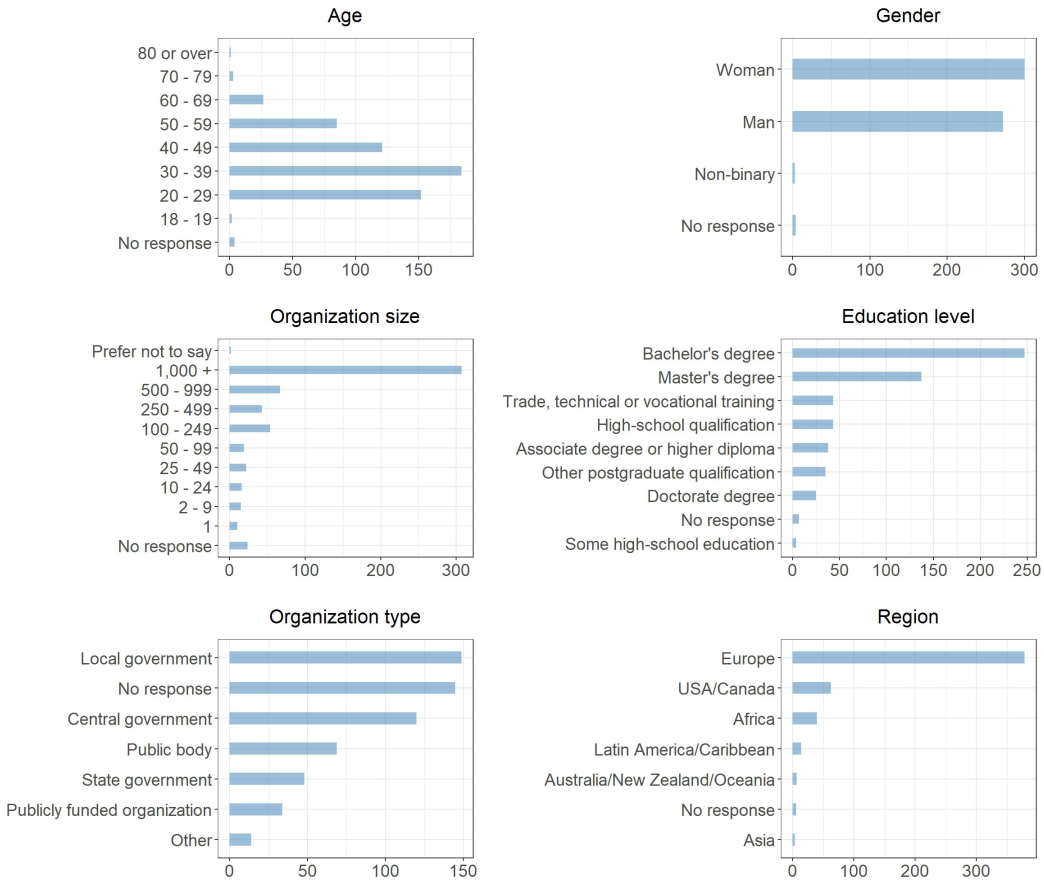
To test this chapter's hypotheses, I conducted a vignette experiment through an online survey of public managers. I recruited participants currently working in government and public administration using an online survey recruiter—Prolific Academic, and also invited participants to participate through professional organizations that represent and train government contract managers.[2] Two of these organizations were based in the UK—the Government Commercial Function, run by the Cabinet Office, and the procurement group of the Local Government Association—-and the other was an international body—World Commerce & Contracting. The survey, fielded through the Qualtrics platform from October 2021 to December 2022, received 576 complete responses. Figure 4.1 shows numbers or participants by age, gender, level of education, type of government organization, organization size, and geographical region.

Participants recruited through professional organizations all had direct experience of managing or awarding government contracts, while participants recruited through the online survey recruiter were required to have experience of negotiating and managing external relationships and to be working in the public sector. The latter group had all reported their current employment sector as "Government and Public Administration" and indicated that they had professional experience in "buying or supplying services or products to another organisation, relationship management, negotiation, [or] make-or-buy decisions", when completing the recruiter's screening questionnaire. I also asked all participants about their current and past experience of working with government contracts.

While not all participants had direct experience of contract management in the public sector, all had experience as public managers and within the wider

[2]The preregistration only mentioned recruitment through professional organizations. However, due to difficulties reaching a sufficient sample size through these channels, I also invited paid participants through Prolific Academic.

Figure 4.1: participant numbers by age, gender, organization size, education, organization type, and geographical region.



domain of external relationship management and negotiation.[3] Such a sample may in fact reflect real-life government contract management practice. As Provost and Esteve (2016) point out, many government contracts are managed by staff with little previous experience or expertise in commercial negotiation or contract management (see also Cabral, 2017; and Lamothe and Lamothe, 2010 on the substantial variation in contracting experience among contract managers). Nevertheless, I examine the robustness of my results to government-specific contracting experience in the analyses below and reflect on the implications of this sample for the results in the concluding section.

4.2.2 Experimental design

The experiment manipulated participants' perceptions of the level of competition in the market for a hypothetical contract through a short vignette. Vignettes are "text, images or other forms of stimuli to which research participants are asked to respond" (Huges & Huby, 2002, p. 382; see also Finch, 1987; Hughes & Huby, 2004). In an experimental context, variables within the vignette are systematically changed (or held constant) in order to identify causal relationships between them and a set of outcome variables (Atzmüller & Steiner, 2010).

Vignette experiments benefit from the internal validity provided by randomization, while boosting external validity by embedding experimental treatments within the context of situations, actors, or objects that participants may encounter in real life (Atzmüller & Steiner, 2010; Auspurg & Hinz, 2015; Gerber & Green, 2012; Mutz, 2011). They are particularly valuable for investigating the way participants' judgements, beliefs, and norms shape their behaviour when responding to the factors of interest (Aguinis & Bradley, 2014; Atzmüller & Steiner, 2010; Finch, 1987; Hughes & Huby, 2004; Jilke & Van Ryzin, 2017). They are therefore a useful tool in understanding how the market environment

[3]Participants recruited through the professional organizations followed the procedure included in the preregistration and were screened out if they indicated that they had not had experience of working on government contracts. However, due to the availability of information about participants' relevant experience provided by Prolific Academic's screening survey, I retained all participants recruited through this channel and checked for differences in experience in the analysis.

could affect public managers' approaches to managing government contracts. As laid out in Section 4.1, I expect judgements about the relative benefits and costs of each management style, beliefs about supplier behaviour and the length of relationships, and professional norms to inform management approaches.

The survey was designed in partnership with the international professional body, World Commerce & Contracting, which has experience training public managers in contract management and working with government suppliers. They advised on the design to ensure that it was clear and comprehensible to a general audience of public managers with varying levels of contracting experience within different jurisdictions and service domains. In addition, I pretested the survey with five participants familiar with different types of government contracts in a range of countries. They completed the survey followed by an interview, in which I asked them about their understanding of the scenario, treatments, and questions. I then made adjustments to the survey design based on these interviews, to alter or remove ambiguous wording and to improve ease of use. Both measures—involving experts in the design and pretesting the survey—can improve the internal validity of vignette studies (Hughes & Huby, 2004).

The experimental vignette consisted of a short scenario describing a hypothetical government contract, in which I manipulated information about the level of competition at the last contract award. Participants were randomly assigned to one of three groups: a low competition condition; a high competition condition; and a control condition. Table 4.1 shows the preamble and experimental vignette. The control group were shown the same description of the contract, the organizations involved, and the supplier's recent performance, but the second paragraph giving information about competition was omitted. In all conditions, the performance of the supplier in delivering the contract was held constant so as not to conflate competition with supplier performance or quality. Despite the mixed empirical evidence for the positive effect of competition on performance, the association between competition and improved performance is still prevalent among practitioners, as evidenced by recent calls to increase competition mentioned at the start of this chapter. To maximize participants'

attention and comprehension, the survey required participants to view the scenario text for a minimum of five seconds before they moved to the next page. The scenario was also displayed above the three questions that followed, which performed the manipulation check and captured the two outcome variables.

The hypothetical contract in the vignette was for the technical support and maintenance of a digital system for a local government. I use technology as the contract service area, as it is widely contracted out (Globerman & Vining, 1996; Ya Ni & Bretschneider, 2007) and I expect it to produce variation across the outcome variables of interest. Because technology suppliers possess domain-specific expertise that governments do not (Brown & Brudney, 1998; Ya Ni & Bretschneider, 2007), there is value in public managers allowing suppliers flexibility to apply such specialist knowledge and skills. There is also the associated risk, described in Section 4.1.1, that this will give incumbents an advantage. Furthermore, because the requirements for technology contracts can be difficult to specify in advance and to monitor during contract delivery (Brown et al., 2018; Globerman & Vining, 1996), public managers can be expected to have varying approaches to monitoring. As described in Section 4.1.2, in such situations they may monitor suppliers very closely to prevent opportunism but could equally refrain from monitoring because it will be costly.

In order to minimize the possibility that participants associated the vignette with one particular public body or jurisdiction, while allowing sufficient detail to depict a realistic scenario, I chose a service area (housing) that is widely provided by a very common type of government buyer (a municipal government). However, a limitation of the study is that it considers only one type of contract and one type of government, potentially limiting the generalizability of the findings to other types of organization and contracts. The results presented in the following section should therefore be considered with this in mind and I discuss this limitation further in in the concluding section.

In the treatment vignettes, competition was operationalized as both the number of bids the government received and the degree to which the awarding decision was a close one. Including both dimensions of competition more

Table 4.1: Preamble and treatment vignette.

Preamble
On the next page, you will be shown a brief description of a scenario about a hypothetical contract between a city government (Southchester) and a company (Alpha). Then you will be asked to answer some questions about that contract. Please read the scenario carefully and think about how the **organizations described** might behave in that situation.
Treatment
The scenario A company, Alpha, holds the contract to support and maintain the technology system for the Southchester government's housing service. When the contract was awarded to Alpha, there ≪ **wasn't much / was a lot of** ≫ competition. The Southchester city government ≪ **didn't receive many / received many** ≫ bids and ≪ **Alpha won the contract comfortably / it was a very close decision to award Alpha the contract** ≫. As there was ≪ **little / lots of** ≫ competition, ≪ **it is likely that Alpha will continue to supply this contract for a long time / there is a good chance that Alpha will be replaced next time the contract comes up for renewal** ≫. Alpha's performance has been satisfactory and there haven't been any complaints about the system.

accurately captures the pressure competition produces on suppliers than information about the number of bids alone. Governments can receive many bids for their contracts, but if only a small number are of an acceptable quality or price, the market is not particularly competitive. Importantly in this case, winning suppliers face little threat of replacement, as the market cannot provide many suitable alternatives. The treatments also make explicit the implications of competition for the length of the relationship, as the short time horizons produced by competition are also important to the theoretical motivation of the four hypotheses.

The majority of previous studies, outlined in Section 4.1, compare contracts awarded by a competitive procedure either to contracts awarded without competition or to direct public provision (with the exception of Broms et al., 2020). They thereby test the effect of the presence or absence of competition. By investigating the effects of competition at different *levels*, this research can help us understand better how the effects of competition might vary. In doing so, it has the potential to explain the conflicting findings of existing lit-

erature on the effects of competition and to uncover implications of increasing competition.

To assess how information about the market environment influenced participants' judgements about the appropriate approach to managing a contract, the survey asked them (following a manipulation check) how they expected the government in the scenario to behave in offering the supplier flexibility (H1a and H1b) and monitoring their performance (H2a and H2b). Flexibility ("How much flexibility do you think the Southchester government will give Alpha in deciding how to manage the technology system?") was measured on a 0-10 scale, where zero corresponded to no flexibility at all, five indicated a moderate amount, and ten denoted a great deal of flexibility. Likewise, monitoring ("How closely do you think the Southchester government will monitor Alpha in delivering the contract?") was measured on 0-10 scale, where zero indicated no monitoring at all, five corresponded to moderately close monitoring, and ten to extremely close monitoring. Both questions were framed in terms of the actions of the government in the scenario. Previous studies have demonstrated that presenting decisions in this way—as those of another actor—reduces the scope for social desirability bias, while still allowing participants to draw on their own experience and beliefs (Constant et al., 1994; Finch, 1987; Hughes & Huby, 2004).

The experimental design rests on several assumptions, which are important to consider when interpreting the findings below. First, while framing response measures in terms of the actions of a third-party can reduce social desirability bias, it comes at the expense of introducing the assumption that participants' expectations about the actions of others are the same as, or at least similar to, their own behaviour. Research suggests that people's expectations of others are informed by their own values and behaviour (Bogdan et al., 2023), so we have reason to believe that this should be the case. However, readers should be aware that this is an assumption of the analysis.

It is also crucial to note that the experiment assesses the effect of *information about* competition on participants' *stated* contract management approach.

The ways in which the market environment interacts with factors relevant to contract management, such as suppliers' prices, financial stability, and profit margins, are multifaceted and impossible to convey in a short scenario. In addition, two outcome variables of interest are captured by reported, not behavioural, measures opening up the possibility that participants may behave differently in practice. Previous studies of the external validity of survey experiments, suggest that they have substantial ability to predict behaviour in the real world (Findley et al., 2017; Hainmueller et al., 2015; Petzold & Wolbring, 2019). Nevertheless, when assessing how the results translate into actual contract management practices, readers should remember that they are based on stated responses to information about competition.

4.3 Results

4.3.1 Balance and manipulation checks

Before the main analysis to test the chapter's hypotheses, I conducted tests to check that the treatment groups were balanced and that the treatments themselves manipulated participants' perceptions of competition. I performed the appropriate statistical tests (ANOVA tests for continuous variables and Chi-squared tests for categorical variables) to check for balance across the treatment and control groups in a range of relevant factors: age; gender; education level; type and size of organization; geographical location; experience with government contracts; and the route through which they were recruited to the survey. I detected no statistically significant differences between the groups at the 0.05 level. Differences in experience with government contracting were present at the 0.1 level and I control for this in the following analysis.

Next, I estimated linear regression models to check that the treatments produced the desired effects on participants' perceptions of the level of competition. After reading the vignette, participants answered the following question: "Based on your reading of this scenario, how competitive do you think the market for the technology contract was?" Participants answered on a 0-10 scale,

where zero indicated that the market was not at all competitive, five that the market was moderately competitive, and ten that it was extremely competitive. The results of the manipulation checks are reported in Table 4.2.

As the regression estimates show, the treatment manipulations had the intended effect on participants' assessment of the level of competition for the contract described. The low competition treatment has a large negative effect on perceptions of competition, when compared with the control condition. The high competition treatment has a similarly large positive effect. Both relationships are significant at the 0.01 level.

Table 4.2: Manipulation checks.

	Dependent variable:
	Perceived competition
	(1)
Low competition treatment	-4.198^{***}
	(0.159)
High competition treatment	2.677^{***}
	(0.159)
Constant	6.068^{***}
	(0.113)
Observations	576
R^2	0.767
Adjusted R^2	0.767
F Statistic	944.821^{***} (df = 2; 573)
Note:	*p<0.1; **p<0.05; ***p<0.01

4.3.2 Effects of market environment on contract management

To investigate how public managers' perceptions of contracting markets shape their contract management choices, I estimated linear regression models of the effect of information about competition on the reported measures of flexibility and monitoring. Table 4.3 shows results of OLS regression models. In addition to simple bivariate models, I also include multivariate models, controlling for experience with government contracting in order to address concerns about balance discussed above. The effects from the bivariate models are displayed in Figure 4.2.

Figure 4.2: Main effects of competition on flexibility and monitoring.

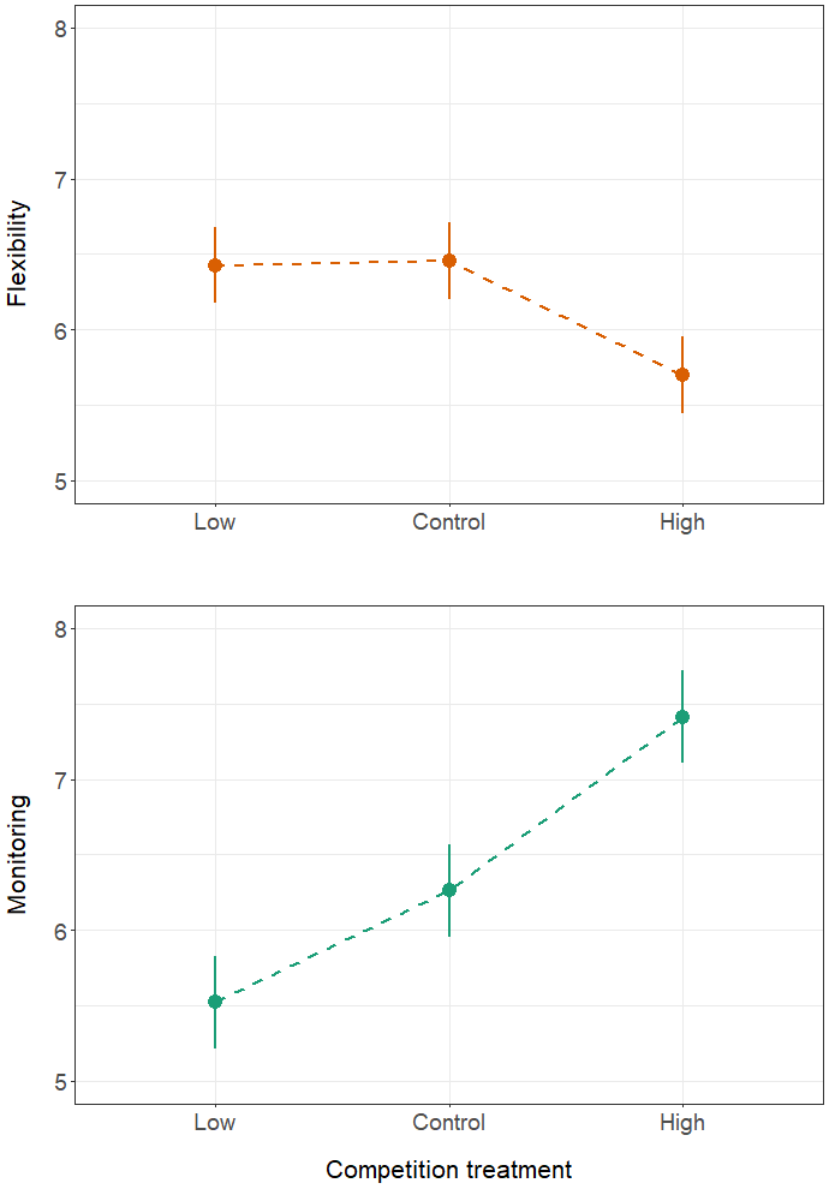


Table 4.3: Effects of competition on flexibility and monitoring.

	Dependent variable:			
	Flexibility		Monitoring	
	(2)	(3)	(4)	(5)
Low competition	−0.026	−0.030	−0.740***	−0.739***
	(0.182)	(0.182)	(0.220)	(0.220)
High competition	−0.755***	−0.767***	1.151***	1.152***
	(0.182)	(0.183)	(0.220)	(0.221)
Contracting experience		0.165		−0.014
		(0.151)		(0.182)
Constant	6.453***	6.388***	6.260***	6.266***
	(0.129)	(0.142)	(0.156)	(0.172)
Observations	576	576	576	576
R^2	0.037	0.039	0.116	0.116
Adjusted R^2	0.034	0.034	0.113	0.111
F Statistic	11.067***	7.779***	37.495***	24.955***
	(df = 2; 573)	(df = 3; 572)	(df = 2; 573)	(df = 3; 572)

Note: *p<0.1; **p<0.05; ***p<0.01

Looking first at the flexibility participants expect the government to give suppliers, while low competition does not have an effect compared to the control, high competition has a significant negative effect on flexibility. In the presence of highly competitive markets, participants expect suppliers to be given less freedom in deciding how to deliver a contract. Including a control for contracting experience does not change the significance or direction of these effects, nor substantially alter their magnitude. This finding supports H1b, but not H1a. When they perceive competition as high, public managers expect less flexible contract management approaches, but perceptions of low competition do not influence the freedom they expect governments to give suppliers.

This result points to a trade-off between competition's potential to hold suppliers to account and its inhibiting effect on managers' flexibility, which could prevent governments from realizing some of the promised gains from contracting. These include greater agility and access to skills, knowledge, and new ways working from external suppliers (Bredgaard & Larsen, 2008; Considine, 1999; Considine et al., 2011; Jantz et al., 2018). If high competition leads managers to be more rigid in their approach, governments could forgo these benefits.

The result could explain why previous research has found that competition improves performance outcomes for simple but not complex services (Petersen et al., 2015). A flexible approach is most needed in this context, as such services are likely to be subject to changing circumstances and wider gaps between government and supplier expertise (Brown et al., 2016; Malatesta & Smith, 2014; Tomkinson, 2016; Ya Ni & Bretschneider, 2007). It also aligns with previous findings that contracting produces greater standardization in public service delivery (Bailey & Davidson, 1999; Bredgaard & Larsen, 2008; Considine et al., 2011, 2020; Fuertes & Lindsay, 2016) and suggests that the influence of market pressures on contract management may be one mechanism that has produced this trend.

Turning next to performance monitoring, here the results support both H2a and H2b, showing significant effects for both low and high competition treatments. High competition has a significant positive effect on the intensity of monitoring reported by participants and low competition has significant negative effect, compared to the control. When faced with information about very competitive markets, participants expect contract managers to monitor suppliers more closely, whereas, when they have information about low competition, they expect a lighter-touch approach. Again, controlling for contracting experience produces little or no change in the significance, direction, or size of the effects.

These results again suggest that increasing competition for public contracts comes with trade-offs—this time in the form of heightened monitoring intensity. As described in Section 4.1.2, while monitoring is important to ensure supplier performance, it comes at a cost. Excessive monitoring can both undermine cost-savings from contracting (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019) and discourage cooperation by signalling distrust to a supplier (Poppo & Zenger, 2002; Van Slyke, 2007) and imposing burdens on them (Lambright, 2009; Van Slyke, 2007). Therefore, the finding that more competition produces closer monitoring is another potential explanation for the mixed evidence for competition's effect on contract performance.

Nonetheless, the effect of *low* competition on monitoring is also concerning. If a lack of competition encourages public managers to step back from their monitoring role, in the way that Johnston and Girth (2012) describe and that this finding suggests it may do, this could also threaten performance outcomes. Indeed, recent research has raised the concern that long-term buyer-supplier relationships, like those which emerge in uncompetitive markets, can lead to insufficient monitoring and thus supplier opportunism (Park & Moon, 2023). My research is not able to determine an ideal level of monitoring—which is likely to vary according to the nature of a contract and its particular context—and I therefore cannot say whether and to what extent the effects of low and high competition observed do in fact threaten performance. However, the results indicate that the market environment plays an important role in informing public managers' monitoring behaviour. More attention must be paid to these dynamics, as we know from prior research that monitoring is a key determinant of performance.

As well as showing the effects of the experimental treatments, the data provide interesting descriptive information about participants' underlying expectations about the flexibility given to, and the monitoring of, government suppliers. This can be seen in Figure 4.2. On the whole, participants expect governments to give suppliers a reasonable degree of freedom, but they are not similarly inclined to let governments step back when it comes to monitoring. The mean response for the level of flexibility participants expected the government to give suppliers (approximately 6.19) is significantly higher than the midpoint (as determined by a one-sample t-test). This suggests that participants are comfortable with suppliers having more than a moderate degree of freedom in delivery. However, when it comes to monitoring, participants expect the government to control suppliers' behaviour more tightly (another one-sample t-test reveals the mean response of approximately 6.40 to be significantly above the midpoint). It appears that the public managers who completed this survey are not as willing to surrender control when monitoring performance as they are when specifying contract requirements. Why this might

be and its implications for supplier behaviour are potentially interesting avenues for future research.

As mentioned in Section 4.2.1, while all participants were current public managers and had experience of external relationship management, only a subset had direct experience with government contracting. To determine the robustness of these results to participants' experience, I estimated linear regression models with contracting experience as an interaction term and bivarate models including only participants with direct contracting experience. Table 4.4 reports the estimates of these models and Figure 4.3 plots the results.

For the most part, the findings reported in the previous section are robust to participants' contracting experience. There is little or no change in the significance or direction of the effects of competition on flexibility and monitoring that are identified above. However, there is a significant interaction between contracting experience and high competition for monitoring and I no longer find a significant relationship between high competition and monitoring when including only participants who have direct experience of government contracting. The effect of high competition on monitoring must therefore be interpreted with some caution as it is driven by participants who, while they are public managers with experience within the wider domain of external relationship management, do not have direct experience of working on government contracts.

As mentioned in previous literature, government contracts can often be managed by people with experience levels similar to this group (Cabral, 2017; Lamothe & Lamothe, 2010; Provost & Esteve, 2016), so we may still observe similar results when this is the case. However, high competition does not appear to lead to more monitoring when contracts are managed by those with direct experience of managing government contracts. Further research could do more to uncover the influences that contracting experience have in informing contract managers' responses to competition, ideally with larger samples of experienced government contract managers.

Figure 4.3: Effect of competition on monitoring by experience with government contracts.

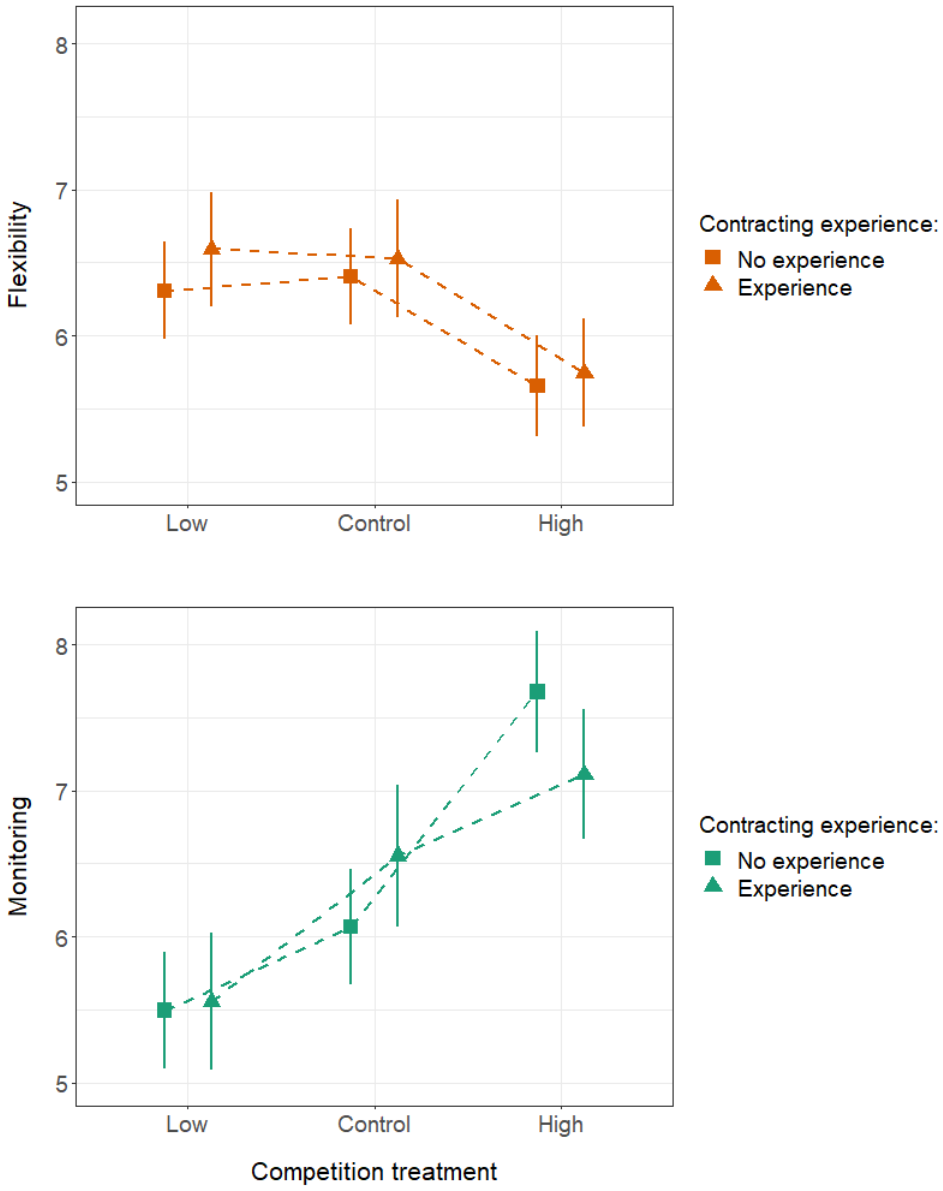


Table 4.4: Interactions with government contracting experience.

	Dependent variable:			
	Flexibility		Monitoring	
	(6)	(7)	(8)	(9)
Low competition	−0.099	0.066	−0.573**	−0.997***
	(0.237)	(0.284)	(0.286)	(0.351)
High competition	−0.748***	−0.782***	1.608***	0.558
	(0.243)	(0.277)	(0.292)	(0.343)
Contracting experience	0.121		0.484	
	(0.264)		(0.317)	
Low competition × contracting experience	0.165		−0.424	
	(0.371)		(0.447)	
High competition × contracting experience	−0.034		−1.049**	
	(0.369)		(0.444)	
Constant	6.405***	6.526***	6.069***	6.553***
	(0.166)	(0.204)	(0.200)	(0.252)
Observations	576	247	576	247
R^2	0.040	0.047	0.124	0.081
Adjusted R^2	0.031	0.040	0.117	0.074
F Statistic	4.720***	6.066***	16.200***	10.823***
	(df = 5; 570)	(df = 2; 244)	(df = 5; 570)	(df = 2; 244)

Note: *p<0.1; **p<0.05; ***p<0.01

4.4 Conclusions

This chapter has examined the effect of both high and low competition on public managers' behaviour in specifying and managing the performance of government contracts. I have taken a novel perspective in comparison to previous literature, which has tended to focus on the influence of competition on *suppliers'* behaviour or the effects of *low* competition on public managers' approaches. The findings suggest that high levels of competition may lead contract managers to control and oversee supplier's behaviour more closely.

Previous literature suggests that this approach to contract management could produce performance problems. Lack of flexibility can prevent governments from taking advantage of their suppliers' expertise and reduce their ability to adapt to changing circumstances (Bredgaard & Larsen, 2008; Considine, 1999; Considine et al., 2011; Jantz et al., 2018). At the same time, close monitoring can undermine the working relationship between the two organizations (Poppo & Zenger, 2002; Van Slyke, 2007) and impose heavy costs on both the

government (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019) and the supplier (Lambright, 2009; Van Slyke, 2007). When viewed in this context, the findings reported here indicate that contract management may be an important link between competition and the performance of government contracts. They also offer a possible explanation for the contradictory findings of previous research into the effects of competition on public service performance.

The results of this study can also inform a wider policy debate about the extent to which governments should stimulate competition in markets for their contracts. The problems associated with too little competition are well documented. The effects I find of high competition on contract management suggest that it may also be possible to have too much competition. This research does not assess what levels of flexibility or monitoring optimize performance outcomes in which contexts. However, when combined with the findings of previous literature, my findings do suggest that highly contested markets have the potential to undermine some of the benefits from contracting out, namely accessing external expertise and making public services more responsive and cost-efficient. Governments may therefore need to pay close attention to changes in the behaviour of contract managers as they attempt to create more competitive markets and either reign in such efforts or put in place measures, such as training and guidance, that compensate for any adverse effects.

This study has several limitations, which must be considered and could provide avenues for future research. The experiment only considered the effect of competition on the management of a contract for one kind of service (technology), with one type of supplier (a private company) and buyer organization (a municipal government). The dynamics may be different when suppliers from other sectors are working with different types of government to supply services with different characteristics.

Other studies have found that the relationships governments form (Amirkhanyan et al., 2012; Chuang et al., 2020; Isett & Provan, 2005) and the approaches they take to performance management (Marvel & Marvel, 2007,

2009) are different when they contract with nonprofits and other governments, rather than suppliers from the private sector. Therefore, research that looks at the influence of competition on contract management with different types of suppliers may uncover different effects. Similarly, government buyers vary in terms of their skills and capacity in contract management (Brown & Potoski, 2003a; Lamothe & Lamothe, 2012b; Petersen et al., 2019), which could produce different dynamics. Finally, contract managers' responses to competition may be different when managing contracts for simpler services that are easier to specify and monitor. There may be different costs and payoffs associated with allowing suppliers freedom and overseeing their work when contracting for simple services.

Future research could also build on this study by examining the influence of elements of competition that I do not consider here but that may still be relevant to contract management and performance. Elements identified by other studies include competition's influence on suppliers' profit margins and financial stability (Romzek & Johnston, 2005), their ability to achieve economies of scale (Wang & San Miguel, 2013), and the increased burdens competition places on public managers when awarding contracts (Walker et al., 2006). A more complete assessment of the implications of contracting markets for management could be facilitated by observational research that conceptualizes competition as a continuous variable, or by field experiments that are able to manipulate actual competition or simulate it more fully. Likewise, research designs that test the effects of contracting markets on management styles using behavioural outcome measures would address the limitations of the stated measures used in this research. Finally, further investigation is needed to establish the downstream implications of the results presented here for contract performance. When high competition encourages contract managers to control and monitor suppliers' behaviour more intensively do performance outcomes suffer?

5

Conclusions

This thesis began with a central research question: How do contract management approaches and market competition affect one another in the context of government contracts? Over the preceding three chapters I have presented evidence that these two elements of the contracting process do indeed influence one another. Crucially, they do so in ways that create difficult trade-offs for governments.

In Chapters 2 and 3, I suggest that prominent contract management techniques may deter competing suppliers from bidding, thereby limiting competition. In Chapter 4, I illustrate how highly contested markets can encourage a more restrictive and potentially counterproductive approach to contract management. This final chapter brings together the most important findings of the thesis, outlines their contributions to the academic literature, and proposes some ways in which they could inform the practice of government contracting. Finally, I reflect on the limitations of this study and how they could be addressed by future research, as well as proposing some questions raised by my findings that could inform the direction of the contracting literature.

5.1 Key findings and contributions

The central finding of this thesis is that contract management and competition affect one another in the context of government contracts. I have presented

evidence that the manner in which governments manage contracts—through relationship-building and using financial performance incentives—influences the number of suppliers that will bid for them. My results also suggest that the intensity of competition will in turn shape how governments manage their chosen supplier's behaviour. The associations and effects I have uncovered suggest that there is a fundamental tension for governments between stimulating competitive markets and resolving accountability problems through certain contract management techniques.

Results presented in Chapters 2 and 3 suggest that contract management based on relational governance, which necessarily prioritizes the development and maintenance of close, trusting relationships between buyers and suppliers, may undermine competition in the wider market. Chapter 2 presents evidence of a negative association between awarding patterns that favour one or a small number of suppliers and the number of bids governments receive in future awards. Chapter 3 identifies the underlying causal relationship that drives that association by demonstrating that repeated awards to the same supplier deter competitors in their choices of contracts, as perceived by experiment participants. In this way, I provide further support for the idea that suppliers respond to signals given by past awarding decisions when choosing whether or not to bid for a contract and that, as theorized, these signals are likely to produce at least part of the association observed in Chapter 2.

I also find that the uncertainty over the outcome of an award decision—introduced by contract managers' discretion over the award—plays a key role in these dynamics. The adverse effect of relational governance approaches on competition appears to be either produced (as suggested in Chapter 2) or intensified (as indicated in Chapter 3) by a greater role for quality criteria in the contract award. In Chapter 2, I explain that the inclusion of quality criteria means that some portion of the awarding decision will be based on subjective criteria and therefore those awarding the contract are able to bring their past relationships with suppliers to bear on that decision (Volker & Schotanus, 2023). As a result, the existence of strong prior relationships is more likely to deter

potential suppliers when quality criteria are included and indeed the results suggest that this is the case.

In Chapter 3 I lay out why a greater role for quality criteria will indicate to suppliers that prior relationships are more likely to play a role in awarding decisions and that they also introduce more uncertainty over the outcome of that award (Schotanus et al., 2022). I demonstrate that, as predicted, suppliers' perceived preferences for new contracts are significantly stronger when quality criteria make up a majority of the award decision. These findings strengthen the evidence that potential competing suppliers respond to continuity in the relationships that buyers have with their existing suppliers—a core feature of relational governance—because their perceived responses are greater when contract managers can account for such relationships.

The results presented in this thesis also suggest that other styles of contract management, even those from a contrasting mode of governance, can influence market dynamics. In Chapter 3, I find evidence that the relationship between markets and management does not only apply to relational governance, but that another contract management technique that is growing in popularity—performance-based payment—has a similar effect on competition. Participants in the conjoint experiment expected suppliers to prefer fixed-price contracts over those that employ performance-based payment structures. This result implies that governments may be forgoing some competition when they adopt the latter as a means of managing suppliers' performance.

The results I present in Chapter 3 also shed light on why this might be the case, as participants expected suppliers to favour fixed-price contracts over both performance-based and cost-reimbursement contracts. As I outline in Section 3.2.1, fixed-price structures balance moderate levels of potential profit with moderate levels of risk for suppliers, whereas performance-based contracts present greater potential profit but also higher financial risk, while cost-reimbursement contracts are associated with low levels of both. That participants perceived suppliers to be deterred both by performance-based and cost-reimbursement structures, relative to a fixed price, suggests that suppliers may

prefer a balance of risk and reward. While participants expected that suppliers would be willing to take on some risk to obtain potentially larger profit margins than under a cost-reimbursement arrangement, the risk inherent in performance-based payment appears to be too high to outweigh the increased opportunity for profit.

I find some evidence that uncertainty also plays a role in these dynamics and may change suppliers' responses to the financial risk inherent in contract payment structures. As I argue in Section 3.2.3, the proportion of quality criteria in the contract award is associated with, and will signal to suppliers, the level of uncertainty in the delivery of that contract. Larger proportions of quality criteria relative to price signals greater uncertainty about both in the likely costs of supplying a contract and the buyer's assessment of a supplier's performance (Fazekas & Kocsis, 2020; Lundberg & Bergman, 2017; Schotanus et al., 2022; Waara & Bröchner, 2006). A greater role for quality is therefore associated with higher underlying financial risk to a supplier. I find that when quality criteria make up a majority of the award criteria, suppliers' perceived preference for the least risky payment structure—cost-reimbursement—increases significantly, reaching the same level as observed for fixed-price contracts. However, the proportion of quality criteria did not significantly alter participants' attitudes to performance-based contracts.

The final key finding of this thesis is that the competitive environment in which a contract is awarded can also influence contract management. The results presented in Chapter 4 suggest that markets with more competition—as indicated by more bids and closer awarding decisions—produce less flexible contract management and more intensive monitoring—as measured by participants' perceptions of contract managers' likely approaches. These results support the theory I propose, that buyers will manage contracts differently under different levels of competition, because competition changes the time horizons of buyer-supplier relationships and alters the payoffs from giving suppliers freedom and from monitoring.

This result has important implications for the influence of contract management on the performance of contracted public services. Both the level of flexibility and the extent of monitoring have been shown to be key determinants of the quality of services suppliers provide and of the overall cost of contracting. Restricting suppliers' freedom in delivering a contract can prevent governments from realizing some of the promised benefits of contracting out, such as access to expertise and adaptation to changing circumstances (Bredgaard & Larsen, 2008; Considine, 1999; Considine et al., 2011; Jantz et al., 2018). Meanwhile, increasing monitoring can raise the transaction costs associated with contracting, thereby undermining its economic efficiency (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019) and can sour relationships between buyers and suppliers, encouraging opportunistic behaviour as a result (Poppo & Zenger, 2002; Van Slyke, 2007). Once again, these results point to a tension between competitive markets and effective contract management.

This thesis makes several contributions to the literature on government contracting. Its primary contribution is to connect the study of contract management and contracting markets and explicitly examine and test links between the two. These two topics have received a considerable amount of attention individually, but the links between them and their effects on one another are less commonly studied. I offer a theoretical reasoning why certain types of contract management will negatively affect competition and why competition will itself encourage styles of contract management that previous research suggests may be counterproductive to achieving some of the central cost and quality benefits of contracting out. Through several tests of this theory, I expose a tension between these two crucial tasks for government when contracting out public services. The key implication of this finding is that governments are presented with a dilemma when contracting with the private and nonprofit sectors. The results I present suggest that they may not be able to manage the contracts they currently hold effectively and foster competition for future awards at the same time, or at least that doing so is a considerable challenge. In addition to the difficulties they face completing each task individually, which have been laid out

in previous literature, reconciling this conflict is a further obstacle to successful government contracting.

In uniting scholarship on contract management and contracting markets, this research also advances each strand individually. I make a contribution to the study of contract management by looking beyond the buyer-supplier relationship to examine the implications of prominent management approaches on the wider market in which a contract exists. Previous research has focused on the influence of contract management styles on the performance of the suppliers delivering a contract and the quality of governments' relationships with them. The research presented in Chapters 2 and 3 expands this focus to include other suppliers in the market, who may respond to such interventions and in doing so influence a crucial variable in the contracting process, namely competition.

Another notable contribution that these two chapters make to literature on contract management is to investigate the potentially negative effects of relational governance approaches. While the downsides of financial performance incentives have been widely documented and analyzed, the unintended consequences of close, long-term relationships between governments and their suppliers are less well understood. Recently, some studies have begun to expose the pitfalls of relational contracting (see for example Wadmann et al., 2019). This thesis adds to this scholarship, by presenting both observational and experimental evidence of the potential negative impact of relational governance practices on competition in contracting markets.

A final contribution this thesis makes to the study of contract management is to investigate the consequences of different levels of competition for contract management. One area in which previous literature has considered interactions with competition is in exploring how contract management practices have emerged as responses to a lack of market accountability (Brown & Potoski, 2004; Dubnick & Frederickson, 2010; Girth, 2014; Heinrich, 2002; Johnston & Girth, 2012; Johnston et al., 2004; Posner, 2002; Romzek & Johnston, 2005; Romzek et al., 2012; Van Slyke, 2007; Walker et al., 2006). Chapter 4 ad-

vances this research by examining the impact of both low and high levels of competition on management styles. In doing so, I add to this literature by finding evidence that high competition may also influence contract management in ways that limit flexibility and encourage more monitoring.

The research presented in this thesis also contributes to the literature on market management in government contracting. In Chapters 2 and 3 I expand the scope of market management scholarship beyond governments' intentional activities, such as bid solicitation or the design of procurement processes, to the ways in which they can inadvertently shape competition through other decisions, such as their approach to contract management. I also hope to prompt greater consideration of suppliers' perspectives and behaviour in the study of government contracting markets. While the existing literature on market management has tended to focus on buyers' choices of strategies and the implications of these activities for the efficiency of contracting, I explicitly examine suppliers' attitudes and actions. In Chapter 3, I propose a theoretical model of suppliers' bidding decisions, which I hope other research in this field may be able to use, refine, and expand. By investigating suppliers' bidding choices, I am also able to shed light on the effectiveness of some popular market management strategies. For example, active bid solicitation appears to be the most influential in encouraging suppliers to submit a bid, while the choice of procurement procedure appears to have a smaller impact.

Finally, by uncovering trade-offs between effective contract management and successful market management, the study provides potential explanations for two unanswered questions in the field. First, I offer a possible mechanism by which competition for government contracts declines over successive rounds of bidding (Bel & Fageda, 2011; Davies, 2007; Dijkgraaf & Gradus, 2008; Krachler & Greer, 2015; Lamothe & Lamothe, 2009; Sclar, 2000). As working relationships develop naturally or intentionally through the course of contract delivery and produce an advantage for suppliers with a prior history with a buyer, competing suppliers may be discouraged from bidding. Furthermore, once governments have contracted out a service, they may face challenges caused by the problems of complexity and incomplete contracts and a lack of pressure from

the market described in previous chapters. The contract management practices they implement in response, such as purposefully cultivating close relationships with existing suppliers or introducing forms of performance-based payment, may also reduce the attractiveness of the contract to alternative suppliers.

Second, the results I present in Chapter 4 provide a potential reason why some studies have found that introducing competition into public service delivery through contracting has not produced the expected improvements in performance (Alonso et al., 2017; Broms et al., 2020; Fernandez, 2007; Lamothe & Lamothe, 2010; Lamothe, 2015). The findings indicate that contested markets could encourage more restrictive contract management styles that prevent governments from realizing some of the benefits of contracting out. In particular the results could help explain the previous finding that competition has only proved beneficial for simple and not complex services (Petersen et al., 2015). Other studies have found that there is a greater need for more flexible approaches and more restrained monitoring when a service is complex (Brown et al., 2016; Malatesta & Smith, 2014; Tomkinson, 2016; Ya Ni & Bretschneider, 2007). My results suggest that competition discourages this style of management.

5.2 Implications for government

The findings of this thesis illuminate potential trade-offs inherent in two prominent forms of contract management. The results suggest that both relational governance and performance-based payment, which are increasingly being adopted by governments in various countries (Chuang et al., 2020; Considine et al., 2020; FitzGerald, Fraser, et al., 2023; Negoita, 2018; Sanderson et al., 2018; Warsen et al., 2019), can deter suppliers from bidding. The findings also expose that increasing competition may come at the price of encouraging contract management behaviour that limits the gains from contracting out. While competition is supposed to deliver many of the performance benefits of contracting, paradoxically, too much may prevent governments from realizing some of their other objectives.

Consequently, policy programmes that attempt to change one of these aspects of contracting without regard for the other may cancel out any benefits. New contract management initiatives that only consider impacts on the behaviour of the current supplier, and not on behaviour of suppliers in the wider market, may fail to improve contract performance because they erode market accountability. Likewise, when taking action to improve competition for their contracts, governments may simultaneously become more restrictive in their contract management styles, which previous research suggests can: raise transaction costs (Bailey & Davidson, 1999; Brown & Potoski, 2003c, 2005; Johnston & Romzek, 2010; Petersen et al., 2019); sour relationships (Poppo & Zenger, 2002; Van Slyke, 2007); promote standardization over adaptation (Considine et al., 2011; Finn, 2011; Fuertes & Lindsay, 2016; Marston & McDonald, 2008; Tomkinson, 2016); and limit their ability to take advantage of suppliers' specialist knowledge and skills (Ball & Gibson, 2022; Girth, 2014; Malatesta & Smith, 2014; Romzek et al., 2012, 2014).

These findings can therefore help to explain the challenges that governments have experienced in simultaneously maintaining competitive procurement markets and managing the contracts they purchase from them. They provide a new explanation for their many failures to perform these tasks described in Chapter 1. It is also not surprising that these challenges have intensified as governments have expanded their use of contracting into service areas that are in greater need of careful management (Brown et al., 2006, 2018; Van Slyke, 2007) and where markets are difficult to create and maintain (Girth et al., 2012; Van Slyke, 2003). While a lack of capacity in each area—resulting from budgetary pressures and difficulties recruiting and retaining people with the necessary commercial expertise—is undoubtedly a significant contributing factor (Andrews & Entwistle, 2015; Brown & Potoski, 2003a; Lamothe & Lamothe, 2012b; Petersen et al., 2019; Provost & Esteve, 2016), I suggest that an underlying tension between these two tasks could also account for the problems governments have faced. The conflicts I identify between managing ongoing contracting relationships and cultivating competition may make excelling in both an overambitious, if not unattainable, goal. Rather, the best a government may

be able to achieve is to strike a balance between the two, appropriate for the context in which they are contracting and their aims in doing so.

I hope that, by better understanding the potential trade-offs and contradictions between contract management and market management initiatives, governments pay greater attention to balancing the two. The contract management innovations studied in this thesis are often themselves implemented in response to a lack of or declining competition and the accompanying accountability challenges (Dubnick & Frederickson, 2010; Heinrich, 2002; Johnston et al., 2004; Posner, 2002; Romzek et al., 2012). However, this does not mean that competition becomes irrelevant once performance-based payment or relational governance is implemented. Both need some level of competition to function.

If governments become overly dependent on a supplier and face pressure to retain them, they may not be able to negotiate the same performance incentives with that supplier each time the contract is awarded (Johnston & Girth, 2012) and may become less willing to impose financial penalties in cases of poor performance (Girth, 2014; Johnston et al., 2004; Lamothe & Lamothe, 2012b; Romzek & Johnston, 2005; Van Slyke, 2007). Relational governance practices also require the presence of credible alternatives in the market, otherwise the supplier may take the relationship for granted and exploit the trust and freedom they have been given (Brown et al., 2007; Dijkgraaf & Gradus, 2007; Lamothe & Lamothe, 2012a). Exogenous shocks can also dramatically and unexpectedly increase this risk by changing the payoffs for a supplier of cooperation or opportunism (Bertelli & Smith, 2010). Finally, under both forms of contract management, a healthy market is needed to ensure governments can secure competitive prices for their contracts (Parker & Hartley, 2003).

Many of the calls to inject more competition into government contracting markets stem from a recognition that contracting has not produced the expected gains in service quality or cost savings (see for example Cabinet Office, 2022). Even though market pressures are theorized to ensure suppliers' performance, they are not sufficient in isolation and contract managers must still adopt an appropriate approach to ensure market accountability functions ef-

fectively. For example, if elements of service quality are unobservable, government buyers will still struggle to hold suppliers to account during the course of the contract and to assess their performance against that of others in the market. Likewise, if the service needs to adapt to changing circumstances or governments require suppliers to bring their specialist expertise to bear during delivery, governments will still need to facilitate that through their contract management approaches. The findings I present here therefore represent a caution against governments entering one of two vicious cycles: either meeting weak markets with management approaches that further reduce competition; or reacting to performance problems by creating market conditions that encourage counterproductive behaviour from contract managers.

This thesis suggests some actions that governments could take to address the conflicts between contract and market management. Chapter 3 details several ways in which governments could mitigate the potential impacts of relational governance approaches on competition. For instance, as I explain in Section 3.4.3, governments can neutralize the effect of entrenched relationships with incumbents to some extent by engaging with the market through active bid solicitation. Although maintaining the goodwill and trust of the current supplier while engaging closely with their competitors would likely require careful management.

The results presented in Chapter 3 also suggest that becoming more aware of patterns in their awarding decisions could help governments to reduce the impact on the number of bids they receive of employing a relational approach. The effect of previous awards to an incumbent on suppliers' bidding decisions only emerges as significant after three awards. Governments may therefore be able to reach a middle ground where relationships last long enough for investments in relationship-building to be worthwhile, but not so long as to drive alternative suppliers from the market. Indeed, there is evidence that some government organizations already employ strategic awarding decisions as a tactic to manage the number and dominance of suppliers in markets for their services (Amaral et al., 2009; Hansen, 2003; Torfing et al., 2017; Walker et al., 2006). It is important to note, however, that the effect of relationships

reported in Chapter 3 is intensified when contract awards have a larger quality element—usually associated with more complex services, where relational governance is most needed—so governments may need to pay attention to the precise effects of past awarding decisions in different procurement markets.

The results reported in Chapter 3 also imply some possible responses to the effect of performance-based payment structures on competition. Crucially, the effect of performance-based payment is *relative* to a fixed-price structure, suggesting that suppliers will prefer to bid for these types of contracts when they are available. However, as previously mentioned, governments are often the only buyer or one of few buyers in markets for public contracts. I have discussed extensively the problems this causes for them, but in this case it could be an advantage, as it gives them greater control over the range of contracts and payment structures available in the market. Consistently adopting performance-based payment, for example through strategies and guidelines at the organization, national or even supranational level, may reduce or remove the influence of this type of payment on competition, as suppliers will not have the same range of choices. Coordinating with other governments purchasing from the same markets, for example neighbouring local governments, may also be an option when markets are made up predominantly of government buyers.

Chapter 3's results also suggest that the level of financial risk is a key driver of suppliers' aversion towards performance-based payment. Therefore, a potential solution may be to understand better suppliers' tolerance for financial risk and set performance incentives within that tolerance. In any case, previous research suggests that many performance-based payment structures currently in force are associated with levels of financial instability that are too high for some suppliers to bear and either lead them to exit the market completely or to game targets in order to survive (Greer et al., 2018; Koning & Heinrich, 2013). The findings of this thesis further suggest that governments would be wise to pay attention to the bounds within which they set performance incentives and the impact this has on their suppliers' financial positions.

The analysis presented in Chapter 4 indicates that governments need to be aware of the management implications of the market environment and to consider contract management in their strategies to increase competition. In doing so, they can deliberately set contract management practice, rather than unintentionally influencing contract managers' approaches through changes in market conditions. For example, governments may determine that preserving the benefits of competition by writing standardized contracts, which make it easy to switch supplier, is worth the accompanying sacrifices in agility and access to supplier expertise. Whether this is the case could depend, for instance, on the government's need for specialist skills and knowledge to provide a service and the volatility of the external environment. Alternatively, they may decide to put in place measures which counter contract managers' inclination to control suppliers' behaviour more tightly as markets become more competitive, for example by introducing standard monitoring practices to control transaction costs.

The results presented in Chapter 4 also imply that it may be possible to have too much competition in government contracting markets. Governments may actually need to take steps to reduce competition if it affects contract management practices in ways that harm contract performance. In some cases, actively encouraging some market consolidation through their awarding decisions may be appropriate. Indeed, Wang and San Miguel (2013) suggest that this could be beneficial, as surviving suppliers are likely to be of higher quality and have access to greater economies of scale.

Finally, I hope that the findings presented here can guide decisions about when to provide public services through contracts with external suppliers and can inform governments' expectations about what can be achieved from contracting. I have argued that contract management methods that can hold suppliers to account are at odds with the kind of market management needed to cultivate competition in public procurement markets. As a result, in circumstances where these tensions are most pronounced—where services are complex, contracts are incomplete, the external environment is uncertain, or where

markets contain few buyers and suppliers—it may not be possible for governments to succeed in both tasks.

Importantly, the findings presented here lend further weight to arguments made previously, that governments cannot assume to access competition when contracting out (Heinrich et al., 2010; Lamothe & Lamothe, 2009, 2010; Van Slyke, 2003). Competition remains the dominant justification for contracting in much of the political and practitioner discourse (Hood & Dixon, 2015; Stolt & Winblad, 2009) and, as we have seen in previous chapters, promoting competition is still a common focus of governments engaged in contracting (Cabinet Office, 2020; Ministry of Economic Affairs and Climate Policy, 2021; Ministry of Finance, 2017; National Audit Office, 2023). Yet these results suggest that access to competition may not always be a valid rationale for contracting. For example, the benefits of market pressure may not be an appropriate motivation to contract out complex services, where incomplete contracts mean that relational approaches are needed to manage supplier opportunism.

Contracting may still be worthwhile in these situations, to allow governments to access external expertise, for example. Nevertheless, governments must establish whether such expertise exists within what may be a limited market and whether they will be able to access that expertise for an acceptable price if there is little competition between suppliers. Equally, in competitive markets, developing close relationships with suppliers that enable flexibility, adaptation, and learning may not be an achievable goal. If governments' primary aim is to take advantage of external expertise or to enable public services to be more agile and responsive, contracting may not be the most suitable option when markets are highly contested or if they also require strong competition, for example to keep prices low.

5.3 Generalizability, limitations, and avenues for future research

In each chapter I have discussed the specific limitations of the research and areas for future study. Here I reflect on the limitations of the thesis as a whole and the questions it raises for the future of contracting research. I start by discussing how generalizable the findings are to other contexts. The data analyzed in this thesis are predominantly drawn from the UK and countries with similar procurement regimes. The analysis presented in Chapter 2 focuses exclusively on the UK, and while the experiments presented in Chapters 3 and 4 included participants from several countries, a majority were from Europe and other countries in the Global North, with participants from the UK representing an outsize group.

Given that this study is predominantly based on data from the UK, its findings are most likely to apply to other countries that are alike in the extent and nature of government contracting. In particular, I expect the results presented here to travel most easily to countries that contract out the same types of public services, use the same or similar procurement procedures, and have comparable levels of corruption in public procurement. Such countries include Germany, the Netherlands, and Scandinavian countries, which also contract for core government activities that are difficult to define and measure (Bennmarker et al., 2013; Carrera et al., 2021; Jantz et al., 2018; Laun & Thoursie, 2014; Petersen et al., 2015; Sivesind & Saglie, 2017; Stolt et al., 2011; Tiemann & Schreyögg, 2009; Tuominen et al., 2012), operate under EU procurement rules, which the UK followed throughout the period covered by this study, and have low indicators of corruption in public procurement (Fazekas & Tóth, 2016; Wachs et al., 2020). Outside of Europe, comparable countries include Australia and New Zealand, which again use contracting to provide both simple and more complex public services (Came et al., 2018; Considine et al., 2020; Foote, 2022; Kibblewhite & Ussher, 2002; Purse, 2009; Van den Hurk & Hueskes, 2017; Young et al., 2021; Zuberi, 2011), follow similar procedures to procure those services (Department of Finance, 2023; Ministry of Business, Innovation and

Employment, 2019), and have low scores on indices of government corruption (Transparency International, 2023).

The types of services a government contracts for matters because the need for the contract management techniques that I study stems from difficulties managing complex services in markets with little competition. We might not see the same tensions between contract and market management when governments only contract out simple services that are easy to define and measure and for which a healthy market already exists. In countries where contracting has been used less extensively and predominantly to provide simple technical services, such as waste management, cleaning, and maintenance, we may not observe the same results.

For example, as Ongaro (2009) points out, other European countries—France, Greece, Italy, Portugal, and Spain—have followed administrative trajectories rooted in the Napoleonic tradition, which have involved more limited adoption of contracting out and other New Public Management reforms compared to the UK. More recent studies have confirmed that this implementation gap has persisted in these countries (Cavatorto & La Spina, 2020; Di Mascio & Natalini, 2015; McMullin, 2021; Peters, 2021). Under such conditions the associations identified here between contract management and competition are likely to be smaller. When contracted services are less complex, there is less need for the kind of management approaches studied here, to navigate gaps in contracts that suppliers could exploit. Meanwhile, markets for simple services may be more robust, because government is more likely to be one of many buyers, meaning that their actions may have less impact on the overall health of the market.

We might also expect different procurement procedures to produce different results, because the procedures available to contract managers influence whether and how they can consider their experience with a supplier, and the extent to which they can limit competition. They also dictate the costs to suppliers of bidding for a contract and shape their estimation of their chances of winning. The EU procurement regulations under which the UK was operating

during this study are widely considered to be the "gold standard", in that they are the most stringent in the way they limit the discretion of public managers and the factors that can be considered in a contract award, as well as imposing strict rules on when governments can forgo competition (Telles, 2022, p. 217). Other procurement rules allow public managers to account for past performance directly or more easily award contracts with limited competition. In these contexts, we may see even stronger associations between contract management and competition. However, contract managers may not respond to competition in the ways I find in Chapter 4, because procurement rules allow them greater scope to prioritize relationships with suppliers in the face of competitive markets.

For example, US federal procurement regulations allow more weight to be given to suppliers' past performance (Federal Acquisition Regulation, 2023, Pt 15.304(c)), which may better enable contract managers to preserve relationships in which they have invested. This could mean that relational governance approaches that privilege relationship-building have even greater potential to erode competition, but it may also reduce the link between competition and flexibility, because contract managers have different expectations about the length of their relationships with suppliers when markets are competitive. In addition, EU procurement procedures are only required for contracts with values above certain thresholds. For contracts below these thresholds, past relationships may play a greater role in determining the award and contract managers may respond differently to competition.

Finally, as I note in Chapter 2, the UK has consistently scored well on indicators of corruption in public procurement (Fazekas & Tóth, 2016; Wachs et al., 2020). Different levels of corruption may lead to different results than those observed here, although the direction those differences are likely to take is not clear. Greater corruption may make it easier for governments to favour known suppliers and restrict competition for their contracts, thereby intensifying any negative association between prior relationships and competition. Conversely, in countries where corruption is more common, and perhaps more normalized, we may not see the same results if government suppliers accept that favouritism

and bias towards existing suppliers is simply a feature of doing business with government and therefore respond differently.

Greater corruption may even mean that competing suppliers have different tools at their disposal to challenge incumbents, such as bribes or clientelism. Furthermore, corruption may change governments' objectives in contracting for public services and their relationships with suppliers, leading to different approaches to contract management and different responses to competition in the market, whatever form it takes. Understanding whether the tensions between contract and market management uncovered here occur in other contexts is an important task for future research, especially as contracting is a growing practice in the Global South and in countries where corruption is more prevalent than in the UK (Estrin & Pelletier, 2018; Knox & Sharipova, 2023; Loevinsohn, 2014; Zaidi et al., 2011).

In addition to the predominance of the UK in the data presented, it is also important to note other limitations in the scope of the survey experimental data. While the data presented in Chapter 2 included a range of different types of contracts, government organizations, and suppliers, the experimental scenarios in Chapters 3 and 4 only featured one type of service area (technology), supplier (a private company), and government buyer (a municipal government). The results in Chapter 2 indicate that the finding that strong relationships with existing suppliers deter competing suppliers from bidding applies in a range of contexts, albeit only when quality criteria form part of the contract award. However, the finding in Chapter 3 that performance-based payment also discourages suppliers from bidding and the result presented in Chapter 4 that the level of competition in the market influences contract managers' approaches to overseeing suppliers' behaviour may not apply in different circumstances.

Previous literature has found that factors crucial to the theory presented here can change depending on the context. For example, Brown and Potoski (2003a) find that the governance structure and revenues of municipal governments influence their investment in contract management capacity. While Marvel and Marvel (2009) find that contract managers are less likely to im-

plement high-powered performance incentives in contracts with nonprofit and other government suppliers, compared to those from the private sector. Future studies could therefore probe further whether and how the interplay between competition and contract management changes depending on the type of service, level of government, and kind of supplier.

Moving beyond generalizability to other limitations of this thesis, an area in which the research presented could be developed is to investigate more fully the mechanisms that lie behind the observed effects and associations. In Chapter 2, I present some evidence that bureaucratic discretion drives the connection between buyer-supplier relationships and competition, but I am not able to verify each link in the causal chain that I propose. I demonstrate that the inclusion of quality criteria, which give contract managers some discretion with which to favour one supplier over another, accounts for the association between prior relationships and the number of bids received. What the analyses do not show is whether contract managers are indeed using this discretion to privilege suppliers with whom they have worked before. Neither can I distinguish from the data whether this is the result of a rational calculation of the value of the relationship or managers' unconscious bias towards familiar suppliers.

Similarly, while the model of suppliers' bidding decisions that I present in Chapter 3 is valuable for exploring the potential effects of contract management on competition and motivating the chapter's hypotheses, I am unable to test it in its entirety. I only measure suppliers' choices of contract and not their perceptions of the different contract attributes. As a result, I cannot confirm that their expectations about their chances of winning a contract, or the profit they will make, do in fact change as a result of the awarding history or payment structure.

The research presented in Chapter 4 also leaves some questions unanswered about how the market environment produces changes in contract managers' behaviour. I suggest several reasons why competitive markets will lead to more restrictive management styles, but am not able to say which of these, if any, predominates. For example, do contract managers give suppliers less

flexibility in competitive markets because they want to preserve the benefits of competition, because they lack time to invest in relationships, or for some other reason? Likewise, does low competition lead to less monitoring because contract managers wish to build trust with a supplier, because they think gathering information about a supplier's performance will be pointless, or due to other factors? Future research could address these limitations by providing tests of the individual mechanisms proposed in this thesis and suggested by its results.

Another area where this study has limitations, and which future work could address, is in its conceptualization of its key variables of interest. Starting with contract management, this thesis has focused on the impacts of two prominent contract management styles and the observable implications of these. However, there are many more management approaches and contractual arrangements, such as awards to multiple suppliers, public-private partnerships, or framework agreements, that could be studied. Within the two approaches I consider there are also many more aspects that may influence competition, such as the nature of the measures used by performance-based contracts or the information shared between buyers and suppliers operating under a system of relational governance.

When operationalizing contract management as a dependent variable, I chose to measure the level of flexibility offered to suppliers and the intensity with which they were monitored. While both are key components of contract management and have been identified by previous literature as critical determinants of contract performance, there are many other ways in which contract managers' behaviour could vary in response to competition. Other key variables include how much time and resource managers invest in relationships with suppliers and their responses to poor performance.

Likewise, future studies could take a more nuanced view of competition. As previously noted, one contribution of this research has been to move beyond measures of competition that assess only whether a contract has been exposed to the market or not. However, the measures of competition I use, although they capture different levels of competition, are arguably still relatively

simplistic. Chapters 2 and 3 only measure the number of bids received for a contract, while Chapter 4 introduces a consideration of how close those bids are in quality and therefore the suitability of alternatives in the market. Yet there are several other features of markets that may be relevant to the performance of government contracts, such as suppliers' market shares or average profit margins, as well as the rates of suppliers entering and exiting the market. Future research could explore measures that more fully capture the many aspects of contracting markets, both to understand further the links between competition and contract management and to address other questions in the contracting literature.

It is also important to note that the majority of the analysis presented in this thesis has relied on data from online survey experiments. While online survey experiments have many advantages, such as the ease of reaching large groups of participants and the estimation of causal effects, they also come with drawbacks. First, both experiments manipulated the independent variables of interest through hypothetical scenarios. As already mentioned, this necessitates some simplification of the concepts they represent to reduce the cognitive load on participants. We also cannot be sure that participants would respond to these stimuli in the same manner in the wider world. Other methods, such as field experiments, that can simulate more fully the options suppliers are presented with when they make bidding choices or the competitive environments in which public managers award and oversee contracts would be useful to confirm the external validity of the results presented here. Alternatively, this could be done through qualitative research that can observe the choices government buyers and suppliers make in practice.

Second, the outcomes I measure are either based on stated preferences, as in Chapter 3, or perceptions, as in Chapter 4. This introduces an inferential leap between participants' stated responses and their behaviour when faced with the same situation outside of the experimental setting. In Sections 3.3.2 and 4.2.2, I present reasons why this is a reasonable assumption, but again, experimental methods using behavioural outcome measures, or observations

of buyers' and suppliers' behaviour in the real world, are needed to strengthen the external validity of the findings.

Third, while the participants in both experiments had professional expertise in negotiating and managing external relationships, not all had direct experience of acting as a buyer or a supplier for government contracts specifically. I did not find any difference between the two groups in Chapter 3 and the influence of strong buyer-supplier relationships on the number of bids governments receive for their contracts is also corroborated by the observational data analyzed in Chapter 2. However, there is a difference in the results presented in Chapter 4: the effect of high competition on monitoring is not present for participants with direct experience of managing government contracts. Therefore, further research with larger samples of expert participants could add further weight to the findings presented in this thesis.

A final limitation of this study is that it does not assess the downstream implications of the tensions I have uncovered between contract and market management on contract performance. I have relied on previous bodies of research, which suggest that a lack of competition is problematic for ensuring supplier performance and that more restrictive styles of contract management can be counterproductive for governments seeking to access supplier expertise, make public services more agile, or reduce costs through contracting. However, further research is needed to confirm that any reductions in competition caused by particular contract management approaches do indeed harm contract performance, and equally that the management styles encouraged by highly contested markets have the expected impacts on supplier behaviour.

Throughout the thesis, I have conceptualized the findings as a trade-off for governments between the effective management of their current suppliers and the stimulation of healthy competition between suppliers. What exactly the right balance is between these two priorities and how it changes in different contexts is an open question for the literature. Case study research may be valuable here, to track the evolution of contract management approaches, any impacts they have on the wider market, and link these back to performance out-

comes. Similar work would also be beneficial to trace links between changes in the market environment and contract managers' behaviour, and to understand whether and when the kind of management styles produced by high competition start to undermine contract performance. Equally, research that can compare these dynamics across different types of services, governments, or suppliers would help to understand how the tensions identified here impact the performance of contracted public services in practice.

As well as addressing the limitations of this thesis, future research could also take forward some questions raised by its findings. For example, Chapter 2 raises the possibility that contract managers use *ex ante* and *ex post* mechanisms as alternatives to favour their preferred suppliers. When they have discretion over the contract award *ex post* they do not apply *ex ante* restrictions on competition through the bidding procedure or length of advertisement period. They only use *ex ante* restrictions when they do not have *ex post* discretion. Future research could explore this possibility in more detail. Do these two mechanisms present alternative options by which contract managers can prioritize the value of their past relationships with known suppliers, or is there some other difference between contracts with and without quality criteria that produces this difference? If *ex ante* and *ex post* instruments do act as alternatives, why do *ex ante* restrictions not appear to have the desired effect?[1] Research that aims to understand how, in what order, and by whom the advertisement length and award criteria are decided could help to answer some of these questions.

More research that examines and contrasts different stages in the contracting process could answer other questions raised by this thesis. In Chapter 3, I find that suppliers prefer fixed-price to cost-reimbursement contracts. This diverges from previous work on the determinants of contract payment structures (Brunjes, 2018; Kim et al., 2016; Malatesta & Smith, 2011). A crucial difference between this and previous studies is that I examine suppliers' preferences at the bidding stage, whereas existing research focuses on contracts that have been negotiated. This difference points to the possibility that suppliers' pref-

[1] I observe a *positive* association between prior relationship strength and competition for lowest-price contracts, despite the fact that these are the contracts where such relationships are associated with *ex ante* restrictions.

erences or strategies change between the bidding and negotiation stages. Do suppliers prefer to compete based on a fixed price, but once they have won the contract seek to shift the risk of cost rises to the buyer and negotiate a profit margin instead? Research that investigates contract changes between bidding and negotiation could shed light on this question.

The finding in Chapter 2 that buyer-supplier relationships are positively associated with competition when the award is based on price alone also calls for further investigation. It leads me to the explanation that stronger prior relationships do not lead to market consolidation through structural processes, such as longer and larger contracts leading to fewer opportunities. However, that chapter also presents descriptive evidence that there is a pronounced downward trend in competition for lowest-price contract awards. Further investigation is therefore needed into the competitive dynamics of contracts awarded on price alone. This research could help us uncover why more entrenched relationships appear to encourage competition and explain the overall decline in competition for these contracts.

Chapter 4 emphasized the importance of considering intermediate steps that connect competition to contract performance and thus could explain the mixed findings of previous studies that examine the link between the two. I focus on one such factor—contract management—but future research could usefully explore other potential links in the competition-performance chain. For instance, competitive markets are characterized by more frequent changes of supplier and switching supplier comes with associated transaction costs. Does the level of competition impact transaction costs in this way? If so, does this undermine the efficiency of contracting in highly contested markets? Another possibility is that the financial pressure on suppliers created by competition has other perverse effects, such as greater instability in the market, which could threaten service continuity, or more intense pressure on profit margins, which could jeopardize service quality and promote gaming behaviour. Research that further opens up the black box between competition and performance and investigates the different impacts market dynamics can have on contract out-

comes would greatly add to the literature and could make substantial contributions to the practice of contracting.

Finally, in identifying a tension between contract and market management this research prompts questions about how governments are balancing the conflicting priorities inherent in these two tasks. For example, are they attempting to maintain trusting relationships with their current suppliers while engaging with the wider market? What strategies to the use to do so? Are governments aware of how competitive markets shape the behaviour of those managing their contracts? Do they reflect this in their training, guidance, or standards for contract managers? Which measures help to counter or manage adverse effects? Are some governments meeting the challenge of balancing the two tasks more skilfully than others? What factors contribute to their success? In the knowledge that such a trade-off exists, a logical next step for future research in this field is to understand better how governments are reaching, or could reach, compromises between the demands of managing ongoing contracts and maintaining healthy markets.

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A

Appendix for Chapter 2

A.1 Process for identifying buyer and supplier organizations

1. **Pre-processing:** I disaggregate contracts that were awarded to multiple suppliers into separate rows and remove records where multiple winning suppliers are recorded in non-standard ways and therefore cannot be separated. I also remove records containing strings that indicate that winner or winners' details are not recorded, for example, where phrases, such as "available on request" or "security reasons" appear. I then process, at the level of awards to individual suppliers, the name, street address, town, and postal code for both buyer and supplier organizations, by lower-casing all characters and removing punctuation and superfluous white space.

2. **Choosing measure of similarity:** I implement a supervised learning approach in the Python *Dedupe* library (Gregg & Eder, 2019). This method defines several measures of similarity for each field, such as string edit distance (the number of additions and deletions needed to transform one string into another), overlap of shared words, or the similarity of first characters in each word. A large number of similarity measures are calculated for a small sample of record pairs and then the algorithm presents a user with pairs about which it is most unsure. I manually labelled pairs until I had made 50 positive and 50 negative matches, resulting in a train-

ing set of just over 100 pairs. This approach is similar to that used by (Wachs et al., 2020) to deduplicate contracting entities across the Tenders Electronic Daily dataset for the whole of the EU.

3. **Choosing records to compare:** In order to minimize the number of comparisons that must be made, while maintaining accuracy, the algorithm uses a technique called blocking. Records are divided into blocks based on similarity measures mentioned above. The algorithm then learns which blocks most effectively balance the trade-off between accuracy and volume of comparisons, using the manually labelled sample.

4. **Grouping similar records:** Having calculated the similarity of records for all pairs of buyer or supplier organizations within each block, I then use a hierarchical clustering method to determine which records represent instances of the same buyer or supplier organization.

5. **Selecting a threshold for clustering:** Finally, using the manually labelled sample of records, the algorithm sets a threshold for generating unique identifiers for buyers and suppliers, weighing false positives and false negatives equally.

A.2 Descriptive statistics for contract awards included in advertisement period models

Table A.1: Summary statistics.

Variable	Mean	Standard deviation
Contract value (million €)	9.79	58.87
% previous winners with prior relationship	52.86	108.65
Bids received	8.89	34.24
Awards made	3.61	13.88

$N = 1\,368$

A.3 Robustness check for measure of prior relationships

Table A.2: Two-way fixed-effect regression estimates using an alternative measure of prior relationships.

	Dependent variable:			
	Log number of bids			
	(1)	(2)	(3)	(4)
Past wins by incumbent(s)	-0.0004^{***}	-0.0004^{***}	0.003^{***}	0.002^{***}
	(0.0000)	(0.0000)	(0.001)	(0.001)
Quality criteria			0.124^{***}	0.058^{**}
			(0.029)	(0.028)
Past wins by incumbent(s) × quality criteria			-0.003^{***}	-0.002^{***}
			(0.001)	(0.001)
Contract fixed effects	✓	✓	✓	✓
Organization fixed effects	✓	✓	✓	✓
Time fixed effects	✓	✓	✓	✓
Contract-level controls		✓		✓
Observations	34 961	34 961	34 961	34 961
R^2	0.484	0.489	0.485	0.490
Adjusted R^2	0.414	0.420	0.415	0.420

Note: *p<0.1; **p<0.05; ***p<0.01

Standard errors are panel-corrected and clustered at the organization level.

B

Appendix for Chapter 3

B.1 Marginal mean estimates for main effects

Table B.1: Marginal mean estimates.

Attribute	Value	Marginal mean	Standard error
Payment	Fixed-price	0.543	(0.013)
	Cost-reimbursement	0.488	(0.013)
	Performance-based	0.465	(0.014)
Incumbent wins	New contract	0.535	(0.016)
	1 win	0.513	(0.017)
	2 wins	0.496	(0.016)
	3 wins	0.458	(0.016)
Criteria	100% price	0.451	(0.015)
	70% price, 30% quality	0.489	(0.014)
	30% price, 70% quality	0.557	(0.014)
Procedure	Full bid	0.522	(0.014)
	Pre-bid questionnaire	0.518	(0.014)
	Pre-bid proposal	0.461	(0.013)
Engagement	No engagement	0.415	(0.012)
	Informal conversations	0.505	(0.013)
	Invited to bid	0.581	(0.012)
Observations	1,539		
participants	513		

Note: Standard errors are clustered by participant.

B.2 Robustness check for participant contracting experience

Table B.2: Estimated difference in marginal mean estimates by government-specific contracting experience.

Attribute	Value	Marginal mean	Standard error
Payment	Fixed-price	0.002	(0.030)
	Cost-reimbursement	−0.019	(0.030)
	Performance-based	0.021	(0.032)
Incumbent wins	New contract	−0.027	(0.036)
	1 win	0.037	(0.038)
	2 wins	0.016	(0.035)
	3 wins	−0.026	(0.037)
Criteria	100% price	−0.004	(0.033)
	70% price, 30% quality	−0.026	(0.032)
	30% price, 70% quality	0.032	(0.031)
Procedure	Full bid	−0.021	(0.031)
	Pre-bid questionnaire	0.008	(0.030)
	Pre-bid proposal	0.013	(0.030)
Engagement	No engagement	0.023	(0.030)
	Informal conversations	−0.012	(0.031)
	Invited to bid	−0.013	(0.029)
Observations	1,539		
participants	513		

Note: Estimates represent the difference in marginal means of participants with government-specific contracting experience, compared to participants with external negotiation or relationship management experience only (reference category). Standard errors are clustered by participant.

B.3 Marginal mean estimates for interactions

Table B.3: Estimated difference in marginal mean estimates by criteria weighting.

Attribute	Value	Marginal mean	Standard error
Payment	Fixed-price	0.063	(0.032)
	Cost-reimbursement	0.139	(0.032)
	Performance-based	0.057	(0.033)
Incumbent wins	New contract	0.151	(0.037)
	1 win	0.064	(0.037)
	2 wins	0.064	(0.037)
	3 wins	0.061	(0.036)
Procedure	Full bid	0.116	(0.031)
	Pre-bid questionnaire	0.108	(0.031)
	Pre-bid proposal	0.036	(0.032)
Engagement	No engagement	0.131	(0.031)
	Informal conversations	0.051	(0.032)
	Invited to bid	0.078	(0.030)
Observations	1,539		
participants	513		

Note: Estimates represent the difference in marginal means when award criteria are majority-quality, compared to majority-price awards (reference category). Standard errors are clustered by participant.

Table B.4: Estimated difference in marginal mean estimates by bidding procedure.

Attribute	Value	Marginal mean	Standard error
Payment	Fixed-price	0.007	(0.031)
	Cost-reimbursement	0.063	(0.031)
	Performance-based	0.030	(0.032)
Incumbent wins	New contract	0.002	(0.038)
	1 win	0.038	(0.037)
	2 wins	0.058	(0.036)
	3 wins	0.029	(0.036)
Criteria	100% price	0.002	(0.034)
	70% price, 30% quality	0.025	(0.031)
	30% price, 70% quality	0.060	(0.031)
Engagement	No engagement	0.070	(0.030)
	Informal conversations	0.039	0.031
	Invited to bid	−0.012	(0.031)
Observations	1,539		
participants	513		

Note: Estimates represent the difference in marginal means when a contract has a one-stage procurement procedure, compared to contracts with two-stage procedures (reference category). Standard errors are clustered by participant.

Table B.5: Estimated difference in marginal mean estimates by invitations to bid.

Attribute	Value	Marginal mean	Standard error
Payment	Fixed-price	0.111	(0.031)
	Cost-reimbursement	0.117	(0.029)
	Performance-based	0.143	(0.032)
Incumbent wins	New contract	0.061	(0.035)
	1 win	0.098	(0.038)
	2 wins	0.160	(0.036)
	3 wins	0.168	(0.035)
Criteria	100% price	0.098	(0.033)
	70% price, 30% quality	0.159	(0.030)
	30% price, 70% quality	0.114	(0.031)
Procedure	Full bid	0.081	(0.031)
	Pre-bid questionnaire	0.134	(0.031)
	Pre-bid proposal	0.150	)0.032)
Observations	1,539		
participants	513		

Note: Estimates represent the difference in marginal means when a buyer has explicitly invited the supplier to bid, compared to contracts where no invitation has been made (reference category). Standard errors are clustered by participant.