

THE SUCCESS OF THE EMBEDDED STATE IN ENGLAND*

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Abstract

Many states exhibit high degrees of capacity without the fiscal resources necessary to fund a modern bureaucracy. We argue that they achieve this by using features of the social structure of the societies they govern to motivate individuals to engage in bureaucratic and governance tasks without pay. We develop and illustrate the concept of the “Embedded State” using a unique survey of English urban government from 1835. Since English local authorities had few resources, two-thirds of borough positions were unpaid. We first show that unpaid positions were significantly more productive than paid ones. We then show that unpaid positions conveyed prestige and were ‘stepping stone’ positions, provided different on-the-job incentives, and were taken up by the socio-economic elite. We also show that the successful Embedded State featured patronage and corruption and could not fully motivate unpaid bureaucrats to implement onerous tasks.

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1 Introduction

Across the social sciences, successful governments are thought to be “Weberian,” following Max Weber’s account of the emergence of the modern state (Weber, 1922). In his view, successful states rest on “rational-legal” authority, characterized by meritocratic recruitment and salaried, professionally trained civil servants who implement policy impartially. But Weberian governments are expensive: The median OECD country government spends about 45% of GDP annually.¹ In part for this reason, most governments historically were *not* Weberian. For example, as the Industrial Revolution began, tax revenues in England were around 10% of national income (O’Brien, 2011). In Prussia, they were 5% (Spoerer, 2010). These levels are comparable to fragile and non-Weberian contemporary states such as Haiti, Yemen, and the Central African Republic. Yet England, for example, was able to govern its many cities and villages extensively, maintaining order, protecting property rights, and building infrastructure. How?

In this paper, we test the hypothesis that *unpaid* civil service positions help explain why some low-revenue governments provide public goods more successfully than others (Goldie, 2001). These positions differ from simple community-based public good provision (Ostrom, 1990): they are permanent government positions with distinct responsibilities, but they do not carry a salary. This is a key departure from Weberian government, because salaried employment is what makes bureaucrats part of a professional “rational-legal” organization (Weber, 1922, p. 963). Whether unpaid positions improve public good provision depends on how the non-monetary incentives sustaining them shape both bureaucrat selection and performance. These may be social, such as civic duty or the pursuit of status and prestige (Ashraf and Bandiera, 2018). They may also be private, such as opportunities for later career advancement (Gibbons and Murphy, 1992). In either case, individuals who select into unpaid positions may differ from those who would accept an equivalent paid position (Finan et al., 2017). We study this hypothesis in two steps. First, we assess the efficiency consequences of instituting unpaid positions. Second, we examine the incentives that sustain such positions and the selection of individuals who take them up.

The setting of this paper is nineteenth-century England.² At the time, England delivered most public goods through *local* government. Its organization and performance varied widely, providing a controlled empirical angle on our question (Collinson, 1994; Goldie, 2001). We construct a new dataset of public good provision and employment for one tier of local government: self-governing boroughs (towns).³

¹A substantial empirical literature associates these institutional features with improved public goods provision. Evidence ranges from cross-country analyses (Evans and Rauch, 1999), to natural experiments (Acemoglu et al., 2015; Dell et al., 2018) and randomized controlled trials that introduce Weberian incentive structures (e.g., Khan et al., 2016; 2019; surveyed in Besley et al., 2022). The modern figures for government spending relative to GDP include entitlement components that were comparatively smaller historically.

²Throughout, ‘England’ refers to England and Wales, which shared a legal and administrative system. Scotland retained separate institutions after the 1707 Act of Union and is not covered by our data.

³The other relevant tiers are counties (provinces) and parishes (villages). We discuss their governance in Section 2.

Our analysis draws on the Municipal Corporations Report, which provides a unique cross-section of the data needed to test our hypothesis in 1835 (Municipal Corporations Commissioners, 1835).⁴ The report contains measures of seven distinct public goods, including assessments of overall borough governance, policing and financial administration, and the quality of the borough prison. Importantly, it also records each government position, whether it was salaried, and which public good or goods fell under its responsibility. These data allow us to link paid and unpaid positions to public good outcomes through the assignment of positions to specific public good provision tasks.

We begin by comparing the quality of public good provision across unpaid and paid positions, conditioning on borough fixed effects, task (e.g., policing) fixed effects, and position-title fixed effects (e.g., mayor). On average, unpaid positions are associated with a 12 percentage point improvement in public good provision (corresponding to 20 percent of the sample mean). Because each public good is provided by multiple individuals occupying several different positions, we next develop a simple structural model of team production, following Abowd et al. (1999) and Bonhomme (2025), that allows for diminishing returns to team size and makes the role of spillovers explicit. Accounting for spillovers, we find the same qualitative pattern: unpaid positions are associated with better performance, unpaid teams perform better, and boroughs with a larger share of unpaid positions perform better.

These results are consistent with the hypothesis that this way of organizing a government may help explain variation in performance across low-revenue governments. However, not paying a position may be correlated with other characteristics of that position and is not randomly assigned. Historically, there were many factors determining who got paid, including borough finances and the ability of boroughs to design incentives that would compensate for not being paid. Our strategy to address this is to measure whether a position could be paid at the prevailing, exogenous (to the borough), market wage for a task. To do so, we first note that borough income was small and overwhelmingly composed of rental income from assets individually bequeathed to the borough in the past (Sweet, 2014). Substantiating Sweet’s claim, we find that such income is balanced with respect to a wide range of borough observables, including location, size, and social structure. Using data on wages in equivalent paid positions in the *central* government, we then replace unpaid status with an indicator that captures whether a position *could* be paid given the exogenous wage and predetermined financing conditions. To validate our approach, we show that this indicator, in turn, is balanced with respect to *position* observables like title, task assignment, and a large set of other observables. We find that, conditional on borough fixed effects accounting for any remaining endogenous drivers of the size of the predetermined budget, being ‘out of budget’ is associated with a performance increase of 19 percentage points, larger than the baseline estimate of 12 percentage

⁴For background on the report, see Finlayson (1963), Finlayson (1966), and Moret (2015).

points. Finally, although this procedure isolates variation in unpaid status, the creation of a particular position and the assignment of particular tasks may themselves respond to anticipated payment status. We therefore subset to legally mandated positions and their typical tasks, and find that the effect of being unaffordable does not depend on endogenous position creation or endogenous task assignment.

The performance effects of unpaid positions ultimately depend on both the non-monetary incentives that the positions provide and, once a position is instituted as unpaid, the type of individuals who take them up. Using the Municipal Corporations Report, we construct proxies for both incentives and selection. For incentives, we measure the prestige associated with a position and whether it serves as a stepping-stone role. We capture on-the-job incentives by measuring the flexibility of task assignments and the presence of a principal. We find that unpaid positions are more prestigious, more likely to serve as stepping-stones, offer greater flexibility, and are less likely to involve oversight. For selection, we use several additional data sources to measure the titles and social status of individual officers. We find that unpaid positions are more likely to be held by members of the local socio-economic elite. These patterns are consistent with the historical literature on individual boroughs and bureaucrats, which suggests that prominent individuals—such as the wealthier middle class, the gentry, and the clergy—sought public positions for the social prominence they conferred (Webb and Webb, 1963). Careers in public life also often began with unpaid local government service, because such positions served as stepping stones to higher office in the counties or in the central government in London. We find that, for some positions, non-monetary incentives available to the borough may not have been sufficient to attract positively selected individuals, making remuneration necessary. This explains why not all positions were unpaid.

We then show that incentives and selection co-move: Positions offering status and prestige are staffed by positively selected officers *and* are more often unpaid. In fact, two distinct governance models emerge: a “Weberian” model, in which positions are paid, officers are not drawn from the social elite, and roles rely primarily on “rational-legal” incentives; and a model in which unpaid officers are compensated through prestige and career opportunities, and are drawn from particular segments of the population. This second model draws on social incentives that individuals value and on segments of English society that value (unpaid) public service. In this sense, the state “embeds” itself in society. Following Polanyi (2001), we label this model the “Embedded State.”

In the final part of the paper, we study the limitations and the subsequent evolution of the Embedded State. To study limitations, we examine both the feasibility of implementing different tasks under the Embedded State and the prevalence of corruption. We find that some tasks, such as managing a jail, are less flexible and typically involve tighter constraints and less autonomy. They are harder to implement using ‘embedded incentives,’ and this is a limitation of the Embedded State, and another rationale to

institute paid positions. We then study corruption and find that unpaid individuals are more likely to self-elect, appoint family members, and accept bribes, but that corruption is not a precondition for the performance advantage of unpaid positions. Finally, we find that the main features of the Embedded State were not abolished until the Local Government Act of 1972 and that, even today, many local political positions are unpaid. The most likely explanation for the decline of the Embedded State is that rapid population growth made embedded incentives for lower-level bureaucrats harder to sustain.

In sum, we find that the Embedded State leveraged social incentives to motivate individuals to dedicate a part of their time to the state. Consistent with the anecdotal evidence in Webb and Webb (1963), Eastwood (1994), and Goldie (2001), we interpret the central advantage of the Embedded State as providing a viable alternative mode of governance when a more Weberian, salaried state is fiscally out of reach. The success of the Embedded State may explain why in many countries, including England and the United States, the modernization of the civil service followed, rather than preceded, the onset of modern economic growth (Heldring, 2025). While our econometric results provide one potential explanation for how states with low tax revenue display variation in public good provision, many features of the Embedded State described here are specific to the English sociological context. We conjecture that, although many historical states employed unpaid bureaucrats, the incentives sustaining participation and selection in(to) the Embedded State are context-specific. For example, Adams (2005) argues that in the Dutch Republic, the desire to be an unpaid ‘regent’ was primarily motivated by the downstream financial benefits office-holding may bring. Contemporary Rwanda does not pay most of the people who provide public goods, which may in part explain why its quality of governance is on par with that of Greece or Portugal, while its tax-to-GDP ratio is about 15%. Participation in public projects in Rwanda is thought to be mostly community-driven (Heldring and Robinson, 2023).⁵ In Appendix Section O.E we compare the English experience with Prussia, France, and the United States.

Our paper relates to the recent literature on state capacity. Much of this, exemplified by the work of Besley and Persson (2009), identifies state capacity with tax revenues, and indeed, this is a standard way of measuring capacity in the literature (e.g., Dincecco, 2017). This approach is also common outside of economics (Tilly, 1992; Herbst, 2000). A now voluminous literature, surveyed in Besley et al. (2022), studies individual incentives and bureaucratic reforms, both historically and today, that are associated with better performance (see, e.g., Xu, 2018 and Colonnelli et al., 2020). Both these literatures are either implicitly or explicitly ‘Weberian’ in their view of what successful government looks like. Relative to this literature, we articulate a different form of government organization that is associated with success. While this literature

⁵More speculatively, it is not clear how South Korea implemented its successful state-led development program (Lane, 2025) with tax revenues of only 10% of GDP.

is closely related to ours, one further differentiator is that it is less focused on comparative organizational analysis across bureaucracies. Research in sociology has paid more attention to the comparative organization of the state and the bureaucracy. A central focus of this research has been to explain the role of the state in East Asian economic growth (Jones and SaKong, 1980; Johnson, 1982; Wade, 1990; Evans, 1995). Others have sought to explain failure rather than success and point to the relationship between the lack of capacity of many states and their lack of Weberian rational-legal features, in particular their “patrimonial nature” (Bratton and Walle, 1997). No previous research has, to our knowledge, emphasized the extent to which many state functionaries are unpaid, though this sometimes comes up in passing; see Ingelaere (2011) on the local state in Rwanda. Further, the comparative literature on the state, in part due to data constraints, has primarily focused on the central government and has focused less on local government, even though basic services such as public order, judicial services, and infrastructure were historically provided by the local government. Our paper relates directly to a literature in development economics that emphasizes various aspects of ‘informal taxation’ (Olken and Singhal, 2011). Governments, lacking the capacity to provide public goods, cooperate with or co-opt local elites who work with the population to implement public goods (Balán et al., 2022; Aman-Rana et al., 2025). Relative to all these contributions, our study characterizes a model of state organization that sits between the mobilization of the population for public good provision and the Weberian state. Our paper also relates to the historical literature on the organization of the English state. Following Elton (1953), scholars have examined the emergence of modern state institutions (see Corrigan and Sayer, 1985, Braddick, 2000, and Hindle, 2000 for overviews). Most of this work focuses on central state institutions. Scholars such as Kent (1995) and particularly Eastwood (1994) and Eastwood (1997) have proposed an alternative account of state formation which focuses more on the local state. One empirical exception is Besley et al. (2025), who study the development effects of employing more justices of the peace across English counties.⁶

The paper is organized as follows. In Section 2, we discuss the historical organization of the English state. Section 3 describes in detail the data we collect on municipal boroughs and their officeholders. Section 4 evaluates the performance of this organizational model in providing public goods in the municipal boroughs. Section 5 outlines mechanisms of selection and incentives for municipal positions. Section 6 studies how incentives and selection co-move and concentrate in certain public sector tasks, and uses these findings to characterize the ‘Embedded State.’ Section 7 relates the Embedded State to the subsequent reform of borough government. Section 8 concludes. We also include two appendix chapters: Appendix A outlines the model and major robustness checks, while Appendix O includes background

⁶A related body of work studies the finances, franchise, and services of nineteenth-century English local government (J. Chapman, 2022; 2024; 2025); relative to this work, we study the personnel of the local state rather than its revenues or electorates.

on the local state, data description, and supplementary results for online publication. This Appendix is available on our websites.

2 Background: Local Government and the Municipal Boroughs

Local government in England consisted of three main layers, which we map in Figure 1. Below the central government, there were 52 counties, and about 10,000 ancient parishes (15,920 parishes by the 1831 census). In between the counties and the parishes were cities and towns, which had various degrees of self-governance. We analyze a sample of municipal boroughs — the local term for a self-governing town — which we discuss in this section after discussing the size of the government.

We compare the size of the central state to the size of the local state. We estimate the size of local government and the extent to which this workforce was paid in Table 1, and we report the full exercise in Appendix Section O.A. In the Appendix, we also measure two further layers of government — the land tax administration (about 30,600 positions in 1835) and the statutory authorities (about 23,800) — which contributed to taxation and public good provision at the local level; Appendix Table O.A.5 reports all layers side by side.⁷ In brief, we count, and where records are missing estimate, all individuals employed at all three levels of government using primary archival sources and the (small) secondary literature on this topic. We find, in line with Brewer (1989), that the central state grew from about 5,000 people in 1700 to about 21,000 in 1835. In contrast, local government amounted to *at least* 148,000 individuals in 1835. While all central-state officers, whether in London or outside it, were paid, the picture is very different for local government.⁸ Of local government positions, nearly 95% did not receive a salary. This observation is the basis for studying English boroughs to understand the Embedded State.⁹

Municipal boroughs were urban areas with a governing body called the corporation.¹⁰ Under their

⁷The land tax, levied on property, was run by thousands of unpaid commissioners, who managed teams of unpaid assessors and paid collectors working at the parish or hundred level (Pierpoint, 2018). Statutory authorities were independent bodies commissioned by Parliament to provide or maintain a public good. Turnpike trusts built and ran toll highways, while other commissions ran harbors, organized street maintenance and security, and repaired drains. Each body was run by a group of unpaid commissioners drawn from town and parish elites, who employed a small paid staff supplemented by contract labor. See Webb and Webb (1922) for a comprehensive treatment.

⁸The central state employed bureaucrats in London and in select positions outside London. There were, for example, the excise officers in the countryside and the customs tax collectors in harbors (Brewer, 1989). Only the Excise approximated a salaried, professional bureaucracy; the customs and land-tax administrations remained traditional, with some offices purchased and much of the remuneration drawn from fees and gratuities.

⁹Because the central state did not pay local positions, it also did not keep any records of them. While scattered records exist in local archives, there is no systematic data on local employment, with one exception: the 1835 Municipal Corporations Report (Municipal Corporations Commissioners, 1835). This report records a vast amount of detail on municipal boroughs. We use this source to construct our dataset, and we map our sample boroughs in Panel B of Figure 1. Before we discuss this report, we briefly discuss the history of these municipal boroughs.

¹⁰Although they likely arose by custom (Maitland, 1898), and could also be legally established “by practice and custom” (Chandler, 2007, p. 12), virtually all had a royal charter confirming their self-governing status. Several aspects of a borough could make it qualify for self-governance. The Webbs, in their multi-volume history of local government, identified the ability to independently appoint justices as being the key identifying feature (Webb and Webb, 1908, pp. 261–6). What was the advantage of such a status?

governing constitution, their ‘charter’, and their subsequent historical organizational choices, they varied widely, potentially creating variation between boroughs for us to study. The municipal corporation both appointed its members and instituted other positions within the borough, appointing the officers holding these. The members of the corporation were simultaneously the local politicians, making decisions on borough policy, and part of its bureaucrat corps. They frequently, for example, sat as judges or were involved with finances.

There is consensus that the boroughs had few resources and thus needed to use non-financial instruments to motivate the members of the corporation to engage in administration: “[i]n urban areas raising funds was more problematical as the charters of incorporation of many towns did not allow for the imposition of rates” (Chandler, 2007, p. 22).¹¹ Some boroughs did have endowments of land that could generate income, but there were often further restrictions on doing so. Sweet notes about corporations that “their finances were generally extremely restricted. In many cases their governing charter actually stipulated a limit to the value of the property, which they might hold – a limit that was not adjusted to keep pace with inflation” (Sweet, 2014, p. 106). Therefore, “corporate wealth tended to be derived chiefly from land” (Sweet, 2014, p. 106).¹²

We now briefly discuss the consensus in the literature on the alternative incentives that boroughs instituted to compensate for their lack of financial ability to pay. We provide an extended version of this discussion in Appendix Section O.A.4. Many positions in the borough were held by local elites, such as in Leeds, where the corporation “had prestige and authority, but a very restricted income, being poorly endowed with lands” (Sweet, 2014, p. 32). The mayor and other decision makers governed on a “vocational” basis. They were motivated to do so because “Office ... became a mark of status and prestige within the community and was, ideally, desirable in itself” (Sweet, 2014, p. 110). Innes and Rogers also refer to membership of the corporation offering “status or power” (Innes and Rogers, 2008, p. 539).¹³ Aside from status, corporate membership enabled ‘getting into society,’ especially the House of

“For a town to be incorporated was a mark of status; it denoted the possession of special privileges, with respect to trade and government, which distinguished the town from its surrounding hinterland and its unincorporated neighbors. The rights ... generally included the right to hold courts ... Incorporation also gave the town an identity at law, meaning that it could sue or be sued in the courts” (Sweet, 2014, p. 34). There was significant heterogeneity in the rights that charters created or that custom established. Sweet points out that “[t]he rights conferred by a charter varied in detail from town to town” (Sweet, 2014, p. 34), leading to an “anarchy of local autonomy” (Webb and Webb, 1963, p. 5). The origins of these charters are complex, with some arguing that they simply formalized ancient Anglo-Saxon privileges (Chandler, 2007) and others claiming they emerged later as urban areas negotiated with the monarchy for privileges and autonomy in exchange for taxation (Reynolds, 1977).

¹¹Parish government could tax property and other things with some flexibility.

¹²Ports such as Bristol, Liverpool, or London had property rights over the harbor and could levy tolls, but typically, as the Webbs document, boroughs had different idiosyncratic sources of revenue (Webb and Webb, 1906, pp. 228, 482). They stress the general “paucity of resources” (Webb and Webb, 1906, p. 535). Eastwood summarizes a gamut of restrictions by stating that “towns enjoyed relatively weak fiscal powers” (Eastwood, 1997, p. 79). There is absolute consensus among scholars on this topic. For example, Hennock (1963, p. 214) writes that “[a] remarkable feature of these bodies was the narrow financial foundation on which most of them were reared.” See also Keith-Lucas (1980, p. 32).

¹³In fact, employment was also a source of social mobility. In Bolton, Rochdale, and Salford, “it was possible even for small proprietors to augment considerably their social visibility and position during, and as a result of, successful municipal careers”

Commons.¹⁴ Positions that were less visible or prestigious were more often paid, and full-time positions were more often taken up by relatively wealthier individuals, who oftentimes held gentry titles (Garrard, 1983; Gauci, 1996; Clemis, 1999).¹⁵

3 Data: State Organization in Municipal Boroughs

Our study of the English local state relies primarily on the 1835 *Report of the Commissioners Appointed to Inquire into the Municipal Corporations in England and Wales* (Municipal Corporations Commissioners, 1835). We discuss its origin before discussing its contents. The report, in a systematic manner, discusses the municipal boroughs of England and Wales. The fact that it systematically discusses the organization of each borough and its performance on public good provision allows us to use it as the basis for our analysis.

In 1833, Parliament authorized a royal commission to investigate the English municipal boroughs, whose methods of government were largely unknown at the time. Twenty commissioners — mostly lawyers from London — were appointed.¹⁶ The commissioners were asked to investigate all aspects of the municipal corporations — especially their constitutions, positions, finances, justice systems, and privileges — and given significant powers to do so. They could compel testimony under oath with full authority to summon witnesses and demand all of a town’s records (e.g., charters, deeds, and accounts). The commissioners also visited boroughs to assess their infrastructure.¹⁷ Across the main report and an 1838 follow-up (Hogg, 1838), we have data for 258 boroughs. Some large towns, such as Manchester and Birmingham, had not been incorporated by 1835 and therefore do not appear in the report, while other chartered boroughs remained small. We omit London.¹⁸

(Garrard, 1983, p. 33).

¹⁴As the *Times* newspaper put it in 1833, there was “scarcely an instance of any town sending representatives to parliament where the mayor, aldermen etc. have not regularly seized upon, or clutched at the nomination of the members” (Salmon, 2005, p. 97).

¹⁵A remaining issue is the presence of parishes within boroughs. Oftentimes, a borough encompassed several parishes, which, in an urban context, were often named after (the church of) a particular saint, such that Bedford St. Michael would be a parish centered around the church of St. Michael within Bedford. These parishes did provide public goods. Most centrally, they were responsible for the implementation of the Poor Law. See Trotter (1919) for a detailed description of parish governance. We cannot measure parish governance or any variation within boroughs across parishes. Since our empirical strategy compares *positions* instituted within a borough, parish (geographical) variation is unlikely to affect our estimates.

¹⁶Their names were John Blackburne, Sir Francis Palgrave, George Long, Fortunatus Dwaris, Sampson Augustus Rumball, George Hutton Wilkinson, Thomas Jefferson Hogg, Peregrine Bingham, David Jardine, Richard Whitcombe, John Elliot Drinkwater, Edward John Gambier, Thomas Flower Ellis, James Booth, Henry Roscoe, Charles Austin, Edward Rushton, Alexander Edward Cockburn, John Buckle, and Daniel Maude. Sir Fortunatus Dwaris, to give an example, was the author of a renowned 1830 treatise on statute law, and Peregrine Bingham, a contributor to *The Westminster Review*, was a friend of Jeremy Bentham and John Stuart Mill.

¹⁷The commissioners were unable to find any official list of municipal corporations. They investigated 285 places, 246 of which they found to possess municipal functions. Five towns refused to offer up any information, while four participated in an incomplete way. This is because the attempt by Parliament to collect information was seen in some boroughs as an illegitimate exercise of authority — see the discussion in Chapter 5 of Sweet (2014).

¹⁸London was governed in its own particular way, being split between the City of London and the much larger London conurbation. In London, for example, the livery companies were important for the election of officers to the London Corporation, the body

The commissioners sent the mayor or town clerk of each borough a standardized survey, which we describe in detail in Appendix Section O.B.1. This standardized survey, in combination with borough records and witness reports, provides us with a standardized dataset of public goods, the performance of boroughs on their provision, the positions a borough institutes and the tasks (the provision of individual public goods) each position executes. We provide photographs of the relevant excerpts for the borough of East Looe in Figures 2–6. From now on, we use the terminology *officer* to describe an *individual* who holds a *position* that exists in a borough, such as the mayor.

A typical town’s chapter enumerates *all* positions in the corporation, and first records the means of appointment for an officer.¹⁹ An officer holding a position can be elected or appointed. If the officer was *appointed*, the principal is named. From this information, we record an indicator equal to one if an officer has a principal. Next, the report describes the position’s designated functions, i.e., the *tasks* that a holder of this position is expected to perform. The report then lists the salaries attached to all positions. Fees or in-kind payments are mentioned, and often an estimate is given of their total monetary value. It is explicitly mentioned if a position does not receive any salary *or* piece-rates.²⁰ The position list is also clearly ordered by *prestige*. It always begins with the mayor and governing body. It then lists all municipal positions, starting with judges and clerks, before discussing the ‘inferior officers’, such as the crier or mace-bearer.²¹ The *names* of officers are not systematically recorded. We therefore complement our data with additional data sources on individuals, which we describe below. There are two remaining parts of the report. First, the report records financial data. Often, there are detailed borough accounts, showing a line-by-line account of sources of income and items of expenditure. As an example, we report East Looe’s revenue and expenditure accounts in Figures 5 and 6 respectively. Second, there is information on public good provision. We will outline these in more detail in the next section.

3.1 Positions and Tasks

For each position, we record its title, paid status, and salary where applicable. We also map positions to their respective tasks. In this section, we discuss these tasks, which are simply the provision of the

that governed the City of London, but not beyond.

¹⁹The commissioners requested information on “[t]he several Officers of the Corporation, how, and by whom elected, or removed; the time for which they hold their respective offices; their respective Functions and Privileges, and their Salaries and incidental Emoluments.” This query resulted in a comprehensive list of positions for each borough.

²⁰In the Appendix, we also show robustness to measuring paid status by market wages, rather than any compensation. Our results are also unchanged if we include in-kind payments, which were usually symbolic (e.g., the watchman receiving a hat), into the definition of “paid.” Piece-rates (called a ‘fee’ in England) were usually paid for services, in addition to a base wage. This was common for, for example, a coroner.

²¹For example, Figure 2 shows that in East Looe the recorder, who holds an important legal position (in other boroughs, recorders have other tasks), is more prestigious than a Serjeant at Mace.

principal borough public goods. Appendix Section O.B.2 provides summary statistics.²² In Table 2 we present statistics of the number of positions for several boroughs. For example, the first line of this table shows that the largest borough in terms of population, Liverpool, employed 203 officers, and that the most common position title is a ‘watchman’ who is employed in law enforcement. The smallest borough, Newtown, employed three officers, none of whom were paid, and the most common position is a clerk. In Table 3, in contrast, we present data at the level of the position title. The most common position across all boroughs is the constable. We observe constables in 202 out of 258 boroughs, and in total, we observe 1,093 constables. Fifty-seven percent of constables are unpaid, and they are, on average, assigned to 1.09 tasks. The most commonly assigned task is law enforcement.

Boroughs performed seven tasks. First, their municipal corporations provided general ‘governance’: personnel management and oversight of public good provision, typically through the mayor and aldermen. We measure governance using the Municipal Corporations Report’s *Analytical Index*, which systematically records mismanagement from the report’s general discussion in seven categories, ranging from ‘neglect’ to ‘incompetency’. Our score is $7 - \zeta$, where ζ counts a borough’s mentions across these categories, from zero to seven; higher scores therefore indicate better governance. Second, boroughs provided judicial services, allowing grievances ranging from small claims to criminal charges to be addressed.²³ We classify positions listed as active judges as providing judicial services and measure performance by the number of courts held, ranging from zero to nine. Figure 3 reports the courts in East Looe. Third, although often impoverished, boroughs managed the collection and disbursement of funds, typically through a ‘chamberlain’. We measure financial management with an indicator for whether the borough kept official accounts. Fourth, boroughs performed clerical tasks, including managing judicial processes, transacting legal business, and conducting coroner’s inquests, most commonly through the town clerk. We measure clerical performance by the number of documents about the borough’s history and organization supplied to the commissioners, ranging from zero to 137.²⁴ Fifth, boroughs built and maintained infrastructure, from roads and street lighting to public property such as harbors. Our performance measure counts whether a borough was paved and lit at night, ranging from zero (neither) to two (both). Larger projects were often managed by separate improvement commissions (Appendix Section O.A.2.3); our measure captures street-level provision that fell to the borough. Appendix Section A.4 verifies our results using an alternative infrastructure measure. Sixth, boroughs managed their ‘gaol’, typically through

²²Some position titles are held by several individuals. There can be, for example, more than one constable. We treat each officer seat as a separate position, so a borough with three constables has three constable positions. We cap the number of positions with the same title in a borough at the 90th percentile (10 officers) to reduce the scope for outliers to affect our results. We demonstrate robustness of our main results to this choice in Appendix Section A.

²³These included market-related small claims courts, criminal courts, and courts leet and courts baron, which historically helped appoint officers associated with a borough’s manorial affiliation.

²⁴These include current and past charters, financial documents, maps, bylaws, and lists of corporation members.

a ‘gaoler’ (jailer). We measure performance on this ‘prison’ task using the report’s classification of facilities as ‘absent’, ‘inadequate’, ‘adequate’, or ‘superior’, coded from zero to three. Finally, boroughs provided policing, most commonly through constables. We similarly code policing from zero to three, distinguishing no police force from one deemed ‘inadequate’, ‘adequate’, or ‘superior’. Figure 4 shows the report’s evaluation of policing, prisons, and infrastructure in East Loos.

To compare positions *within* a borough by remuneration status, we binarize each performance measure at its median, producing seven consistently coded task-level indicators per borough. Appendix Section O.B.4 provides details and summary statistics. Appendix Section A.4 verifies robustness to alternative thresholds and, crucially, to alternative performance measures collected from different sources than the report — such as the number of days borough courts of record sat in 1836, whether accounts were audited, and cells per prisoner (Appendix Figure A.5). Table O.B.3 summarizes the tasks and measures.

3.2 How Were Public Goods Provided?

So far, we have described the historical background of the boroughs and the report. In this section, we provide a stylized description of public good provision. The organization of each borough was the outcome of a historical process that led to significant heterogeneity between boroughs, and even in the compensation for similar positions within a borough, or for the same position, like that of mayor, across boroughs. That said, public goods were typically provided as follows. First, the municipal corporation decided on the implementation of a public good, such as a court or the keeping of accounts. It then either assigned its implementation to one of its own members or appointed/hired someone into a fixed position. Most public goods were provided by giving up time. For example, a judge sat in court, and a constable kept order in town by walking their ‘rounds’. Some public goods required capital inputs, such as the construction of a road. Typically, if only small outlays were necessary, these were paid out of the borough budget or by issuing debt. If an ongoing outlay was necessary, the corporation might attempt to raise an earmarked tax on property owners. Because raising such a tax was hard, we observe few ongoing investments; larger works, such as street improvement and harbors, were often undertaken instead by statutory authorities licensed by Parliament, which we describe in Appendix Section O.A.2.3. While there is a great deal of variation between boroughs, the main commitment on behalf of bureaucrats appears to have been time. This contrasts with modern ‘informal taxation’ which often takes the form of community members contributing small amounts of money for, say, a road (Aman-Rana et al., 2025).

3.3 Other Data on Individual Officers

Because our dataset does not contain names of individual *officers*, we rely on three further data sources to reconstruct information on social titles, elite political status, and elite economic status. From Barfoot and Wilkes (1790), a directory of prominent residents in many English towns, we collect data on the names and titles of many individual office-holders. From Thorne (1986), Fisher (2009), and House of Commons (1806), we record information on whether officers came from a family that had links to Parliament or the local military elite. Finally, we use a compilation of biographies of wealthy individuals to measure whether a position was held by a member of the economic elite (Rubinstein, 2009). We discuss the variables we record from these sources in detail when we discuss selection, in Section 5.2.²⁵

Finally, we observe a wide array of borough characteristics, which we use in balance exercises. In all main results, we include borough fixed effects.²⁶

4 Performance of the Embedded State

We now evaluate how well the Embedded State performed at providing public goods. Specifically, we compare the performance of unpaid to paid positions in each borough across the seven core borough tasks. We find that unpaid positions perform better than paid positions.

We start with descriptive evidence. We assign to each position and task the corresponding performance of these tasks. In a first step, we examine unconditional differences in performance: For each position, we calculate the mean performance across all tasks to which it is assigned. We then average across positions. Figure 7, Panel A reports position-level performance averages separately for paid and unpaid positions. Unpaid positions exhibit significantly higher average task performance than their paid counterparts. The difference is statistically significant. Panel B reports a conditional scatter plot, partialing out borough fixed effects. We find a positive and statistically significant linear association: moving

²⁵In addition, we use the information on the occupations of municipal officers mentioned either as victims or defendants in the proceedings of trials at the Old Bailey court in London to develop a *position*-level measure of part-time status (Old Bailey Proceedings Online, 2023). We record a position as being part-time if any holder of that position is mentioned as holding two occupations simultaneously, e.g., “constable and shoemaker.”

²⁶Appendix Section O.B.3 details the sources and provides summary statistics for all these variables. To capture location, we record distance to the nearest river; to the nearest market town; to London; to the nearest coal field; and to the country border. To capture historical economic development, we code an indicator equal to one if a borough was a seaport or a market town in 1680, and we collect the amount of tax revenue raised in the fourteenth-century lay subsidies (1327, 1332, and 1334) as a measure of initial differences in wealth; the lay subsidies are the earliest wealth measure available at the borough level. These subsidies proxy initial local wealth rather than the borough’s own fiscal capacity; Appendix Section A.4 shows robustness of our results to controlling for borough characteristics. To capture local geography, we measure the soil suitability for growing wheat, maximum attainable wheat yields, maximum attainable yields on pasture, slope, longitude, latitude, and town size by area. To capture baseline political characteristics, we code an indicator variable equal to one if the manorial lord was involved in borough government, the year of the borough’s latest charter, and the number of noblemen living in the town, and similarly the numbers of members of Parliament, knights, gentlemen, bishops, and baronets who resided in the borough, all measured in 1680. We also include the number of gentry present in 1370.

from a predicted unpaid probability of zero to one is associated with an increase in residualized mean performance from approximately 0.43 to 0.60.²⁷

4.1 Empirical Strategy

Our empirical strategy aims to measure the effect of being unpaid on performance, while addressing two central challenges in identifying this effect: team production and the non-randomness of being paid.

4.1.1 Main Estimating Equation

In our dataset, we observe 258 boroughs (b). For each borough, we record performance on the seven distinct tasks (t), resulting in 1,332 unique borough-task teams, indexed by bt . We observe a total of 5,710 positions (bp) assigned to at least one team. We record three objects. First, a performance indicator for each team:

$$Y_{bt} = 1 \text{ if team } bt \text{ records above median performance, } 0 \text{ otherwise.}$$

We then record an assignment indicator for each position-team pair:

$$w_{bpt} = 1 \text{ if position } bp \text{ is assigned to team } bt, 0 \text{ otherwise.}$$

Finally, we record unpaid status:

$$u_{bp} = 1 \text{ if position } bp \text{ is unpaid, } 0 \text{ otherwise.}$$

Our baseline approach rests on a simple triple difference estimating equation at the position-task level:

²⁷These results are in line with the wide variation in performance between boroughs in the report. An example of a successful town is Liverpool (Municipal Corporations Commissioners, 1835, pp. 2689–2780). Liverpool provides all public goods we record and runs the Liverpool harbor. Liverpool holds quarter sessions and daily petty sessions to settle disputes. In addition, a civil court heard 21,334 cases (presumably mostly trade-related). There is a sizable police force (at least 200 individuals), and the ‘inhabitants consider themselves a very well protected community’ (Municipal Corporations Commissioners, 1835, p. 2715). The Liverpool police had also been helping to keep order in neighboring Toxteth Park, which was poorly run. No complaints are lodged with respect to the gaol; in fact, ‘it has been found larger than requisite’ (Municipal Corporations Commissioners, 1835, p. 2716). The borough oversees two weekly markets and brings in a large amount of revenue. The accounts of the borough are kept with ‘a punctuality, clearness and regularity’ (Municipal Corporations Commissioners, 1835, p. 2726). Other boroughs, such as Leeds, Richmond, and Gloucester, also manage to provide all public goods we record.

Yet other boroughs perform less well. Buckingham, the county town of Buckinghamshire, has a court, but no police force, gaol, or systematic financial management. Its quarter sessions court tried only 10 cases in the last eight years preceding the publication of the report. Other courts, such as the Three Weeks Court, have simply ceased to function. The ‘corporation have no property or revenue whatsoever’ and whatever occasional receipts there are, are spent on fees to the person managing this income and on ‘idle and unnecessary feasting’ (Municipal Corporations Commissioners, 1835, p. 30).

$$Y_{bt} = \beta_w w_{bpt} + \beta_u w_{bpt} u_{bp} + X_b \mathbb{1}(\tau = t)' \theta + \delta_b + \delta_t + \delta_p + e_{bpt}, \quad (1)$$

where β_u captures the difference in performance of unpaid positions, relative to paid positions, conditional on team assignment (w_{bpt}) and controls: $X_b \mathbb{1}(\tau = t)' \theta$ denotes borough latitude and longitude polynomials, X_b , interacted with task indicators $\mathbb{1}(\tau = t)$. δ_b , δ_t , and δ_p are borough, task, and position title fixed effects, respectively.²⁸ Standard errors are clustered at the team (bt) level.

4.1.2 Empirical Approach: Team Production

Our setting features team production. In Appendix Section A.1, we develop a simple team production model following Bonhomme (2025). This model allows us to do three things. First, it allows a robustness check in which we estimate the structural equivalent of equation (1). Second, the model makes explicit that to correctly estimate the effect of being unpaid, we need assumptions on spillovers. In particular, we have to assume that there are (1) no within-team spillovers and (2) no cross-team spillovers. Third, the model shows that we only estimate the effect of being unpaid correctly if we correctly estimate the returns to team size (assumption (3)). Thus, the model represents team output as the sum of its members' inputs, scaled by returns to team size. Assumption (1) stipulates that one member's input does not affect teammates' productivity; assumption (2) stipulates that team performance does not depend on the staffing of other teams; and assumption (3) requires accurate measurement of the decline in per-member contributions as teams grow. If (1) or (2) is violated, part of the estimated unpaid premium may reflect spillovers from colleagues rather than the position's own contribution. If (3) is violated, differences in team size between paid and unpaid positions may be misinterpreted as differences in performance.

Appendix Section A.2 addresses potential violations of assumptions (1) and (2) in four ways. First, we assess the robustness of our estimates to alternative clustering levels of our standard errors, such as borough or county, and allow for spatial dependence in the error structure. Such dependence may occur if the performance of a team spills over onto a team in another borough. Second, we account for the performance of *other* teams within the same borough, directly capturing potential local spillovers. Third, we restrict the sample to contexts where within-team spillovers are likely limited by focusing on single-member teams. Fourth, we aggregate the data to higher levels: To internalize within-team spillovers, we estimate results at the borough-task (team) level; to address cross-team spillovers, we aggregate to the borough level. To address potential violations of assumption (3), Appendix Section A.3 shows the

²⁸These are effects for each distinct position title. They distinguish, for example, mayors from chamberlains.

robustness of our results to a wide range of returns-to-size parameters, suggesting that our findings do not hinge on a particular assumption about scale effects.

4.1.3 Empirical Approach: Position-Task Assignment

While Section 4.1.2 outlines conditions under which average differences in individual contributions to team performance can be estimated, being paid is not randomly assigned, nor is task assignment. In this section, we review three strategies we follow to address these concerns.

Fixed Effects Equation (1) includes a rich set of fixed effects to absorb several sources of variation in performance, paid status, and task assignment. Borough fixed effects δ_b capture differences across boroughs, including variation in resource endowments and the identities of the Municipal Corporations Report commissioners. Task fixed effects δ_t absorb average differences in task complexity, staffing norms, and compensation structures (e.g., governing may be more complex and differently staffed than infrastructure). Position title fixed effects δ_p account for performance differences associated with specific positions — e.g., mayors might perform better on average. In addition, we can introduce task scope fixed effects δ_s and county-by-task fixed effects δ_{ct} to absorb unobserved, task combination- or county-specific influences on task performance in Appendix Section A.4.²⁹

Controls Remaining sources of confounding arise at the borough-task (bt) and position-task (bpt) levels. We address these in four ways. First, equation (1) includes borough latitude and longitude polynomials interacted with task indicators: the term $X_b \mathbb{1}(\tau = t)' \theta$ flexibly captures location-specific heterogeneity in task feasibility — for example, revenue collection may be easier in coastal towns, or policing more difficult near London. Second, we can control directly for position characteristics that may be correlated with performance, such as whether the officer holding the position also serves as a Justice of the Peace (Besley et al., 2025). Third, we implement a matching exercise, matching each position to a nearest neighbor using a full set of borough and position characteristics. Finally, we can account for potential outliers by leaving out one task at a time from estimating equation (1), or by varying the threshold rules in constructing our binarized performance data. These robustness checks are reported in Appendix Section A.4. In this Appendix section, we also show robustness to alternative measures of task performance.

Quasi-Exogenous Variation: Affordability Our final strategy is to isolate variation in unpaid status u_{bp} that is plausibly exogenous. As discussed in Section 2, most borough revenues were low and predeter-

²⁹Task scope fixed effects are fixed effects for each task-assignment combination. For example, all positions that are involved with both policing and prison are in one group, as are positions that are just involved with policing, or just involved with prisons.

mined. This means that the predetermined component of borough income constrained the *affordability* of a position, given a market wage for that position type. We construct a measure of affordability combining a central-government salary benchmark for each position type with a borough’s predetermined income. This measure, which we describe in detail in Section 4.3, is a strong predictor of whether positions were paid, yet is balanced across a wide range of borough characteristics and position characteristics. We show that our results remain robust when we instead relate performance to whether a position was affordable, rather than to whether the position was actually paid. We also show that these results are not driven by functional form choices for calculating affordability.

4.2 Results: Unpaid Positions

Table 4, Column (1), presents estimates of equation (1) including borough and task fixed effects, estimated using OLS. Conditional on a position being assigned to a specific task t , unpaid status is associated with a performance increase of 0.09 (clustered standard error: 0.02), relative to a mean of 0.61. This effect is statistically significant at the 1% level. In Column (2), we add geographic-task interaction controls, and in Column (3), we include position title fixed effects. The estimated coefficients are 0.11 (s.e. 0.02) and 0.12 (s.e. 0.02), respectively. The last effect is equal to about 20% of the mean of the dependent variable. This effect size does not take into account decreasing returns to team size. In Appendix Section A.1, we estimate a team production model that accounts for these decreasing returns. In this model, turning both positions on a median-size team from paid to unpaid increases performance by about 50 percent of mean team performance.³⁰ These results mirror the descriptive patterns shown in Figure 7: Unpaid positions, on average, outperform their paid counterparts. One concern with these estimates is that our performance measures come from a single source, so that the commissioners’ subjective judgments could carry a common error component. To address this, we collect an independent proxy for each measure; our results hold throughout all combinations of these alternative measures (Appendix Figure A.5). In addition, we split the main measures into more objective outcomes (recorded facts and counts: documents, courts, accounts, paving) and subjective outcomes (the commissioners’ quality ratings: governance, police, gaol) and estimate equation (1) separately within each set. The unpaid advantage holds in both (Appendix Figure A.6); common-source measurement error in the subjective ratings therefore does not appear to drive the result.

Interpreting $\hat{\beta}_u$ as the causal effect of unpaid status on performance requires the identifying assump-

³⁰The median team has two positions. The model-based estimate of the unpaid coefficient is $\hat{\gamma} = 0.21$ (Appendix Table A.1, Column 3), and the estimated returns to a team of two are $\hat{\lambda}_2 = 0.73$. Following equation (10), the change in team performance is $2\hat{\lambda}_2\hat{\gamma} = 2 \times 0.73 \times 0.21 = 0.31$, or 50 percent of mean team performance (0.61).

tions discussed in Sections 4.1.2 and 4.1.3 to be met. Specifically, this requires that spillovers (within and across teams), returns to team size, and borough-task or position-level characteristics do not jointly influence both performance outcomes and compensation status. We implement robustness checks discussed in Section 4.1.2 in Appendix Sections A.2 (spillovers) and A.3 (team size). We report robustness checks associated with Section 4.1.3 in Appendix Section A.4. Together, our robustness exercises suggest that the observed performance premium among unpaid positions is unlikely to be driven by measurable confounders or spillovers.

In this section, we found that the unpaid positions outperform paid positions. In the Appendix, we apply the standard AKM fixed effects technique to recover individual contributions to team production (Abowd et al., 1999). We find that the officers who fill unpaid positions are, on average, higher ability than their paid counterparts. This may explain why, when unpaid status and its concomitant incentives attract higher-status individuals, they subsequently outperform their counterfactual paid counterparts.³¹ We return to the selection of unpaid officers below.

4.3 Results: Unaffordable Positions

If the team production assumptions are met, the results in the preceding section can be interpreted as causal if being paid is assigned exogenously. In this section, we isolate a predetermined component v_{bp} of unpaid status u_{bp} , and relate this to performance outcomes. Our strategy builds on the observation, detailed in Section 2, that boroughs operated under tight fiscal constraints. Borough income is mainly derived from rents on inherited assets, primarily land. These were allocated to boroughs in a manner that was predetermined and plausibly unrelated to borough performance centuries later. We use this fact, and combine it with data on the wages that comparable positions in the *central* government were paid, to determine the feasibility of paying a position.

We replace whether a position was actually paid with whether that position was *affordable* given rental income, *conditional* on borough fixed effects. In Appendix Section O.C, we show that choices of functional form when computing affordability do not drive our results. The construction of an affordability indicator for each position proceeds in two steps. First, we digitize historical borough balance sheets around the time of the reform to record predetermined rental income.³² Second, we benchmark the salary of each position by its task profile, using manually reviewed salaries for similar positions in the *central* civil service

³¹This result is not a stand-alone finding, but a different way to recover the effect of being unpaid on performance. The advantage of implementing this exercise is to recover individual fixed effects, which in the literature are often taken as a measure of ‘ability’. We can then regress these against an indicator for being unpaid.

³²The Municipal Corporations Report provides the first comprehensive survey of borough income, typically averaging accounts from the years preceding the report. We also digitize budget surveys from 1837 and 1838 and average across years. Our results are not sensitive to the choice of reference year.

from an 1822 report on wages for new hires (House of Commons, 1822). These central salaries were set outside the borough system: they do not depend on what an individual position in a borough gets paid, and are therefore exogenous both to any individual borough’s finances and to the local compensation norms we study. For each task profile, we identify by hand a set of comparable civil service occupations, based on two factors: (1) whether they performed similar tasks to those in the profile and (2) how similar they were to the modal position title assigned to that task profile. We then record by hand the typical salary range of a representative civil servant in these occupations and use its midpoint as the benchmark salary for the task profile.³³ For example, the benchmark salary for a position with only clerical tasks, such as a clerk, is £210, the midpoint of a typical range of £120 to £300.³⁴

A position is *unaffordable* when the central benchmark salary for its task profile exceeds the borough’s predetermined rental income. This position-level comparison yields an affordability prediction v_{bp} , which equals one when the borough’s exogenous rental income could not have covered the central salary for the role.³⁵ We also vary how the central benchmark is matched to a position and use a continuous version of the salary burden.³⁶

Given its benchmark salary, a position may be affordable under almost any rental income, or under almost none. To focus on positions where rental income makes a difference for affordability, we restrict the sample to ‘compliers’: positions on the margin of being affordable or not. We operationalize this concept as follows. We randomly permute borough rental incomes (within counties) 1,000 times and recompute affordability. For each position, we then calculate the fraction of permutations in which the position would be unaffordable, which we call its expected unaffordability. We classify a position as a *complier* unless its affordability status is the same under almost every counterfactual rental income. Specifically, we exclude unaffordable positions whose expected unaffordability is in the top quartile across positions, and affordable positions whose expected unaffordability is in the bottom quartile. Appendix Figure O.C.2

³³We also record the minimum and maximum salary. Appendix Section O.C uses the minimum as a robustness check. For instance, a common occupation performing law enforcement tasks in the central government is a watchman. We consider a watchman roughly equivalent to the modal law enforcement office in our municipal borough sample (a constable). We observe that watchmen earned as little as £8 and as much as £65, but typically earned between £48 and £64. The typical range for the law enforcement profile is £48 to £64, with a midpoint of £56.

³⁴In the largest boroughs, the wages of municipal employees might be comparable to or in excess of local and global market wages. For instance, clerks in Liverpool made £814 per annum, while entry-level clerks in the civil service contemporaneously averaged £100–£180 (House of Commons, 1822). Clerks in most boroughs, however, were paid significantly less—not at all in Fordwich and Newtown, two of the smallest.

³⁵In Appendix Section O.C, we show robustness to an alternative built from observed pay, in which the market wage for a position type is the average salary of paid positions with the same task profile, positions are ranked by how often their title is paid in *other* boroughs, and a position is unaffordable when the cumulative wage bill of higher-ranked positions exhausts the borough’s rental income. This priority order reflects that, over time, strict norms became associated with the non-payment of some positions and the payment of others. For example, most mayors were not paid, as the mayoralty became a public service position for the elite, but most policemen were paid.

³⁶An additional feature of this procedure is that it works against borough economic potential as a potential confounding factor. Affordability will be higher in richer boroughs, and thus the predicted unpaid status of positions will be lower.

provides a graphical illustration of this procedure.³⁷ We identify 3,191 complier positions out of 5,710 total positions.³⁸

Balance Two key testable implications derive from the historical evidence in Section 2. First, rental income should exhibit balance with respect to predetermined borough characteristics. Second, predetermined aspects of a position should be unrelated to unaffordability v_{bp} (but not necessarily to unpaid status u_{bp}), especially in the complier sample.

To evaluate this, we estimate the following linear models using OLS:

$$I_b = \beta_0 + C_b\Gamma + \varepsilon_b, \quad (2)$$

where I_b is borough-level rental income, and C_b is a vector of borough-level covariates. The borough characteristics introduced in Section 3 comprise several measures of location, historical economic development, features of the soil, and historical political and social structure. All covariates are standardized for comparability. Figure 8, Panel A summarizes the results. We plot coefficients $\hat{\Gamma}$ along with 95 percent confidence intervals. We find that, for all covariates, estimated coefficients are at or below 0.2 of a standard deviation, and no coefficient is statistically different from zero. Rental income is thus balanced for all borough characteristics. In Section 2, we outlined the consensus in the historical literature that borough income was the outcome of a long, idiosyncratic historical process, unrelated to current borough performance. The balance results are consistent with this consensus. We therefore use rental income in our construction of the unaffordability indicator v_{bp} .³⁹

Next, we turn to position-level characteristics:

$$x_{bp} = \beta_0 + C_{bp}\Gamma + \delta_b + \varepsilon_{bp}, \quad (3)$$

³⁷ Appendix Figure O.C.2 illustrates that positions that are always affordable or never affordable under counterfactual rental incomes are excluded, while positions whose affordability status changes across counterfactuals are retained. As a simpler alternative in the same spirit, one can define compliers at the level of position titles: We restrict the sample to positions outside the lowest and highest quartiles of average paid status across boroughs. Appendix Section O.C reports robustness of the results to using this alternative definition.

³⁸ By construction, this procedure excludes positions at both extremes of the affordability distribution: those that are almost always affordable or rarely affordable across counterfactual scenarios. The quartile cutoffs are an expected unaffordability of 0.41 and 0.79. For example, jurats have an average expected unaffordability of 0.91 and are classified as compliers in only 8% of the boroughs in which they appear. At the other extreme, watchmen have an average expected unaffordability of 0.35 and are classified as compliers in 40% of boroughs. Clerks other than town clerks, by contrast, sit near the middle of the distribution, with an average expected unaffordability of 0.56, and are classified as compliers in 82% of cases.

³⁹ In Appendix Figure O.C.1 we implement a permutation test, in which we randomly permute incomes and show that the observed relationship between unpaid and unaffordable is not driven by our choice of treatment of market wages or the salary prioritization ranking: The variation in unaffordability comes from predetermined (and balanced) borough income.

where $x_{bp} \in \{u_{bp}, v_{bp}\}$ is either an indicator for whether position bp was unpaid or unaffordable, and C_{bp} is a vector of position-level covariates. We include all position characteristics from Appendix Table A.13, indicators for the top ten positions in our data, and indicators for the modal task profile of each position. Crucially, δ_b denotes borough fixed effects. Standard errors are clustered at the borough level.

Figure 8, Panel B summarizes the results, again plotting coefficients $\hat{\Gamma}$ along with 95 percent confidence intervals. Unpaid status is unbalanced with respect to position characteristics (Panel B.1). Panel B.2, by contrast, shows that unaffordability is much more balanced across characteristics. All estimated coefficients are small, and most are insignificant. In Panel B.3, where we restrict attention to compliers, coefficients are small and statistically insignificant throughout. This balance supports the interpretation of v_{bp} as a plausibly exogenous source of variation in position payment status. Note that these characteristics include whether a position is a *particular* position (e.g., mayor) or does a particular task (e.g., governing). Unaffordability is therefore unrelated to a particular position or task; it is driven by predetermined borough income and (exogenous) market wages.

Results We now estimate the main regression equation (1), replacing observed unpaid status u_{bp} with predicted unaffordability v_{bp} . Table 5 presents these results in the same structure as Table 4 for the restrictive complier sample.⁴⁰ In the most stringent specification (Column 3), unaffordability is associated with an increase in performance of approximately 0.19 (clustered s.e. 0.04), relative to a sample mean of 0.62. The comparable effect size in the previous section is 0.12. The estimated coefficient is somewhat larger, is significant at the 1% level, and supports a similar conclusion: Unpaid positions outperform paid positions.^{41,42} Finally, we study the idea that boroughs may just not fill certain positions, anticipating that they may have to pay for them. We address this issue by subsetting to positions explicitly mentioned in the borough charter and to their modal tasks (given their position title). These positions were always filled, and their modal tasks are arguably predetermined: a position expected to only work in the gaol would not be titled ‘mayor’ but ‘gaoler’. We then repeat our analysis using just charter positions and modal tasks. Throughout, our results are qualitatively similar (Appendix Table O.C.3). This check removes any selection coming from *which* positions are instituted in a borough (anticipating paying for the position or not) and which tasks are assigned to a given position (anticipating paying for them or not): Among predetermined positions and their modal tasks, isolating predetermined (un)affordability, we find a similar

⁴⁰In Appendix Section O.C, we show the (very similar) results from using the unrestricted sample.

⁴¹We address two further potential concerns with this finding in Appendix Section O.C. First, we vary the definitions of market wages and priority rankings (by, for example, using only data from the county in which a borough is located). Second, we consider that larger rental income might directly affect financial performance, dropping this task from the analysis.

⁴²The magnitude depends on the wage benchmark. In the full sample, the central-benchmark estimate is 0.17; rebuilding the benchmark from the wages *other* boroughs actually paid yields between 0.08 (within-county wages) and 0.11 (all-borough or out-of-county wages; Appendix Table O.C.14). We prefer the central benchmark because borough pay is itself an outcome of the compensation norms we study; the observed-pay variants, while smaller, support the same conclusion.

result to the basic comparison in Section 4.2.

Our results show that even when looking at predetermined positions, task assignments, and payments, we find a similar result to Table 4. Three issues remain for interpreting these results through the lens of the Embedded State. First, we discussed above that many boroughs simply did not perform several tasks. If being unpaid only acts on the *quality* margin, but not on the extensive (provision) margin, the concept of the Embedded State would be less well positioned to explain the variation in historical public good provision. In Appendix Table A.16, we find that being unpaid affects both the extensive and intensive margins of public good provision. Second, we measure being unpaid by whether remuneration was offered. It may, however, be that what is relevant is whether a position gets paid an equivalent market wage or not, rather than whether it gets paid at all. In Appendix Table A.20, we thus redefine treatment to capture whether a position gets paid a market wage or not, rather than being paid at all, and we verify our results. Finally, and relatedly, compensation may also come in the form of bribes, kickbacks, and favors. We discuss this type of corruption in Section 6.3 below. In Appendix Figure O.D.3, we then show that our main results are not driven by corruption as non-wage compensation.

We interpret these results as one causal chain. Predetermined affordability determined which positions a borough could pay. Positions that went unpaid were either endowed with or, over time, acquired non-monetary incentives, and this package, plus its concomitant task assignment, attracted a group of people of higher ability than those who filled the average paid position. Over time, the divergence became self-reinforcing: strict norms grew up around the non-payment of some positions — the mayoralty, for example, became a public service position for the elite. Selection into unpaid positions is thus part of the causal effect of unaffordability, not a confounder of it. We now study the incentives and selection margins empirically.

5 Officers: Incentives and Selection

In this section, we study how an unpaid local state organization in England was sustained. We focus on the incentives faced by officers in unpaid positions, as well as the selection of officers into those positions. We develop measures of several incentives and margins of selection and assess their co-movement with unpaid status. In Appendix Section O.B.5, we discuss these measures in detail and show descriptive statistics. We cannot hope to measure the full set of incentives that bureaucrats in historical England faced, nor to capture all margins of socio-economic selection. We focus on the most salient measures from the literature and our reading of the Municipal Corporations Report.

5.1 Incentives

Our discussions of the organization of the municipal corporations in Section 2 and of the Municipal Corporations Report in Section 3 both suggest several dimensions along which positions differed, and which may have acted as substitute incentives for payment. Here we discuss prestige, career concerns, flexibility, and autonomy. We operationalize each incentive as a variable based on our data. In Appendix Section O.B.5, we derive an alternative measure for each incentive and demonstrate robustness to the specific measurement choices.

Prestige. One way to motivate officers was through prestige (Allen, 2005; 2009; Knights, 2021; Roberts, 1966). As we discussed in Section 3, each borough chapter ranks positions by prestige.⁴³ Since boroughs vary in their number of positions, we normalize the ranking to lie between zero and one within each borough.

Career Concerns. Another way to motivate officers was through career concerns. In particular, serving in a borough position was often a stepping stone to becoming a Member of Parliament (MP). At least 11% of nineteenth-century MPs held a borough position at some point in their careers. To measure career concerns, we consider the careers of MPs. We use the database of biographies of MPs collected by the History of Parliament project (Namier and Brooke, 1964; Thorne, 1986; Fisher, 2009). We process the career paths of all MPs between 1754 and 1832. We record whether an MP held a municipal position and, if so, which one. This gives us a list of positions, such as mayor or town clerk, that served as stepping stones to a career in Parliament. We then record an indicator equal to one at the level of the position title, common across boroughs: a position is a stepping stone if an MP ever held its title, in any borough. On average, about half of the positions we observe in the report have ever been held by an individual who subsequently went on to be an MP.

Flexibility. Positions varied in their flexibility of tasks. While each position was usually tied to a clear task, in some boroughs, positions were tasked with a broader range of activities, providing flexibility: a mayor, tasked with governing, could also be involved with justice and infrastructure management. We derive a position-specific measure of flexibility. First, we measure the modal task assignment of each position. Second, we compute the share of actual tasks that an officer in a borough executes that are outside the modal assignment. The more non-standard tasks an officer executes, the higher this measure is. On average, one-third of tasks assigned to an officer are non-standard.

Autonomy. A key margin of officer autonomy was whether open positions were filled by appointment or election. Some officers were directly appointed by the governing body of the borough. Elected officers,

⁴³Figures 2–6 and Appendix Section O.B.5 show example pages of our data source.

on the other hand, had no direct principal. We construct an indicator of whether an officer was appointed by a direct principal (usually a member of the governing body) or not.

5.2 Selection

The historical literature on borough government is in agreement that borough officers were often from elite segments of society. In this section, we introduce several measures of such selection and relate them to unpaid status.

Gentry and Clergy. The literature we discussed in Section 2 suggests that several social groups were disproportionately represented in local public office (see, e.g., Eastwood, 1994). These include members of the local landed middle class, the ‘gentry’, and members of the clergy. To identify titles, we need to link our positions to *individuals*. To do so, we collect data on individuals from Barfoot and Wilkes (1790). This data source records lists of prominent inhabitants of hundreds of towns in England, with their names, titles, and their borough position, if they held one. This allows us to measure whether, at the time of this survey, a position in a borough was held by someone with a title.⁴⁴ From this data source, we measure an indicator variable equal to one if a position was held by a gentleman or a member of the clergy, and zero otherwise.⁴⁵

Political and Financial Elites. The elite that, according to the literature, governed the boroughs was not just restricted to individuals with titles. We aim to measure the local political and economic elites as follows. To measure the local political elite, we focus on local political representation in Parliament and on local military matters.⁴⁶ To capture whether an officer was a member of the local political elite, we link officers to the biographical data on English MPs we described in the previous paragraphs. We take our list of named officers we measured in the previous paragraph, and code whether an officer shared a last name with an MP who held a local position. From this, we record if a particular position was held by an individual from a political family.⁴⁷ Second, we perform a similar exercise to link officers by last name to an 1806 list of commanders of local volunteer regiments mustered to serve in the Napoleonic Wars (House of Commons, 1806). The militia, as these volunteer regiments were called, were the backbone of domestic defense, and commanding them was an influential local position. We similarly code an indicator variable equal to one if an officer’s last name was held either by an MP or a commander of the volunteers and zero

⁴⁴Unfortunately, no comparable data sources are available closer in time to 1835, when the Municipal Corporations Report was compiled.

⁴⁵Specifically, we assign gentry status if someone holds the following titles: Esquire (Esq.), Sir, Gentleman (Gent.), and Baronet (Bart.). We assign clergy status if someone is addressed as Reverend (Rev.).

⁴⁶Our results are similar if we focus on just one of the two aspects of local prominence.

⁴⁷Note the contrast with the previous paragraph in which we used the MP data to measure which *positions* were stepping stone positions, rather than which families were in Parliament.

otherwise. Finally, we combine these two indicators into one. This indicator, which we label ‘political elite’, is one if a position was held by someone with a last name that is shared with either an MP or a militia commander.⁴⁸

To measure membership of the economic elite, we would ideally measure the income and wealth of all officers. No such data exist, but we can rely on a unique survey compiled by Rubinstein (2009) to make progress. He went through all surviving wills of individuals who left at least £100,000 at death and recorded brief biographical data on each, including whether they held a municipal position. This does happen, and not all rich individuals holding a municipal position have titles. For example, Robert Myddleton Biddulph, a banker, was a common councilor and recorder in Denbigh between 1795 and 1814. We code an indicator for whether a *position* is ever held by a rich person in *any* borough in our sample.⁴⁹

5.3 Incentives and Selection: Descriptive Evidence

We study whether the incentive and selection measures introduced above are correlated with unpaid status. We collect data now at the level of the individual position, in which we can relate unpaid status to the incentives and selection variables introduced in the previous sections. Within this dataset, we estimate the following linear model, using OLS:

$$Y_{bp} = \beta u_{bp} + \delta_b + \epsilon_{bp}, \quad (4)$$

where Y_{bp} are the dependent variables introduced above, measured for position bp in borough b . u_{bp} is an indicator variable equal to one if position bp is not paid. δ_b is a vector of borough fixed effects. ϵ_{bp} is the error term; standard errors are heteroskedasticity-robust and clustered at the borough level. Tables 6 and 7 report estimated coefficients $\hat{\beta}$.

5.3.1 Incentives

Table 6 shows results. Across columns, we vary outcome variables, and the first row of this table provides estimates of β across our four outcomes. In Columns (1) and (2), we study prestige and career concerns. In both regressions, we include borough fixed effects, and we therefore compare unpaid to paid officers, partialing out borough-level differences in outcomes and unpaid status. We find that being

⁴⁸Our results hold if we restrict to either subgroup. These results are available upon request to the authors.

⁴⁹The reason for this coding scheme is that £100,000 is a very high threshold for inclusion and we therefore obtain too few matches if we were to directly code this variable to the borough-position level (i.e., we code a mayor to be part of the economic elite if their position, say the mayoralty of Leeds, is directly mentioned).

unpaid is positively correlated with prestige and career concerns. Unpaid positions are, on average, about 38% more prestigious than paid positions relative to the baseline mean, and are about 56% more likely to be stepping stone positions to a Parliamentary career relative to the baseline mean.

In Columns (3) and (4), we study the flexibility and autonomy of unpaid and paid positions. In Column (3), we document a positive correlation between being unpaid and the flexibility of assigned tasks. On average, unpaid positions' task assignments are about a third more flexible than paid positions' assignments. In Column (4), we document that officers in unpaid positions are about 42% more likely to be elected than appointed. We interpret this difference as being consistent with greater autonomy, since those appointed have a recorded direct principal.

5.3.2 Selection

Next, we study whether individuals taking up unpaid positions are different from those taking up paid positions. Table 7 reports results of estimating equation (4) using selection outcomes.

In Column (1), we use as the dependent variable an indicator variable equal to one if an officer had a gentry title. We find that officers in unpaid positions are about 44% more likely to have a gentlemanly title than officers in paid positions. In Column (2), we study whether unpaid officers are more likely to be members of the clergy. We find a large effect: Being unpaid more than doubles the probability of being a member of the clergy, relative to the sample mean. In Columns (3) and (4), we instead focus on the political and economic elite. In Column (3), we find that unpaid officers are, on average, more likely to share a last name with an MP or militia officer. 75% of officers share a name with an MP or militia officer on average, and being unpaid is associated with an increase in this probability by 38 percentage points. In Column (4), we instead study whether a position was ever held by a person who is among the very rich as identified by Rubinstein (2009). We find that being unpaid is strongly positively correlated with occupying such a position. Our estimated effect is equal to 0.24 relative to a mean of 0.26.

5.4 Incentives and Selection as Determinants of Performance

In Appendix Section O.D (Appendix Figure O.D.2), we decompose our performance results into the contributions of incentives and selection by removing selected individuals according to the measures we used in this section. When we remove these and therefore focus on incentives alone, we find that paid and unpaid positions perform equally well. When we add selected individuals back, we reproduce our main results. These results suggest that the positive effect of being unpaid is driven by positively selected individuals. This result supplements our results in Section 4.2, which showed that unpaid officers were

higher ability. The two results combined suggest that the unpaid positions outperformed paid ones because officers in these positions were of higher ability, which may in part reflect that they were (positively) selected.

6 A Characterization of the Embedded State: Costs and Benefits

Section 5 analyzed separate correlations between unpaid status, non-monetary incentives, and individual-level selection margins. In this section, we ask whether these elements co-move — whether they together constituted a *system* of borough governance. In the introduction, we posited that the benefit of the Embedded State is that, through extending ‘into’ society by providing social incentives that attract individuals willing to work for free in exchange for prestige and other non-monetary benefits, it is able to provide public goods more successfully. By characterizing the Embedded State as a system, we provide evidence for this assertion.

Naturally, the Embedded State also has costs. For example, the historical literature cited in our background section emphasizes the corruption of the municipal corporation. The elite that ran the corporation elected itself, appointed its family members, and took bribes both to obtain the position and on the job. A more subtle cost has to do with what tasks the Embedded State can implement. Not all tasks can be implemented by embedded incentives: for example, tasks that are not visible or prestigious are likely not attractive.

6.1 Benefits: Incentives and Selection Across Officers

We proceed in two steps. First, we estimate the relationship between incentives and selection. Second, we highlight unpaid status in the resulting incentive–selection space to assess whether unpaid positions occur in particular regions of incentive and selection intensity.

We construct standardized indices for selection and incentives at the position-by-borough level. Specifically, for position bp , we normalize each underlying incentive variable to have mean zero and unit variance, then average across the four variables to form a composite index $Incentive_{bp}$, and analogously for the selection index $Selection_{bp}$ (where higher values indicate ‘positive’ selection).

We construct a binned scatterplot using the following OLS specification:

$$Selection_{bp} = \beta Incentive_{bp} + \delta_b + \epsilon_{bp}. \quad (5)$$

As in equation (4), we include borough fixed effects and cluster standard errors at the borough level.⁵⁰ We classify each bin as ‘unpaid’ or ‘paid’ based on whether the share of unpaid positions exceeds the sample-wide share of unpaid positions.

Figure 9 shows results. The x-axis plots the incentive index, and the y-axis the selection index. Vertical and horizontal lines indicate the respective conditional means. Unpaid bins are represented by blue circles, while red circles denote paid bins. We adjust the size of each bin to reflect the number of underlying observations.

The figure shows a strong positive relationship between incentives and selection: nearly all bins fall in either the top-right or bottom-left quadrants. The unpaid–paid classification aligns with this structure: unpaid bins are concentrated in the top-right quadrant, and paid bins in the bottom-left. Thus, unpaid status and above-average incentives and selection systematically co-occur. We interpret the top-right quadrant as the Embedded State. We interpret the bottom-left quadrant as the more familiar, ‘Weberian’, state. For example, Liverpool, which we discussed before, employs relatively few officers with a title, and most positions have a direct principal. Consequently, it is at the 25th percentile of both the selection and incentive indices in Figure 9. 93% of positions get a wage. On all these metrics, Liverpool looks ‘Weberian’. Nottingham, similarly, pays 97% of its positions. Both towns are successful in the sense that they provide public goods satisfactorily. In the embedded quadrant, Plymouth is at the 75th percentile of both indices. Plymouth pays only 8% of its positions.⁵¹ It successfully manages its harbor and provides all seven public goods in our dataset. In fact, the report notes that the ‘constitution and character of the corporation of Plymouth are very superior to those of the other municipal bodies in the West of England’ (Municipal Corporations Commissioners, 1835, p. 595). Not all boroughs, of course, perform well. Denbigh, the county town of Denbighshire, pays about half its positions. It has not managed to light and pave the streets, and ‘Pigsties, and other offensive structures, bear certainly a very prominent part in the borough’ (Municipal Corporations Commissioners, 1835, p. 2668). Generally, ‘No public works are in progress’ (Municipal Corporations Commissioners, 1835, p. 2669).

6.2 Costs: Incentives and Selection Across Tasks

Figure 9 documents strong co-movement of incentives and selection at the officer level. A natural next question is whether similar patterns exist across tasks — i.e., whether certain tasks are systematically

⁵⁰Our baseline specification uses 30 bins. Appendix Figure O.D.1 shows robustness to varying the number of bins {10, 20, 40, 50}. Appendix Table O.D.1 reports the results of the unbinned regression in equation (5).

⁵¹Plymouth illustrates that the Embedded State was not simply a matter of borough size or scalability. More systematically, the share of a borough’s officials who were paid does not increase with its population (Appendix Figure O.F.4): in the cross-section, larger boroughs were not more Weberian. This is consistent with the reform evidence in Section 7, where population *growth* — the arrival of unfamiliar newcomers, which strained social incentives — rather than the population level predicts the move away from embedded organization.

associated with strong incentives and selection, while others are not.

To investigate this, we disaggregate unpaid status, incentives, and selection margins by task. For each position bp and fixed task t , we define an indicator w_{bpt} equal to one if the position is assigned to task t . We then estimate the association between this task assignment and various position characteristics c_{bp} (including unpaid status, incentives, and selection indices) using the following linear model, estimated separately for each task and characteristic:

$$w_{bpt} = \beta_0 + \beta_1 c_{bp} + \epsilon_{bpt}. \quad (6)$$

The coefficient β_1 captures the extent to which officers with characteristic c_{bp} are disproportionately involved in task t .

We begin by examining heterogeneity in unpaid status across tasks. Panel A of Figure 10 presents estimates of equation (6) with $c_{bp} = Unpaid_{bp}$. Tasks are ordered by the magnitude of the estimated coefficients. The results document substantial variation: tasks such as governing and administering justice are disproportionately assigned to officers in unpaid positions, while clerical work, gaol-keeping, and policing are more likely to be performed by officers in paid positions. Next, we assess whether the co-movement of incentives and selection documented in Figure 9 also appears across tasks. Specifically, we test whether tasks with a higher prevalence of unpaid positions are systematically associated with stronger non-monetary incentives and selection margins. To this end, we re-estimate equation (6) for each incentive and selection variable c_{bp} , maintaining the task ordering from Panel A to facilitate comparison.

Panel B considers variation in incentive structures. The first figure reports results for prestige. Tasks such as governing and justice score high on prestige, while gaol-keeping and policing score low. The downward slope in the coefficients — mirroring Panel A — indicates that prestige and unpaid status co-move across tasks. This pattern is consistent with the notion of substitutability between monetary and non-monetary rewards: tasks with greater intrinsic or reputational rewards can attract officers even in the absence of pay. Similar patterns hold for other incentive measures. We observe analogous downward-sloping gradients for career concerns, flexibility, and autonomy. In each case, tasks with higher levels of these non-monetary incentives also exhibit higher shares of unpaid positions. Some tasks, such as policing and keeping the gaol, are mostly paid, do not select for elites, and do not face embedded incentives. Task content itself plausibly contributes: policing and gaol-keeping exposed officers to physical risk and routine drudgery that prestige could not offset, so that for elites, non-engagement was the safer choice (Allen, 2012). These are tasks for which embedded organization is less suited.

6.3 Costs: Corruption

While individual officers can be positively selected on social status and, perhaps, civic dutifulness, they can also be negatively selected. They may try to use positions for private gain or use the powers of a position to appoint friends and family. In fact, the borough report features many instances of patronage and financial corruption. To measure the prevalence of these individuals, we focus on a particularly interesting part of our data source. Each borough record includes a discussion of the general management of the borough. This includes discussions of patronage and corruption.⁵² We record an indicator variable equal to one if a position in a borough was associated with cases of corruption, and zero otherwise.⁵³ We similarly record an indicator for nepotism. Table 8 shows results.

In Column (1), we use an indicator equal to one if a position was mentioned in relation to nepotistic appointments. In Column (2), we instead code an indicator if a position was ever mentioned in relation to bribery. We find that both nepotism and bribery are significantly positively correlated with being unpaid. We then focus on electoral corruption. In Column (3), we find that being unpaid is strongly positively correlated with being in a position that elects itself (such as the governing body, which often voted for appointment into its own ranks). In Column (4), we use an indicator equal to one if a position was mentioned in the report in relation to rigging of borough or Parliamentary elections through bribery, partisan control of municipal positions, and cooping.⁵⁴ Being unpaid is positively correlated with this practice. The effect sizes in all columns are large, ranging from about 40% to 110% of the sample mean. In other words, while being unpaid selects for elites and is associated with higher quality public good provision, one way in which the elites were compensated was through corruption. We next ask whether corruption was the main factor sustaining participation in the Embedded State. In light of the historical evidence in this section, this does not seem plausible, but we nevertheless test this idea in Appendix Figure O.D.3. We separate our sample into officers found to be corrupt and those not. The estimated unpaid–paid performance gap is positive, significant, and of similar size in both subsamples, indicating that the performance advantage of unpaid positions is not concentrated in corrupt positions and that corruption alone cannot explain the unpaid provision of public goods and services. This pattern also distinguishes the Embedded State from the ‘natural state’ of North et al. (2009): in both concepts corruption is a feature of the political order, but in the boroughs the prestige and status attached to office limited corruption rather than being

⁵²For example, for patronage, the report mentions that Aldeburgh suffered from the “perversion of the whole of the municipal institutions to the political interests of ... the Marquis of Hertford.” In Grimsby, the recorder—who was the town’s patron—was “for the last fourteen years uniformly successful in procuring his own political adherents to be elected aldermen.” He also managed to annually select his preferred candidate from the set of aldermen, in spite of existing rules regarding seniority and rotation. Financial corruption was notably rampant in Maldon, where the water-bailiff stole the port dues he was supposed to collect, the chamberlains failed to publish accounts and appropriated corporate property, and aldermen pocketed fees charged for the admission of freemen.

⁵³Appendix Section O.B.5 shows examples.

⁵⁴Cooping refers to the practice of influencing voters to either not vote or vote for a particular candidate.

sustained by it (Appendix Figure O.D.3).

Pulling the two sides together: the benefit of the Embedded State is a performance advantage of 12 percentage points, about 20 percent of the sample mean, which survives predetermined affordability variation. Its costs are a higher prevalence of corruption and nepotism among unpaid positions — 40 to 110 percent of the respective sample means — and a limited reach: tasks such as policing and gaol-keeping, which carried little prestige, required pay. The Embedded State was the better form of organization where social incentives could substitute for salary, and infeasible where they could not. This is why boroughs ran mixed systems, and why not all positions were unpaid.

7 Reform

So far we have found that unpaid officers were more effective, on average, but that there is significant heterogeneity across tasks in the extent to which officers get paid. In this section we relate these observations to the subsequent evolution of borough government in England. Between 1835 and the Local Government Act of 1972, which abolished the municipal corporation as the governing structure of the boroughs, several reforms were enacted.⁵⁵ The first, the Municipal Corporations Act of 1835, established a standard model for modern borough government. The reform had three provisions. First, it homogenized higher borough officeholders, mandating the appointment of a mayor, town council, town clerk, and treasurer. Second, it widened the electorate. Third, it required annual accounts for audit. 178 of the known 263 municipal boroughs adopted the reform, with a further nine doing so by 1880. Two further acts passed in 1882 and 1883 eliminated the remaining unreformed corporations, mandating that they either apply to be rechartered under the 1835 Act or be abolished and absorbed into a larger political unit (Innes, 2023). By 1890, most political positions, such as the mayor and councilors, remained unpaid, but virtually all lower positions in the town's bureaucracy (e.g., the town clerk, treasurer, and police) received salaries (Vine, 1890). The central government moved in the same direction: following the Northcote–Trevelyan report of 1854, entry into the central civil service was progressively put on a salaried, examination-based footing. When the Local Government Act of 1972 finally abolished the municipal corporation, city councils still did not pay councilors, and even today, most are formally unsalaried.⁵⁶ In a way, therefore, the Embedded State still survives in England today. While these reforms did not mandate salarizing all lower-level

⁵⁵The key provision in the 1972 Local Government Act is explicit. Section 1(11) provided that on 1 April 1974, “the municipal corporation of every borough outside Greater London . . . shall cease to exist.” Source (current as of 08/18/2026): <https://www.legislation.gov.uk/ukpga/1972/70/2026-08-05>.

⁵⁶However, many receive small basic allowances and pensions. For instance, the present allowance for a Cambridge city councilor is just £8,069 per year (Cambridge City Council, 2026).

positions, by the 1890s virtually all such positions were salaried.⁵⁷

These considerations echo the literature on reform. The first main explanation is associated with Webb and Webb (1902), who claim that population growth made the Embedded State, which was reliant on social incentives, untenable as more and more unfamiliar people were asked to cooperate to run local government. These pressures led boroughs to salary officers. The second main explanation focuses on the so-called ‘Age of Reform’ and argues that the movement to reform the municipal corporations reflected a broader impulse to reform government and politics (Eastwood, 1994).⁵⁸ In particular, the municipal boroughs were believed to be misgoverned by their closed, oligarchic electorates (Finlayson, 1963). Appendix Section O.G studies the parliamentary debates on the 1835 Act: contemporaries argued about the reform mostly in political terms: the franchise, corporate finance, and self-election.

We use our data to study these two motivations. To do so, we use the fact that the first reform, which was enacted in 1835, reformed only 178 of the 263 municipal boroughs. We can therefore study the correlation between whether a borough was reformed and measures of the two hypotheses: population growth and the size of the franchise. We estimate the following linear probability model, using OLS:

$$\text{Reformed}_b = \beta x_b + \delta_{c(b)} + \varepsilon_b, \quad (7)$$

where Reformed_b indicates a borough reformed by the 1835 Act, x_b is a predetermined borough characteristic, and $\delta_{c(b)}$ are county fixed effects. Figure 11 plots the within-county associations as binned scatters: reform was less likely where the franchise was broader, measured as freemen per resident (Panel A), and more likely where population grew faster (Panel B). In other words, reform was more likely in boroughs with less political participation, consistent with the ‘Age of Reform’ interpretation, and in boroughs where, plausibly, cooperation had become harder, consistent with the interpretation of Webb and Webb (1902). The municipal corporation was not formally abolished until the Local Government Act of 1972 took effect in 1974, and the Embedded State survives in trimmed form to this day, but it did change over the course of the nineteenth century. Lower-level bureaucrats started to get paid. While borough reform was in part a feature of the ‘Age of Reform’, our results suggest that reform also followed population growth and the growing difficulty of motivating individuals to undertake specific tasks unpaid as social

⁵⁷Several reform acts mentioned salary, but did not mandate salarizing. For example, the 1835 Municipal Corporations Act states “such other Officers as have been usually appointed in [the] Borough ... shall order to be paid ... such Salary or Allowance as the Council shall think reasonable” (Parliament of the United Kingdom, 1835). The 1882 Municipal Corporations Act stated similarly: for “every officer appointed by them,” the council “shall allow him such remuneration as they think reasonable” (Parliament of the United Kingdom, 1882). Some reforms did require salarizing individual positions. For example, the initial 1835 Municipal Corporations Act required boroughs to form a watch committee and appoint a “sufficient number of fit men” to serve as paid constables.

⁵⁸The 1832 Parliamentary Reform Act is the most famous example of this effort. See Innes (2023) for a discussion.

incentives deteriorated.

8 Conclusion

What explains the large variation in the performance of government around the world? Most contributions focus on the organization and staffing of the salaried public administration (Besley et al., 2022; Finan et al., 2017). In this paper, we identify another dimension of government: the unsalaried individuals who perform tasks that today would be executed by salaried bureaucrats. The state extends, as it were, into society. We refer to states that do so successfully as Embedded States.

We study the Embedded State by comparing unpaid to paid officers' performance on the provision of a range of public goods. We first find that unpaid officers outperform paid officers. We find, using new data on incentives sustaining particular jobs and the individuals taking them up, that unpaid officers are different from paid officers. They are more likely to be drawn from the elite, and face different incentives. Their jobs are more likely to confer status and prestige, and are part of a career in public service.

We then characterize the co-movement of such incentives, officer selection, and unpaid status, and find evidence for a system of governance in which all three measures co-move. Boroughs organize their workforce either primarily along embedded lines or along formalized, paid, 'Weberian' lines.

When Weberian government is financially infeasible, variation in the success of embedded organization may help explain the differences in performance of equally resource-constrained governments. We conjecture that the particular incentives and the particular margins of selection sustaining the Embedded State in England are specific to the English sociological context; the legitimacy of English institutions and the role of religious and civic values may have been preconditions (Greif and Iyigun, 2013; Greif and Rubin, 2024). The notion of an Embedded State may be found elsewhere — Wang (2022) documents the role of elite social networks in the state development of imperial China — but the particular incentives that potential officers value may differ across contexts.

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Figure 1: Local Organizational Units



Panel A: Parish

Panel B: Borough

Panel C: County

Note: Panels map the three tiers of local government in England. Panel A plots all parishes in England and Wales, using GIS data from Kain and Oliver (2001). Panel B plots all towns in the same region, with the sample surveyed in the Municipal Corporations report in dark gray. Panel C shows county boundaries.

Figure 2: East Looe Position List

Town Clerk.	The Town Clerk or Common Clerk of the courts within the borough is nominated by the recorder; he is clerk of the peace, clerk to the magistrates, and solicitor to the corporation; he receives a salary of 15 <i>l.</i> per annum, and the other emoluments of his office do not exceed 20 <i>l.</i> The present town clerk is Mr. William Tickell, solicitor, aged 44; he has filled the office for seven or eight years.
Serjeants at Mace.	There are two Serjeants-at-Mace for the execution of precepts, mandates, attachments, and other process within the borough; they also attend upon the mayor; they receive a stipend of 2 <i>l.</i> 6 <i>s.</i> 6 <i>d.</i> each in lieu of cloaks and hats.
Constables.	There are nine Constables; they are appointed by the court leet.
Quay Master.	The Quay Master is appointed by the corporation; he collects the quay dues and ballast dues, and has the general superintendence of the quays; he also collects the market dues; he receives a salary of 10 <i>l.</i> per annum.

Note: Figure presents an example position list from the municipal report chapter on East Looe. Positions' method of appointment is highlighted in gray; task assignments in yellow; and remuneration in turquoise.

Figure 3: East Looe Courts

There are general sessions of the peace held twice in every year, viz. within 28 days after Easter, and within 28 days after Michaelmas-day. By the charter of James 2, the sessions are to be held before the mayor, the recorder, and "the justice," or any two of them. Their jurisdiction extends over the whole borough, and to the trial of all offences not punishable with the loss of life. The lists of jurors are made out by the town clerk, from the inhabitant householders, and the jurors are summoned by the serjeants-at-mace. The grand jury is selected from the more respectable class of inhabitants. For the last seven or eight years it has not been necessary to swear a petty jury, there having been no offenders tried within that period. Criminals are generally committed to the county gaol at Bodmin (18 miles distant from East Looe) for trial at the assizes. The county make no charge for supporting the prisoners. There is no table of costs.

Sessions of the Peace.

A Court Leet is held half-yearly at the same time as the sessions of the peace. The grand jury of the leet is selected in the same manner as the grand jury of the sessions; there are generally 13 sworn, but the practice is not invariable; they present nuisances.

The Court Leet.

There is no stated time for the Petty Sessions, which are held as occasion requires.

Petty Sessions.

There is a Court of Pie Poudre within the borough, but it is never held.

Court of Pie Poudre.

Note: Figure presents the list of courts in East Looe. Here, the Sessions of the Peace (quarter sessions), Court Leet, and Petty Sessions are active, while the Court of Pie Poudre is defunct.

Figure 4: East Looe Performance

The Gaol consists of an outer room, with three small cells, two of which are boarded; they are ill ventilated, and unfit for the reception of prisoners for any length of time. There is no yard. The gaol is seldom used except in cases of imprisonment for examination, or until fines imposed by the magistrates are paid.

The constables are said to form a sufficient Police in point of numbers, but they are stated to be remiss in the performance of their duty for fear of offending the inhabitants. The town is frequently disorderly, and subject to petty depredations. It is neither watched nor lighted. The streets, until recently, have been repaired at the expense of the corporation. There are five licensed public-houses and one beer shop within the borough.

Police.

Note: This figure discusses the performance of three local public goods in East Looe: the prison, the police, and infrastructure. The former two are highlighted in red, the latter in yellow. The gaol is inadequate for holding prisoners. The police are also unable to keep public order. For infrastructure, the streets are paved but not lit.

Figure 5: East Looe Revenue

Rents of houses, meadows and lands, chiefly high, and conventional rents							£.	s.	d.
	-	-	-	-	-	-	81	-	-
Quay dues	-	-	-	-	-	-	23	16	3
Market dues	-	-	-	-	-	-	14	3	3
Ballast dues	-	-	-	-	-	-	14	2	-
The waste	-	-	-	-	-	-	-	15	-
The town soil	-	-	-	-	-	-	17	-	-
							£.	100	16 0

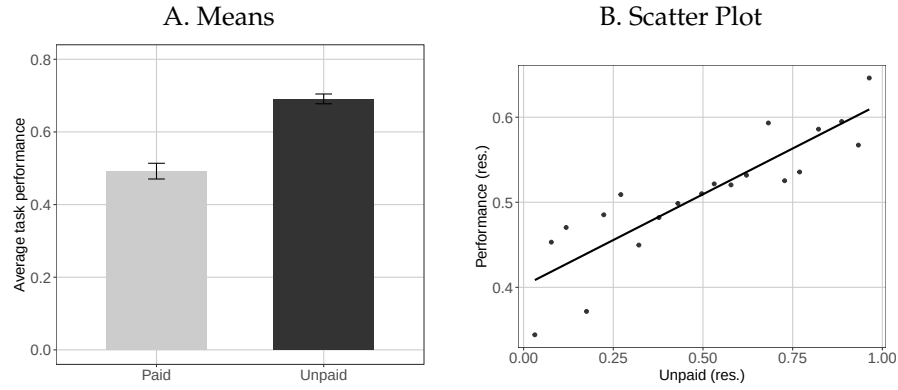
Note: Figure presents line-by-line revenue accounts for East Looe (expenditures not pictured). As was common, rents on property were the largest source of corporate income, but the town was also able to tax maritime trade.

Figure 6: East Looe Expenditure

							£.	s.	d.
Repairing quays and streets	-	-	-	-	-	-	25	-	-
Timber for quays	-	-	-	-	-	-	9	-	-
Town clerk	-	-	-	-	-	-	15	-	-
Town serjeants	-	-	-	-	-	-	4	13	-
Collector of dues	-	-	-	-	-	-	10	-	-

Note: Figure presents line-by-line expenditure accounts for East Looe. Expenditures were divided between infrastructure maintenance and officer salaries.

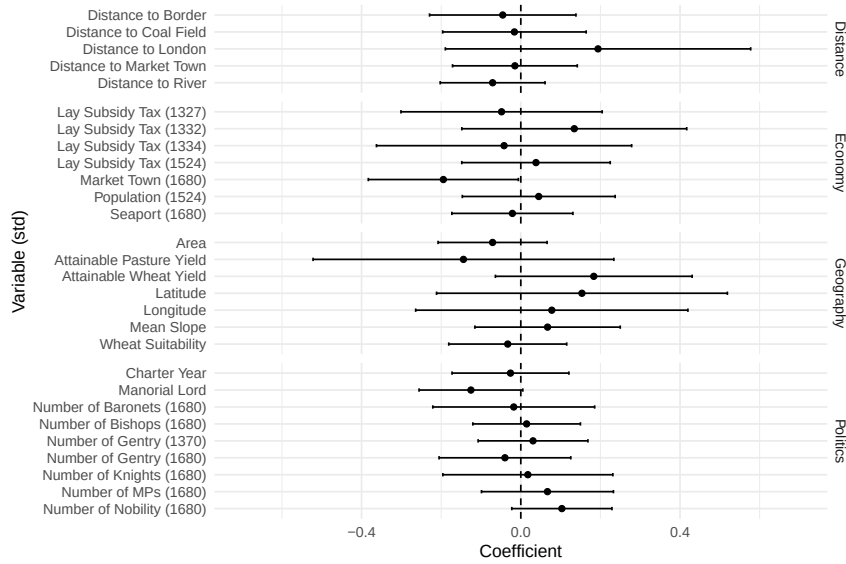
Figure 7: Position Performance and Paid Status



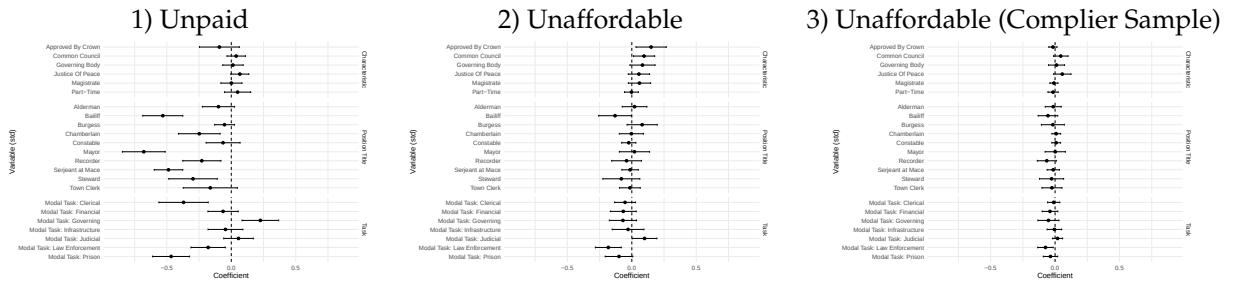
Note: This plot shows (Panel A) position-level performance averages separately for paid and unpaid positions, with 95 percent confidence intervals, and (Panel B) results of estimating the relationship between unpaid status and performance after residualizing performance with respect to borough fixed effects. The horizontal axis reports the position-level predicted probability of being unpaid (i.e., unpaid propensity), while the vertical axis shows residualized performance, in a binned scatterplot. Observations are at the level of a position. The sample comprises 5,710 positions. The dependent variable is the mean performance across all tasks to which a position is assigned, as introduced in Section 4.

Figure 8: Borough Characteristics and Rental Income

A: Borough Rental Income

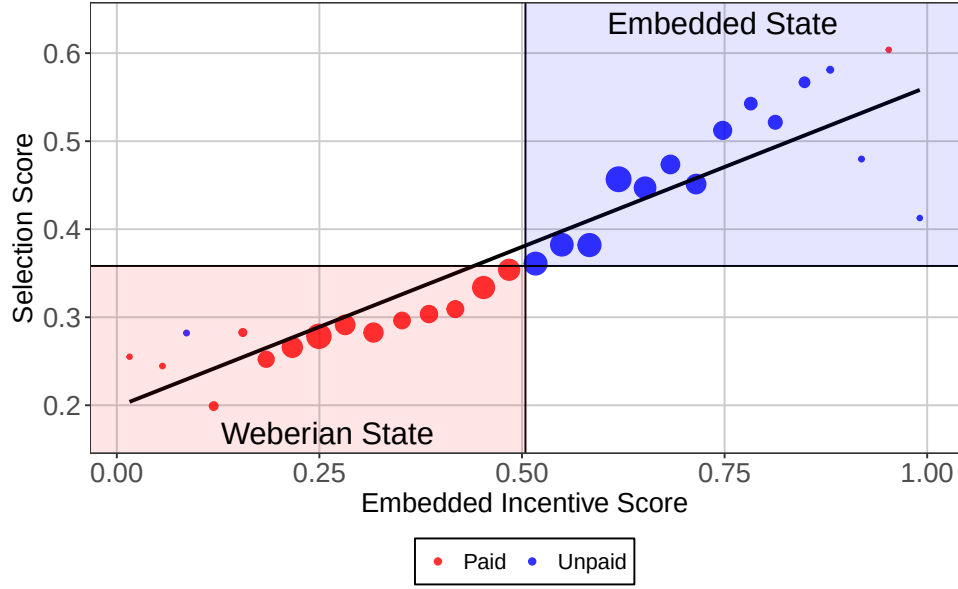


B: Position Title Characteristics



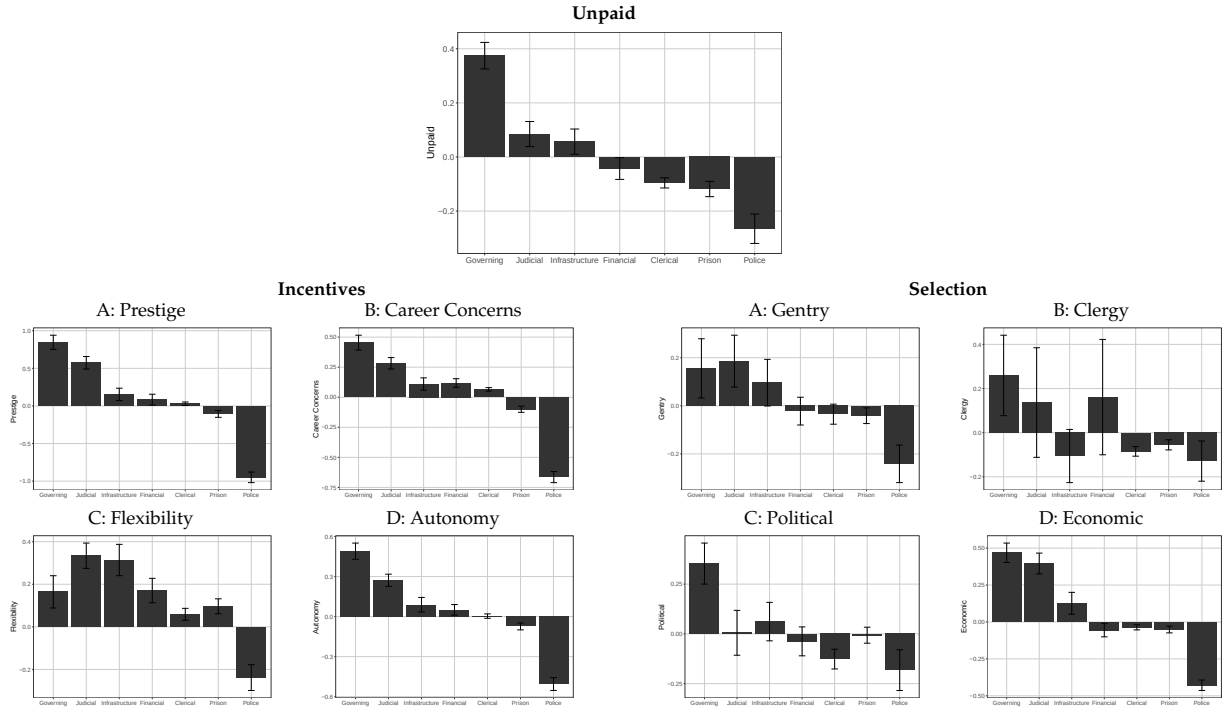
Note: The figure presents results of estimating equation (2) (Panel A) and (3) (Panel B) with 95 percent confidence intervals. Observations are at the level of a borough (Panel A) or a position (Panel B). The sample comprises 258 boroughs and 5,710 positions (3,191 in the complier sample). The dependent variable is standardized borough rental income (Panel A) or unpaid/unaffordable status (Panel B). Standard errors are clustered at the borough level.

Figure 9: The Embedded State Within Boroughs



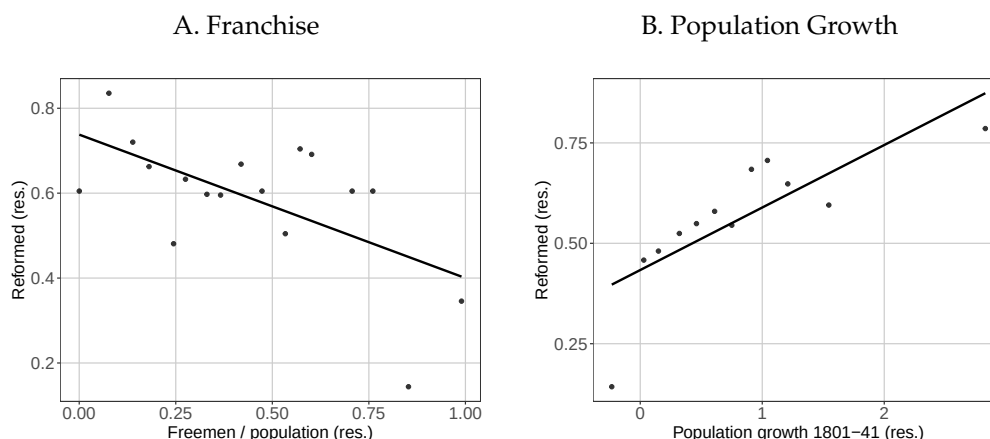
Note: The figure presents results of estimating equation (5) in a binned scatterplot. The x-axis plots the incentive index, and the y-axis the selection index introduced in Section 5. Vertical and horizontal lines indicate the respective conditional means. Unpaid bins are represented by blue circles, while red circles denote paid bins. We adjust the size of each bin to reflect the number of underlying observations. Observations are at the level of a position. The sample comprises 5,710 positions.

Figure 10: The Embedded State Across Tasks



Note: The figure presents results of estimating equation (6), with 95 percent confidence intervals. Observations are at the level of a position. The sample comprises 5,710 positions. Standard errors are clustered at the borough level. The dependent variables are the incentive and selection measures introduced in Section 5.

Figure 11: Reform and Borough Characteristics



Note: The figure presents results of estimating equation (7) as a binned scatter, residualizing both axes on county fixed effects. Reform status indicates a borough reformed by the 1835 Municipal Corporations Act. Panel A measures the franchise as freemen per resident; Panel B measures population growth between the 1801 and 1841 censuses. Observations are at the level of a borough.

Table 1: Comparing the Central and Local State: Size and Paid Status

	Total size		% Male pop.		% Unpaid
	1700	1835	1700	1835	1835
Central	4,920	21,305	0.33	0.63	0.00
Parish	50,000	95,520	3.33	2.81	100.00
County	25,084	40,994	1.67	1.21	90.22
Borough	7,660	12,268	0.51	0.36	70.69
Borough (our sample)	—	5,710	—	0.17	67.74
Total (Local)	82,744	148,782	5.52	4.38	94.88

Note: Columns show totals and shares of adult male population employed in central and local government positions in 1700 and 1835, and the share of local positions which were unpaid in 1835. Central government figures are from Brewer (1989) (1700) and Cook and Keith (1975) (1835). Local government data draw on Goldie (2001), Landau (1984), and original data collected for this project. Percent male population = total divided by adult male population. Total (Local) sums rows 2–4.

Table 2: Common Positions and Tasks by Borough

Borough	Population	# Positions	Share Unpaid	Most Common Position Title	Most Common Task
Liverpool	165,175	203	0.07	watchman	law enforcement
Leeds	123,393	121	0.31	watchman	law enforcement
Norwich	61,096	176	0.49	common councilman	infrastructure
Bristol	59,034	338	0.38	constable	law enforcement
Nottingham	50,220	119	0.03	constable	law enforcement
...	...	...	...	...	...
Caerwys	500	1	1.00	recorder	judicial
Fordwich	487	8	1.00	borsholder	law enforcement
Kenfig	487	2	0.00	portreeve	clerical
Dunwich	232	31	0.97	common councilman	judicial
Newtown	68	3	1.00	clerk	financial corporation

Note: This table offers summary statistics for the five largest and smallest boroughs in our sample. The most common position title is the one with the largest employment in the borough; the most common task is the one to which the most positions are assigned.

Table 3: Position Title Descriptives

Position	# Boroughs	# Positions	Share Unpaid	Avg Tasks	Most Common Task
Constable	202	1093	0.57	1.09	Law Enforcement
Town clerk	180	188	0.24	1.29	Clerical
Mayor	163	182	0.49	2.25	Judicial
Recorder	132	169	0.62	1.34	Judicial
Serjeant at mace	119	270	0.07	1.24	Law Enforcement
...	...	...	...	...	...
Ale taster	1	2	1.00	1.00	Law Enforcement
Apothecary	1	2	0.00	1.00	Prison
Approved man	1	10	1.00	1.00	Governing
Assessor	1	5	0.00	1.00	Infrastructure
Auctioneer	1	1	0.00	1.00	Financial Corp.

Note: This table describes the five most and least common (defined by the number of boroughs where present) position titles that perform any *relevant* tasks in our dataset. ‘Most common task’ is weighted by the number of positions — effectively the task done by the most individuals with that position title.

Table 4: Unpaid and Performance

	Performance		
	(1)	(2)	(3)
Unpaid Position on Team	0.09*** (0.02)	0.11*** (0.02)	0.12*** (0.02)
Observations	39,970	39,970	39,970
R^2	0.33	0.39	0.39
Boroughs	258	258	258
Positions	5710	5710	5710
Tasks	7	7	7
Outcome Mean	0.61	0.61	0.61
Cluster	Borough $\times$ Task	Borough $\times$ Task	Borough $\times$ Task
Task Control	✓	✓	✓
Controls		✓	✓
Borough fixed effects	✓	✓	✓
Task fixed effects	✓	✓	✓
Position Title fixed effects			✓

Note: The table presents results of estimating equation (1). Observations are at the level of a position-task. The number of position-tasks and positions in each sample is indicated in the table. Standard errors are clustered at the borough-task level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The dependent variable is borough-task performance, as introduced in Section 4.

Table 5: Unaffordable and Performance

	Performance		
	(1)	(2)	(3)
Unaffordable Position on Team	0.21*** (0.04)	0.19*** (0.04)	0.19*** (0.04)
Observations	22,337	22,337	22,337
R^2	0.34	0.40	0.40
Boroughs	208	208	208
Positions	3191	3191	3191
Tasks	7	7	7
Outcome Mean	0.62	0.62	0.62
Cluster	Borough $\times$ Task	Borough $\times$ Task	Borough $\times$ Task
Task Control	✓	✓	✓
Controls		✓	✓
Borough fixed effects	✓	✓	✓
Task fixed effects	✓	✓	✓
Position Title fixed effects			✓

Note: The table presents results of estimating equation (1), replacing observed unpaid status u_{bp} with predicted unaffordability v_{bp} and subsetting to 3,191 complier positions. Observations are at the level of a position-task. The number of position-tasks and positions in each sample is indicated in the table. Standard errors are clustered at the borough-task level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The dependent variable is borough-task performance, as introduced in Section 4.

Table 6: Position Incentives

	External		Internal	
	Prestige (1)	Career Concerns (2)	Flexibility (3)	Autonomy (4)
Unpaid	0.18*** (0.02)	0.30*** (0.03)	0.10*** (0.03)	0.22*** (0.03)
Observations	5,710	5,710	5,710	5,710
R^2	0.21	0.23	0.24	0.28
Boroughs	258	258	258	258
Positions	5710	5710	5710	5710
Outcome Mean	0.48	0.54	0.31	0.52
Cluster	Borough	Borough	Borough	Borough
Borough fixed effects	✓	✓	✓	✓

Note: The table presents results of estimating equation (4). Observations are at the level of a position. The number of positions in each sample is indicated in the table. Standard errors are clustered at the borough level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The dependent variables are the incentive measures introduced in Section 5.

Table 7: Officer Selection

	Title		Elite	
	Gentry (1)	Clergy (2)	Political (3)	Economic (4)
Unpaid	0.20*** (0.05)	0.02*** (0.006)	0.38*** (0.05)	0.24*** (0.03)
Observations	1,785	1,785	1,785	5,710
R^2	0.47	0.19	0.44	0.22
Boroughs	163	163	163	258
Positions	1785	1785	1785	5710
Outcome Mean	0.45	0.01	0.75	0.26
Cluster	Borough	Borough	Borough	Borough
Borough fixed effects	✓	✓	✓	✓

Note: The table presents results of estimating equation (4). Observations are at the level of a position. The number of positions in each sample is indicated in the table. Standard errors are clustered at the borough level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The dependent variables are the selection measures introduced in Section 5.

Table 8: Position Corruption

	In Office		During Election	
	Nepotism (1)	Bribery (2)	Self-Appointment (3)	Vote Rigging (4)
Unpaid	0.09*** (0.02)	0.05** (0.02)	0.24*** (0.03)	0.11*** (0.02)
Observations	5,710	5,710	5,710	5,710
R^2	0.53	0.49	0.35	0.55
Boroughs	258	258	258	258
Positions	5710	5710	5710	5710
Outcome Mean	0.11	0.13	0.22	0.11
Cluster	Borough	Borough	Borough	Borough
Borough fixed effects	✓	✓	✓	✓

Note: The table presents results of estimating equation (4). Observations are at the level of a position. The number of positions in each sample is indicated in the table. Standard errors are clustered at the borough level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The dependent variables are the corruption measures introduced in Section 6.3.