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Democratic Reform and Opposition to Government Expenditure: Evidence from Nineteenth-century Britain

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Abstract

Several theories have argued that democratic reform will lead to higher government spending. However, these theories have generally focused on expenditure on redistribution rather than expenditure on public goods. This paper argues that poorer citizens may desire relatively low levels of public goods provision and so democratization may lead to lower government expenditure on items such as public infrastructure. This hypothesis is tested using a new panel dataset of town council infrastructure spending and revenue in nineteenth-century Britain. An 1894 national reform implementing a system of "one-household-one-vote" and the secret ballot is used as the treatment event in a difference-in-difference analysis. The results show that democratic reform slowed the growth of town council spending on public goods, including water supply and other public infrastructure. Further analysis suggests that government spending was highest when the balance of political power was held by the middle class, rather than the poor.

Keywords

Democratization, elites, secret ballot, infrastructure, public goods.

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1 Introduction

Many theories of democratization predict that extensions of the right to vote to the poor will be associated with increases in government expenditure. Either poorer citizens demand higher transfer payments since they bear a relatively low share of the taxation (Meltzer and Richard, 1981; Acemoglu and Robinson, 2000, 2006; Boix, 2003) or an expanded electorate incentivizes elites to offer higher expenditure on public goods (Lizzeri and Persico, 2004). But while the mechanism through which spending increases varies, all these models share the common assumption that government can engage in widespread redistribution.

Yet often, both historically and today, the primary role of government has been the provision of infrastructure and public goods rather than redistribution. Many governments have held limited ability to redistribute either because of legal restrictions or because the apparatus of mass redistribution that we know today simply did not exist.[1] In this paper I argue that the distinction between types of government spending is important to understand the effects of democratization, since the same theoretical arguments cannot be directly transferred from spending on redistribution to investment in infrastructure or spending on public goods (Epple and Romano, 1996; Bursztyn, 2013). The demand for consumption of public goods will depend on income, and so it is not clear that newly enfranchised poor citizens would desire higher levels of government spending. Wealthier citizens may be willing to pay higher taxes for public goods than the poor, since poorer individuals may prefer to spend their income on more basic needs such as food. If wealthier citizens oppose taxes because of their relatively high tax burden, public goods expenditure will be highest when the middle class have the right to vote but the poor do not (Chapman, 2016b).

In this paper I test the argument that increasing the political power of the poor leads to

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[1]Many governments spent nothing on social transfers in 1900, and even pioneering countries spent less than 2% of national product on this type of redistribution (Lindert, 1994). Redistribution through taxation was also limited, with the top rate of both inheritance taxes and income taxes low at the turn of the twentieth century (Scheve and Stasavage, 2010, 2012; Vélez, 2014).

increased opposition to government spending on public goods and infrastructure investment using new data from town councils in nineteenth-century England and Wales. This context offers an ideal setting for the empirical analysis since during this period government began to provide a range of new urban infrastructure and public services, including clean water supply, waste disposal, mass transit systems and electric lighting. As such I can identify the effects of democratic reform on the provision of a range of public goods that are critical to economic development. Further, as in most countries, at this time neither national or local government was engaged in significant redistribution. National income taxes were low and affected only a small proportion of the population (Scheve and Stasavage, 2010), while only 1% of national product was spent on social transfers (Lindert, 1994). Town councils controlled spending on urban infrastructure but not redistribution, and were limited to property taxation that fell on both owners and renters.

To capture the effects of democratization I exploit differences in the governance of town councils both across towns and over time. In particular, I take advantage of the fact that, until 1894, towns that were incorporated were governed under a more democratic system than other towns. Town councils in incorporated towns were elected under a secret ballot and under a franchise where each head-of-household held a single vote. In unincorporated towns, in contrast, there was no secret ballot in place, and citizens could receive up to 12 votes depending on the value of the property they owned and occupied.

If it was a shift in the political power of the poor that drove the growth of government spending, we would expect that towns became much more likely to expand their spending responsibilities after they became incorporated and shifted to the more representative governance system. However, a simple investigation of the timing of investments by towns that became incorporated before 1894 shows that this was not the case. Table I indicates that most towns began spending on a range of public goods *before* they became incorporated. Nearly all (91%) of the towns spent money on sewers before they were incorporated, while

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76% of towns were engaged in supplying water. Similarly, an equal or higher proportion of towns started operating in burial, baths, gas supply and markets before incorporation than afterward.

Table I: Towns incorporated between 1872 and 1894 were more likely to start providing public goods and services before incorporation than afterwards.

Activity	% of incorporated towns starting provision		
	Before incorporation	**After incorporation**	**Did not start before 1904**
Burial	24%	24%	52%
Bath	35%	26%	39%
Gas	26%	13%	61%
Markets	43%	9%	48%
Sewers	91%	2%	7%
Water	76%	4%	20%

Note: Based on 46 towns incorporated between 1872 and 1894. Information for water and sewers is drawn from the *Local Taxation Returns*, based on the first year of spending. Information for burial, baths and markets is drawn from the 1903 Report of the Select Committee on Municipal Trading (House of Lords, 1903).

To test the effects of democratic reform on government expenditure more rigorously, I exploit an 1894 national reform that imposed the system of one-household-one-vote and secret ballot on unincorporated towns. After this point in time, all towns were governed under the system previously used in the incorporated towns. This reform is used as the treatment event in a difference-in-difference analysis, where the "control" towns are those incorporated before the reforms and the treatment group consists of the unincorporated towns that were previously governed under the less democratic council system. I use an identifying assumption of "parallel growths", which implies that in the absence of treatment the difference in the growth in spending per capita between unincorporated and incorporated towns would have remained the same. My main dependent variable is the annual total current expenditure per capita by local governments. This measure includes spending by town councils on a wide range of public goods and services, with major items including

water supply, street maintenance and cleaning, and sewer systems. In addition, the measure also captures growth in infrastructure stock since it includes expenditure on repaying and servicing the loans used to pay for infrastructure improvements.

My approach is complicated by the fact that incorporated and unincorporated towns could potentially be very different since towns were not assigned at random to these groups. I argue that incorporation status is plausibly exogenous since it was determined prior to the period of analysis, and was often a reflection of royal charters received many centuries previously.[2] There is considerable overlap in the characteristics of the groups of towns, including in town size, tax base and population density. The two groups are very similar in terms of the proportion of the workforce engaged in agriculture, providing further evidence that incorporation status was not a reflection of the industrial character of the towns. As a further measure to ensure the comparability of the groups (and hence that the parallel growths assumption is satisfied), I use a Coarsened Exact Matching procedure (Iacus et al., 2012).

I then test whether the trend growth in government spending per capita in unincorporated and incorporated towns was different in the ten years prior to the reform (1884–1894) compared to the ten years after the reform (1894–1903). The results show that the 1894 democratic reforms slowed the rate of growth in public expenditure in unincorporated towns. Prior to the reforms, public goods spending in unincorporated towns kept pace with (if not exceeded) spending in incorporated towns. In contrast, in the decade following the 1894 reform spending grew significantly more slowly. Similar effects are found for the growth of tax revenue per capita, consistent with the argument that opposition to spending was driven by a desire for greater consumption by the poor.

These findings indicate that, in contrast to many theoretical models, democratic reform led to a reduction in the growth of government expenditure. However, they do not provide

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[2]I exclude towns that became incorporated after 1884.

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any evidence of where impetus for greater public spending actually came from. To isolate the mechanism through which expenditure was reduced, I use a proxy for the degree of middle-class control of each town using the estimated distribution of servants in households in each district. I define a household as "elite" if they contained at least one servant, and then disaggregate between middle-class elites (those with one servant) and upper-class elites (more than one servant)—definitions corresponding to contemporary definitions of social class (Booth, 1903). I then estimate the ratio of middle-class to upper-class households in each district.

I use this ratio to distinguish between councils that were controlled by the "middle class" and those controlled by the "rich" before the 1894 reform. I find that the reforms had a strong negative effect in middle-class-controlled towns but little evidence that they had any effect in the upper-class-controlled towns. These results are robust to different definitions of middle-class control, and to different specifications.

Finally, I explore in more detail the ways in which democratization reduced overall expenditure. By separating between towns with or without various types of infrastructure before the reforms I isolate whether spending slowed investment in *new* forms of infrastructure. I find evidence that after democratization towns became less likely to invest in forms of infrastructure they had not previously invested in including, in particular, water supply.

This paper contributes to a large literature analyzing the expansion of the franchise on the growth of government. Much of that literature has found evidence broadly consistent with the hypothesis that democratic reform leads to larger government spending. Many of these studies study expenditure on either social transfers (e.g., Lott and Kenny, 1999; Aidt et al., 2006; Aidt and Dallal, 2008; Abrams and Settle, 1999; Lindert, 2004) or nationally-funded education services (e.g., Stasavage, 2005; Brown and Hunter, 2004; Baum and Lake, 2003; Harding and Stasavage, 2014), rather than the infrastructure investments that are the focus of this paper. The few studies that have tested the relationship between democratic

reform expenditure on infrastructure spending, however, have not identified such a clear cut effect of franchise extension on the provision of public goods. Husted and Kenny (1997) find no effect of the expansion of the voting franchise on "non-welfare" services. Similarly, female enfranchisement had no effect on investment in sanitation infrastructure between 1905 and 1930 (Miller, 2008).

In the nineteenth-century British context, Aidt et al. (2010) find evidence of a "retrenchment" effect, whereby the middle class opposed expenditure on public goods but the poor support spending. However, using a much larger dataset Chapman (2016b) finds that public goods expenditure was highest at a franchise of around 50% of the adult male population, indicating that the poor opposed greater spending on public goods. By using the 1894 reform as an exogenous change to council governance, this study is able to provide stronger causal inference than these previous papers.

Beyond their significance for the political and economic development of Britain and other wealthy democracies, these findings also have important implications for institutional design in the developing world today. In these countries, the poorest citizens face income constraints similar to the poor in nineteenth-century Britain, and there has been a trend towards the sort of decentralization of spending authority that prevailed in Britain (Bonfiglioli, 2003). Scholarly papers have investigated the role of increasing political participation and avoiding elite capture on improving both the legitimacy and the representativeness of political decisions (Chattopadhyay and Duflo, 2004; Beath and Enikolopov, 2012; Olken, 2010). The findings here suggest that widening participation to all citizens may lead to reductions in spending on public goods.

2 Theory and historical background

2.1 Theoretical overview and hypotheses

In this section I argue that the demand for government spending on public goods will be highest amongst the middle class, drawing on the formal model presented in Chapman (2016b). As a result democratic reform increasing the power of the poor at the expense of the middle class will lead to lower expenditure on public goods.

Central to this argument is the fact that both the wealthy and the poor face a trade-off between the level of public goods provision and their private consumption on items such as food and shelter. Crucially, this is different from the trade-offs faced under the common Meltzer-Richard framework, where government expenditure is used to implement cash transfers; in that case the poor are always better off under higher levels of government spending.

The relative size of these trade-offs will vary depending on income. Citizens with a low income will benefit significantly from an additional unit of private consumption (that is, they have a high marginal utility). To take an extreme case, an individual facing starvation would prefer to spend additional income on food rather than sanitation. On the other hand, under a proportional (or progressive) tax system, the poor will pay the least in tax (in absolute terms). As a result the cost to them of additional spending on public goods is also lower.

These two competing effects lead to a predicted inverted-U-relationship between the level of income and desired spending on public goods: the wealthy and the poor will desire lower spending on public goods than the middle class. Extending this logic to understand the effects of shifting political power towards the poor through democratic reform leads to the following three hypotheses:

Hypothesis I: Government expenditure on public goods and infrastructure will be highest when government is controlled by the middle class.

Hypothesis IA: Transferring political power from the middle class to the poor will lead to lower government spending on public goods.

Hypothesis IB: Transferring political power from the upper class to the poor will have an ambiguous effect on spending. However, any negative effect on expenditure will be less than that of a comparable transfer of power from the middle class to the poor.

Since this relationship is driven by opposition to taxation, the model also leads to a second testable hypothesis:

Hypothesis II: Transferring political power from the middle class to the poor will lead to lower revenue from taxation but not from revenue sources that do not fall on the poor.

2.2   Theoretical assumptions and historical background

Chapman (2016b) shows that these hypotheses hold if three major assumptions are met. The British setting is valuable because, as I explain below, it closely meets all three criteria: first, that all voters pay tax and that the tax structure cannot be changed following any governance reform; second, that government revenue is spent on the provision of public goods, rather than on redistribution (such as transfers) and, third, that the marginal value of an additional unit of income grows rapidly as voters become very poor—intuitively, an extra unit of food is extremely valuable to those near the starvation line.

Taxation Town councils were responsible for funding their own expenditure, with limited financial support from central government.[3] Consequently towns' ability to invest was "closely circumscribed by local wealth and income" (Millward, 2004, p. 35). Capital investments had to be funded out of debt; making the cost of borrowing a potential disincentive to greater spending.

The primary source of revenue available to towns was local taxation, but councils faced considerable limitations in the tax that could be raised. Taxes could only be raised on "immovable" property, and as such towns were constrained by the "rateable value" of the property in their district, defined according to the rental value of land and buildings in the district.[4] Most importantly however, these taxes fell on all citizens occupying houses—even the poorest. Further, there was a direct connection between voters and payment of taxes since those citizens who were unable to pay were disqualified from voting.

Town council spending on public goods Town councils, rather than the Westminster parliament, were primarily responsible for expenditure on urban infrastructure in the second half of the nineteenth century. After 1875 councils held considerable powers of spending over infrastructure and sanitary expenditure. However, they remained constrained in their ability to undertake other forms of expenditure. Councils controlled spending on infrastructure that included (amongst other items) roads, sewers, water supply, baths, and gas supply (see Appendix A for a more detailed breakdown of council spending).

Importantly, much of the expenditure on public goods was on items that were of clear value to individuals of all income, since they contributed directly to public health improvements— local government infrastructure investment was responsible for a large share of the decline in mortality rates between 1861 and 1900 (Chapman, 2016a; Szreter, 2005). By contributing

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[3]Appendix A contains more detailed discussion of the sources of support that were available from central government.

[4]The details of the rating system are somewhat complex, since discounts could apply depending on both the use of the land, and the way in which rent was paid. For further information see Offer (1981) and the *Final Report of the Royal Commission on Local Taxation*, **1901** [Cd. 638]XXIV.413.

to public health they were non-excludable; health reformers desired improved sanitation because it improved the overall disease environment of a town, rather than merely improving their own health. At this time, it was very difficult for higher social classes to escape the potential for disease created by poor sanitation since "many elements of sanitary condition—water supply, drains, muck in the streets, odors, facilities for relieving oneself, complexion and stature of the people—were truly public" (Hamlin, 1998, p.281). As a result health investments benefited all social classes within a town, as evidenced by the fact that the life expectancy of different social classes moved closely together after 1870 (Lizzeri and Persico, 2004).

Equally important to the theoretical argument are the types of expenditure councils could not control. They did not hold responsibility for welfare expenditure (that is poor relief) (Lizzeri and Persico, 2004) or expenditure on education.[5]

Value of additional consumption The final assumption relates to the relative importance of an additional unit of private consumption to the very poorest. Given the benefits of infrastructure such as sewers and water supply, it is important to understand the trade-offs that the poor would have faced if they voted for higher taxes.[6] At this point in history, Britons were unlikely to face a choice between having enough food to survive and paying higher taxes (particularly if they were able to actually pay taxes). However, they would have faced trade-offs between the quality of food (such as the ability to consume meat and vegetables) and the quality of housing they were able to purchase. Since both of these items would contribute to health and life expectancy, it is plausible that the poor would place a very high value on them.

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[5]Welfare expenditure was controlled by Boards of Poor Law Guardians, who were elected separately on a graduated franchise, with district boundaries which often differed substantially from those of the town councils. Education spending was also determined separately by local School Boards.

[6]This discussion is derived from the analysis in Chapman (2016b).

2.3 Democratic reforms to town councils

Each town council across England and Wales was elected by voters within each district, under an electoral system determined at national level. However, the regulations under which councils were elected varied across the country and over time. The key distinction in our case is between the councils of incorporated towns—the so-called "municipal boroughs"— and unincorporated towns. Incorporated towns were, throughout our period, governed by a standardized system of locally elected councils.[7] Councils were elected annually (with one-third of councilors replaced each year) on the basis of one-household-one-vote under a secret ballot, by an electorate consisting of all male heads of household subject to residence and tax-paying requirements.

Unincorporated towns, on the other hand, were elected under a graduated franchise with no secret ballot. Under this system voters could receive up to twelve votes depending on the amount of property occupied and owned. Specifically, voters received 1 vote if the property they occupied was rated for tax purposes at under £50 per annum, 2 votes if it was rated between £50 and £100, continuing up to a maximum of six votes if the property exceeded £250 per annum in rateable value. Similarly property owners would also have the right to vote on the same basis and so those owning *and* occupying property could receive up to twelve votes.

This distinction in electoral practice was maintained until the 1894 Local Government Act, which standardized a system of one-household-one-vote, with the secret ballot, across all towns. This Act is used as the treatment event in the Difference-in-Difference analysis below.

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[7]Specifically, they were governed under the basic framework established by the 1835 Municipal Corporations Act. It is these councils that are the focus of the discussion in Chapman (2016b), Aidt et al. (2010) and Lizzeri and Persico (2004).

2.4 Incorporated versus unincorporated towns

Before embarking on the difference-in-difference analysis it is crucial to understand the reasons underlying the difference between incorporated and unincorporated towns. A town was "incorporated" if it held a royal charter. Historically, these charters were granted to market towns by monarchs dating back to the medieval ages. These charters provided a mark of status to a town and granted additional rights that varied across towns (for instance, the right to hold a court). The result was a set of incorporated towns at the turn of the nineteenth century that were extremely varied both in their activities and their scope.

However, this situation was changed by the 1835 Municipal Corporations Act. This Act standardized both the set of powers and the system of governance present in incorporated towns. Furthermore, it created a procedure under which towns could apply for incorporated status allowing newer industrial towns a path to incorporation. The result of these changes was that the set of incorporated towns was extremely varied, with most having gained incorporation status for reasons orthogonal to the concerns of citizens in nineteenth-century England. I analyze this variation and compare the characteristics of incorporated and unincorporated towns in section 4.3.

The set of unincorporated towns includes all other towns defined as "urban sanitary districts" under Public Health Acts. Crucially, these towns held the same powers and responsibilities for infrastructure expenditure as the incorporated towns.[8] However, incorporated towns did have some additional responsibilities (particularly in terms of local policing and justice), and consequently *total* expenditure per capita by incorporated town councils was consistently higher.

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[8]The powers attributed to the largest incorporated towns did change after 1890 and so these towns are excluded from the empirical analysis as discussed in 4.3.

3 Data

The data consists of two major parts: the financial data relating to annual town revenue and expenditure; and demographic information drawn from decennial censuses. I discuss each in turn below, and define some key variables used in the empirical analysis.

3.1 Financial data

3.1.1 Data sources and sample

The main part of the dataset is drawn from the annual accounts of all the town councils ("urban sanitary districts") responsible for sanitary expenditure between 1884 and 1903. These accounts were reported by parliament in the *Local Taxation Returns* throughout this period, and provide a detailed disaggregation of the sources of revenue and types of expenditure in each town.[9] A panel dataset was constructed by hand-matching towns between years to account for variations in place names over time.

For the purposes of this paper I include only towns that were reported in the accounts between 1875 and 1911, in order to avoid any concerns regarding either changes in the composition of the sample during the period, or complications associated with towns that were beginning to spend for the first time and hence involved in a period of "catch up". This decision excludes two major groups of towns: newer industrial towns that became sanitary authorities after 1875, and smaller towns that merged with expanding larger towns (and hence stopped being independent sanitary authorities). Together, the excluded towns reflect a relatively small part of the urban population of England and Wales.[10]

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[9]The *Local Taxation Returns* form part of the Parliamentary Papers collection; a full list of the papers used is available from the author upon request.

[10]The included towns represent 79% of the population of urban areas reported in the 1881 census, and 73% of the urban population reported in the 1891 census.

3.1.2 Financial variables

Council expenditure

The main dependent variable is the annual total *current* expenditure per capita by town councils. Current expenditure is identified as expenditure by councils "not out of loans" in each year. I use current expenditure to avoid issues associated with volatile infrastructure investment, which creates "spikes" in the expenditure data series. Current and investment expenditure are separated in the annual accounts from 1884 onward, and hence this period is used in the analysis.[11]

The current expenditure measure consists predominantly of expenditure on public goods and services including streets, sewer systems, water supply, refuse collection and gas supply. It also includes spending on servicing loans (interest and principal repayment), meaning that the measure captures the ongoing cost of infrastructure expenditure even though the one-off expenditures are not included.

Council revenue

I use four measures of revenue. Tax receipts are measured as the total revenue from property taxes (the "rates") for each town. Second, I include the revenue from property, including both rents and property sales. The third revenue measure includes grants from both the central government and county councils. Finally, I measure revenue from "Tolls" which includes revenue from various fees (e.g. from markets), fines, and penalties.

Rateable value per capita

The dataset includes the rateable value—that is the value of the property tax base—for the majority of years in the dataset. I linearly interpolate missing years.[12]

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[11]Since we are interested in the amount of public goods and services provided, ideally we would adjust for changes in the input prices local governments faced. However, existing price indices during the 1890s are very volatile and hence add extreme fluctuations to the data (for instance, the Rousseaux price index shows a 10% fall in prices between 1894 and 1895). Further, it not obvious which is the most appropriate price series to use in this instance. More detailed discussion of this issue is contained in Appendix B.

[12]This information is missing for the year 1883 for incorporated towns; and for isolated years for other towns. Incorporated towns sometimes reported a separate rateable value as municipal borough authorities

3.2 Demographic data

Information regarding town population and the number of houses in each town is drawn from the reports of the decennial census between 1851 and 1911. Information for the years 1851–1901 was collected directly for the purposes of this project. For the 1911 census I use the parish-level data coded previously by Southall et al. (2004) and stored at the UK data archive.

In addition to these demographic variables, I use information from the 1881 census to identify the occupational structure of each town. A 100% sample of the 1881 census is available from the North Atlantic Population Project (Minnesota Population Center, 2008; Schürer and Woollard, 2003). This dataset identifies the occupation, age, labor force status and place of birth for each resident. I use this dataset to identify the proportion of the work force in various occupations, including agriculture, textiles, domestic service, and mining.

Unfortunately, the census does not identify the current town of residence; rather it identifies the parish and registration sub-district in which each individual lives. I therefore match each town to registration sub-districts in the 1881 census. In some cases, the town falls entirely within a single sub-district, in which case I assign the value in that sub-district to that town. In others, towns were split across registration sub-district boundaries. In those cases I estimate town characteristics by weighting according to the proportion of the town in each of the registration sub-districts.

3.3 Measuring middle-class control

A key part of the paper is to distinguish between the effect of democratic reform in removing control from the rich versus removing control from the middle class. Ideally I would identify the proportion of voters receiving each weighting of votes in each town (from one to twelve),

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and as sanitary authorities: I use the maximum of the two.

but unfortunately this information is unavailable with few, if any, poll books from elections of town councils available (Gibson and Rogers, 1994). Instead, I approximate the relative power of the middle class using data from the 100% 1881 census discussed previously.

In particular, I identify the "elite" in each town as represented by the households with one or more servants living in the household. I then distinguish the "middle-class elite" as households with only one servant, and the "upper-class elite" as those with more than one servant. The number of servants employed by a household was used as a contemporary measure of class status: Charles Booth, for instance, defined the "Upper Middle Class" as the "servant-keeping" class in his classic work on London poverty (Booth, 1903).

My measure of the relative power of the middle class is then given by:

$$
\begin{aligned}
\textit{Middle-class power} &= \frac{\#\text{Middle-class households} - \#\text{Upper-class households}}{\#\text{Elite households}} \\
&= \frac{\#\text{Households with 1 servant} - \#\text{Households with} > 1 \text{ servant}}{\#\text{Households with} > 0 \text{ servants}}
\end{aligned}
$$

This measure provides an indicator of the relative presence of the middle class within the elite.[13]

Figure I displays the occupational breakdown of the households in each of these two groups (where occupation is defined according to the occupation of the head of household). We can see that, as expected, houses with servants were focused predominantly in agricultural areas, fitting the classic image of a "manor house". This is particularly true of households with multiple servants, as we would expect if the measure is capturing these very wealthy households. It is also notable that a large proportion of households in both groups fall into the category of "no occupation", which captures individuals receiving non-wage income,

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[13]Since the number of votes held was graduated at several levels, I could alternatively measure the power of the middle class as the proportion of servants (as a proxy for wealth) in households with one servant. Similar results are obtained using this alternative indicator, as shown in Appendix B.

such as from rent or dividends. We can also see that the group of households with more than one servant is very concentrated within these five occupational categories—around 80% of households are covered, compared to under 65% of the one servant households. This is likely to reflect the fact that a few successful households in other occupations were sufficiently wealthy to pay for a single servant, but once we reach the higher echelons of society occupations such as the professions represent a much higher proportion.

Figure I: Households with more than one servant comprised of more farming and professional households.
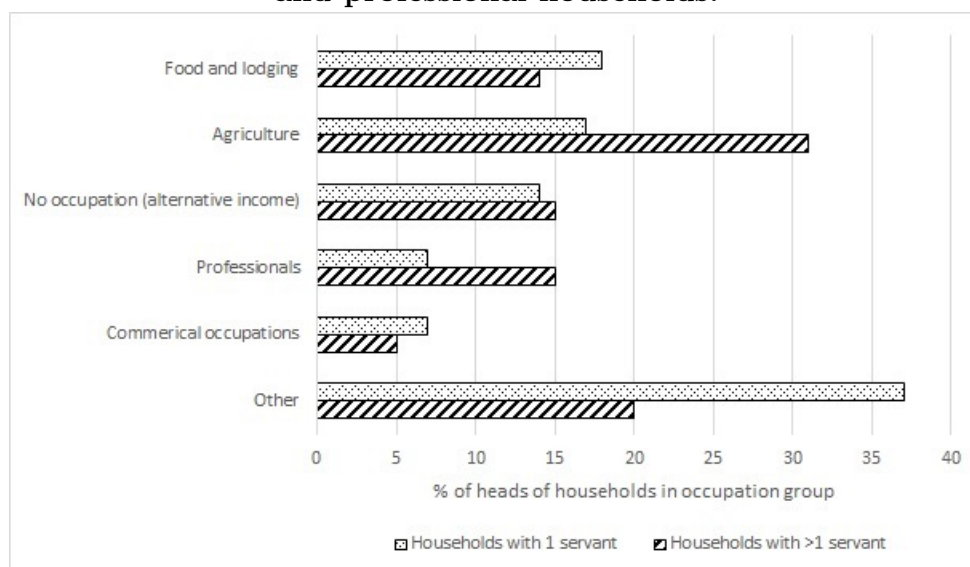
Occupational categories are based on occupational order of head of household in the 1881 census for all households outside of London, using codings reported in Schürer and Woollard (2003). The category "no occupation (alternative income)" refers to the category entitled "Persons without specified occupations" which was predominately comprised of those with other sources of income (such as from rent or dividends).

As a further check that the measure is capturing the anticipated differences between households I examine the occupations where having a servant is particularly common. Table II presents the occupations with the highest proportion of households with 1 servant (top panel) or more than 1 servant (bottom panel). Those with multiple servants are those associated with either the gentry (Peers, MPs, local officials) or the professions (barristers

and solicitors) whereas those with only one servant are related to the middle class (such as bank service or brokers).

Table II: The majority of heads of household in the aristocracy and professional occupations had multiple servants.

Occupation of household head	% households with	
	1 servant	>1 servant
Bank Service	46	33
Minister, Priest (not established or catholic)	45	11
Roman Catholic Priest	43	45
Chemist, Druggist	40	15
Bill Discounter, Finance Agent, Broker	38	20
Architect	38	25
Banker	10	84
Peer, MP etc	5	82
Clergymen (Established church)	21	72
Army Officer	18	67
Local/county Official	10	67
Barrister, Solicitor	21	66
Physician, Surgeon etc	27	64

Table indicates the proportion of heads of households in each occupational category that had 1 or more than one servant. The top panel reports the occupations with the highest share of households with one servant. The bottom panel reports the occupations with the highest share of households with more than one servant. Occupational categories are based on occupation of head of household in the 1881 census for all households outside of London, using occupational codings reported in Schürer and Woollard (2003).

4 Empirical approach

4.1 Overview

I use the changes to the electoral system in unincorporated towns implemented by the 1894 Local Government Act to identify the causal effect of the shift of political power to the poor, using a difference-in-difference approach. As national legislation this Act can be thought of as exogenous to any individual town, particularly since it was motivated predominantly by the effect on Poor Law Unions rather than sanitary authorities. The treatment group in this

case is the non-incorporated towns while the control group is the incorporated towns that already had a democratic system in place prior to the reforms.

The first stage of the analysis is to understand the effect of the reforms on spending and taxation per capita in all towns. I then test whether democratization had different effects in towns controlled by the upper class and those controlled by the middle class using the measure defined in the previous section.

4.2   Specification

In contrast to a standard difference-in-difference approach, I analyze whether the reforms led to a change in the trend growth between the treatment and control group. That is, rather than making the usual "parallel trends" assumption, I assume "parallel growth" between the two groups: in the absence of treatment, the difference in trend between the two groups would have remained the same.[14]

This approach allows us to account for the fact that both the size and type of expenditure that local governments were engaged in during this period were expanding rapidly over time, meaning that part of the effect of democratic reform would be to change towns' willingness to take up new public goods. This would be reflected in a change in the growth rate of expenditure, rather than a level shift as in a classic difference-in-difference approach. This is especially true since many of the activities undertaken by these governments were governed by previous commitments—for instance having built a water system, it would be hard to "turn it off".[15]

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[14]See Mora and Reggio (2012) for a detailed discussion of the parallel growths assumption.

[15]Analysis in Appendix B, however, shows that the results hold if I instead estimate based on a change in the level of expenditure.

The main specifications are then of the form:

$$y_{i,t} = \alpha + \beta_1 Unincorporated + \beta_2 time + \beta_2 time * Unincorporated$$

$$+ \beta_3 time * post1894 + \beta_4 time * Unincorporated * post1894 + \beta_5 X_{i,t}$$

where i indexes towns and t indexes years. The dependent variables (denoted $y_{i,t}$) in the main specifications are either annual current expenditure per capita or annual tax receipts per capita. $Unincorporated$ is a dummy variable equaling 1 if the town was not incorporated at the beginning of the period (i.e. 1884)—and hence was affected by the 1894 reforms. $time$ is a linear time trend. This specification allows for differences in the rate of growth between incorporated and unincorporated towns both before and after the 1894 reforms.

The key variable of interest is then β_4 which identifies whether the trend change in expenditure in unincorporated (and hence undemocratic) towns changed relative to that in incorporated (democratic) towns after the reforms. If, as predicted by classic median-voter models, the shift in power to the middle class led to greater expenditure, we would expect $\beta_4 > 0$. If, on the other hand, the poor opposed expenditure because of their desire for greater consumption, then $\beta_4 < 0$.

As discussed below (and displayed in Table III) there are large observable differences in the characteristics of the treatment and control group—particularly in terms of town size and tax base. This is a potential concern since these characteristics may be associated with differences in both the cost of provision and level of demand for public goods, and so may affect the rate of uptake of new public goods. Large, densely populated cities are more likely to suffer from disease since cramped living conditions lend themselves to easy spread of disease. Further, the demand for sanitary infrastructure is driven, partly, by the understanding of their importance to public health, which may be dependent on the size of sanitary movement within a city. Aside from sanitary concerns, there may be other sources of

demand for some of the public goods examined here that are also correlated with these town characteristics. Water supply, for instance, was in demand for industrial as well as consumer needs (Hassan, 1985). We might also think that sewer systems (particularly drainage) might be in greater demand in more agricultural areas. On the cost side of the analysis, we must consider the fact that there may be important economies of scale in the provision of many of these sanitary investments. Larger cities may have had lower costs of provision per capita; since the fixed costs of (for instance) a water plant would be spread over a wider area. Similarly, there may be cost savings associated with densely populated towns, since pipes and streets need to be laid over a smaller area. Higher numbers of people per house mean that several people can be reached for the cost of a single connection to a water main.

To address these issues I include as control variables measures of population, population growth, urban crowding, and population density. I also include measures of occupational structure of the town, by measuring the percentage of the workforce in the service, agricultural, white collar (professional/commercial occupations), textiles and minerals sectors. In addition, I include a measure of the proportion of the population foreign born, to account for any effect of ethnic heterogeneity on the demand for public goods (Alesina et al., 1999). To allow for a non-linear relationship, each variable is split into "bins" which are entered as a series of dummy variables. In some specifications I also include town fixed effects to capture other time invariant, but unobserved, features that may affect spending (for instance distance to a river may affect spending on water supply). Finally, I include variables that may affect town councils' spending capacity, including the town tax base ("rateable value"), receipts from property, and receipts from government grants. Descriptive statistics of the main variables used in the regressions are presented in Appendix Table IX.

4.3 Identifying assumptions and sample balance in observable characteristics

The identifying assumption underlying this approach is that the difference in the growth of spending between the two groups of towns would have been constant in the absence of the treatment (i.e. the 1894 reform). Unfortunately, we do not have a clean natural experiment where towns were allocated into different groups at random: towns did not select into incorporation status arbitrarily. However, this does not invalidate the identifying assumption as long as the factors affecting selection are unrelated to the spending decisions in the 1880s and 1890s.

As explained in Section 2, most incorporated towns became incorporated as a result of royal decisions that, in some cases, stretched back to the medieval ages. These towns were extremely heterogeneous and, I argue, had become incorporated for a set of reasons that had nothing to do with their situation in 1884 (when our analysis starts). Evidence for this claim is provided by the how varied these towns were—ranging from very large industrial towns (such as Liverpool) to extremely small rural towns.

Figure II illustrates the heterogeneity of town characteristics. Each panel in the figure displays the distribution of a different town characteristic for incorporated and unincorporated towns separately. The top two panels indicate that although the incorporated group (the solid blue line) included a higher proportion of both large and very dense towns, there is also a set of incorporated towns that were similar in both size and density to unincorporated towns (note that the population figure excludes 31 incorporated towns that were larger than 80,000 in population).

Importantly, the bottom left panel shows that there is very little difference between incorporated and unincorporated towns in terms of the percentage of workforce employed in agriculture. This supports the claim that incorporation status was not a reflection of the

industrial status of the town. Finally, the last panel indicates that there was also extensive overlap in the size of the tax base across the two groups.

Figure II: Extensive overlap in the characteristics of incorporated and unincorporated towns.
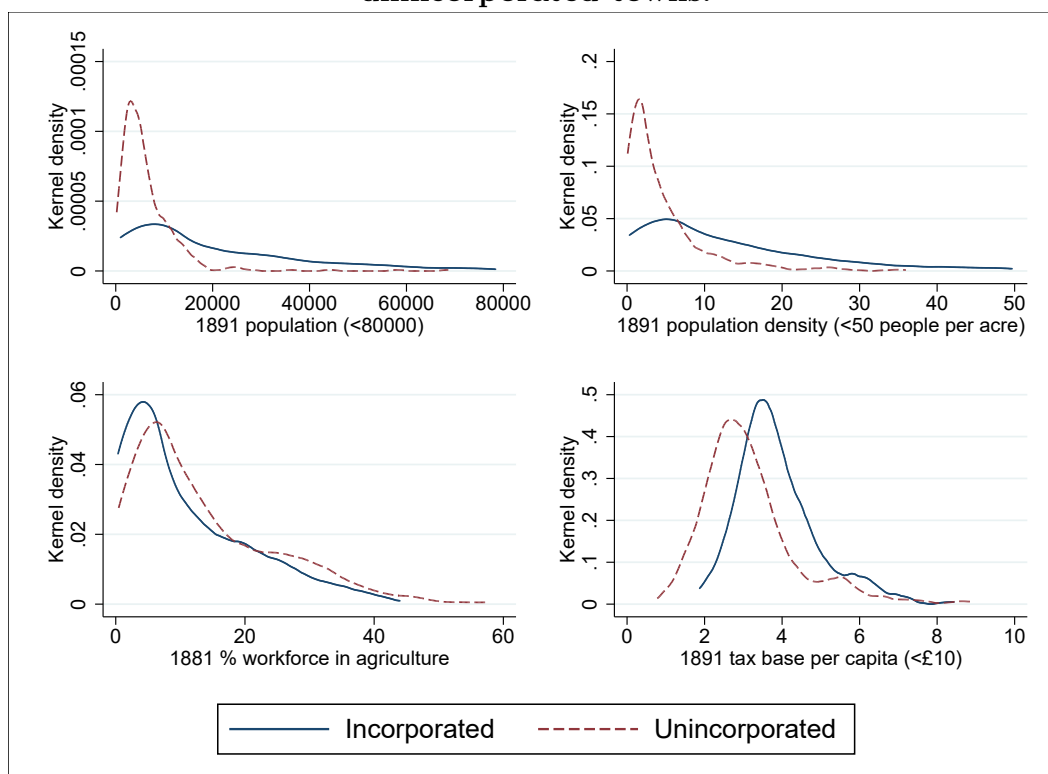
Note: Including 258 incorporated towns and 433 unincorporated towns. For display purposes the density distributions are truncated, with the number of towns excluded as follows. Population >80,000: 31 incorporated, 0 incorporated. Population density >50 per acre: 3 incorporated, 2 unincorporated. Rateable value per capita >10: 0 incorporated, 5 unincorporated.

However, there is a concern that some towns became incorporated during the period of our analysis, leading to an expansion of their spending powers and responsibilities—clearly affecting the trend in spending. Further, the powers of the largest towns were expanded in 1890.[16] Since this change occurred during the period of our analysis and applied only to previously incorporated towns, it directly violates the assumption of parallel growths. As

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[16]Specifically, the largest towns became County Boroughs in 1890, which involved gaining control of different items of spending (notably education and funding of roads elsewhere).

such I exclude these towns from the sample.

Another potential issue is that even though selection into incorporation status was not directly driven by a desire for greater town spending, it may be correlated with other factors that affect spending decisions. As demonstrated by the top panel of Table III, there are large differences in the observable characteristics of the incorporated and the unincorporated towns. Incorporated towns tended to be larger on average, and included all the very large towns. They also tended to be wealthier and denser. Although these differences are mitigated by removing those towns that changed governance structure after 1883, there remain clear disparities between the two groups (second panel).

The differences between the two groups are of concern only if they violate the parallel growths assumption. Even if wealthier and larger towns tend to grow faster, this is not an issue as long as the difference in growth rates remains constant over time. Although this assumption is plausible, there are some conceptual reasons that could lead to differences in growth rates between different types of towns. For example, it could be violated if there are types of towns in the incorporated group that are not represented at all in the unincorporated group, since these towns may implement new technologies at a very different rate.

To address these concerns, I improve the sample balance of town characteristics further by constructing a matched sample using "Coarsened Exact Matching" (CEM) (Iacus et al., 2012). Specifically, towns are only included in the analysis if there is a match on four characteristics: population (in three categories "<1000", "1000-20000" or ">20000"), per capita rateable value and the 1891 population density (each in 4 quantiles) and the estimated proportion of the workforce engaged in service in 1881 (in two quantiles).[17]

This procedure reduced the sample significantly; removing 40 incorporated towns, and 98 other towns as shown in the bottom panel of Table III. The differences between the groups of towns in terms of both population and population density were significantly re-

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[17]The exact characteristics or strata included in the match are not critical to the results.

Table III: Sub-samples are more similar after matching exercise, but still significant differences in average population and agriculture.

	Unincorporated		Incorporated		Diff.
	N	Mean	N	Mean	
Whole sample					
1891 population	433	6358	258	39204	-32846
Urban crowding	433	4.92	258	5.02	-0.10
Population growth	433	1.0	258	0.9	0.1
Population density	433	4.89	258	13.41	-8.53
Occupation Service (%)	433	16	258	18	-2
Occupation Agriculture (%)	433	14	258	11	3
Occupation Textile (%)	433	13	258	9	4
Occupation Minerals (%)	433	16	258	9	7
Occupation White Collar (%))	433	5	258	6	-1
Rateable Value p.c.	433	4.08	258	4.77	-0.68
Excluding towns changing governance					
1891 population	418	5651	160	13238	-7587
Urban crowding	418	4.91	160	4.85	0.07
Population growth	418	0.9	160	0.6	0.4
Population density	418	4.54	160	10.21	-5.68
Occupation Service (%)	418	16	160	19	-3
Occupation Agriculture (%)	418	14	160	13	1
Occupation Textile (%)	418	13	160	8	6
Occupation Minerals (%)	418	16	160	8	8
Occupation White Collar (%))	418	5	160	6	-1
Rateable Value p.c.	418	4.02	160	4.60	-0.58
After matching					
1891 population	321	6198	120	7963	-1765
Urban crowding	321	4.97	120	4.78	0.20
Population growth	321	1.1	120	0.5	0.6
Population density	321	5.47	120	8.69	-3.22
Occupation Service (%)	321	16	120	20	-4
Occupation Agriculture (%)	321	12	120	16	-4
Occupation Textile (%)	321	13	120	4	9
Occupation Minerals (%)	321	17	120	7	10
Occupation White Collar (%))	321	5	120	6	-1
Rateable Value p.c.	321	4.06	120	4.56	-0.50

"Excluding towns changing governance" is the sample excluding towns incorporated that incorporated after 1883, or that became County Boroughs. "After matching" refers to the sample created based on coarsened exact matching on 1891 population, population density, rateable value per capita and 1881 estimated percentage of servants in the workforce.

duced, as a result of excluding several densely populated large (a population of above 20,000) incorporated towns.

While the improvement in observable balance is reassuring, the key issue is whether the matching process improves the validity of the "parallel growths" assumption. Figure III plots the average level of current expenditure per capita before and after the match (excluding towns that changed governance after 1883 in both cases). The top panel displays only years before the reform—to aid visibility—while the bottom panel plots the data for the entire

period (with the red vertical line representing the date of the 1894 Local Government Act). We can see that incorporated towns spent consistently more than unincorporated towns across the period—as expected, given both the additional responsibilities they held and the differences in observable characteristics. The difference is lower after the matching exercise as a consequence of the largest towns being excluded.

The figure also shows some evidence of divergence in the growth trend of the different groups when considering the whole sample. After 1889, in particular, there is some indication that spending in incorporated towns began to grow at a faster rate than in unincorporated towns. In the matched sample, on the other hand, there is no evidence of this effect. Apart from a small dip in 1890, the gap between the two groups remains constant across this period. In this group, then, the parallel trends (and hence parallel growths) assumption is satisfied. This finding is supported further in the regression results.

5   Results

The first set of results is presented in Table IV. The variable of interest is *Time *Unincorporated* Post1894*, which identifies the relative change in the trend growth of spending in those towns with councils reformed in 1894. All dependent variables are standardized and so the size of this coefficient represents the effect in terms of a one standard deviation in per capita current expenditure. Specification (1) includes only the time trends and a dummy variable identifying unincorporated status as independent variables. In specifications (2)-(4) I include the control variables for time-varying demographic characteristics, 1881 occupational structure, and town revenue sources respectively. In specification (5) I add town fixed effects.[18]   Finally, in specification (6) I restrict the sample to the years after 1889—as a further check that the result is not driven by changes in the trend growth between 1883 and

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[18]Specifications including fixed effects do not include occupational characteristics since our measure of these variables is fixed at a single point in time.

Figure III: Similar pre-trends between incorporated and non-incorporated towns in matched sample.
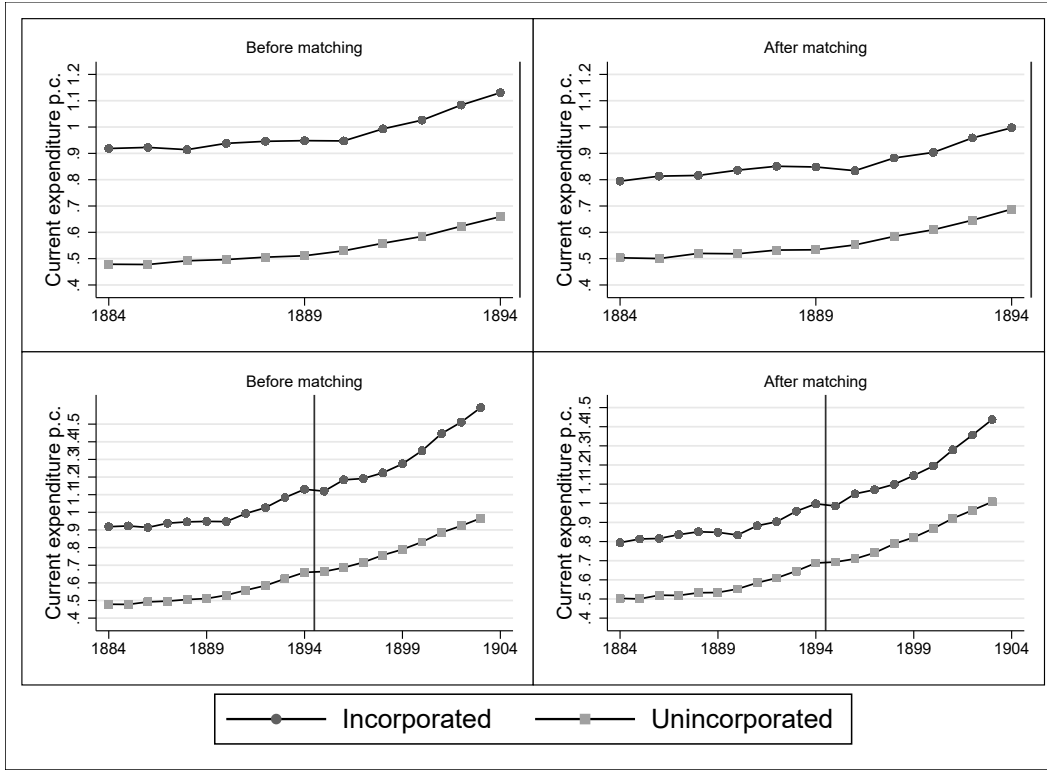
Note: Estimates represent sample mean for each group. Upper panel is identical to the lower panel, but focused on the years pre-reform to assist with inspection of the trends.

1890.

All specifications show consistent evidence that the 1894 reforms led to a reduction in the growth rate of government expenditure per capita. The coefficient on *Time* Unincorporated* Post1894* is negative and statistically significant in all specifications. As expected from Figure III, non-incorporated towns had lower levels of spending (the coefficient on *Unincorporated* town dummy is significant). Also as expected, other sources of town revenue are positively correlated with spending.

The table also provides reassurance that our results are not a spurious result of pre-existing divergences in trend growth between the two groups. In four of the six specifications the coefficient on *Time*Unincorporated* is statistically indistinguishable from zero, including

when the sample is restricted to the period after 1889. Further, in the other two cases the coefficient is positive, indicating that before 1894 spending in unincorporated towns was, if anything, growing at a faster rate than in the democratically governed incorporated towns.

Table IV: Democratic reform led to a reduction in the trend growth in town council expenditure.

	DV = Current expenditure p.c. (standardized)					
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.576***	-0.613***	-0.297***	-0.218***		
	(0.079)	(0.080)	(0.079)	(0.079)		
Time	0.029***	0.029***	0.000	0.002	0.014***	0.025***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.009)
Time*Unincorporated	0.003	0.003	0.016***	0.014***	0.007	0.006
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.010)
Time*Post1894	0.068***	0.071***	0.087***	0.085***	0.077***	0.064***
	(0.008)	(0.009)	(0.008)	(0.008)	(0.008)	(0.011)
Time*Unincorporated*Post1894	-0.024**	-0.025**	-0.053***	-0.048***	-0.034***	-0.032**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.014)
Tax base p.c.			0.372***	0.311***	0.155**	0.139*
			(0.047)	(0.052)	(0.066)	(0.084)
Property receipts p.c.			0.051	0.048	0.009	0.004
			(0.043)	(0.041)	(0.010)	(0.006)
Grants p.c.			0.255***	0.246***	0.186***	0.161***
			(0.026)	(0.025)	(0.017)	(0.022)
Pop controls	N	Y	Y	Y	Y	Y
Occ controls	N	N	N	Y	N	N
Town FE	N	N	N	N	Y	Y
Obs.	8794	8794	8794	8794	8794	6158
Rsq	0.22	0.27	0.48	0.49	0.51	0.46
Years	All	All	All	All	All	> 1889

The effect of democratic reform is identified by the interaction between unincorporated, time and the post 1894 dummy variable. Population controls variables include (in 4 quantile bins) population, urban crowding, population growth, and population density. Occupation controls includes estimates of the percentage of the 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. All financial variables are standardized in terms of their standard deviation. "All years" includes 1884–1903. Standard errors are clustered by town and displayed in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix B includes tests of the robustness of these results to different specifications. In particular, I re-estimate these six specifications by testing for a level change in the expenditure per capita (rather than a change in the time trend). I find that the results are

consistently negative, and statistically significant when the lagged level of expenditure per capita is included. Further, I include specifications with the change (rather than the level) of expenditure per capita as the dependent variable and find similar results. As such, there is clear evidence that the growth of expenditure in unincorporated towns was lower after the 1894 reforms.

Effects of democratic reform on revenue

These results show a clear effect of democratic reform on town expenditure. Was this driven by concerns over taxation? To test whether this was the case, I estimate whether the reduction in town expenditure was associated with lower tax revenue. If lower town spending was driven by the poor's desire for greater personal consumption then tax revenue would also be reduced by the reforms. However, we would not expect as strong an effect on other sources of revenue, which are are more likely to fall on wealthier citizens.

To test this hypothesis, in Table V I assess whether the reforms led to a reduction in trend growth in receipts from taxes and receipts from tolls. This latter category, which included in particular receipts from markets and other tolls, would have been less targeted at the very poorest households. I also include a measure of property receipts—which should also be largely unaffected by the reforms since they were largely dependent on pre-existing holdings of land.[19] The results show that the growth in tax revenue slowed after the reforms, but there is no evidence of any effect on the other revenue categories.

Democratization in rich versus middle-class controlled towns

These findings suggest that overall the democratic reforms of 1894 slowed the growth of town spending. This is consistent with the hypothesis that the poor opposed spending relative to wealthier individuals. However, it does not distinguish between shifts from control by the upper class to the poor as opposed to shifting control from the middle class to the poor. To

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[19]It is for this reason that receipts from property is also included as a control variable in the regressions above.

Table V: Democratic reform led to reduction in tax receipts but not other forms of revenue

	DV=Tax receipts p.c.		DV=Tolls receipts p.c.		DV=Property receipts p.c.	
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.068		-0.791***		-0.462***	
	(0.075)		(0.130)		(0.064)	
Time	-0.006	0.009*	0.023**	0.012	-0.014*	-0.005
	(0.006)	(0.005)	(0.010)	(0.010)	(0.007)	(0.005)
Time*Unincorporated	0.023***	0.010*	-0.001	0.009	0.012*	0.010**
	(0.006)	(0.006)	(0.011)	(0.011)	(0.006)	(0.005)
Time*Post1894	0.100***	0.087***	-0.061***	-0.050***	0.045	0.039
	(0.010)	(0.009)	(0.019)	(0.018)	(0.031)	(0.027)
Time*Unincorporated*Post1894	-0.052***	-0.028**	0.016	0.003	-0.042	-0.039
	(0.012)	(0.012)	(0.020)	(0.020)	(0.030)	(0.026)
Population controls	Y	Y	Y	Y	Y	Y
Occupation controls	Y	N	Y	N	Y	N
Wealth controls	Y	Y	Y	Y	Y	Y
Town FE	N	Y	N	Y	N	Y
Obs.	8794	8794	8794	8794	8794	8794
Rsq	0.55	0.41	0.25	0.03	0.08	0.00

Estimated using annual data 1884–1903. "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of the 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

address this issue I split the sample into two groups according to the median level of our *middle-class power* measure defined in Section 3.3, and estimate the same specifications as above.

The results in Table VI show very distinct effects across the two groups of towns. In towns with a relatively weak middle class—specifications (1)-(3)—there is little evidence that the 1894 reforms decreased town expenditure. While the coefficients are negative in specifications (2) and (3) the estimated effect is statistically insignificant once town fixed effects are included. In the towns dominated by the middle class, in contrast, the reforms had large and statistically significant effects. Each year post reform, town spending grew by approximately 0.06 standard deviations less than it would have done in the absence of any reform, a cumulative reduction in spending of more than half a standard deviation over the

period. Note also that, as before, there is no evidence that these towns were growing at a slower rate before the 1894 reforms.

Table VI: Strong evidence for reduction in expenditure in middle-class dominated towns, but not in those dominated by the upper class.

	Upper-class dominated			Middle-class dominated		
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.440***	-0.236**		-0.626***	-0.157	
	(0.112)	(0.094)		(0.112)	(0.127)	
Time	0.032***	0.001	0.014***	0.024***	0.001	0.013*
	(0.005)	(0.005)	(0.005)	(0.008)	(0.009)	(0.007)
Time*Unincorporated	0.005	0.018***	0.010*	0.004	0.014	0.005
	(0.007)	(0.006)	(0.006)	(0.008)	(0.008)	(0.007)
Time*Post1894	0.051***	0.075***	0.064***	0.097***	0.110***	0.103***
	(0.009)	(0.009)	(0.009)	(0.016)	(0.016)	(0.014)
Time*Unincorporated*Post1894	0.004	-0.034**	-0.016	-0.063***	-0.076***	-0.063***
	(0.013)	(0.013)	(0.013)	(0.016)	(0.017)	(0.014)
Population controls	N	Y	Y	N	Y	Y
Occupation controls	N	Y	N	N	Y	N
Wealth controls	N	Y	Y	N	Y	Y
Town FE	N	N	Y	N	N	Y
Obs.	4392	4392	4392	4402	4402	4402
Rsq	0.18	0.49	0.52	0.29	0.51	0.55

Estimated using annual data 1884–1903. Middle-class dominated and upper-class dominated towns are defined by splitting the towns according to the median of the *middle-class power* measure defined in Section 3.3. "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of the 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Items of spending affected

Which items of expenditure were affected by these democratic reforms? I have focused on a slowing of growth in expenditure on the basis that town councils would be less willing to invest in new infrastructure after democratic reform. To analyze this argument further, I re-estimate specification (6) from Table VI, using individual items of expenditure as dependent variables.[20] The estimated changes in trend (and associated 95% confidence intervals) are displayed in Figure IV.

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[20]Only the middle-class controlled towns are included in these specifications in order to highlight the effects clearly. However, the results are qualitatively the same when using the whole sample.

Figure IV: Estimated effects of democratic reform varied across different types of expenditure, with the strongest effects on hospitals and newer forms of infrastructure.
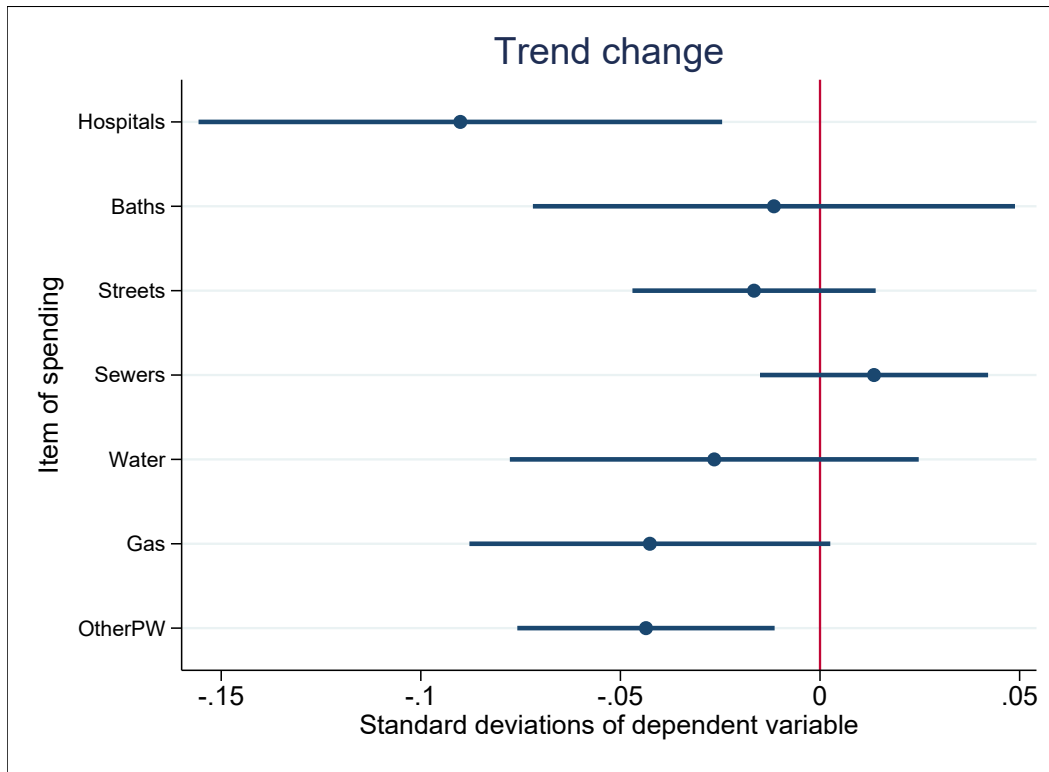
Note: Estimated coefficients and 95% confidence intervals from re-estimating specification (6) of Table VI with dependent variable equal to expenditure on each item.

With the exception of sewer systems, all the point estimates are negative, but most are not statistically distinguishable from zero. The main exceptions are hospitals (a rare type of expenditure that would include little infrastructure investment and that comprised only a small part of the municipal budget), gas supply and other public works (which included newer items such as tramways and electric lighting).

Why might the evidence be weak for many of these individual items? One possibility is simply that the data is too noisy to isolate effects on individual spending items; for instance, towns may not have properly distinguished between spending on water supply as opposed to sewer systems. A deeper explanation, however, could be that infrastructure items such

as water supply and sewers were already in place in many towns, and thus that there was less possibility to observe growth in these items. To assess this hypothesis, I first compare whether towns were more likely to have invested in either water supply or sewer systems in 1884. To identify whether towns had invested I identify whether towns had loans outstanding in the relevant category in 1884 (the first year for which data was available). Table VII then presents logit regressions of this binary variable against town characteristics.

The results show that unincorporated towns were significantly more likely than incorporated towns to have invested in both sewer systems and in water supply in 1884. In the case of water supply this effect was limited to towns where the middle class was more dominant, whereas in the case of sewer systems there is no evidence of any difference between towns dominated by the upper class as opposed to the middle class.

One difficulty with this approach is that it does not account for the fact that towns may have differing needs for these investments. In some cases, for instance, towns may have been able to purchase water from other nearby towns. The control variables should account for much of this difference. However, as a further check, in specifications (2) and (4) I limit the analysis to towns that had invested in the relevant infrastructure by 1904, indicating that they did require this infrastructure. The results are similar, indicating that unincorporated towns invested earlier in these infrastructure items.

To further understand how democratic reform affected the pattern of infrastructure development, I examine whether the 1894 reforms had differential effects depending on the level of infrastructure that towns had previously invested in. To do this, I carry out a simple fixed effects regression of the level of loans outstanding per capita in towns ten years before the reforms (1884), one year before the reforms (1894) and the last period of our analysis (1903). I then include two dummy variables identifying towns that were unincorporated in 1894 and in 1903 respectively.

Table VIII presents the results. In specifications (1) and (2) I analyze water supply

Table VII: Unincorporated towns were more likely to have invested in sewer systems and water supply in 1884.

	Average marginal effects from logit regression of investment in:			
	Sewers		Water	
	(1) All towns	(2) Invested by 1904	(3) All towns	(4) Invested by 1904
Unincorporated	0.221***	0.254***	-0.130*	-0.030
	(0.071)	(0.077)	(0.074)	(0.091)
Middle-class dominated	0.023	0.016	-0.204**	-0.225*
	(0.093)	(0.107)	(0.097)	(0.123)
Unincorporated*Middle-class dominated	-0.018	-0.035	0.288***	0.379***
	(0.108)	(0.121)	(0.106)	(0.143)
Population controls	Y	Y	Y	Y
Occupation controls	Y	Y	Y	Y
Wealth controls	Y	Y	Y	Y
Observations	438.00	344.00	438.00	235.00
Pseudo R-sq	0.15	0.13	0.09	0.17

Table VII presents average marginal effects from logit regression with dependent variable identifying whether a town had invested in sewer systems or water supply by 1884. Investments are identified by having outstanding loans relating to the relevant type of infrastructure. Middle-class dominated and upper-class dominated towns are defined by splitting the towns according to the median of the *middle-class power* measure defined in Section 3.3. "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of the 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include per capita rateable value, central government grants, and property revenue as well as the percentage of households with no servants. Standard errors are clustered by town and displayed in parentheses. Robust standard errors are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

spending, separating between towns that had government investment in water supply in 1884 and those that did not. We can see that there is a negative effect of the reforms in towns without investment in supplying water in 1884 but not in those that already had a water supply. A similar pattern is seen in the case of sewers in columns (3) and (4), although the coefficient is no longer statistically significant. This may reflect the fact many towns already had access to this infrastructure or that alternatives not requiring investment in infrastructure were available (refuse collection, for example). Importantly, in all cases, the dummy variable for being unincorporated in 1894 is statistically insignificant, indicating no evidence of a negative effect before the 1894 reforms.

In columns (5)-(8) I analyze "other public works": this latter category captures public goods that tended to be implemented after water supply, including gas supply, tramways

and electric lighting.[21] In specifications (5) and (6) I estimate the same regressions as in previous columns. Reflecting the heterogeneous composition of this category, here we see a negative relationship regardless of whether towns already had loans outstanding in this category.

Table VIII: Democratic reform slowed expansion to new types of infrastructure.

| | DV=Loans outstanding p.c. (standardized) | | | | | | | |
| | Water | | Sewers | | Other PW | | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unincorporated*1894	-0.073	0.036	-0.191	-0.107	-0.285	0.131	-0.095	-0.362
	(0.104)	(0.112)	(0.254)	(0.147)	(0.219)	(0.122)	(0.256)	(0.422)
Unincorporated*1903	-0.358**	-0.228	-0.338	-0.077	-1.976*	-0.842**	0.150	-5.744***
	(0.168)	(0.240)	(0.282)	(0.247)	(1.022)	(0.342)	(0.245)	(0.555)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Town FE	Y	Y	Y	Y	Y	Y	Y	Y
Population controls	Y	Y	Y	Y	Y	Y	Y	Y
Occupation controls	N	N	N	Y	N	N	N	N
Wealth controls	Y	Y	Y	Y	Y	Y	Y	Y
Sample	No water 1884	Had Water 1884	No sewers 1884	Had Sewers 1884	No Other PW 1884	Had Other PW 1884	No Other PW 1884; no water 1894	No Other PW 1884; had water 1894
Obs.	401	259	311	349	302	358	182	120
No towns	134	87	104	117	101	120	61	40

Estimated using data for 1884, 1894 and 1903, using middle-class dominated towns (as in specifications (4)–(6) of Table VI). "Other PW" includes gas supply, trams, electric lighting and "other", which could be thought of "more advanced" than water supply. "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Wealth controls" include per capita rateable value, central government grants and property revenue. Standard errors are clustered at town level and presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Columns (7) and (8) then distinguish between towns that had water supply in 1894 and those that did not. By doing so I am testing whether in fact an "ordering" of investment was at work, whereby towns would first invest in water, and then move onto more advanced public goods. We can see that this was the case: democratization reduced spending on these other public goods only in towns which already had water supply in 1894. This supports the hypothesis that, after democratic reforms, the unincorporated towns became less willing to invest in the next "stage" of their infrastructure development.

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[21]I also include spending identified as "other" in the accounts, since loans from tramways and electric lighting were not distinguished for non-incorporated towns, or for any towns before 1900.

6 Conclusion

This paper has tested the relationship between democratic reform and government expenditure on public goods in the context of nineteenth-century England. The results indicate that extensions of political rights to the poor inhibited the expansion of local governments into new types of expenditure. Rather, the expansion of government was driven by councils where elites consisted predominantly of middle-class households.

These findings support a different explanation for the growth of government into the provision of new services. Rather than a response to the demands for redistribution to the masses, the state instead responded to the demands of a newly industrialized middle class that was sufficiently wealthy to desire public goods that only the government could provide. The poor, on the other hand, did not want the same public goods since they would rather spend the same income on private consumption, such as food. Then government grew when there was "enough" democracy such that those sufficiently wealthy to desire public goods had control of public expenditure.

The crucial component of this argument is that the poor have to pay for their public goods through taxation. In the context of this paper all heads of household were liable for taxation. In the longer run though, perhaps the poor can demand tax systems that could reallocate this cost towards those most willing to pay. In the twentieth century, tax systems did become increasingly progressive (Scheve and Stasavage, 2012). Yet in practice all citizens continue to pay taxes; most countries impose Value Added Tax (VAT) or other consumption taxes at a national level imposing costs on even the poorest citizens (Keen, 2009). In developing economies that require the types of public goods studied in this paper—such as water supply and sanitation—charging even the poorest users is often argued to be necessary to ensure sustainability of investments (OECD, 2009; African Development Bank, 2010). Understanding the extent to which these tax structures inhibit valuable government

infrastructure investments is a subject for future research.

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A   Historical background

A.1   Devolution of powers to local government

Parliament reacted to the growing sanitary movement in the 1840s by emphasizing the role of local action in combating insanitary conditions. Rather than taking direct action to improve sanitary environments, the national government "began a series of legislative measures in which the state became guarantor of standards of health and environmental quality and provided means for local units of government to make the structural changes to meet those standards" (Hamlin and Sheard, 1998, p.587). As a result the nineteenth-century saw a gradual broadening of both local governments' powers and their responsibility for the maintenance of their local environment.

The process of devolution began with the 1848 Public Health Act, which established the principle of "localism" in sanitary affairs by offering local taxpayers ("ratepayers") the opportunity to establish a local board of health with both the responsibility for sewers and street cleaning, and the power to ensure a satisfactory water supply.[22] This provided towns with a low cost mechanism through which councils could gain the authority to invest in sanitary improvements. Before 1848 such powers were obtainable only on a case by case basis through private acts of Parliament ("Improvement Acts"), which often imposed a prohibitive cost on smaller and poorer towns (Wilson, 1997). But the 1848 Act was not enough to stimulate investment since many towns did very little even if they obtained the power to do so. Faced with this lack of response, Parliament imposed greater mandatory responsibilities on town councils. The Public Health Acts of 1872 and 1875 established a network of urban and rural sanitary authorities covering the entire country, tasked with the responsibility to ensure the provision of sanitary services in their jurisdiction.

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[22]The 1848 Public Health Act was extended by the 1858 Local Government Act, and many authorities acquired their powers under the latter legislation. I refer to both as the 1848 Act for simplicity.

A.2 Government grants

Councils received some additional revenue from central government grants during this period. However, the grants were limited to those services deemed "national" in character, such as policing and the maintenance of "lunatics".[23] Further, grants remained small compared to the size of town revenue, with many towns receiving nothing at all and few receiving an amount exceeding 5% of their rate revenue. As a result, the economic literature has generally seen grants as having a limited role in the expansion of local government.[24]

However, there were some important changes in the grant system after 1890 that may have received too little focus in the existing literature.[25] In 1890 new county councils, created by the 1888 Local Government Act, gained responsibility for maintaining "main roads" within their jurisdiction. As a result these new county councils had to bear some of the cost of maintenance and repair of roads within their district, necessitating transfers to town councils within their area. The size of these transfers, while not huge, were much larger than other forms of external revenue. Once transfers from the counties is included, the median town received grants worth more than 20% of their rate revenue in 1895, of which by far the largest component related to funding of roads. These grants amounted to 40% of the median town's expenditure on roads.[26]

These transfers were funded largely by sources outside of each individual town, through either a county-wide tax or funding from central government. As such, these grants allowed spending on roads to be funded from a wider tax base than the town's own property. However, often this funding was essentially conditional on towns also spending their own tax revenue: they would often access this funding through cost-sharing agreements where, for

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[23]For further discussion of the rationale and use of central government grants during this period see the *Final Report of the Royal Commission on Local Taxation*, **1901** [Cd. 638]XXIV.413.

[24]See Millward and Sheard (1995), for instance, who group central government grants along with all other "non-trading" income.

[25]See however the discussion in Waller (1983).

[26]These figures exclude the "county boroughs" which acted as independent counties and so did not receive these transfers.

instance, the County Council would agree to fund a fixed amount of maintenance cost per year for a fixed term. Alternatively, towns could seek to broaden the scope of the funding they received by petitioning for more roads to be recognized as "main roads".

The measure included in the regression tables includes transfers for all purposes from both county councils and central government.

A.3   Types of spending

Figure V displays the breakdown of current spending in incorporated and unincorporated towns in 1884 and 1903. The main difference between the two is that some incorporated towns had responsibility for the provision of police, prosecutions and maintaining prisoners in their jurisdictions.[27] Similarly, the category of "other" spending is higher in incorporated towns, reflecting the fact that they held certain responsibilities not held by non-incorporated towns (such as the maintenance of "lunatic" asylums, for instance). Expenditure on streets—including repairs, maintenance, and street cleaning (scavenging) is the main single item of expenditure in both groups of towns, followed by loan service (including both principal and interest repayment).

B   Descriptive statistics and additional results

B.1   Descriptive statistics

Table IX summarizes the main variables used in the regressions.

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[27]Unincorporated towns did have some spending on police, but the amounts are very small and so are not split out in the accounts.

Figure V: Similar pattern of spending between incorporated and unincorporated towns, except that some incorporated towns had more responsibility for spending on police and prosecutions.
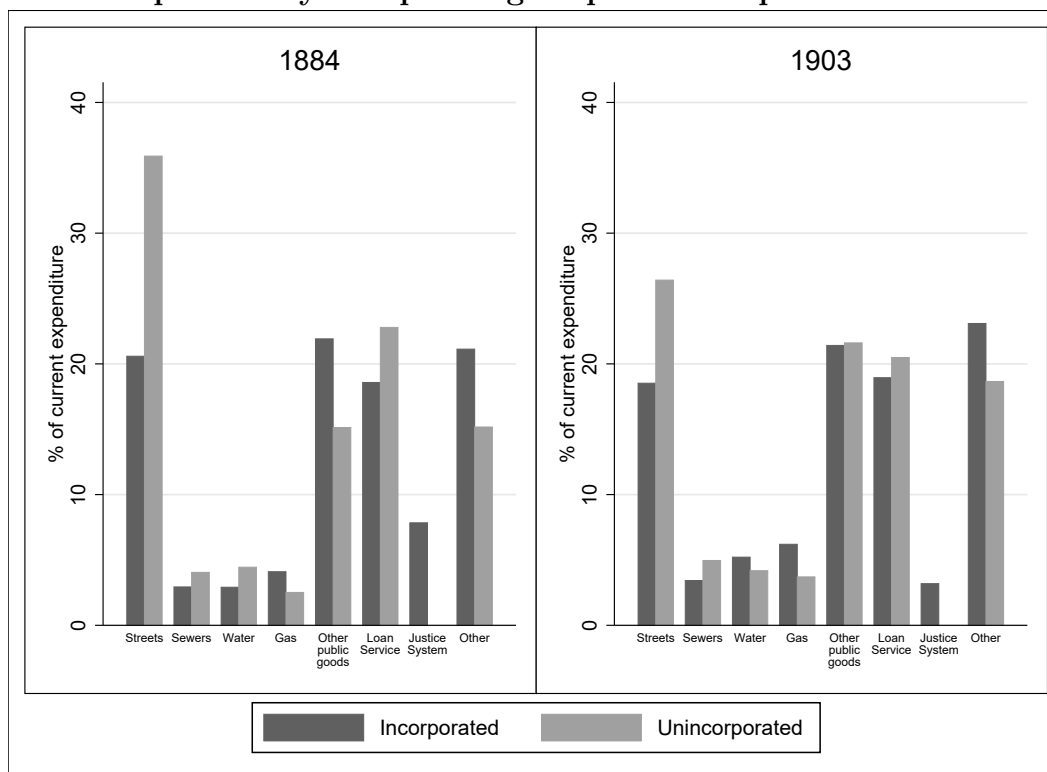
Figure includes expenditure not out of loans in sample of towns identified by the matching exercise. "Other public goods" includes (amongst other items) public lighting, electricity supply, tramways, hospitals, parks and open spaces, baths and wash-houses, collection and destruction of house refuse, fire brigades, housing, public offices and buildings, markets, and libraries . "Loan service" includes interest payments and repayment of principal". "Justice system" includes payment to police, payments to police pension funds, and prosecutions. "Other" includes technical and intermediate education, private improvement works, salaries not reported elsewhere, transfers to other local authorities, contributions to school boards and similar bodies, lunatics and lunatic asylums, maintenance of prisoners, and transfers to other funds.

B.2   Alternative specifications for change in expenditure

Table X–Table XIII present the results of alternative specifications testing the effect of the 1894 reforms. Table IV. tests for a level change in expenditure per capita (rather than the change in time trend in the main analysis), reflecting the more standard "difference-in-

Table IX: Descriptive statistics of main variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
Current spending per capita (£p.c.)	8794	.77	.47	.07	4.42
Tax base per capita (£p.c.)	8794	3.46	1.35	.8	30.96
Property receipts (£p.c.)	8794	.03	.14	0	11.58
Grant receipts (£p.c.)	8794	.09	.1	0	2.39
Population (10,000s)	8794	.7	.45	.07	3.13
Population growth (%)	8794	.9	1.48	-3.99	13.07
Population/number of houses	7913	4.92	.63	3.6	10.85
% Population density	1306	5.88	8.64	.11	182.19
% Workforce in textiles	8794	10.56	17.68	.15	64.12
% Workforce in agriculture	8794	13.26	10.15	.45	57.17
% Workforce in minerals	8794	14.29	16.2	1.56	69.19
% Workforce white collar	8794	5.29	2.36	1.47	18.38
% foreign born	8794	2.06	1.88	.15	16.91

Note: Includes only towns included in the matched sample and hence in the regression estimations. Data is only available in census years for 1891 and 1901 for population density and for years before 1901 for urban crowding; in missing years the previous available value is used.

difference" approach. Table XI builds on these specifications, but with the inclusion of a lagged dependent variable. Table XII uses the *change in* the annual expenditure per capita as the dependent variable. Finally Table XIII repeats this approach but with the inclusion of the lagged level of spending, to account for the fact that the growth in expenditure is likely to be affected by the level of infrastructure a town already has. In all specifications I control for year fixed effects. In each of the tables, between column (1) and column (6) I change the set of control variables and the sample in the same way as in the comparable table in the main text (Table X).

The results show consistent support for the fact that the reforms slowed the growth in expenditure. In Table X all the coefficients on the *Unincorporated*post1894* are negative, but are only statistically significant in 2 of the 6 specifications. Once the level of lag spending is included however (Table XI), there is strong evidence that the level of expenditure in unincorporated towns was lower after the 1894 reform.

Table XII directly tests whether there was a reduction in the change in the level of

expenditure after the reforms. Again, the coefficients are negative and statistically significant at the 5% level in all 6 specifications. Table XIII shows that these results are robust to controlling for the level of spending in the previous period.

Table X: Testing for a level change in expenditure leads to negative coefficients but not always statistically significant.

	DV = Current expenditure p.c.					
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.597***	-0.633***	-0.385***	-0.297***		
	(0.070)	(0.074)	(0.072)	(0.073)		
Unincorporated*post1894	-0.079	-0.083	-0.085*	-0.079	-0.079	-0.095**
	(0.051)	(0.053)	(0.048)	(0.048)	(0.048)	(0.046)
post1894	0.738***	0.753***	0.553***	0.568***	0.661***	0.679***
	(0.051)	(0.056)	(0.053)	(0.053)	(0.050)	(0.048)
Year FE	Y	Y	Y	Y	Y	Y
Pop controls	N	Y	Y	Y	Y	Y
Occ controls	N	N	N	Y	N	N
Wealth controls	N	N	Y	Y	Y	Y
Town FE	N	N	N	N	Y	Y
Obs.	8794	8794	8794	8794	8794	6158
Rsq	0.22	0.27	0.47	0.49	0.51	0.46
Years	All	All	All	All	All	> 1889

The effect of democratic reform is identified by the interaction between unincorporated and the post 1894 dummy variable. The dummy variable for being unincorporated is absorbed by town fixed effects in specifications (5) and (6). "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.3 Alternative definitions of middle-class towns

I present two robustness checks to the definition of middle-class power. First, I define the share of middle-class power based on the share of the total number of servants in households with only one servant. Second, I define middle class as having one *or two* servants. The results, displayed in Table XIV and Table XV respectively, are very similar to those in the

Table XI: There is evidence of a negative level effect on spending once lagged expenditure is controlled for.

	(1)	(2)	(3)	(4)	(5)	(6)
			DV = Current expenditure p.c.			
Unincorporated	-0.021**	-0.026***	-0.016	-0.008		
	(0.008)	(0.009)	(0.011)	(0.010)		
Unincorporated*post1894	-0.023**	-0.023**	-0.023*	-0.023*	-0.037*	-0.051**
	(0.011)	(0.011)	(0.012)	(0.012)	(0.021)	(0.023)
Lag spend p.c.	0.971***	0.967***	0.933***	0.930***	0.662***	0.610***
	(0.008)	(0.009)	(0.012)	(0.012)	(0.037)	(0.043)
post1894	0.063***	0.066***	0.065***	0.067***	0.239***	0.279***
	(0.024)	(0.024)	(0.025)	(0.025)	(0.036)	(0.039)
Year FE	Y	Y	Y	Y	Y	Y
Pop controls	N	Y	Y	Y	Y	Y
Occ controls	N	N	N	Y	Y	Y
Wealth controls	N	N	Y	Y	Y	Y
Town FE	N	N	N	N	Y	Y
Obs.	8337	8337	8337	8337	8337	6143
Rsq	0.90	0.90	0.91	0.91	0.71	0.65
Years	All	All	All	All	All	> 1889

The effect of democratic reform is identified by the interaction between unincorporated and the post 1894 dummy variable. The dummy variable for being unincorporated is absorbed by town fixed effects in specifications (5) and (6). "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include changes in per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

main text.

B.4 Adjusting expenditure for changes in the price index

Adjusting for price changes is complicated by the fact that, as shown in Figure VI, prices fluctuated significantly on a year to year basis during this time period. In some years prices are reported to have changed by over 10% within a single year. As a result, while the series for nominal average expenditure per capita is quite smooth, the series for real average expenditure per capita is much more volatile. It seems unlikely that the actual output of

Table XII: Using the change in the spending as the dependent variable leads to similar results as in the main regressions.

	(1)	(2)	(3)	(4)	(5)	(6)
	DV = Δ Current expenditure p.c.					
Unincorporated	-0.004	-0.005	-0.004	0.004		
	(0.005)	(0.005)	(0.005)	(0.005)		
Unincorporated*Post1894	-0.022**	-0.021**	-0.025**	-0.025**	-0.025**	-0.029**
	(0.011)	(0.011)	(0.010)	(0.010)	(0.011)	(0.012)
Δ tax base p.c.			0.014	0.014	0.012	0.013
			(0.019)	(0.018)	(0.018)	(0.020)
Δ property receipts p.c.			0.006*	0.006*	0.006*	0.005*
			(0.004)	(0.004)	(0.004)	(0.003)
Δ Transfers p.c.			0.097***	0.097***	0.095***	0.088***
			(0.022)	(0.022)	(0.022)	(0.022)
post1894	0.043*	0.042*	0.046**	0.045**	0.047**	0.047**
	(0.023)	(0.023)	(0.022)	(0.023)	(0.023)	(0.024)
Year FE	Y	Y	Y	Y	Y	Y
Pop controls	N	Y	Y	Y	Y	Y
Occ controls	N	N	N	Y	N	N
Town FE	N	N	N	N	Y	Y
Obs.	8337	8337	8337	8337	8337	6143
Rsq	0.02	0.02	0.05	0.05	0.05	0.04
Years	All	All	All	All	All	> 1889

The effect of democratic reform is identified by the interaction between unincorporated and the post 1894 dummy variable. The dummy variable for being unincorporated is absorbed by town fixed effects in specifications (5) and (6). "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include changes in per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

government goods and services would fluctuate to this extent. Further, some elements of spending—notably debt servicing and to an extent labor costs would not be subject to these price changes.

Adjusting the financial variables weakens the results, as shown in Table XVI and Table XVII. This is as expected given that the volatility of the price series is adding noise to the estimation of the time trend. In particular, the estimated coefficient is no longer statisti-

Table XIII: Significant evidence of a reduction in the change in expenditure per capita remains after controlling for the lagged level of spending.

	DV = Δ Current expenditure p.c.					
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.021**	-0.026***	-0.024***	-0.014		
	(0.008)	(0.009)	(0.009)	(0.009)		
Unincorporated*Post1894	-0.023**	-0.023**	-0.027**	-0.027**	-0.043**	-0.051**
	(0.011)	(0.011)	(0.011)	(0.011)	(0.020)	(0.021)
Δ tax base p.c.			0.015	0.014	0.011	0.010
			(0.019)	(0.019)	(0.017)	(0.017)
Δ property receipts p.c.			0.006	0.006	0.005	0.004
			(0.004)	(0.004)	(0.003)	(0.002)
Δ Transfers p.c.			0.097***	0.096***	0.083***	0.074***
			(0.021)	(0.021)	(0.019)	(0.019)
post1894	0.063***	0.066***	0.069***	0.075***	0.251***	0.290***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.035)	(0.038)
Lag spending p.c.	-0.029***	-0.033***	-0.033***	-0.043***	-0.289***	-0.347***
	(0.008)	(0.009)	(0.008)	(0.010)	(0.034)	(0.041)
Year FE	Y	Y	Y	Y	Y	Y
Pop controls	N	Y	Y	Y	Y	Y
Occ controls	N	N	N	Y	N	N
Town FE	N	N	N	N	Y	Y
Obs.	8337	8337	8337	8337	8337	6143
Rsq	0.02	0.02	0.06	0.06	0.17	0.19
Years	All	All	All	All	All	> 1889

The effect of democratic reform is identified by the interaction between unincorporated and the post 1894 dummy variable. The dummy variable for being unincorporated is absorbed by town fixed effects in specifications (5) and (6). "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include changes in per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

cally significant across all towns when either the wealth controls are excluded (specifications (1) and (2)) or town fixed effects are included. However, we examine the effect only in middle-class controlled towns, the estimated effect remains strongly statistically significant (although smaller than in the main specifications).

Table XIV: Similar results using measure of middle-class control based on share of total servants in households with 1 servants relative to households with more than one servant.

	Upper-class dominated			Middle-class dominated		
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.404***	-0.201**		-0.715***	-0.251*	
	(0.109)	(0.095)		(0.120)	(0.129)	
Time	0.032***	0.002	0.014***	0.025***	-0.001	0.014*
	(0.005)	(0.005)	(0.005)	(0.008)	(0.009)	(0.007)
Time*Unincorporated	0.005	0.018***	0.011*	0.003	0.013	0.004
	(0.007)	(0.006)	(0.006)	(0.008)	(0.008)	(0.007)
Time*Post1894	0.049***	0.069***	0.061***	0.101***	0.116***	0.106***
	(0.009)	(0.009)	(0.009)	(0.015)	(0.015)	(0.014)
Time*Unincorporated*Post1894	0.004	-0.029**	-0.016	-0.065***	-0.081***	-0.065***
	(0.013)	(0.013)	(0.012)	(0.016)	(0.016)	(0.014)
Year FE	N	N	N	N	N	N
Population controls	N	Y	Y	N	Y	Y
Occupation controls	N	Y	N	N	Y	N
Wealth controls	N	Y	Y	N	Y	Y
Town FE	N	N	Y	N	N	Y
Obs.	4411	4411	4411	4383	4383	4383
Rsq	0.17	0.47	0.51	0.30	0.53	0.56

"Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table XV: Similar results when defining middle-class households as those with either 1 or 2 servants.

	Upper-class dominated			Middle-class dominated		
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.491***	-0.201*		-0.661***	-0.225**	
	(0.120)	(0.109)		(0.104)	(0.111)	
Time	0.038***	0.010*	0.021***	0.021***	0.001	0.009
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)
Time*Unincorporated	-0.004	0.006	0.000	0.011	0.016**	0.012**
	(0.007)	(0.006)	(0.006)	(0.007)	(0.008)	(0.006)
Time*Post1894	0.046***	0.067***	0.057***	0.090***	0.095***	0.093***
	(0.010)	(0.010)	(0.010)	(0.012)	(0.014)	(0.012)
Time*Unincorporated*Post1894	0.004	-0.024*	-0.008	-0.053***	-0.066***	-0.056***
	(0.013)	(0.013)	(0.014)	(0.014)	(0.015)	(0.013)
Year FE	N	N	N	N	N	N
Population controls	N	Y	Y	N	Y	Y
Occupation controls	N	Y	N	N	Y	N
Wealth controls	N	Y	Y	N	Y	Y
Town FE	N	N	Y	N	N	Y
Obs.	4412	4412	4412	4382	4382	4382
Rsq	0.19	0.50	0.54	0.28	0.53	0.51

"Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure VI: Adjusting for price changes leads to volatility in expenditure per capita time series.

Expenditure per capita is the annual average total current expenditure by local governments under current and constant (i.e. adjusted) prices respectively. Rousseaux price index is taken from (Mitchell, 1971). Vertical red line represents the imposition of the 1894 Local Government Act.

Table XVI: Estimated effect of democratic reform on growth in spending remains but is weaker once the financial variables have been converted into real terms.

	DV = Current expenditure p.c. (standardized)					
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.629***	-0.667***	-0.328***	-0.252***		
	(0.086)	(0.086)	(0.085)	(0.085)		
Time	0.065***	0.064***	0.012**	0.017***	0.034***	0.034***
	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)
Time*Unincorporated	-0.009	-0.008	0.008	0.006	-0.001	-0.001
	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)
Time*Post1894	-0.004	-0.002	0.060***	0.052***	0.033***	0.033***
	(0.008)	(0.009)	(0.009)	(0.010)	(0.011)	(0.011)
Time*Unincorporated*Post1894	-0.001	-0.003	-0.037***	-0.032***	-0.019*	-0.019*
	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.011)
Pop controls	N	Y	Y	Y	Y	Y
Occ controls	N	N	N	Y	N	N
Wealth controls	N	N	Y	Y	Y	Y
Town FE	N	N	N	N	Y	Y
Obs.	8794	8794	8794	8794	8794	8794
Rsq	0.22	0.27	0.48	0.50	0.52	0.52
Years	All	All	All	All	All	> 1889

The effect of democratic reform is identified by the interaction between unincorporated, time and the post 1894 dummy variable. "Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table XVII: Estimated effect of democratic reform on growth in spending remains strong in middle-class towns once the financial variables have been converted into real terms.

	Upper-class dominated			Middle-class dominated		
	(1)	(2)	(3)	(4)	(5)	(6)
Unincorporated	-0.476***	-0.265***		-0.692***	-0.193	
	(0.121)	(0.100)		(0.122)	(0.136)	
Time	0.068***	0.012*	0.029***	0.059***	0.020*	0.036***
	(0.005)	(0.007)	(0.006)	(0.009)	(0.010)	(0.009)
Time*Unincorporated	-0.003	0.011	0.004	-0.009	0.005	-0.004
	(0.008)	(0.007)	(0.007)	(0.009)	(0.009)	(0.009)
Time*Post1894	-0.021**	0.048***	0.031***	0.026*	0.069***	0.053***
	(0.009)	(0.012)	(0.010)	(0.015)	(0.016)	(0.015)
Time*Unincorporated*Post1894	0.019	-0.021	-0.006	-0.035**	-0.057***	-0.045***
	(0.013)	(0.013)	(0.013)	(0.016)	(0.016)	(0.014)
Population controls	N	Y	Y	N	Y	Y
Occupation controls	N	Y	N	N	Y	N
Wealth controls	N	Y	Y	N	Y	Y
Town FE	N	N	Y	N	N	Y
Obs.	4392	4392	4392	4402	4402	4402
Rsq	0.18	0.49	0.54	0.28	0.51	0.55

"Population controls" include (in quantile bins) population, urban crowding, population growth, and population density. "Occupation controls" include (in quantile bins) the percentage of 1881 workforce in textiles, minerals, agriculture, service and commercial/professional, as well as the proportion of the population foreign born. "Wealth controls" include per capita rateable value, central government grants and property revenue. Standard errors are clustered by town and displayed in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.