

# THE RETRENCHMENT HYPOTHESIS AND THE EXTENSION OF THE FRANCHISE IN ENGLAND AND WALES\*

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## Abstract

Does an extension of the voting franchise always increase public spending or can it be a source of retrenchment? We study this question in the context of public spending on health-related urban amenities in a panel of municipal boroughs from England and Wales in 1868, 1871 and 1886. We find evidence of a U-shaped relationship between spending on urban amenities and the extension of the local voting franchise. This retrenchment effect arose because middle class taxpayers were unwilling to pay the cost of poor sanitation and demand for public spending on urban amenities came from the urban elites, elected on a narrow franchise. Our model of taxpayer democracy suggests that the retrenchment effect was related to enfranchisement of the middle class through nation-wide reforms and that these reforms might have been Pareto inferior in the average borough.

The extension of the voting franchise is widely perceived to be associated with more government spending and higher levels of taxation. Peters (1991, p. 231), for example, argues that ‘with the extension of the franchise [in Western Europe in the 19th century]... came demands for greater redistribution ..., and particularly for greater use of income and profit taxation to raise the needed revenues for increasingly active governments’. The perception is based on the observation that franchise reforms change the identity of the median voter and, as long as he is poorer than the average taxpayer, franchise extension will cause fiscal expansion (Meltzer and Richard, 1981). This paper challenges the view that

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franchise reform must be associated with more public spending and asks if the extension of the voting franchise can, in some cases, be a source of retrenchment rather than of fiscal expansion.

To do this, we take a historical perspective and study, theoretically and econometrically, the role of local democracy in solving collective action problems in mid-Victorian cities in England and Wales. This context provides a promising testing ground on which to revisit the link between democratization and public spending for three related reasons. Firstly, mid-Victorian cities urgently needed to invest in infrastructure, sanitation and other health-related urban amenities to make up for the under-investment in the urban economy earlier in the century.<sup>1</sup> Secondly, this challenge fell almost exclusively on local government and all investments had to be financed by local property taxes and other local resources. Beginning in the late 1860s, local authorities across England and Wales were investing in urban amenities, at first in clean water and later on, in sewers, local transportation, and gas works, on an unprecedented scale.<sup>2</sup> Thirdly, these improvements did not happen over-night, nor did they happen at the same time in all cities. Much depended on who had gained control of the Municipal Corporation (borough council), which by 1870 had emerged as the main provider of urban amenities in many boroughs.

Economic historians, such as Hennock (1963, 1973) and Szreter (1988, 1997), have emphasized the role of political factors in understanding why some cities managed to find solutions to the public health crisis more effectively and faster than others.<sup>3</sup> They identify the power struggle between "economists" and "sanitarists" as a key factor. The "economists" represented the interests of middle class taxpayers (shopkeepers, house landlords, and small manufacturers). They did not wish to pay the cost of poor sanitation as the incidence of the property tax fell particularly hard on them. The "sanitarists", on the other hand, advocated municipal spending on health-related urban amenities. These were recruited mainly among the urban elite (wealthy capitalists, big manufacturers and profes-

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<sup>1</sup>See Williamson (1990, chapter 10) or Szreter (1997) for a discussion of under-investment in local public goods before 1860. Szreter and Mooney (1998) show that despite rising real wages, life expectancy at birth was higher in many urban areas in 1821 than in 1871 thus testifying to the deteriorating urban environment.

<sup>2</sup>See Millward (2001, p. 315) and Bell and Millward (1998).

<sup>3</sup>See also Fraser (1976), Offer (1981), Wohl (1983) and Dauntton (2001, chapter 9).

sionals). The outcome of this struggle, in turn, depended on the extension of the franchise governing local elections. This varied a lot from borough to borough. In boroughs in which a narrow or a very broad franchise put the urban elite and the “sanitarists” in charge, action was taken to solve the under-investment problem. In contrast, spending on urban amenities was relatively low in boroughs with a moderately extended franchise because this allowed lower middle class “economists” to control the boroughs. This historical narrative has an important and testable implication that we call the *retrenchment hypothesis*: the relationship between spending on local public goods (urban amenities) and the extension of the voting franchise is U-shaped.

The narrative, however, leaves two questions open. First, why did the allocation of voting rights differ from borough to borough? Second, does an extension of the franchise necessarily cause retrenchment? To gain insights into these questions, we develop a theory of taxpayer democracy that portrays democratization as an exchange of political influence for tax revenues.<sup>4</sup> The theory provides a simple explanation for the uneven extension of the franchise across boroughs and shows that the retrenchment hypothesis is more likely to apply in boroughs with high wealth inequality and a small middle class. We also show that enfranchisement of the middle class can be a Pareto improvement, but only if spending on local public goods *increases* as a consequence. The theory, therefore, implies that the source of middle class retrenchment (i.e., a fall in spending) is *forced* enfranchisement of the middle class mainly occurring through nation-wide reforms. These results allow us to use the theory constructively to develop a proper empirical test of the retrenchment hypothesis.

The main contribution of the paper is an empirical test of the retrenchment hypothesis. We make use of a new panel data set on spending on urban amenities by (up to) 75 Municipal Corporations in England and Wales in 1868, 1871 and 1886. Our results support the retrenchment hypothesis and demonstrate that government expansion is not an

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<sup>4</sup>Recent research on the extension of the voting franchise has stressed the threat of revolution (Acemoglu and Robinson, 2000; Conley and Temini, 2001; Boix, 2003, chapter 1), conflict within the elite about assignment of rents (Lizzeri and Persico, 2004), gradual alienation of the disenfranchised (Justman and Gradstein, 1999), and constitutional exchange (Congleton, 2004) as four reasons why voting rights were granted in western Europe during the nineteenth century. Our theory adds to this literature by modelling democratization as an exchange of political influence for tax revenues.

inevitable consequence of franchise extension. We find that democratization would have led to a reduction in spending on urban amenities in boroughs where less than 40 per cent of the adult male population could vote, and to an expansion in boroughs with a wider franchise than that. The 40 per cent turning point is approximately in the middle of the observed range.

These results challenge the view that enfranchisement of citizens with below-average income must lead to an expansion of public spending. Moreover, the fact that the extension of the franchise was associated with a decline in public spending suggests that the extension was not Pareto-improving in the average borough. Indeed, we argue that this may be interpreted as evidence that in outcome terms, the extension of the franchise was Pareto inferior on average. It reduced the taxes of the rich, who were apparently willing to pay them, and, at the same time, reduced the provision of public goods. Finally, our results suggest that ‘capture’ by local elites, which is often considered a cost of decentralized provision of public goods (see, e.g., Bardhan and Mookherjee, 2000), can be a force of improvement in situations, as in nineteenth-century urban England and Wales, where the private interest of the local elite is aligned with general development goals. On the other hand, our results also show that local democratic institutions, even when they operate well and provide accountability and voice as intended, can be a force of retrenchment when the power falls into the hands of groups that do not wish to spend on public goods. In fact, this can be seen as a counter-example to Director’s law, as expansion of local government spending was driven mainly by the urban elite, not by the middle class.

The paper is organized as follows. In section 1, we discuss the institutional background. In section 2, we develop the model. In section 3, we discuss the data, our empirical strategy and present the results. In section 4, we conclude.

## **1. Institutional Background**

During the nineteenth century, local government in urban England and Wales consisted of a range of different elected or appointed authorities, with overlapping boundaries, and different rules for election or appointment of their members (Smellie, 1946, chapters 2 and 3). For the purpose of this study, the most important of these local government

authorities is the Municipal Corporation. During the 1860s, the Corporations became the main (public) provider of public health and sanitation in the boroughs. It was up to them to deal with the challenge of a deteriorating urban environment and eventually to take action to improve the situation.

### 1.1. *Taxpayer Democracy*

The Corporations were governed by the borough councils. The elected councillors were chosen in yearly elections. The franchise that defined who were eligible to vote was laid down in the Municipal Corporation Act of 1835 and applied to all Corporations. This franchise was different both from the franchise that governed the elections to the House of Commons and the franchise that governed the elections of the Poor Law Guardians. But it shared with these franchises the principle that representation was linked to prompt payment of local property taxes (called the rate).<sup>5</sup> Brian Keith-Lucas summarizes the eligibility requirements as follows

‘Eligible as a voter was every *man* who was an inhabitant householder within a borough or within seven miles thereof and who had occupied any house, warehouse, counting house or shop within the borough for the previous *two and a half years*, provided he had been rated for the whole of that period and had *paid the rates*, and was duly *enrolled* on the Burgess Roll. Those, who, within the previous twelve months, had received parochial relief or other alms [under the Poor Laws] were excluded, and provision was made to enable a tenant, in cases where the landlord was liable for the rate, to pay them himself and so qualify for the franchise’ Keith-Lucas (1952, p. 53, italic added).

[Table 1 *The Extension of The Voting Franchise for the Municipal Corporations in 1852, 1865, 1871 and 1884*]

Clearly, payment in full and on time of the local property tax was a *necessary* condition for the right to vote in local elections. In contrast to the 1832 Parliamentary franchise,

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<sup>5</sup>See Prest (1990) for a discussion of the different franchises.

which in addition to prompt payment of local property taxes required that the value of the rated property exceeded a minimum threshold, or to the franchise for the Poor Laws, which gave more votes to large taxpayers and property owners than to small ones, the franchise for the Corporations applied no property value threshold and upheld the principle of one taxpayer one vote. This meant that any occupier of a rated property, who duly paid the local property tax in full and on time, was eligible to vote in local elections. As Salmon (2002, p. 207) puts it ‘payment of local taxes became a prerequisite for inclusion in the electoral process, making possession of the franchise a positive financial outlay’. He is referring to the Parliamentary franchise, but the same applied to the local franchise (Daunton, 2001, p. 265).

Prompt tax payment was not sufficient for obtaining the right to vote in local elections, however. Eligibility also required registration and that the property within the borough had been occupied for a sufficiently long time period. Occupiers of rated property who had not occupied their property long enough, received poor relief, had failed to register, or had fallen into arrears could be taxed without representation. Yet, the intention of the franchise rules was clearly to link taxation to representation and to disenfranchise residents whose property was not taxed. Of course, enfranchised and disenfranchised citizens alike paid indirect taxes (tariffs, excise duties *etc.*) to the Exchequer and some also paid income taxes. Accordingly, the principle of ‘no taxation without representation’ applied only to local property taxes, and even there with some modifications.

The British Parliamentary Papers contain quantitative information on the number of registered voters in 1852, 1865, 1871 and 1884. We measure the extension of the franchise as the number of registered voters relative to the adult male population of the borough.<sup>6</sup> These data are shown in Table 1 for a sample of about 75 boroughs. In 1852, only 29 per cent of the adult male population was registered to vote. Through a sequence of acts of Parliament over the next 50 years, the franchise was gradually extended. The substantial increase in the proportion of enfranchised individuals between 1865 and

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<sup>6</sup>This base is chosen because the electorate was primarily recruited from among the male population. However, it may be noted that from 1869 onwards unmarried or widowed women were entitled to vote in local elections.

1871 can be attributed to the Municipal Franchise Act of 1869. This act reduced the residence requirement from two and a half years to one year, and allowed occupiers of 'other buildings' to qualify for the vote (Keith-Lucas, 1952, p. 62). The Assessed Rates Act of 1869 also contributed to the extension of the local franchise by making it easier for indirect taxpayers from the working class to vote (see below). The extension continued throughout the 1870s and into the 1880s with the Parliamentary and Municipal Registration Act of 1878 and the Municipal Corporation Act of 1882. By 1884, 64.5 per cent of the adult male population was on the electoral roll.

The data recorded in Table 1 show another important fact about local democracy in mid-Victorian England and Wales: the franchise was *unevenly* extended across boroughs. For example, the 'most democratic' borough in 1865 had 82 per cent of the adult male population on the roll, while the 'least democratic' borough had only 11.4 per cent. By 1884, the spread had narrowed somewhat, but was still substantial. These variations were linked to practical difficulties in securing the vote and to various stratagems adopted locally for limiting the franchise.

Firstly, the Municipal Corporation Act failed to enfranchise the bulk of poorer householders in 1835 primarily because it was too costly to collect taxes on such properties. (Keith-Lucas, 1952, p. 68). Importantly, the process of rating soon became highly politicized. The fact that prompt payment of the local property tax was necessary for the vote gave local officials great power to disenfranchise. Salmon (2002, p. 185) describes how these powers were used to disenfranchise parliamentary voters. Similar tactics were applied in local elections.<sup>7</sup> In collecting the property taxes, overseers could, for example, fail to collect the full amount owed in taxes and so create small arrears, which disenfranchised the occupier, or simply condoned to exclude people. They could also fail to rate certain properties or neighborhoods all together with a view to disenfranchise the occupiers. In addition, local politicians could "price" occupiers out of the franchise by setting the rate in the pound such that poorer ratepayers were unable to pay. Secondly, by far the most popular solution to the fiscal problem of collecting taxes on low-value properties involved

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<sup>7</sup>Salmon (2002, p. 40) argues that 'it was the close correlation between the municipal and parliamentary registration system which ensured the rapid politicization of the municipal electorates'.

a practice known as compounding. The system was based on the principle that the tax collector accepted an amount less than the whole tax in return for the landlord, and not the tenant, becoming responsible for the payment. This was a cost-effective way of collecting taxes from low-value properties with frequent changes of occupiers. Compounding was first introduced in 1850. The implications for suffrage rights remained, however, unclear for more than 30 years. The disputed question was whether tenants who paid the local property tax *indirectly* through their landlord were entitled to the vote or not. For example, an attempt to put ‘compounders’ on the electoral roll in 1864 in Birmingham was declared illegal by the courts (Hennock, 1973, p. 11). Likewise, in Salford, the Corporation explicitly restricted the electorate to direct ratepayers (Garrard, 1983, p. 213). The Assessed Rates Act of 1869 in principle enfranchised indirect ratepayers. Nevertheless, their right to the vote continued to be disputed in the courts. The issue was not settled until 1878 with the Parliamentary and Municipal Registration Act and finally by a court case in 1881.<sup>8</sup> Until then, practices differed substantially from borough to borough and gave local officials great flexibility in drawing the boundaries of the local electorate. Finally, frequent movements within a borough disenfranchised many poorer individuals. They simply failed to satisfy the occupancy requirement.<sup>9</sup> In their analysis of the Parliamentary franchise, Matthew *et al.* (1976) argue convincingly that the inter-borough variation in the extension of voting rights created by these stratagems reflected exclusion by social class. A similar argument applies to the local franchise. Boroughs with a narrow franchise effectively excluded working class men, and boroughs with a very narrow franchise, in addition, excluded large portions of the middle class and only allowed the urban elites to vote.

While the franchise rules made tax payment a necessary condition for the right to vote in local elections, only local taxpayers who owned personal property or land worth more

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<sup>8</sup>Even in boroughs where the principle was accepted, the practical issue of whose name appeared in the rate book persisted. In cases where the tenant’s name and not the landlord’s appeared in the rate book, the tenant was mostly regarded as being entitled to vote. In cases where the landlord’s name appeared in the rate book rather than the tenant’s, it was much harder for the tenant to get enfranchised. He would have to seek permission to substitute his own name for that of the landlord every six months.

<sup>9</sup>Davis and Tanner (1996) emphasize differences in administrative efficiency as a source of variation in the cost of registration.

than a certain amount were eligible to stand for election to the municipal council (Garrard, 1983, p. 167). This effectively excluded poorer taxpayers from seeking election. Moreover, councillors were unpaid and were burdened with significant administrative duties, and meetings were held during working hours (Keith-Lucas, 1952, p. 228). This, in practice, continued to make it prohibitively costly for many eligible (working class) candidates to seek election, even after the Municipal Corporation Act of 1882 allowed any enfranchised man to run. Those who did run, typically, stood for election as individuals and political parties only played a limited role in local politics during the period (Fraser, 1976, chapter 6; Doyle, 2001).

### 1.2. *Self-governance and Fiscal Autonomy*

As initially envisaged by the Municipal Corporation Act of 1835, the activities of the Corporations were confined to the holding of property, to the regulation of markets and harbours, to the establishment of policing and lighting systems, and to the making of by-laws. By 1870, however, many Corporations had become the main provider of urban infrastructure, sanitation and other health-related urban amenities.<sup>10</sup> The responsibility for drainage, sewage, treatment of waste, paving and street-widening, construction of cemeteries, reliable supply of clean water *etc.* had gradually come under their jurisdiction.<sup>11</sup> Under the Public Health Act of 1848, towns and districts could, for example, establish a Local Board of Health. Many Corporations did so and from 1872 acted as Urban Sanitary Authorities. Accordingly, within the boundaries defined by statutory law and the local property tax base, the Corporations had significant freedom to provide more services than required and in better quality (Davis, 2001, p. 264).

The Local Taxation Returns contain detailed information on the finances of the Corporations. From this source, we construct two measures of the Corporations' spending on sanitation and other health-related urban amenities. First, we identify expenditure categories that clearly reflect a sanitary function. This includes spending on sewage, water,

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<sup>10</sup>Millward and Sheard (1995) estimate that about 90 per cent of all investments in infrastructure, including investments in sanitation, in England and Wales from 1870 to 1914 were undertaken by *local* authorities, including the Corporations, and financed out of *local* resources.

<sup>11</sup>The Corporations were never responsible for three key areas: main roads, primary education and poor relief, which fell under the Highway Authority, the School Board and the Guardians of the Poor, respectively.

streets paving and other similar public works. This measures spending on urban amenities directly, but does not distinguish between current and capital expenditures. Second, the Corporations could, for investment purposes, borrow limited funds from the capital markets on the security of future property tax revenues. While many of these were spent on urban amenities, it cannot be established from the Local Taxation Returns how large this component was. Information on borrowed funds, therefore, gives an imperfect estimate of capital expenditures on urban amenities.

We shall use spending on urban amenities and borrowed funds as two alternative proxies for the Corporations' involvement in the provision of health-related local public services. We focus on a sample of about 75 Corporations in 1868, 1871, 1875, 1886 and 1888. The Corporations represent a mixture of industrial cities and market towns. We are careful only to include Corporations that controlled the Local Board of Health from 1868 onwards. This ensures that the selected Corporations were the main provider of public health in their borough and that decisions to spend on these services were governed by the franchise rules laid down for the Corporations.<sup>12</sup>

Table 2 records average spending on urban amenities and borrowed funds, either *per capita* or in percentage of total spending by year. About 50 per cent of the budget was, on average, being spent on urban amenities while borrowed funds contributed 15-18 per cent of income. However, in *per capita* terms spending on urban amenities more than doubled during the 1870s. This reflects in part the response to mounting pollution and poor public sanitation. Most strikingly, perhaps, is the fact that the inter-borough variation is persistently high. Some Corporations spend a lot more than others and started doing so much earlier than others. Bell and Millward (1998) observe that the lion's share of sanitary investments before 1880 was related to water supply. This observation is important. Supply of clean water, of course, serves an important health purpose, but water is also a component of many manufacturing processes. The motivation behind the investment boom in water supply in the 1870s might, therefore, partly have been health

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<sup>12</sup>Where the Corporations did not act as the Local Board, the representatives on the board were elected on a graduated franchise which, in contrast to the franchise for the Corporations, gave more votes to occupiers of more valuable properties.

concerns and partly have been driven by commercial interest.

[Table 2 *Average Spending on Urban Amenities and Borrowed Funds, 1868-1888*]

The local tax base was rateable property.<sup>13</sup> These local property taxes constituted between 50 and 60 per cent of total revenues for the Corporations. In relation to profits, the property tax fell heavily on small, retail establishments and workshops – owned by the lower-middle class. For house occupiers, who paid the tax directly, it was clearly regressive in tendency because, though rich people generally occupied more valuable property, they did not do so proportionally to income (Waller, 1983, chapter 6). There were, of course, other sources of income for the Corporations than the local property taxes. In the late 1870s and 1880s, for example, profits from municipal water and gas works and tramways became an important source of income in some boroughs. Others could rely on incomes from estates (Millward, 2001). On the other hand, central government grants never contributed more than five per cent of the annual budget, and the grants were always earmarked for specific purposes, such as police uniforms.

This discussion highlights five salient features of the institutional environment upon which our analysis of fiscal retrenchment is based. First, the franchise rules made tax payment a necessary condition for obtaining the right to vote and conversely, a broader tax base implied a wider franchise. Second, the extension of the franchise was determined by a mixture of local and national factors. On the one hand, the franchise could be systematically manipulated locally. On the other hand, nation-wide reforms contributed to the enfranchisement of the lower middle and working class in the 1870s and 1880s. Third, it was left to the Municipal Corporations to make the urgently needed investment in the urban environment. Fourth, the main source of finance for these investments were regressive local property taxes or loans secured on future tax revenue. Fifth, the urban elite (wealthy capitalists and big manufacturers) often stood to benefit disproportionately from improvements in the urban environment.

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<sup>13</sup>Until 1925, properties were rated by the 640 Boards of Guardians in 14330 rating areas. Lack of uniformity across rating areas and lack of professional standards were widespread, and ‘the assessments were riddled with antiquated and inconsistent procedures and more than a hint of favoritism, particularly under-assessment of wealthy districts’ (Waller, 1983 p. 258).

## 2. A Model of Taxpayer Democracy

Our theory of taxpayer democracy and fiscal retrenchment is designed with these five salient features in mind. It establishes the conditions under which franchise extension leads to fiscal retrenchment and generates predictions that are useful in developing a proper test of the retrenchment hypothesis (the U-shaped relationship between the franchise and spending on local public goods). We view it as a necessary stepping stone for the empirical analysis to follow. The critical assumption of the theory is that the urban elite, for a given tax base, wants to spend more on local public goods than the middle class. In the model this is guaranteed by a combination of three particular assumptions: i) the benefits of local public goods are proportional to capital endowments, ii) capital endowments are unequally distributed, and iii) the property tax is regressive. Other combinations of assumptions can, however, be devised to insure that the elite benefits more than the middle class from urban improvement.

### 2.1. *The Economy*

We consider a city populated by wealthy capitalists ( $H$ ), middle class capitalists ( $M$ ) and workers ( $L$ ). Each wealthy capitalist is endowed with more capital ( $k$ ) than a middle class capitalist:  $k_H > k_M$ . Workers are endowed with one unit of labour and no capital. Labour is supplied inelastically to a competitive labour market. Each group is homogenous and its size is  $n_i$  with  $i \in \{H, M, L\}$ . We assume that  $n_M > n_H$  and that  $n_L + n_H > n_M$ .

Capitalists of type  $i$  employ their capital endowment  $k_i$  and hired labour  $l_i$  to produce the consumption good  $Y_i$ . The production technology is  $Y_i = A(\cdot)\ell_i^\alpha k_i^{1-\alpha}$ ,  $0 < \alpha < 1$ .  $A(\cdot)$  represents total factor productivity. Output is sold in the national market at the constant price of one. The demand for labour from a capitalist of type  $i$  is  $\ell_i = k_i \left(\frac{\alpha A(\cdot)}{w}\right)^{\frac{1}{1-\alpha}}$ . The market clearing wage is  $w^*(\cdot) = A(\cdot)z$ , where  $z = \alpha \left(\frac{n_M k_M + n_H k_H}{n_L}\right)^{1-\alpha}$ . Profits earned by each capitalist of type  $i$  are  $\pi_i^*(\cdot) = A(\cdot)k_i x$ , where  $x = (1 - \alpha) \left(\frac{n_L}{n_M k_M + n_H k_H}\right)^\alpha$ .

Improvements in the disease environment of the city is akin to a local public good. Although these improvements are created by services, such as clean water, sewage facilities *etc.*, which to some extent are excludable, the general health benefits are non-depletable and non-excludable. To be concrete, we assume that the urban economy becomes more

productive when the disease environment improves and total factor productivity,  $A(g)$ , is a strictly increasing and concave function of spending on a local public good,  $g$ . Moreover, local public goods are essential for production, i.e.,  $A(0) = 0$ , and  $A(g)$  satisfies the Inada conditions. An important implication of this is that profits and wages are increasing in spending on local public goods. Wealthy capitalists, however, benefit more from extra spending than middle class capitalists. This is because the (marginal) benefit is proportional to capital endowments. We assume that workers are poorer than middle class capitalists ( $z < xk_M$ ). Consequently, they benefit the least from extra spending.<sup>14</sup> Local public goods are financed out of local property taxes.

All citizens have quasi-linear Cobb-Douglas preferences defined over the consumption good and housing  $h$ :

$$u_i = y_i + \beta^{-1}h_i^\beta \text{ with } \beta \in (0, 1). \quad (1)$$

Capitalists are endowed with two units of housing; workers with none. Each capitalist consumes one unit of housing privately and, if applicable, pay the tax levied on it ( $\tau_i$ ) directly. The other unit is supplied to a competitive market for rental accommodation. Workers spend their wage income on consumption goods and rental accommodation, i.e.,  $w = y_L + qh_L$  where  $q$  is the market price of rented accommodation. Individual demand for housing is  $h_L = q^{\frac{-1}{1-\beta}}$ . If rented accommodation is taxed, the capitalist, who owns the property, pays it on behalf of the worker(s) occupying the property. In general, the incidence of the tax depends on the relative elasticities of demand and supply. In the short run, the supply of rented accommodation is fixed and the full incidence falls on the capitalists. In the long run, the stock of housing is variable and the incidence can be shifted onto workers. It is, however, *not* important for the results how the incidence is divided.<sup>15</sup> For simplicity, we therefore focus on the short run and keep the supply of rented accommodation fixed. In this case, the rental income of each capitalist is  $r^* = q^* - \tau_L$  where  $q^* = n_L^{1-\beta} (n_H + n_M)^{\beta-1}$  is the market clearing price and, if applicable,  $\tau_L$  is the

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<sup>14</sup>This requires that  $n_L > \frac{\alpha}{1-\alpha} \frac{n_M k_M + n_H k_H}{k_M}$ . This condition also insures that capitalists do not want to become workers.

<sup>15</sup>The Technical Appendix contains a detailed discussion of this.

tax levied on each unit of rented accommodation.<sup>16</sup> Capitalists spend profits and income from letting net of taxes on the consumption good.

Combining the analysis above, the following policy preference functions emerge:

$$v_i(g) = B + \pi_i^*(g) - I_i\tau_i - I_L\tau_L \quad i \in \{H, M\} \quad (2)$$

$$v_L(g) = C + w^*(g), \quad (3)$$

where  $B = \beta^{-1} + q^*$  and  $C = \frac{(1-\beta)}{\beta} (q^*)^{\frac{-\beta}{1-\beta}}$  are independent of fiscal policy.  $I_i$  is an indicator variable equal to 1 if and only if the properties occupied by capitalists of type  $i$  are taxed.  $I_L$  is equal to 1 if rented accommodation is taxed and 0 otherwise. Workers want spending on public goods to be high, as they benefit from higher wages and effectively to do not bear the tax cost. Tax-paying capitalists, on the other hand, face a trade-off between the higher profit earned in a more productive urban economy and the cost of paying the necessary taxes.

## 2.2. Politics

The property tax was regressive. We capture this by restricting attention to an uniform property tax,  $\tau$ , levied equally on all rated property.<sup>17</sup> The city's fiscal policy,  $(g, \tau)$ , is determined by representative democracy. The representative, who controls the borough council, is elected by plurality rule in an election in which citizen can stand for election to the council at a cost (Besley and Coate, 1997; Osborne and Slivinski, 1996).<sup>18</sup> Payment of local property taxes is a necessary condition for being allowed to vote and to stand for election; conversely, only enfranchised citizens can be taxed. We assume that enfranchised citizens vote sincerely, as in Osborne and Slivinski (1996), and support the candidate whose platform maximizes their utility. The timing of events is:

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<sup>16</sup>To insure that workers can afford consumption goods, we assume that  $w^* > q^* h_L^* = \left(\frac{n_L}{n_H + n_M}\right)^\beta$ .

<sup>17</sup>In practice, a higher tax was sometimes levied on property of higher value, but this was never sufficient to make the local property taxes progressive relative to the income of the occupier. To keep the analysis simple, we ignore this detail.

<sup>18</sup>The citizen candidate model is a natural modelling choice in our context. It explicitly acknowledges i) that politicians typically ran as individuals rather than as members of political parties, ii) that the cost of running played an important role in keeping certain groups out of the councils, and iii) that politicians in the absence of strong party discipline would find it difficult to commit to pre-election promises. The two obvious modelling alternatives, the probabilistic voting model or the median voter model, do not deal well with these points.

1. Any enfranchised citizen can decide to stand for election at a group-specific cost  $\epsilon_i$ .
2. An election is held amongst candidates. The candidate getting the most votes wins.<sup>19</sup>
3. The winning candidate controls the council. He implements his most-preferred policy  $\{g, \tau\}$  subject to the council's budget constraint. If nobody runs, the default policy  $g_0 = 0$  is implemented.<sup>20</sup>

To simplify the analysis of subgame perfect equilibria, we assume:

**Assumption 1**  $\epsilon_H \rightarrow 0^+$  and  $\epsilon_M \rightarrow 0^+$

**Assumption 2**  $\epsilon_L \rightarrow \infty$

Combined with the fact that  $A(g_0) = 0$ , Assumption 1 guarantees that at least one candidate is willing to stand for election. More importantly, it also guarantees that a candidate favoured only by a minority of the enfranchised voters cannot gain office in an uncontested election because potential candidates from the opposition find it too expensive to run. Assumption 2 implies that workers never run, as it was the case in practice.

### 2.3. Three Franchise Regimes

We begin by studying policy outcomes under three (exogenously) given franchise regimes: *H*-franchise, *HM*-franchise and *HML*-franchise. Under *H*-franchise only the wealthy capitalists – the urban elite – can vote, stand for election and have their property taxed. Under *HM*-franchise all capitalists can vote, stand for election and have their property taxed. Under *HML*-franchise all citizens can vote and stand for election, and all property, including rented accommodation, can be taxed.

The policy outcomes under the three regimes can be summarized as follows (see Appendix I for details). Under *H*-franchise, the wealthy capitalists control the council and decide on spending and taxation bearing in mind that they cannot share the cost of public goods with the other groups. Spending on local public goods is  $g_H$  satisfying

$$A'(g_H)k_H x = \frac{1}{n_H}, \quad (4)$$

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<sup>19</sup>In case of a tie, an unbiased lottery is held amongst the candidates.

<sup>20</sup>The default policy implies that the income of all citizens is zero and that the rental market closes down. This assumption can be relaxed.

and the property tax is  $\tau_H = \frac{g_H}{n_H}$ . An extension of the franchise to *HM*-franchise brings the middle class into power, as it outnumbered the elite. The middle class benefits less from spending on local public goods than the urban elite, but can take advantage of the broader tax base ( $n_H + n_M$ ). Spending on local public goods is  $g_M$  satisfying

$$A'(g_M)k_Mx = \frac{1}{n_H + n_M}, \quad (5)$$

and the property tax is  $\tau_M = \frac{g_M}{n_H + n_M}$ . Enfranchisement of workers creates a cross-class alliance between workers and wealthy capitalists. Since it is too costly for workers to stand for election themselves and they favor more spending than any of the other groups, they will vote for the candidate who offers the most spending. For a *given* tax base, wealthy capitalists can, if elected, be trusted to spend more than middle class capitalists. Workers, therefore, cast their votes in support of a wealthy capitalist. This brings the urban elite back into power and spending on local public goods is  $g_L$  satisfying

$$A'(g_L)k_Hx = \frac{1}{n_H + n_M}, \quad (6)$$

and the property tax is  $\tau_L = \frac{g_L}{2(n_H + n_M)}$ . We note that  $g_L$  is different from  $g_H$  despite both being chosen by a wealthy capitalist. This is because the tax base is different in the two cases. The first proposition compares spending levels under the three franchise regimes.<sup>21</sup>

**Proposition 1** (*The Retrenchment Hypothesis*) *Spending on local public goods is higher under H-franchise than under HM-franchise if and only if*

$$\frac{k_H}{k_M} > \frac{n_M + n_H}{n_H}. \quad (7)$$

*Spending on local public goods is always higher under HML-franchise than under H- or HM-franchise.*

Whether enfranchisement of the middle class leads to retrenchment or not depends on a trade-off between two effects. On the one hand, under *HM*-franchise, the cost of spending on local public goods can be spread over more taxpayers than under *H*-franchise. This

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<sup>21</sup>All proofs are collected in Appendix I.

*tax base effect* pulls in the direction of more spending. On the other hand, under *HM*-franchise the power of the council falls into the hands of the middle class. It benefits less from spending on public goods than the elite. This *benefit effect* pulls in the direction of lower spending. Condition (7) guarantees that the benefit effect dominates. It requires large wealth inequalities (large benefit effect) and/or a relatively small middle class (small tax base effect). An extension of the franchise to the working class, in contrast, is always associated with an increase in spending. This is because the elite returns to power with the votes of the workers and the elected wealthy capitalist prefers more spending than the outgoing middle class candidate.<sup>22</sup>

#### 2.4. *Extension of the Franchise*

Above we took the franchise regime as given, leaving aside the determinants of the extension of the franchise. As discussed above, the boundaries of the franchise in each borough were in practice determined by two broad factors. Firstly, by not taxing certain properties or by disenfranchising indirect taxpayers *etc.*, the boundaries could be manipulated locally. Secondly, nation-wide legislation could force an extension through. Theoretically, we make a distinction between a voluntary extension of the franchise that is ‘agreed’ locally and a ‘forced’ extension that is driven by nation-wide legislation.

Initially, the franchise of the city only allows wealthy capitalists to vote – *H*-franchise – but subsequently, the middle class and possibly also the working class might become enfranchised. We say that a franchise extension is *voluntary* if all citizens are better off under the new franchise regime than under the old, i.e., the new franchise regime is Pareto superior. Voluntary enfranchisement is likely to happen endogenously and to be a matter of local politics.

**Proposition 2** (*Voluntary enfranchisement of the middle class*) *HM*-franchise is Pareto superior to *H*-franchise if and only if

$$(A(g_M) - A(g_H)) k_M x > \tau_M. \quad (8)$$

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<sup>22</sup>The system of compounding meant that some tenants (workers) might not have qualified as voters under *HML*-franchise. In the extreme, one could imagine that *all* indirect taxpayers (workers) were disenfranchised under *HML*-franchise despite being indirect taxpayers. In this case, the middle class would keep control of the council under *HML*-franchise. Importantly, however, spending would still go up because the middle class candidate in charge would take advantage of the broader tax base.

*A voluntary extension of the franchise to the middle class is always associated with an increase in spending on local public goods. Moreover, once HM-franchise has been granted, enfranchisement of the working class cannot be voluntary.*

A voluntary extension of the franchise to the middle class is possible because representation is linked to taxation. The elite loses power by granting the middle class the right to vote, but the tax base is broadened, reducing the cost of local public goods. An enfranchised middle class gains political influence, but this comes with the price tag of having to share the tax cost. Proposition 2 shows that a voluntary extension of the franchise to the middle class must be associated with an *increase* in spending on local public goods. Intuitively, if the middle class wants less public goods than the elite, it does not want to pay for the reduction. An important implication, then, is that middle class taxpayer retrenchment cannot be the result of a fully voluntary (endogenous) extension of the franchise. It must be associated with forced enfranchisement.

We say that enfranchisement is *forced* if all citizens are worse off under the new franchise regime than under the old. In other words, the new franchise regime is Pareto inferior. Admittedly this is a strict definition of forced enfranchisement. It, however, has the advantage that it is beyond doubt that a forced enfranchisement thus defined must be caused by factors external to the politics of the city. We discuss the implications of adopting a less strict definition below, but first we state the following proposition:

**Proposition 3** *(Forced enfranchisement of the middle class) HM-franchise is Pareto inferior to H-franchise if and only if*

$$(A(g_H) - A(g_M))k_Hx > \tau_H - \tau_M. \tag{9}$$

*A forced extension of the franchise to the middle class is always associated with a reduction in spending on local public goods.*

The Proposition demonstrates that democratization may be wholly unwanted. The elite is obviously reluctant to give up control of the council. Less obvious, perhaps, is

the fact that the middle class may not want voting rights. They sometimes prefer to forego political influence in order to avoid paying taxes. Importantly, a forced extension of the franchise to the middle class is always associated with a *reduction* in spending on local public goods; thus making even disenfranchised workers worse off. Moreover, if the extension from *HM*-franchise is forced, a further (partially forced) extension to *HML*-franchise will always lead to an increase in spending (see Proposition 1).<sup>23</sup> Thus, forced enfranchisement is consistent with the retrenchment hypothesis.

Proposition 3 does not depend on the specific assumptions of our model. We, therefore, suggest that the Pareto inefficiency of partial franchise extension and its link to retrenchment are more generally true. To see this, imagine that the policy preferences of group  $i$  are given by  $V_i(y_i - t_i, g)$  where  $t_i$  are taxes payable by group  $i$ . At first,  $t_M = t_L = 0$ , and group  $H$  pays taxes and has the right to vote. The outcome is  $t = t_H^*$  and  $g_H^* = n_H t_H^*$ . The extension of the franchise allows group  $M$  to vote and to pay taxes. Now, suppose that group  $M$  wants to lower taxes, because that is what is best for it. The crucial point is whether taxes fall by so much as to reduce public expenditure, i.e.  $g_M^* = t_M^*(n_H + n_M) < t_H^* n_H = g_H^*$ . If this is indeed the case, we would observe the declining part of the  $U$ -shape. But, we claim, this also suggests that the outcome is Pareto inferior to the outcome associated with the unextended franchise ( $t_H^*$  and  $g_H^*$ ). Clearly, despite being able to share the tax cost with group  $M$ , group  $H$  will be worse off if spending falls a lot; similarly, group  $L$  must be worse off because they continue to pay no taxes but consume lower amounts of public goods. It remains to be shown that group  $M$  is worse off. This is so because they now pay higher taxes  $t_M = t_M^* > 0$  but consume smaller amounts of  $g$ , and  $V_M$  is decreasing in  $t$  and increasing in  $g$ .

We can gain more insight into the conditions for voluntary and forced franchise extensions by assuming that  $A(g) = \frac{1}{\gamma} g^\gamma$  with  $\gamma \in (0, 1)$ . With this assumption, we can rewrite conditions (8) and (9) as follows

$$\frac{n_M + n_H}{n_H} > \frac{k_H}{k_M} (1 - \gamma)^{\frac{\gamma-1}{\gamma}} \quad (10)$$

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<sup>23</sup>The extensions from *HM*-franchise to *HML*-franchise cannot be fully forced as workers welcome the increase in spending.

and

$$\frac{n_M + n_H}{n_H} < \frac{k_H}{k_M} \left( \frac{1 - \gamma}{1 - \gamma \frac{k_M}{k_H}} \right)^{\frac{1-\gamma}{\gamma}}. \quad (11)$$

Figure 1 graphs conditions (10) and (11). The dotted line represents condition (7). Points above this line represents situations in which spending is higher under *HM*-franchise than under *H*-franchise, while the opposite is true for points below. We see that a voluntary extension of the franchise is more likely in cities with a large middle class to shoulder the tax burden and with little wealth inequality. In contrast, a forced extension is required to enfranchise the middle class in cities with a small middle class and high wealth inequality.

In between voluntary and forced enfranchisement of the middle class lays what we might call *conflictual* enfranchisement. This situation arises when the elite is willing to give away the vote to the middle class in return for a larger tax base, but the middle class is unwilling to ‘accept the offer’. If the elite is successful in forcing such an extension through or if it happens through a nation-wide reform, spending can either increase or decrease depending on the relative strength of the benefit and tax base effect. As is clear from Figure 1, conflictual enfranchisement is mainly an issue in cities with intermediate levels of wealth inequality and a moderately large middle class.<sup>24</sup>

[Fig. 1 *The Pareto Properties of Franchise Extension*]

We can summarize the main insights of the model as follows. Firstly, the model provides an explanation of the uneven extension of the franchise observed across mid-Victorian boroughs. It highlights a trade off between control of the council and the size of the tax base and shows when and why local politics can trigger voluntary franchise extensions. In particular, the citizens of boroughs with a relatively large middle class and modest wealth inequalities faced a strong incentive to enfranchise the middle class and maybe even the working class voluntary:<sup>25</sup> all citizens would benefit. In contrast, the citizens of boroughs

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<sup>24</sup>If the local elite was successful in enfranchising/taxing the middle class against its wishes, it is possible that middle class capitalists would respond by evading tax payments. If so, it becomes doubtful if they would be granted the franchise in the first place, but if they were, the consequence would still be retrenchment as only the benefit effect would be operating. Of course, tax evasion could also be a problem when nation-wide reforms but, again, this would reinforce the retrenchment effect.

<sup>25</sup>It can be shown that enfranchisement of the middle *and* working class, i.e., a move from *H*-franchise

with a relatively small middle class and large wealth inequalities all stood to lose from enfranchisement of the middle class. In those boroughs, any extension of the franchise beyond the urban elite was unlikely to be linked directly to local politics. Secondly, the model also shows that the source of middle class retrenchment is *forced* enfranchisement. It is only if the franchise is forced upon the middle class that its preference for economy leads to a reduction in the supply of local public goods. Voluntary extension of the franchise to the middle class is associated with higher spending, not lower. This suggests that the most likely source of retrenchment was nation-wide reforms that extended the franchise beyond what was efficient for the locality. Thirdly, local (endogenous) decisions to extend or restrict the franchise are based on a comparison of the size of the tax base before and after and on relative wealth levels. In contrast, spending decisions for a give franchise are determined solely by the size of the current tax base and the wealth level of the ruling majority. We shall draw upon these observations when we develop our empirical test of the retrenchment hypothesis below.

### 3. Estimation Strategy, Data and Results

We have constructed an unbalanced panel data set with three cross sections (1868, 1871, and 1886) for the 75 Corporations that had taken control of the Local Board of Health by 1868.<sup>26</sup> In addition to information on *spending on urban amenities, borrowed funds* and the percentage of adult males registered to vote (*franchise*), it contains information from the Population Census and other sources on socioeconomic conditions.<sup>27</sup> Appendix II defines all these variables. As with all historical data, the accuracy can be questioned. We, however, have no reasons to believe that the (in)accuracy of the fiscal data is systematically related to the measure of the extension of franchise. While measurement error in the fiscal

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directly to *HML*-franchise, can be a Pareto improvement. Under this scenario, the elite retains control of the council, but the tax base and the level of spending are expanded. The elite and workers welcome this. The middle class also welcomes it if the tax cost of the extra spending can be shared widely enough and/or if it shares the elite's taste for higher spending. This, in turn, requires that the middle class is relatively large and wealth inequality is low. The Technical Appendix contains a proof of this.

<sup>26</sup>Based on the information available, it appears that these corporations were, on average, larger than those that did not petition to set up a Local Board. Insofar as there is economics of scale in providing urban amenities, it would be cheaper for large corporations to provide these services. If anything, therefore, sample selection would bias our estimations against finding retrenchment.

<sup>27</sup>Missing information on some of these variables reduces the sample to between 55 and 69 boroughs.

data, then, inflates the error variance and may be a source of heteroskedasticity, we do not suspect this to be an important source of bias. Measurement error in the registered number of voters is less likely to be a problem. This is because the borough officials would have these numbers on record and just needed to do a count to provide a return.<sup>28</sup>

### 3.1. Panel Regressions and Results

We begin the econometric analysis by presenting panel regressions of the following type:

$$g_{it} = \alpha_1 franchise_{it} + \alpha_2 franchise_{it}^2 + X_{it}\beta + \eta_i + \mu_t + \varepsilon_{it}, \quad (12)$$

where  $g_{it}$  is investment in urban amenities *per capita* in borough  $i$  at time  $t$ , either measured by *spending on urban amenities* or by *borrowed funds*;  $franchise_{it}$  is the number of registered voters in percentage of the adult male population;  $X_{it}$  is a vector of control variables and  $\varepsilon_{it}$  captures all unobserved factors. We assume  $E(\varepsilon_{it}) = 0$ . The retrenchment hypothesis postulates a U-shaped relationship between spending on urban amenities and the extension of the franchise, or more precisely that  $\alpha_1 < 0$  and  $\alpha_2 > 0$ .

The choice of the five time-varying control variables included in  $X_{it}$  is motivated by the theoretical model. The size of the (property) tax base plays an important role in the theory. We use three proxies for this. Firstly, the average rateable value of properties within the borough (*rateable value*) is a direct measure of the size of the actual tax base. Secondly, the size of the total population (*population*), which is highly correlated with the number of houses in the borough, gives some indication of the size of the potential tax base. It also captures scale effects in the provision of urban amenities. Thirdly, the Population Census provides information on the number of individuals working in different occupations. The share of employment in manufacturing (*industrial employment*) gives an indication of the size of the tax base under *HML*-franchise and we use this variable as an alternative measure of the size of the potential tax base. In addition to these proxy variables for the tax base, we include two other variables. The number of inhabitants per house (*population density*) captures differences in population density. This is likely to affect the cost of provision, but also the demand for services. Finally, we include the

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<sup>28</sup>The Technical Appendix contains a detailed discussion of data and sources. The data set is available upon request or via the *Journal's* homepage.

stock of outstanding debt (*accumulated debt*). Since funds borrowed on the security of future tax revenue had to be invested in capital projects, the stock of debt is a reasonable indicator of past spending on urban amenities. It is clearly important to control for this as the need to spend on urban amenities in the present depends on how much was spent in the past. Past spending, of course, also increases the cost of maintenance.

In addition to these time-varying, observable factors, we control for borough and time fixed effects. These capture unobserved factors within a borough that are constant over time and common fiscal shocks that affect all boroughs in a given year, respectively. Under the assumption that  $franchise_{it}$  is uncorrelated with  $\varepsilon_{it}$ , conditional on observables and fixed effects, we can obtain consistent estimates of  $\alpha_1$  and  $\alpha_2$  by applying a fixed effects estimator to equation (12). A potential problem, however, is omitted time-varying factors that affect spending on urban amenities in borough-specific ways. Insofar as these factors are correlated with the extension of the franchise, the fixed effects estimator is inconsistent. We deal with this concern by including shire-specific time trends in some of the specifications.

Regressions (1) to (3) in Table 3 (*spending on urban amenities*) and regressions (7) to (9) in Table 4 (*borrowed funds*) contain the main results. These regressions include borough fixed effects, borough and time fixed effects, and borough and time fixed effects and shire-specific trends, respectively.<sup>29</sup> In all cases, the estimates of  $\alpha_1$  and  $\alpha_2$  are consistent with the retrenchment hypothesis and are significant, at least, at the 10 per cent level.<sup>30</sup> Despite some differences in the magnitude of the point estimates, the estimated turning point ( $\frac{-\alpha_1}{2\alpha_2}$ ) at around 40 per cent is remarkable stable across specifications. This implies that democratization would have led to a reduction in spending on urban amenities in boroughs with less than 40 per cent of the adult male population on the electoral roll, and to an expansion in boroughs with a wider franchise than that. Based on time averages, about 40 per cent of the boroughs are located below this turning point. For comparison, in regressions (4) and (10), we report the results from estimations with pooled OLS.<sup>31</sup> These

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<sup>29</sup>The estimated standard errors are robust to arbitrary heteroskedasticity.

<sup>30</sup>We have tried to include higher order polynomial terms (including a cubic term). These terms are always insignificant.

<sup>31</sup>We allow for panel heteroscedasticity and for spatial correlations between the error terms across

results are also consistent with the retrenchment hypothesis with a turning point similar to that of the fixed effects estimations.

[Table 3 *Estimation Results for Spending on Urban Amenities per (1000) Capita*]

[Table 4 *Estimation Results for Borrowed Funds per (1000) Capita*]

The time-varying controls are, with the exception of *accumulated debt* and *industrial employment*, only significant in the pooled OLS regressions and even there, not in all cases. This is not surprising, as borough fixed effects reduce the variation from which the impact of these variables are estimated to deviations from borough averages. In contrast, it is surprising to note that the time fixed effects are often insignificant. This suggests that the boroughs were exposed to few common fiscal shocks. The shire-specific trends are, on the other hand, highly significant.

Our theoretical model assumes that there is no lag between the time an individual starts paying property taxes and the time he acquires the right to vote or, equivalently, that the city economy is in a steady state. In practice urban expansion and population growth meant that it would take some time for new taxpayers to get on the electoral roll. To see if our results are robust to allowing for such lags, we have re-estimated the model including the variable *growth in the housing stock*. It measures the growth in the housing stock over the past ten years. The results are shown as regressions (5) and (11) in Tables 3 and 4, respectively. We see that urban growth increases spending on urban amenities, but that the evidence on the retrenchment hypothesis is unaffected. We have performed many other robustness checks.<sup>32</sup> Firstly, we have added additional control variables, including measures of other sources of income than local property taxes and borough-specific trends. Secondly, we have introduced fiscal lags of 5 years. Thirdly, we have balanced the panel. Fourthly, we have eliminated variables according to a general-to-specific procedure. Fifthly, we have clustered the standard errors within boroughs and allowed for arbitrary serial correlation. Finally, we have also estimated the model with

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boroughs, and the reported standard errors of the parameter estimates are panels corrected standard errors (PCSEs), as recommended by Beck and Katz (1995).

<sup>32</sup>These results are reported in the Technical Appendix.

a Tobit estimator to deal with potential corner solution problems that arise when some boroughs did not spend anything on urban amenities. The basic results presented above are robust to all these extensions.

The empirical specification in equation (12) is designed to test the main prediction of the model – the retrenchment hypothesis. The model, however, makes auxiliary predictions that allow for a more refined test of the mechanism that generates retrenchment in our theory. The idea is this. The strength of the tax base effect is determined by the relative size of the tax base under  $H$ - and  $HM$ -franchise. Theoretically, this is determined by the size of the middle class relative to the size of the elite. We can approximate this empirically using occupation data from the Population Census. In particular, we approximate the size of the middle class by individuals engaged in commercial activities and the elite with those listed as professionals. Given that, we can define the variable *relative tax base* as those engaged in commercial activities in percentage of those either occupied in commercial activities or listed as professionals. Proposition 1 predicts that the U-shaped relationship between the franchise and the level of spending should be most pronounced when the relative tax base is small. When it is not, an extension from  $H$ - to  $HM$ -franchise should lead to an increase in spending without (much of) a ‘dip’. We can test this auxiliary prediction by augmenting equation (12) with an interaction term between *franchise* and *relative tax base*:

$$g_{it} = \alpha_1 franchise_{it} + \alpha_2 franchise_{it}^2 + \alpha_3(franchise_{it} * relative\ tax\ base_{it}) \quad (13) \\ + X_{it}\beta + \eta_i + \mu_t + \varepsilon_{it},$$

where the vector  $X_{it}$  is augmented by *relative tax base*. As before, we expect that  $\alpha_1 < 0$  and  $\alpha_2 > 0$ , but in addition to this, the model predicts that  $\alpha_3 > 0$ . We report the result of estimating equation (13) in regressions (6) and (12) in Tables 3 and 4, respectively. Consistent with the theory, we see that the estimate of  $\alpha_3$  is positive, albeit only significantly so in the specification with *spending on urban amenities*. Using regression (6), we can illustrate this result by graphing *spending on urban amenities* as a function of *franchise* for different values of *relative tax base*. This is done Figure 2. The top line represents a borough with a large relative tax base, the middle line represents a borough with an

average relative tax base, and the bottom line represents a borough with a small relative tax base.<sup>33</sup> We clearly see that retrenchment – the fall in spending – is most pronounced in boroughs with a small relative tax base.

[Fig. 2. *The Interaction Between Franchise and Spending on Urban Amenities for Three Different values of Relative Tax Base (low, average and high)* to appear here]

### 3.2. *Instrumental Variables Estimates*

The panel regressions reported in the previous section only loosely draw on our theory and do not identify a causal effect if the assumption of conditional independence fails. Moreover, the theory makes an important distinction between the effect of a voluntary increase in the franchise and forced enfranchisement which the panel regressions cannot address directly. The former is unambiguously associated with fiscal expansion, while the later is associated with retrenchment. In this section, we utilize the theory more systematically to identify the retrenchment effect and to distinguish between the two types of enfranchisement properly. The theory suggests the following:

1. The retrenchment effect is associated with forced enfranchisement generated by nation-wide reforms.
2. The fiscal choice under a given franchise is determined by the *absolute* size of the tax base and by the *absolute* wealth level of the ruling majority.
3. The decision to extend the franchise *locally* is determined by the *relative* size of the tax base and by *relative* wealth levels.

These observations point to variables that can be used as instruments for the franchise in the spending equation.<sup>34</sup> First, all boroughs were exposed to three nation-wide reforms with implications for the franchise: the Municipal Franchise Act of 1869, the Assessed Rates Act of 1869, and the Municipal Corporation Act of 1882. These reforms were

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<sup>33</sup>We use the maximum, average and minimum value of *relative tax base* observed in the sample to define these cases.

<sup>34</sup>These instruments would also take care of (classical) measurement errors.

introduced precisely in between the three observed cross sections. The causes of these reforms were unlikely to be associated with the politics or fiscal situation of any particular borough. Accordingly, they constitute natural experiments. Based on observation 1, then, we can use 1869 and 1882 reform dummy variables as instruments. Moreover, since these reforms were imposed on each city from the outside, we can effectively use them to test if it, as suggested by our theory, is forced enfranchisement that leads to retrenchment.

Second, observations 2 and 3 suggest that measures of the *relative* size of the tax base and of *relative* wealth levels can be used as additional instruments for the franchise. To measure the relative size of the tax base, we use the variable *relative tax base* introduced above. The best we can do to measure the wealth distribution is to use information on the sums of money raised through income taxation in each borough. The British income tax was levied by the central government from 1842 onwards (see Daunton, 2001, p. 185). Under schedule D a tax on profits from trade, commerce and professions was levied. The percentage of total income tax revenues raised under schedule D (*relative wealth*), therefore, gives an indication of the share of income earned by the middle class. Unfortunately, this information is only available at the county level. We must, accordingly, attribute the county average to each borough within the county. Importantly, we notice that the two variables also, according to the theory, control whether voluntary enfranchisement is happening or not. They can, therefore, be used to test if this type of franchise extension has a positive monotonic effect on spending.

Finally, the scope for both voluntary and forced enfranchisement depends (trivially) on how far the franchise has already been extended. This suggests that lags of the franchise can be used as instruments. To be valid, however, the lagged value of the franchise (and its transformations) must be uncorrelated with (the unobserved component of) spending on urban amenities in the present. This is a concern because the franchise of the past affects past spending levels which may, in turn, affect present spending levels. To deal with this, we condition on past spending levels (*accumulated debt*) in the equation for current spending. We also use long lags, namely the franchise in 1852, 1865 and 1871 as instruments for the franchise in 1868, 1871 and 1886, respectively. All this makes it

plausible that the franchise of the distant past only affects current spending through its influence on the current franchise.

Based on these observations, we define two distinct sets of instruments. Instrument set I contains the two reform dummy variables. They trace out variation associated with forced enfranchisement and can accordingly be used to test directly for retrenchment. Instrument set II, on the other hand, contains the two variables *relative wealth* and *relative tax base*. They trace out variation associated with voluntary enfranchisement and can accordingly be used to test the other half of the theory, namely that voluntary enfranchisement leads to fiscal expansion. In addition, both sets include lags of *franchise* and its transformations.

Given these sets of instruments, we estimate a panel model using fixed effects 2SLS.<sup>35</sup> To economize on the degrees of freedom, we progressively excluded insignificant time-varying control variables using a general-to-specific approach. This leaves us with two control variables: *accumulated debt* and *industrial employment*. Table 5 reports the results for the two specifications with *spending on urban amenities* and *borrowed funds*.<sup>36</sup> Both sets of instruments pass Hansen’s J test for over-identifying restrictions and all instruments, except *relative wealth*, are highly significant in the first stage regressions with high partial R<sup>2</sup> values and a large F-stat for joint significance.

Regressions (13) and (14) are based on instrument set I. They provide a direct test of the presumed U-shaped relationship between a forced increase in the franchise and spending. We see that the IV estimations support the retrenchment hypothesis. The estimated turning point is, in line with the previous results, somewhere in the range between 43 and 44 per cent. Regressions (16) to (19) are based on instrument set II and they estimate the effect of voluntary enfranchisement. We see that the U-shaped relationship no longer is statistically significant. Importantly, as suggested by the theory, we find instead evidence of a positive, monotonic effect of (voluntary) franchise extension on *spending on urban amenities* (regression 18) and, to a lesser extent, on *borrowed funds* (regression 19).<sup>37</sup>

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<sup>35</sup>The use of these instruments reduces the sample size to 77 observation from 35 boroughs.

<sup>36</sup>We only report the first stage regressions for *franchise* in Table 5 since those for *franchise squared* are not of economic interest.

<sup>37</sup>If we combine the two instrument sets, the U-shaped relationship is significant. All the results are robust to including region-specific time trends [not reported].

[Table 5 *Results From IV Estimation*]

#### 4. Conclusion

We have shown that local democracy can be a source of retrenchment. In our context, it is reasonable to suppose that retrenchment and the associated reduction in spending on urban amenities was socially harmful. In other contexts, it is possible that retrenchment can be socially desirable, for example, by taming a Leviathan government. From a broader perspective, our analysis shows that franchise extension needs not be associated with larger government, as otherwise suggested by the theory developed by Meltzer and Richard (1981) and others.<sup>38</sup> In particular, the tax policy used to finance public spending plays an important role. While Lindahl (1964) argued that a tax system linked to marginal benefits can foster consensus, our evidence suggests that retrenchment emerges out of social conflict when taxes are largely unrelated to the benefits of spending but closely linked to political rights.

Recent empirical work on the consequences of the extension of the franchise have focused on fiscal and other outcomes at the national level or at the state level in the USA. While the evidence from US states presented by Husted and Kenny (1997) and Lott and Kenny (1999) and for the world by Boix (2003, chapter 5) broadly support the view that franchise reforms contributed to growth of government and to more redistribution, the evidence from western Europe is more complex. Aidt *et al.* (2006) find that the franchise extension had more impact on the composition of spending than on the scale of government and that the franchise reforms of the 19th and early 20th century did not trigger large-scale redistribution. Aidt and Jensen (2009a) show that the impact of the franchise extension on the composition of taxes depended critically on state of the tax collection technology. In particular, the franchise was not associated with growth in distributive direct taxation until tax collection capacities had reached a certain threshold.<sup>39</sup> Aidt and Jensen (2009b) find that franchise extension, at least initially, reduced the probability of adopting the income tax during the 19th and early 20th century. For a broader sample of countries,

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<sup>38</sup>See also Creedy and Solmaz (2009).

<sup>39</sup>See also Lindert (1994, 2004a,b) for evidence on the link between democratization and social spending, and Engerman and Sokoloff (2005) for a study of the franchise extension in the Americas.

Mulligan *et al.* (2002) find little evidence of a relationship between democracy and social security policy and stress that countries with very different political histories often end up with very similar social security programmes. Taken together with our finding of retrenchment, this body of evidence casts doubt on the simply hypothesis that democratization must be associated with growth in government.

## Appendix I: Proofs

*Characterization of policy outcomes.* First, consider  $H$ -franchise. Suppose a wealthy capitalist stands for election and is elected. He implements  $g_H = \arg \max \pi_H^*(g) - \tau$  subject to  $g = \tau n_H$  where  $g_H$  satisfies  $A'(g_H)k_H x = \frac{1}{n_H}$ . If no one stands for election, the default policy is  $g_0 = 0$  which yields  $v_H(0) = \beta^{-1}$ . At least one wealthy capitalist will run if  $v_H(g_H) - \varepsilon_H \geq \beta^{-1}$ , which is always satisfied for  $\varepsilon_H \rightarrow 0^+$ .

Second, consider  $HM$ -franchise. Suppose a capitalist of type  $i$  is elected. He implements  $g_i^{HM} = \arg \max \pi_i^*(g) - \tau$  subject to  $g = \tau(n_H + n_M)$  where  $g_i^{HM}$  satisfies  $A'(g_i)k_i x = \frac{1}{n_H + n_M}$ . If no one stands for election, the default policy is  $g_0 = 0$  which yields  $v_i(0) = \beta^{-1}$ . At most one candidate from each group stands for election as long as the cost of running is positive. The entry game has four potential pure strategy equilibria: (A) a wealthy and a middle class capitalist enter, (B) only a wealthy capitalist enters, (C) only a middle class candidate enters, (D) no one enters. Since wealthy capitalists cannot win a contested election against a middle class candidate, simply because  $n_M > n_H$ , configuration (A) cannot be an equilibrium: the wealthy capitalist prefers not to run (same policy outcome, but no entry cost). Moreover, for small entry costs, configuration (D) cannot be an equilibrium either: each type of candidate prefers to enter and implement his most preferred policy to the default policy. Configuration (B) is an equilibrium if and only if

$$v_M(g_H^{HM}) \geq v_M(g_M^{HM}) - \varepsilon_M \quad (14)$$

$$v_H(0) \leq v_H(g_H^{HM}) - \varepsilon_H. \quad (15)$$

Condition (14) fails for  $\varepsilon_M \rightarrow 0^+$  because  $v_M(g_M^{HM}) > v_M(g_H^{HM})$ . Thus, this cannot be an equilibrium under Assumption (1). Configuration (C) is an equilibrium if and only if

$$v_M(g_M^{HM}) - \varepsilon_M \geq v_H(0) \quad (16)$$

$$v_H(g_M^{HM}) - \varepsilon_H \leq v_H(g_M^{HM}). \quad (17)$$

Both of these conditions are satisfied under Assumption (1).

Third, consider  $HML$ -franchise. Suppose a capitalist of type  $i$  is elected. He implements  $g_i^{HML} = \arg \max \pi_i^*(g) - 2\tau$  subject to  $g = 2\tau(n_H + n_M)$  where  $g_i^{HML}$  satisfies  $A'(g_i)k_i x = \frac{1}{n_H + n_M}$ . If no one stands for election, the default policy is  $g_0 = 0$  which yields  $v_i(0) = \beta^{-1}$ . Worker candidates are never going to stand (Assumption 2) and at most one candidate from each of the other groups stands for election. While capitalists vote for a candidate of their own type, workers prefer a wealthy to a middle class capitalist. As

above, only two of the four potential pure strategy equilibria are relevant. Configuration (B) is an equilibrium if and only if

$$v_H(g_H^{HML}) - \varepsilon_H \geq v_H(0) \quad (18)$$

$$v_M(g_H^{HML}) - \varepsilon_M \leq v_M(g_H^{HML}). \quad (19)$$

Both of these conditions are satisfied under Assumption 1. Configuration (C) is an equilibrium if and only if

$$v_H(g_H^{HML}) - \varepsilon_H \leq v_H(g_M^{HML}) \quad (20)$$

$$v_M(g_M^{HML}) - \varepsilon_M \geq v_M(0). \quad (21)$$

Condition (20) fails for  $\varepsilon_H \rightarrow 0$  as  $v_H(g_H^{HML}) > v_H(g_M^{HML})$ . The Proposition follows by setting  $g_H^{HML} = g_L$  and  $g_M^{HM} = g_M$  ■

*Proof of Proposition 1.* Since  $A(g)$  is strictly increasing and concave, equations (4) and (5) imply that  $g_H > g_M$  if and only if  $\frac{k_H}{k_M} > \frac{n_M + n_H}{n_H}$ . Moreover,  $g_L > \max\{g_H, g_M\}$  because  $(n_M + n_H)k_H > \max\{(n_M + n_H)k_M, n_H k_H\}$ .

*Proof of Proposition 2.* Since the middle class is worse off under  $HML$ -franchise than under  $HM$ -franchise, an extension of the franchise from  $HM$ - to  $HML$ -franchise cannot be voluntary. Given that,  $HM$ -franchise is Pareto superior to  $H$ -franchise if and only if

$$(PS)^M \quad v_M(g_M) > v_M(g_H) \quad (22)$$

$$(PS)^H \quad v_H(g_M) > v_H(g_H) \quad (23)$$

$$(PS)^L \quad w(g_M) > w(g_H) \quad (24)$$

We prove the Proposition in three steps. First, rewrite  $(PS)^M$  as follows

$$xk_M(A(g_M) - A(g_H)) > \frac{g_M}{n_M + n_H} \quad (25)$$

which can only be satisfied if  $g_H < g_M$ . Second, write  $(PS)^M$  as in equation (25) and  $(PS)^H$  as

$$(A(g_M) - A(g_H))xk_H + \frac{g_H}{n_H} > \frac{g_M}{n_M + n_H}. \quad (26)$$

Since  $(PS)^M \Rightarrow g_M > g_H$ ,  $A' > 0$  and  $k_H > k_M$ , we have that  $(PS)^M \Rightarrow (PS)^H$ . Finally, since workers want  $g$  to be as high as possible, they are better off under a  $HM$ -franchise than under a  $H$ -franchise if condition  $(PS)^M$  is satisfied. Condition (8) then follows by rearranging condition  $(PS)^M$ . To prove the last part of the Proposition, we recall that each capitalists owns two houses, one of which is rented to the market. The government budget constraint is  $g_L = 2\tau(n_M + n_H)$ . Given that, it is sufficient to note that

$$A(g_M)xk_M - \frac{g_M}{n_M + n_H} > A(g_L)xk_M - \frac{g_L}{n_M + n_H} \quad (27)$$

from maximization ■

*Proof of Proposition 3.* An extension of the franchise from *HM*- to *HML*-franchise cannot be voluntary. Given that, *HM*-franchise is Pareto inferior to *H* franchise if and only if

$$(PI)^M \quad v_M(g_M) < v_M(g_H) \quad (28)$$

$$(PI)^H \quad v_H(g_M) < v_H(g_H) \quad (29)$$

$$(PI)^L \quad w(g_M) < w(g_H) \quad (30)$$

We prove the Proposition in three steps. First, rewrite  $(PI)^H$  as follows

$$F(g_M, g_H) = xk_H (A(g_H) - A(g_M)) + \frac{g_M}{n_M + n_H} - \frac{g_H}{n_H} > 0. \quad (31)$$

Notice that  $F(g_H, g_H) < 0$ . Using equations (4) and (5), we can write the total differential of  $F$  as

$$dF = \frac{k_M - k_H}{(n_H + n_M)k_M} dg_M. \quad (32)$$

It follows that  $\frac{dF}{dg_M} < 0$  and that if  $F(g_M, g_H) > 0$ , then it must be that  $g_H > g_M$ . Second, write  $(PI)^M$  as

$$xk_M (A(g_H) - A(g_M)) + \frac{g_M}{n_M + n_H} > 0 \quad (33)$$

Since  $(PI)^H \Rightarrow g_H > g_M$  and  $A' > 0$ , we have that  $(PI)^H \Rightarrow (PI)^M$ . Finally, since workers like  $g$  to be as high as possible, they are worse off under a *HM*-franchise than under a *H*-franchise if condition  $(PS)^H$  is satisfied. The Proposition then follows by rearranging condition  $(PS)^H$  ■

## Appendix II: Variable Definitions

*Spending on urban amenities* is the sum of ‘Public Works and Maintenance and Repairs’ from the Corporations’ accounts and ‘Public and Private Improvement Works’ from the accounts of the Local Board or the Urban Sanitary Authority. This includes spending on sewage, water supply, gas supply, highway scavenging and watering and drainage.

*Borrowed funds* is the sum of ‘Money Borrowed on Security of the Rates’ from the Corporations’ accounts and ‘Loans on Security of Rates’ from the accounts of the Local Board or the Urban Sanitary Authority.

*Franchise* is the total number of individuals on the Burgess Roll divided by the number of male inhabitants in the municipal borough, aged above 20, times 100.

*Population* is the total population in the municipal borough (borough boundaries).

*Population density* is the total population divided by the number of inhabited houses in the municipal borough, times 100.

*Industrial employment* is the number of male and female workers in the industrial class (V) in the relevant registration district divided by the number of adult (older than 20 years) males and females living in that registration district, times 100.

*Ratable value* is the value of all rated property in the parish or registration district divided by the number of properties in the parish or district, times 100.

*Accumulated debt* is the stock of debt outstanding at the end of the fiscal year, as stated in the Corporations' accounts and in those of the Local Board or the Urban Sanitary Authority.

*Relative tax base* is the number of individuals listed as being engaged in commercial activities in the Population Census as percentage of the number of individuals listed as either being engaged in commercial activities or listed as professionals, by registration district.

*Relative wealth* is the percentage of total income tax revenues raised under schedule D. Recorded at the county level only.

*Rents and profits* is the sum of 'Tolls and Dues, Duties, Penalties, Fines and Fees' and 'Rents and Profits of Property' from the Corporations' accounts and 'Profits From Water and Gas Works and Income From Markets, Rents, Tolls and Dues' from the accounts of the Local Board or the Urban Sanitary Authority.

*Growth in housing stock* is the growth rate of the number of inhabited houses in the municipal borough (borough boundaries) over the previous ten years.

[Table A1 *Descriptive Statistics*]

## Technical appendix

Additional Supporting information may be found in the online version of this article:

**Supplementary appendix I** with information about the construction of the data set and a complete list of sources.

**Supplementary appendix II** with an analysis of voluntary enfranchisement of the middle and working class.

**Supplementary appendix III** with a detailed analysis of the role of tax incidence.

**Supplementary appendix IV** with a detailed discussion of robustness checks.

**Supplementary appendix Table 1:** Robustness Checks I.

**Supplementary appendix Table 2:** Robustness Checks II.

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Table 1  
*The Extension of The Voting Franchise for the Municipal Corporations in 1852, 1865, 1871 and 1884*

	Number of boroughs	Mean	Standard deviation	Minimum	Maximum
Year					
1852	33	28.6	11.0	11.4	52.3
1865	63	35.6	14.0	11.5	81.9
1871	73	57.0	12.8	28.2	81.9
1884	75	64.2	10.8	33.0	86.7
All years	244	49.8	18.5	11.4	86.7

*Source.* British Parliamentary Papers.

*Notes.* The franchise is measured as the total number of registered voters in per cent of all male inhabitants, aged above 20, in the borough.

Table 2  
*Average Spending on Urban Amenities and Borrowed Funds, 1868-1888*

Year	Number of boroughs	Spending on urban amenities/total spending		Spending on urban amenities per 1000 capita		Borrowed funds/total revenue		Borrowed funds per 1000 capita	
		%	St. dev.	%	St. dev.	£	St. dev.	£	St. dev.
1868	68	44.8	17.4	14.9	18.4	189.3	319.6	398.6	355.9
1871	74	45.7	14.2	17.7	19.9	284.7	550.1	453.2	451.6
1875	74	47.9	13.1	18.3	19.3	434.2	754.2	758.7	817.9
1886	75	50.5	12.5	17.9	17.9	410.2	708.0	887.4	779.1
1888	75	48.8	11.1	15.1	16.4	360.0	828.1	850.9	857.5

*Source.* British Parliamentary Papers.

*Notes.* The data refer to the aggregates of the accounts of the Corporations and the Local Boards (1868 and 1871) and the Urban Sanitary Authorities (1875, 1886 and 1888). Spending on urban amenities includes spending on sewage, water supply, gas supply, streets and other similar public works. Borrowed funds are the sums of monies raised on security of the rates during the year.

Table 3  
*Estimation Results for Spending on Urban Amenities per (1000) Capita*

	(1)	(2)	(3)	(4)	(5)	(6)
Estimation method <sup>a</sup>	Within	Within	Within	Pooled	Within	Within
	OLS	OLS	OLS	OLS	OLS	OLS
Franchise	-28.0*	-26.8*	-62.8**	-17.9*	-24.5*	-57.4**
	(1.95)	(1.65)	(2.47)	(1.89)	(1.68)	(2.27)
Franchise squared	0.35**	0.36*	0.76***	0.22**	0.34**	0.36**
	(2.08)	(1.89)	(2.84)	(2.29)	(2.00)	(2.09)
Population	-0.004	-0.003	-0.008	-0.001	-0.001	-0.005
	(0.90)	(0.49)	(1.14)	(1.31)	(0.11)	(0.96)
Industrial employment	-2.6	-7.7	-105.9**	15.5***	-6.2	-3.9
	(0.17)	(0.37)	(2.47)	(4.32)	(0.30)	(0.20)
Rateable value	-0.0003	-0.02	0.83**	0.19***	-0.04	0.07
	(0.00)	(0.08)	(2.20)	(3.26)	(0.16)	(0.26)
Population density	-3.26	-3.94	7.68	-0.23	-5.2	-5.06
	(0.75)	(0.95)	(1.11)	(0.91)	(1.24)	(1.23)
Accumulated debt	0.26***	0.25***	0.33***	0.19***	0.23***	0.25***
	(4.04)	(3.84)	(3.63)	(4.88)	(3.62)	(3.71)
Growth in housing stock					6.2*	
					(1.92)	
Relative tax base*franchise						0.44**
						(2.17)
Relative tax base						-21.84
						(1.36)
Turning point <sup>e</sup>	40.0	37.2	41.3	40.7	36	43.8 <sup>f</sup>
Borough fixed effects	yes	yes	yes	no	yes	yes
Regional fixed effects	no	no	no	yes	no	no
$\chi^2$ test (p-value) <sup>b</sup>				0.00		
Time fixed effects	no	yes	yes	yes	yes	yes
$\chi^2$ test (p-value) <sup>c</sup>		0.88	0.06	0.16	0.60	0.89
Shire-specific trends	no	no	yes	no	no	no
$\chi^2$ test (p-value) <sup>d</sup>			0.000			
Observations	127	127	127	141	127	127
Boroughs	55	55	55	69	55	55

*Notes.* Z statistics in brackets (robust to arbitrary heteroskedasticity); \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%; a) Regression (4) includes a constant; b)  $\chi^2$  test: The null is that all regional fixed effects are 0; c)  $\chi^2$  test: The null is that all time fixed effects are 0; d)  $\chi^2$  test: The null is that all shire-specific trends are 0; e) Turning point =  $-\hat{\alpha}_1/2\hat{\alpha}_2$ ; f) The turning point is calculated for the sample average value of *relative tax base*, which is 60.0.

Table 4  
*Estimation Results for Borrowed Funds per (1000) Capita*

	(7)	(8)	(9)	(10)	(11)	(12)
Estimation method <sup>a</sup>	Within	Within	Within	Pooled	Within	Within
	OLS	OLS	OLS	OLS	OLS	OLS
Franchise	-40.0*	-44.5*	-111.1***	-29.4**	-42.9*	-69.4*
	(1.78)	(1.71)	(2.72)	(2.14)	(1.76)	(1.70)
Franchise squared	0.50*	0.56*	1.27***	0.35**	0.54*	0.56*
	(1.86)	(1.87)	(2.86)	(2.43)	(1.92)	(1.95)
Population	-0.004	0.001	0.007	0.001	0.003	-0.002
	(0.63)	(0.22)	(0.61)	(0.77)	(0.43)	(0.25)
Industrial employment	44.0**	22.4	-57.3	14.0***	23.5	25.8
	(2.33)	(0.85)	(0.82)	(2.90)	(0.91)	(1.04)
Rateable value	0.30	0.33	0.87	0.11	0.32	0.41
	(0.60)	(0.65)	(1.17)	(1.15)	(0.64)	(0.78)
Population density	-4.7	-7.7	-1.84	-0.20	-8.6	-8.4
	(0.98)	(1.51)	(0.22)	(0.63)	(1.61)	(1.59)
Accumulated debt	0.27***	0.28***	0.35*	0.11	0.26**	0.27***
	(2.70)	(2.60)	(1.78)	(1.41)	(2.48)	(2.68)
Growth in housing stock					4.3	
					(0.95)	
Relative tax base*franchise						0.36
						(1.30)
Relative tax base						-23.7
						(1.13)
Turning point <sup>e</sup>	40.0	39.7	43.7	42.0	39.7	42.6 <sup>f</sup>
Borough fixed effects	yes	yes	yes	no	yes	yes
Regional fixed effects	no	no	no	yes	no	no
$\chi^2$ test (p-value) <sup>b</sup>				0.04		
Time fixed effects	no	yes	yes	yes	yes	yes
$\chi^2$ test (p-value) <sup>c</sup>		0.64	0.06	0.67	0.67	0.69
Shire-specific trends	no	no	yes	no	no	no
$\chi^2$ test (p-value) <sup>d</sup>			0.000			
Observations	127	127	127	141	127	127
Boroughs	55	55	55	69	55	55

Notes. Z statistics in brackets (robust to arbitrary heteroskedasticity); \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%; a) Regression (10) includes a constant; b)  $\chi^2$  test: The null is that all regional fixed effects are 0; c)  $\chi^2$  test: The null is that all time fixed effects are 0; d)  $\chi^2$  test: The null is that all shire-specific trends are 0; e) Turning point =  $-\hat{\alpha}_1 / 2\hat{\alpha}_2$ ; f) The turning point is calculated for the sample average value of *relative tax base*, which is 60.0.

Table 5  
Results From IV Estimation

	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Stage	2 <sup>nd</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	2 <sup>nd</sup>	2 <sup>nd</sup>	2 <sup>nd</sup>	1 <sup>st</sup>
Dependent variable <sup>a</sup>	Spending on urban amenities	Borrowed funds	Franchise	Spending on urban amenities	Borrowed funds	Spending on urban amenities	Borrowed funds	Franchise
Franchise (instrumented)	-126.8**	-227.7*		-47.5	-84.7	22.4**	42.7	
	(2.56)	(1.77)		(1.05)	(1.27)	(2.29)	(1.49)	
Franchise squared (instrumented)	1.44***	2.62*		0.67	1.22*			
	(2.69)	(1.82)		(1.58)	(1.69)			
Franchise lagged			1.24***					1.18***
			(4.16)					(3.88)
Franchise squared lagged			-0.017***					-0.017***
			(5.81)					(5.33)
Reform dummy 1869			17.30***					
			(9.56)					
Reform dummy 1882			34.75***					
			(8.14)					
Relative wealth								0.56
								(1.08)
Relative tax base								0.42**
								(2.26)
Industrial employment	36.21**	93.27**	0.17	-8.90	8.80	-25.72	-21.87	0.27
	(2.34)	(2.38)	(0.44)	(0.44)	(0.22)	(1.50)	(0.48)	(0.73)
Accumulated debt	0.19***	0.24***	-0.003**	0.25***	0.37***	0.26***	0.39***	-0.002**
	(3.89)	(2.61)	(2.53)	(4.05)	(2.68)	(4.52)	(2.75)	(2.41)
Turning point <sup>b</sup>	44.0	43.5		n.a.	n.a.	n.a.	n.a.	
Hansen J Test (p-value) <sup>c</sup>	0.62	0.68		0.57	0.61	0.18	0.29	
F test on all instruments			35.7					10.1
p-value <sup>d</sup>			0.00					0.00
Partial R <sup>2</sup>			.77					.45
Instrument set			I					II
Time effects	no	no	no	no	yes	yes	yes	yes
Observations	77	77	77	77	77	77	77	77
Boroughs	35	35	35	35	35	35	35	35

Notes. Z statistics in brackets (robust to arbitrary heteroskedasticity and arbitrary autocorrelation); \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%; a) All regressions include borough fixed effects; b) Turning point =  $-\hat{\alpha}_1/2\hat{\alpha}_2$ ; c) The joint null hypothesis is that the extra instruments are valid; d) p-value for test that all instruments are insignificant. Instrument set I: franchise lagged, franchise squared lagged, reform dummy 1869, reform dummy 1882. Instrument set II: franchise lagged, franchise squared lagged, relative wealth, and relative tax base.

Table A1  
Descriptive Statistics

<b>1868</b>	<b>Observations</b>	<b>Average</b>	<b>Standard deviation</b>	<b>Minimum</b>	<b>Maximum</b>
Franchise <sup>a</sup>	63	35.6	14.1	11.5	81.9
Borrowed funds per (1000) capita	68	398.6	355.9	0	2216.1
Spending on urban amenities per (1000) capita	68	189.3	319.6	0	1931.6
Population	71	56761	62547	6887	350575
Industrial employment	67	36.9	11.1	17.3	63.5
Rateable value	58	1731.7	577.6	700.8	3777.7
Population density	67	558.8	127.5	402.1	1184.8
Accumulated debt	68	1775.5	2150.5	0	14820.7
Relative wealth	71	38.9	15.2	14.8	63.8
Relative tax base	67	58.4	15.9	17.9	88.1
Growth in housing stock	68	19.5	26.8	-100.0	119.0
<b>1871</b>					
Franchise	73	56.9	12.9	28.2	81.9
Borrowed funds per (1000) capita	74	453.2	451.6	27.7	2378.6
Spending on urban amenities per (1000) capita	74	284.7	550.1	0	3626.5
Population	74	67896	84379	6915	493405
Industrial employment	70	36.4	10.8	16.7	61.9
Rateable value	64	1705.3	599.2	699.1	3532.8
Population density	73	557.3	122.3	385	1176.8
Accumulated debt	74	2477.4	2648.6	0	13751.5
Relative wealth	73	39.1	16.5	7.1	64.1
Relative tax base	70	59.4	15.8	20.1	89.4
Growth in housing stock	73	22.5	22.6	7.3	113.6
<b>1886</b>					
Franchise <sup>b</sup>	75	64.2	10.8	33	86.7
Borrowed funds per (1000) capita	75	887.4	779.1	90.5	5915.1
Spending on urban amenities per (1000) capita	75	410.2	708.0	0	5026.2
Population	75	87164.4	98386	7719	538685
Industrial employment	30	34.7	11.5	7.3	55.8
Rateable value	75	1939.5	900.5	276.9	6573.8
Population density	75	547.3	108.7	430.7	1097.6
Accumulated debt	75	6113.6	5236.2	148.1	21340.9
Relative wealth	74	44.4	14.6	21.4	65.9
Relative tax base	30	64.9	12.1	24.7	83.8
Growth in housing stock	74	9.1	8.9	2.9	45.4

Notes. a) the franchise refers to 1865; b) the franchise refers to 1884.

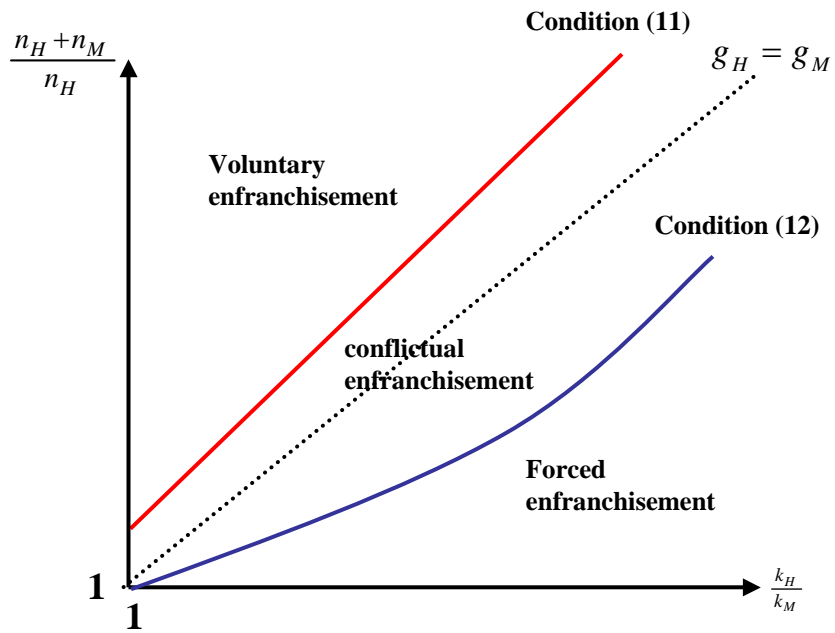


Fig. 1. *The Pareto Properties of Franchise Extension*

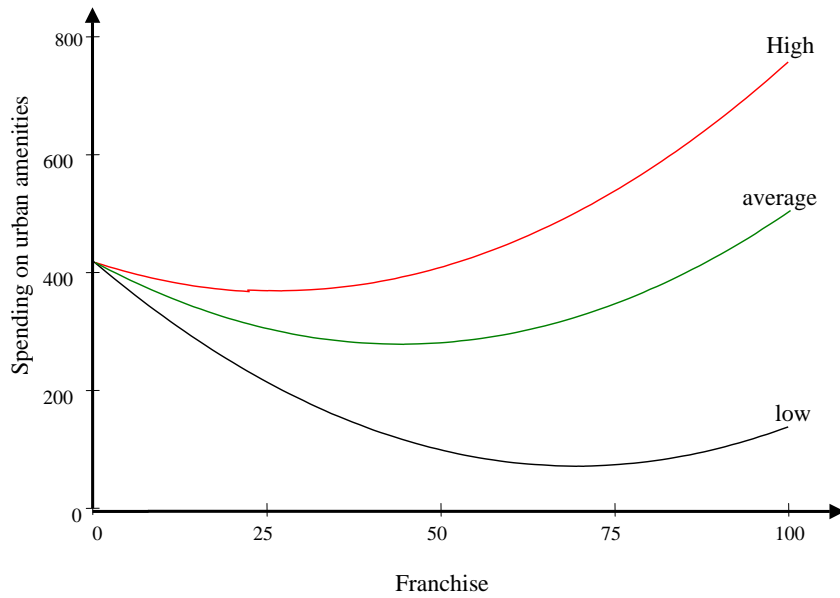


Fig. 2. *The Interaction Between Franchise and Spending on Urban Amenities for Three Different values of Relative Tax Base (low, average and high)*