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Left in Charge: Political Rule and the Rise of Local Welfare*

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Abstract

We study how institutional constraints on executive selection shape redistributive policy, using a 1919 Danish reform that allowed town councils to democratically elect mayors. While the reform applied uniformly across towns, it made left-wing executive control politically feasible for the first time, particularly in towns with stronger prior support for the Social Democratic party. Exploiting predetermined Social Democratic vote shares from the 1917 election interacted with the post-reform period, we identify the causal effect of Social Democratic executive control on local public finance. We show that Social Democratic mayors substantially increased social spending, especially on poor relief and public assistance, with these expansions financed primarily through higher direct taxes. We find no robust evidence that these policies reduced local economic activity. The results highlight how removing institutional constraints on executive selection can translate latent voter preferences into concrete redistributive policy outcomes.

Key words: Democratization, Left-wing political parties, Size of government, Redistribution, Economic growth.

JEL Codes: H53; H71; D72; R5; N94; P16

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1 Introduction

The expansion of government size and social transfers in many now-developed countries since the mid-19th century is well documented (e.g., Tanzi et al., 2000; Lindert, 2004). While several factors may account for these trends, a large literature attributes the growth of the public sector to the rise of democracy (e.g., Aidt et al., 2006; Acemoglu et al., 2015). Yet, there is relatively limited causal evidence on how democratization—and its distinct institutional components—affects government size, and existing cross-country studies often reach conflicting conclusions (see review in Acemoglu et al., 2015).[1] A historical and political-economy literature further emphasizes that democratization may only translate into expanded redistribution once left-wing parties gain access to executive power. In the Danish context, Kolstrup (1998) argues that key elements of the welfare state originated in municipalities governed by Social Democrats, suggesting that local left-wing rule played a central role in shaping national social policy. Despite the prominence of this narrative, there is limited causal evidence on whether and how left-wing parties systematically altered the size and composition of local government. More broadly, this question relates to a wider debate in political science about what fundamentally distinguishes left-wing from right-wing politics. While ideological differences are often framed in terms of attitudes toward state intervention in the economy, recent work suggests that views on inequality may be more central (Lindqvist, 2024).

In this paper, we develop a new approach to examining how democratization and left-wing political leadership shape the size and composition of local governments and their economies. Our analysis draws on a reform that democratized local executive institutions in Denmark, introduced almost seventy years after the establishment of national constitutional democracy and roughly half a century after the introduction of town self-government through elected town councils. Until the late 1910s, mayors, the chair of elected councils in urban municipalities (hereafter "towns"), were appointed by the king irrespective of the council's political composition. These royally appointed mayors were civil servants with lifetime tenure and were, in principle, embedded in the state administration rather than in local partisan politics. In addition to serving as chair and full member of the town council, they exercised broad executive authority, could block council initiatives, and served as permanent members and chairs of key standing committees, including those responsible for poor relief. In most towns, they also acted as town judge, implying that executive and judicial powers were not institutionally separated. Royally appointed mayors were generally conservative in political orientation and have been argued to have maintained close ties to the local conservative

[1] A notable exception is Hinnerich and Pettersson-Lidbom (2014), who provides well-identified evidence that direct democracy (relative to representative democracy) in historical Sweden led to lower welfare spending. They argue that this may reflect features such as the absence of pro-poor parties, strong agenda-setting power of the chairman (similar to the Danish mayor), and open rather than secret voting. However, they provide no direct causal evidence on the relative importance of these mechanisms; see Section 2 for further discussion.

party in the town council (Kolstrup, 1998). In 1919, a national reform transferred the power to select mayors from the central state administration to town councils, which could henceforth elect mayors by majority vote. The reform also ended the dual role of the mayor as town judge, thereby separating executive and judicial authority. This institutional change, already partially anticipated in practice a few years earlier (see Section 3.2), led some towns to elect Social Democratic mayors, while others remained under conservative leadership.

We study whether this institutional change led to shifts in local government spending behavior, using a difference-in-differences research design that exploits reform-induced variation in executive political control.[2] Two features of the historical setting are particularly advantageous for identification. First, although the timing of the transition to Social Democratic mayoral rule is itself endogenous, the 1919 reform generated plausibly exogenous variation in the opportunity to adopt Social Democratic leadership. Prior to the reform, local electoral support for the Social Democratic party could not translate into executive power, as mayors were appointed by the central state. After the reform, pre-existing differences in Social Democratic vote shares translated into differential and staggered adoption of Social Democratic mayors across towns. Second, the reform provides a sharply defined and institutionally meaningful pre-period. Because the appointment system precluded partisan control of the mayoralty before 1919, towns were effectively locked into a common executive regime. This contrasts with modern settings, where partisan control of local executives evolves gradually and often without a clear baseline. As a result, post-reform differences in outcomes can be interpreted relative to a period in which partisan mayoral rule was institutionally absent, strengthening the credibility of the parallel-trends assumption.

Central to our empirical strategy is newly assembled data on the roll-out of Social Democratic mayoral rule across towns, measured by the first year in which a Social Democratic mayor took office. We exploit the fact that towns differed substantially in their electoral support for the Social Democratic party prior to the reform: towns with higher Social Democratic vote shares in the 1917 parliamentary election were more likely to transition to Social Democratic executive leadership once town councils gained the right to elect mayors. Our identifying assumption is that, under the pre-reform appointment system, royally appointed mayors constrained welfare expansion in a similar manner across towns, including those that would later elect Social Democratic mayors. As a result, towns that eventually transitioned to Social Democratic rule and those that remained under conservative leadership followed parallel trends in relevant outcomes prior to the reform. Under this assumption, towns that did not elect Social Democratic mayors after 1919 provide a plausible counterfactual for those that did, a presumption supported by narrative and institutional evidence

[2]During our study period, towns played a central role in the provision of social welfare, financing approximately 60% of all social spending in 1916. The central state contributed around 30%, while the remaining 10% was covered through self-insurance (Kolstrup, 1998).

(see Section 3.2). Formally, we instrument the roll-out of Social Democratic mayoral rule—defined as the first instance in which a town is governed by a Social Democratic mayor—using the interaction between the post-reform period and the town-level Social Democratic vote share in 1917.

We first document that towns with higher Social Democratic vote shares in 1917 were significantly more likely to elect a Social Democratic mayor after the reform, confirming the relevance of our identifying variation. Exploiting this reform-induced transition, we find that Social Democratic executive control led, on average, to higher total municipal spending and tax revenues during the 1920s. The strongest, most robust, and most persistent effects are observed in poverty relief and local public assistance (labeled "help funds" in town balance sheets), which increased by approximately 30% and 60% per capita, respectively. We provide evidence that the rise in poor relief spending was driven primarily by increased support per recipient rather than by an expansion in the number of individuals receiving assistance. We also find increases in school spending, concentrated in the folk school system, along with corresponding growth in the number of free schools, students, teachers, and classes. In contrast, we do not observe comparable effects for other types of schools, indicating that Social Democratic mayors prioritized the folk school system in particular. Other spending categories, including general administrative costs and old-age support, show little systematic response. Finally, we document that the cross-sectional component of our treatment variation—Social Democratic vote share in 1917—is unlikely to capture anticipatory "threat effects," whereby non–Social Democratic mayors increase spending in response to rising left-wing electoral support.

This paper contributes to the political economy literature by providing causal evidence on how institutional constraints on executive selection can prevent electoral preferences from translating into redistributive policy. We exploit a reform in Denmark that replaced royally appointed mayors, who exercised substantial executive authority and could effectively block local welfare expansion, with democratically elected mayors, thereby allowing Social Democratic leaders to gain office in towns with strong latent demand for redistribution. We show that Social Democratic executive control led to substantial increases in social spending in towns with stronger pre-existing support for the Social Democratic Party. This finding highlights executive selection rules as binding institutional veto points and extends standard models of redistribution (e.g., Meltzer and Richard, 1981; Hettich and Winer, 1988), which typically assume that voter preferences can be implemented without institutional frictions. More broadly, our results inform theories of democratization and state capacity by showing that redistributive outcomes may be constrained not by voter preferences or partisan competition per se, but by institutional design, a mechanism with implications well beyond the Danish context.

Quantitatively, we provide new causal evidence that Social Democratic executive control increased local redistribution. Our findings contrast with those of Molinder et al. (2022), who studies

a similar historical setting in Sweden using a more descriptive empirical approach, and they differ from the results in Finseraas (2020). At the same time, our evidence is consistent with findings from Pettersson-Lidbom (2008) and Fiva et al. (2018) using modern data, as well as with historical evidence from Hinnerich and Pettersson-Lidbom (2014). More broadly, our results support the view that the welfare state has important local origins. A prominent historical argument holds that Social Democratic parties first developed redistributive policies at the municipal level, which later shaped national welfare institutions. Our evidence speaks directly to the first part of this causal chain by showing that local Social Democratic rule generated substantial expansions in social spending. In this sense, the paper contributes to both the international literature on government size and the historical literature on the origins of the welfare state.

The paper also contributes to the literature on how the selection system for public executives shapes policy outcomes. Existing work has studied the effects of alternative local executive arrangements, such as mayor council versus manager council systems, on public spending in U.S. cities, with mixed results (e.g., Coate and Knight, 2011; MacDonald, 2008). More closely related, Hessami (2018) exploits a reform in the German state of Hesse that shifted from mayor appointment by municipal councils to direct mayoral elections and finds that directly elected mayors secured higher investment grants from the state. Our setting differs in that we study how executive selection rules condition the policy impact of partisan control, rather than the effect of direct elections per se. This allows us to isolate how institutional constraints on executive selection interact with political ideology to shape redistributive outcomes.

Relative to existing within-country studies, we extend the analysis by examining whether the institutional change that enabled Social Democratic executive control, and the associated expansion of public spending, had adverse effects on local economic activity. To do so, we draw on newly assembled historical tax records that allow us to measure earned income and firm profits at the annual town level. Overall, we find no robust evidence that Social Democratic rule had large effects on local economic outcomes. For example, based on the 95% confidence interval for income per capita, we can rule out effects more negative than -19% and more positive than $+6\%$. These results speak to an ongoing debate on the relationship between democratization, public spending, and economic growth, which has so far relied primarily on cross-country evidence (e.g., Barro, 1996; Papaioannou and Siourounis, 2008; Brückner and Ciccone, 2011; Acemoglu et al., 2019; Barro and Redlick, 2011).

Finally, we examine whether Social Democratic rule affected mortality outcomes, motivated by the possibility that expanded welfare provision contributed to the long-run decline in mortality already underway during this period (e.g., Egedesø et al., 2020). While Miller (2008) shows that female suffrage in the United States led to reductions in infant and child mortality, there is otherwise limited causal evidence on the role of redistributive public spending in historical mortality

declines during the early twentieth century. Much of the existing literature instead emphasizes public health interventions, such as clean water provision and disease eradication programs (e.g., Cutler and Miller, 2005; Anderson et al., 2022, 2019; Egedesø et al., 2020). In this context, we find limited evidence that the increases in poor relief and public assistance associated with Social Democratic rule translated into broad improvements in mortality outcomes.[3]

The rest of the paper is organized as follows. In Section 2, we provide a review on the wider literature on democratization and the size and composition of government as well as the more specific relation between left-wing parties and the size and composition of government. Section 3 gives background on the relation between size of government in the wider context of western Europe and the more narrow specific context of Denmark. Section 4 provides a description of the data sources and presents our empirical strategy. Section 5 presents the main results and robustness checks. Section 6 concludes.

2 Literature review

2.1 Democratization, redistribution, and size of government

There is a substantial literature that investigates the relationship between democratization, government size, and redistribution (e.g., Acemoglu et al., 2015; Aidt and Jensen, 2013, for overviews of studies). Many of the studies use historical data on democratization in Western European and OECD countries but there is also more contemporary evidence that exploits variation in the degree of democratization in Latin American countries. The finding in most studies is that democracies have larger tax revenues and government spending (e.g., Acemoglu et al., 2015). While there is less clear-cut evidence on the impact of democratization on tax progressivity and income taxes (Aidt and Jensen, 2009a,b), previous research shows that democracies tend to have more social spending. For example, using historical data on European and North American countries, Japan, Australasia, Argentina, Brazil, and Mexico, Lindert (1994) links the increase in various types of social spending in the beginning of the 20th Century to democratization; see also Lindert (2004). Similar conclusions are reached by Aidt et al. (2006) using historical data on Western European countries. Several other studies, using both historical and more contemporary data, have similarly shown that democracy is positively correlated with spending on education, health, welfare, and social security (see Aidt and Jensen, 2013, for an overview of the literature until 2013).

While there are many studies that link a larger public sector and more distribution to the rise of democracy, very few of them can identify the effect of democracy. Thus, the positive relationship

[3]Recent evidence from the United States suggests that hospital investments beginning in the late 1930s reduced infant mortality (Hollingsworth et al., 2024).

found in most studies using cross-country panel data can be confounded by other country-specific factors that correlate with democracy and redistribution. One exception is Aidt and Jensen (2013) who use revolutionary events in other countries—the revolutionary threat—as an instrument for democracy in a panel of Western European countries in 1820–1913.

Aidt et al. (2022) consider the relationship between franchise extension and selected aspects of fiscal structure at both central and local government levels in the UK from 1820 to 1913 using a novel method for causal investigation of non-experimental data. They find little evidence of a causal relationship between franchise extensions and fiscal structure.

Many studies have used broad measures of democracy, e.g., the share of adults who could vote as a measure of the extension of the voting franchise or even more broadly an index of democracy such as the Polity index. However, there is also research that focuses on how more specific aspects of the democratization process affect government size and redistribution. For example, studies show that female suffrage had an independent impact on social spending and that it increased educational spending and decreased infant mortality (e.g., Lindert, 1994; Lott and Kenny, 1999; Miller, 2008).

Further, Hinnerich and Pettersson-Lidbom (2014) study how direct democracy, compared to representative democracy, affect redistribution. Exploiting a Regression Discontinuity Design using that historically Swedish municipalities below a certain population threshold could choose direct democracy whereas larger municipalities were required to have representative democracy, they find that there is less redistribution towards the relatively poor in direct democracies than in representative democracy. They propose that the results can be explained by (1) the lack of (pro-poor) political parties in direct democracy which made it harder for the citizens to solve their collective action problems (2) the chairman of the town meeting, often a member of the elite, had great agenda setting power, and could block redistribution (3) many decisions at meetings were taken by an open vote, which made it easier for the elite to rely on intimidation. They present some evidence that the results can be explained by single party districts having lower redistribution than multi party districts. Yet, they cannot directly link their results to pro-poor parties, the chairman of the town meeting or open ballots. By contrast, we focus explicitly on the interaction between left-wing parties and the role of executive selection.

This study is also a further exception to the rule that most of the evidence cannot be given a causal interpretation.

Another example is Paulsen (2022) who studies the introduction of proportional representation (PR) in Norway. Exploiting that some Norwegian municipalities were forced to adopt PR in 1919 in a DID setup, she finds that PR adoption led to higher tax rates and an increase in the number of poor relief recipients. Yet, this occurred while the left-wing share decreased.

Recent work by Chapman (2020) explores a reform which abolished a graduated franchise,

property qualifications, the participation of unelected magistrates and introduced the secret ballot in English local councils in 1894. He estimates a DiD model that leverages the interaction of this reform with inequality. He finds that more unequal localities experienced higher increases in poor relief expenditure per capita after the reform.

We focus on a reform that allowed the majority of a town council to choose the mayor, which removed a supply side constraint on redistribution in the form of king selected mayors. As such, we investigate a particular feature of democracy and its impact on local outcomes. As we explain in Section 3, the other dimensions of democracy or democratization were kept constant for our study period.

2.2 Left-wing parties, size of government and redistribution

While the literature on democratization is substantial, much less quantitative work has been done on the importance of left-wing parties, as well as other parties, for the expansion of government in terms of size and redistribution in the political economics literature. As for the case of the more general move toward democracy and its impact on the size of government, there is also a limited number of studies that can claim causality and, to our knowledge, there is no other study that exploits a historical reform for identification.

Descriptive evidence based on cross-country data suggests that left-wing parties have contributed to the expansion of the welfare state. For example, Hicks and Swank (1992) address the question of whether political parties matter for government spending using data on welfare spending in 18 democracies during the 1960–1982. They show that governments with parties to the left and in the center have more welfare spending than right-wing parties and conclude that parties do shape the composition of government spending. Further, Blais et al. (1993) reviews both the theoretical and empirical literature on the effects of left-wing parties on government spending. They also estimate this effect by pooling data from 1960-1987 on 15 liberal democracies. In line with previous evidence, they find that left-wing parties do spend more than right-wing parties. However, the effect is typically modest and arises only after several continued years in office.[4]

There is some causal evidence that point in the same direction. Pettersson-Lidbom (2008) utilizes a unique regression discontinuity (RD) design and focuses on the setting of Swedish local elections (for the period 1974 to 1994) to estimate the causal effect of left-wing political parties on electoral outcomes. In practice, Pettersson-Lidbom (2008) notes that he estimates the effect of a majority coalition effect. He further argues that the Swedish electoral system can be treated as

[4] Ziblatt (2017) considers the theory that political parties mattered for democratization directly with a focus on the role of conservative parties. The case of Bismarckian Germany is highlighted as a case in which Conservative parties introduced welfare state policies. The adoption of welfare state type policies was a strategic move to undercut the growing socialist movement

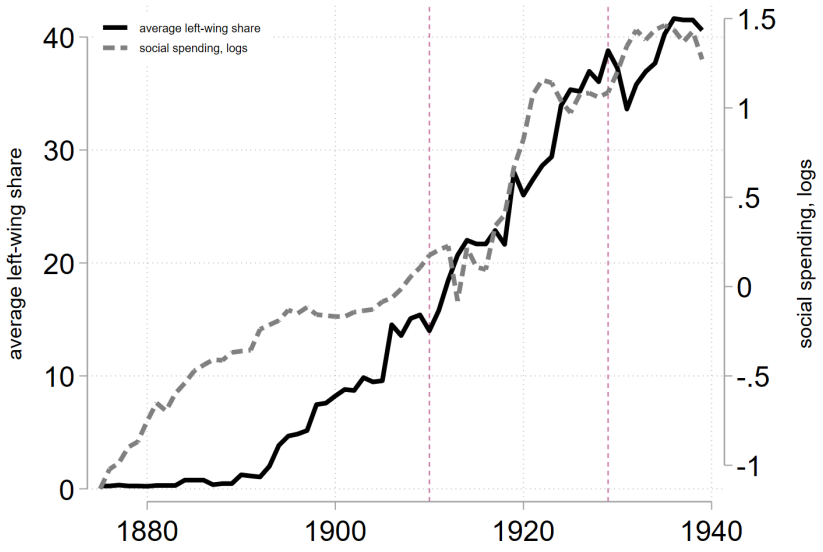
bipartisan at least to a first approximation. As outcome measures, he considers measures of the size of government (e.g., current expenditures per capita) and a measure of whether the local income tax was proportional. The results show that left-wing governments spend and tax about 2-3% more than right-wing governments. Fiva et al. (2018) also use an RD design for the case of Norwegian municipalities using data for the period 2000-2010. They find that larger left-wing parties leads to more property tax revenue, higher childcare spending, and lower elderly care spending. Finseraas (2020) also consider the case of Norway focusing on the municipality of Flå where the labor party filed their candidate list too late and could not participate in the local election in 1995. Using the Synthetic Control Method, he finds no significant impact on welfare spending. Our study focuses on the share of left-wing (i.e., Social Democratic in our case) party and control of the town council by left-wing mayors. Moreover, given our historical setup, we can focus on poverty relief as a measure of spending with clear redistributive consequences.[5]

To our knowledge, few studies have examined the impact of left-wing parties on public spending during the first wave of democratization. Some historical research provides descriptive evidence on this relationship as a secondary focus. Notably, Aidt and Jensen (2009a), Aidt and Jensen (2009b), and Aidt and Jensen (2013) compiled and analyzed data on the vote share of left-wing parties in the lower chambers of various—primarily Western European—countries to study outcomes such as total government spending, direct tax revenue, and income tax revenue. Using their data, Figure 1 plots the average left-wing vote share against public spending out of GDP, revealing a positive correlation. However, once common time shocks are accounted for, the correlation becomes negative. That said, estimating time fixed effects precisely is difficult with data from only 10 countries, making it impossible to draw causal conclusions. As such, existing cross-country data for this period do not allow for definitive inferences, particularly not causal ones.

Other historical work that study the impact of left-wing rule is Molinder et al. (2022). They focus on how local Social Democratic rule impacts strike activity in Swedish towns. In particular, they estimate the interaction effect of Social Democratic council chairs and union presence on the level of strikes using municipal data from 1919 to 1938 in a setting in which elections were competitive. As a mechanism for why strike activity was reduced, they look at social spending. In practice, they estimate the effect of changing from a conservative to a social democratic chair on poor relief and spending on schooling and health care using windows of three years before and after the change of chair. Their results suggest no or little effect, yet exploiting changes from one type of a rule to another may face the problem that conservative mayors who had social democratic adversaries in future elections would adjust spending to match the demands for redistribution of potential social democratic voters. If so, the estimates cannot be given a causal interpretation.

[5] Acemoglu et al. (2025) consider that educational reforms made by a Social Democratic party (the Labor party in Norway) may lead to increased support for the party.

FIGURE 1: LEFT-WING VOTE SHARE AND SIZE OF GOVERNMENT IN EUROPE



Notes: This graph shows the average left-wing vote share for the lower chamber and and average logged public spending out of GDP (2. y-axis) for 10 European countries, including Denmark. The vertical lines indicates the study period for our empirical analysis.

Rasmussen and Knutsen (2024) provides suggestive evidence on the link between local Social Democratic rule and pension introduction by estimating a probability for introducing local pensions in Norwegian municipalities (1913-1925), and show that the probability decreases when the share of non-socialist parties increases. They further show that the share of districts with local pensions increases the probability that a member of parliament votes for national pensions.

In our setting, royal appointed mayors had political power to effectively block the spending plans of the majority in the town council and could, thus, more easily ignore the demand from the electorate before mayors became democratically elected, as explained in the introduction and the next section.

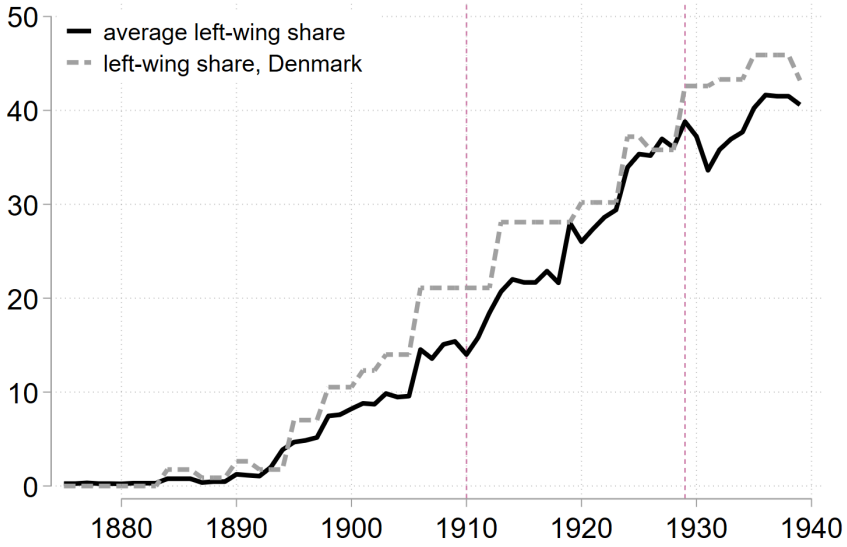
3 Background

3.1 The rise of left-wing parties in Denmark and Europe

The first wave of democratization meant that large parts of Europe democratized which implied the introduction of a wide number of democratic institutions that are now taken for granted (including a universal franchise for men and women, voting secrecy and proportional representation). Democratization in Western Europe is also associated with the rise of political parties including the emergence of left-wing parties that would emphasize redistribution in their political programs.

Data from Aidt and Jensen (2009a) show that left-wing shares were on the rise from the late 19th century to 1939 in national elections, see Figure 2. The average share for the ten western European countries in the dataset went from 0 to just around 40%. The share in the Danish lower chamber was somewhat higher, but follows the trend of the European average.

FIGURE 2: LEFT-WING VOTE SHARE IN EUROPE AND DENMARK



Notes: This figure shows the share of votes for left-wing parties in the lower chamber on average for western European countries and Denmark. The average includes Denmark but the result is similar when Denmark is excluded. The vertical lines indicates the study period for our empirical analysis.

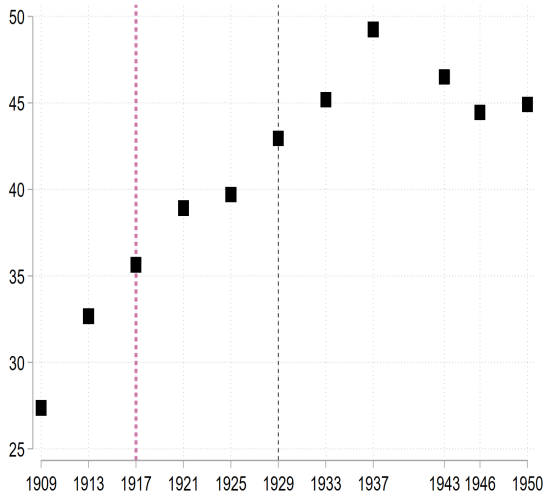
In Denmark, the main—and for a long time the only—left-wing party was the Social Democratic Party, founded in 1871. During the period we study (1910-1929), the party had firmly established itself in local politics, with its average vote share across our sample rising from approximately 35% in 1917 to 40% in 1929. The Social Democrats reached their highest level of local support in 1937 (see Panel A of Figure 3). Panel (B) of this figure gives a map indicating the average town vote-share for the Social Democratic party in 1917. There may be a tendency for the eastern parts to have social democratic majorities, but we note that coalitions with other parties could also lead to a Social Democratic mayor, and we therefore use the vote share as our treatment measure in the empirical analysis.

3.2 Electoral rules and local democracy

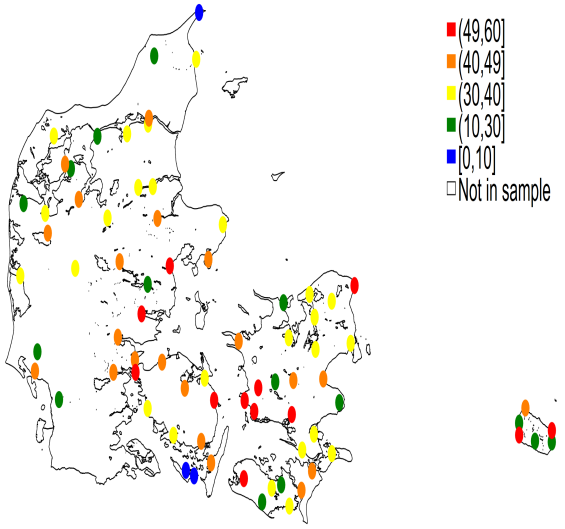
Throughout our study period (1910-1929), the voting rules in Danish towns remained unchanged. Since 1869, town council elections had been conducted under the supervision of the Ministry of

FIGURE 3: **SOCIAL DEMOCRATIC VOTE SHARE IN TOWN ELECTIONS**

(A) AVERAGE FROM 1909 TO 1950



(B) SPATIAL IN 1917

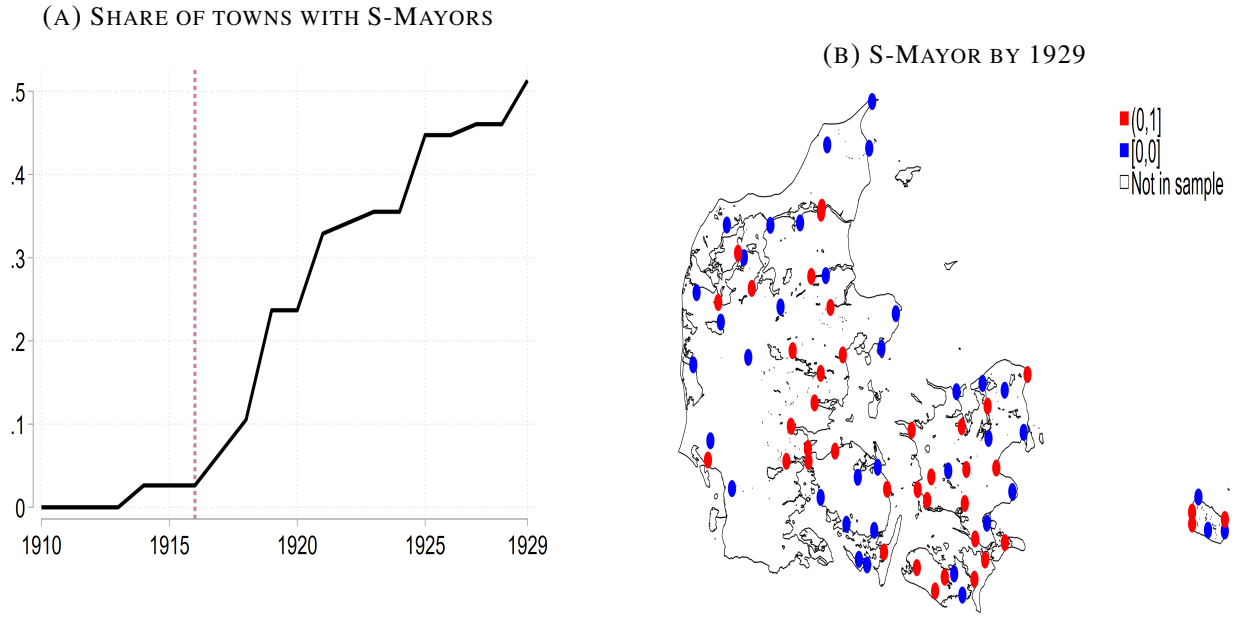


Notes: Panel (A) shows the average Social Democratic vote share in town elections from 1909 to 1950, while Panel (B) illustrates the spatial distribution of the Social Democratic town vote share in 1917. The vertical lines indicates the study period for our empirical analysis. Both panels include only data from our baseline sample of 76 towns.

the Interior, by secret ballot and according to proportional representation. From 1909, women were included in the electorate. The franchise was granted to men and women of good standing aged at least 25 who resided in the municipality and paid municipal taxes. To qualify, individuals had to maintain continuous residence during the preceding tax year, have no outstanding tax arrears (unless these had been waived or repaid), and not be recipients of unredeemed poor relief. Moreover, if a husband, as head of household, had paid municipal taxes, both spouses were considered taxpayers. The income condition implied that the number of eligible voters increased markedly between 1917 and 1921, as war-related inflation eroded the 800 kr. standard deduction level.

In the "Act on the Administration of Municipalities with Market Towns of May 26, 1868", which established the principles of town self-government, the royal-appointed mayor occupied a central position in municipal administration. Formally, the mayor was "appointed by the king," although the monarch's involvement amounted to a ceremonial confirmation, as effective selection rested with the central administration. Most royal-appointed mayors simultaneously served as town judge (byfoged) and were therefore typically recruited from the ranks of judicial officials. Once appointed, the mayor held office for life and could be removed only by the king, which in practice rendered the position that of a civil servant rather than an elected political figure. By law, the royal-appointed mayor served as a full ex officio member of the town council,

FIGURE 4: **SOCIAL DEMOCRATIC MAYORS**



Notes: Panel (A) shows the cumulative distribution of first Social Democratic mayor over the period 1910 to 1929, while Panel (B) indicates whether a town ever had a Social Democratic mayor by 1929 (i.e., Social Democratic rule), marked by red circles. The vertical line indicate in Panel (A) indicates our zero date. Both panels include only data from our baseline sample of 76 towns.

with the same formal voting rights as the elected members. In office, the mayor chaired the town council, presided over its meetings, ensured implementation of its decisions, and exercised broad executive authority in municipal affairs. The law further granted the mayor an automatic role in the standing committees responsible for the most important administrative domains. Draft municipal statutes specified that the royal-appointed mayor would serve as member and chair of the committees for harbor management, finance and accounting, and often also for poor relief. Importantly, this institutional arrangement was explicitly conceived as temporary. The Act stated that the royal-appointed mayor would preside over the town council only "until a general reorganization of judicial and administrative affairs had taken place," a formulation that referred directly to the constitutional requirement that judicial and administrative functions be separated by subsequent legislation. The design therefore ensured continued state influence over the most sensitive spheres of local administration during a transitional period, even though legislative and budgetary authority was formally vested in the elected town council (Hammerich, 1897; Rausgaard, n.d.). At the same time, it implied that executive and judicial powers remained institutionally fused at the local level until the 1919 municipal reforms implemented the constitutionally mandated separation of administration and justice.

We lack a comprehensive list or systematic history of royal-appointed mayors across all Dan-

ish market towns, with only a few towns documented in detail. The case of the town Roskilde, however, illustrates the typical backgrounds and careers of such officeholders. *Carl Daniel Friboe Blechingberg* (1825-1890) was appointed royal-appointed mayor in 1869. Like most of his contemporaries, he held a law degree and had pursued a career in the judicial administration before entering municipal office. Blechingberg died in office in 1890 and was succeeded by *Theodor Johan Aagaard*, previously mayor of the smaller town of Faaborg. Aagaard retired in 1905, receiving the honorary title of "etatsråd," but died shortly thereafter. He was followed by *Kay August Hammerich*, head of office in the Ministry of Justice, who remained in Roskilde until 1913, when he left to become director of *Købstædernes almindelige Brandforsikring*. His successor was *Peter Nicolai Valentin Buch*, who had been royal-appointed mayor in the town of Nyborg. As with his predecessors, Buch was offered a salaried position on the board of the *Sparekassen for Roskilde By og Omegn*, which he assumed on November 4. 1913. Buch was the last royal-appointed mayor of Roskilde before the system was abolished (Fang et al., 1984).

The pattern was not unique to Roskilde. In Aarhus, which is the largest town in our sample, the royal-appointed mayor *Ulrich Christian von Schmidten* served from 1867 to 1884. Like many of his peers, he was legally trained and came from an upper-class family background, underlining how these offices were typically filled by jurists drawn from the higher social strata rather than by locally elected politicians. His successor, *Frederik Christian Bernhard Stephan Vestergaard*, likewise held a law degree (cand. jur. 1862) and had built a career in the central administration before being appointed mayor and auction director in Aarhus in 1886. Vestergaard had previously served as byfoged and town clerk in the town called Nykøbing Mors, and his appointment to Aarhus again illustrates how royal-appointed mayors were recruited from the professional corps of jurists with careers in the judiciary and central ministries rather than from among the town's elected representatives (Degn and Dybdahl, 1968). These examples are consistent with Kolstrup (1998, p.64), who argues that royal-appointed mayors were normally conservative in orientation and actively engaged with the local conservative party in the town council.

The key institutional change we exploit is the transition from unelected to democratically elected mayors, introduced by the 1919 amendments to the original Market Town Act of 26 May 1868. The amendment, formally titled "Act on Amendments and Additions to the Act on the Administration of Municipalities with Market Towns of May 26, 1868," was enacted on 1 March 1919 and took effect on 1 April 1919. From that point onward, the mayor was to be elected by a majority of the town council, and beginning with the next municipal election in 1921, the office could only be held by a member of the council. The 1919 Act and the accompanying governance regulations emphasized the mayor's role as the head of the municipal administration, responsible for receiving all correspondence addressed to the council and for ensuring that the council's written decisions were executed.

Although the Act was not officially passed by the first chamber of Parliament until April 1919, the legislative process had begun several years earlier. Ove Rode of the Danish Social Liberal Party, who served as Minister of the Interior from 1913 to 1920, was a vocal opponent of royally appointed mayors and first introduced the legislation in the National Parliament in 1913. It was widely expected that the law would eventually pass, and the Ministry of the Interior was already acting as if it was in effect before 1919—allowing towns to elect their mayors democratically when a vacancy arose. As mentioned, the position as a royal appointed mayor was permanent, so a vacancy would be due to death and or the mayor resigning. For example, in the town of Kerteminde, the royal appointed mayor stepped down, and the ministry permitted (or even encouraged due to the effort of Rode) the town council to elect a successor in 1918. Similarly, in Horsens, the majority in the town council requested permission from the home office to replace the incumbent mayor through a democratic election. Their request was granted. Moreover, there were already a few instances in 1917 where town councils were allowed to elect a mayor. These developments suggest that years prior to 1917 should be considered pre-reform years in our analysis. Figure 4 illustrates the expansion of Social Democratic mayor rule, where the share increased from below 5% in 1916 to approximately 50% by 1929.

We end this section by providing narrative evidence from the town history of Roskilde that we believe supports our empirical setup. The following quote is drawn from a local history published for the 100th anniversary of the town hall in 1984 (Fang et al., 1984, p. 81–82):

> "*Whereas the royally appointed mayors had been intended as a safeguard against overly expansive social policies, there was little doubt among the citizens of Roskilde that no major changes would occur when the new elected mayor assumed office. The reason for this was the solid conservative majority in the town council, the fact that their candidate had long been a member of the council, and that he had been elected by the "highest taxed" voters. This special electoral situation ensured control of both the mayoralty and the deputy mayor position. The mayoral election was to take place at the town council meeting on 28 March 1919. The Conservatives nominated fire chief J. C. Sørensen, and the Social Democrats nominated editor V. Nørregaard. The result was as expected: J. C. Sørensen took the mayor's seat with 9 votes and an annual salary of 6,000 kroner, while V. Nørregaard received only 4 votes*".[6]

3.3 Social Democratic Rule and local spending

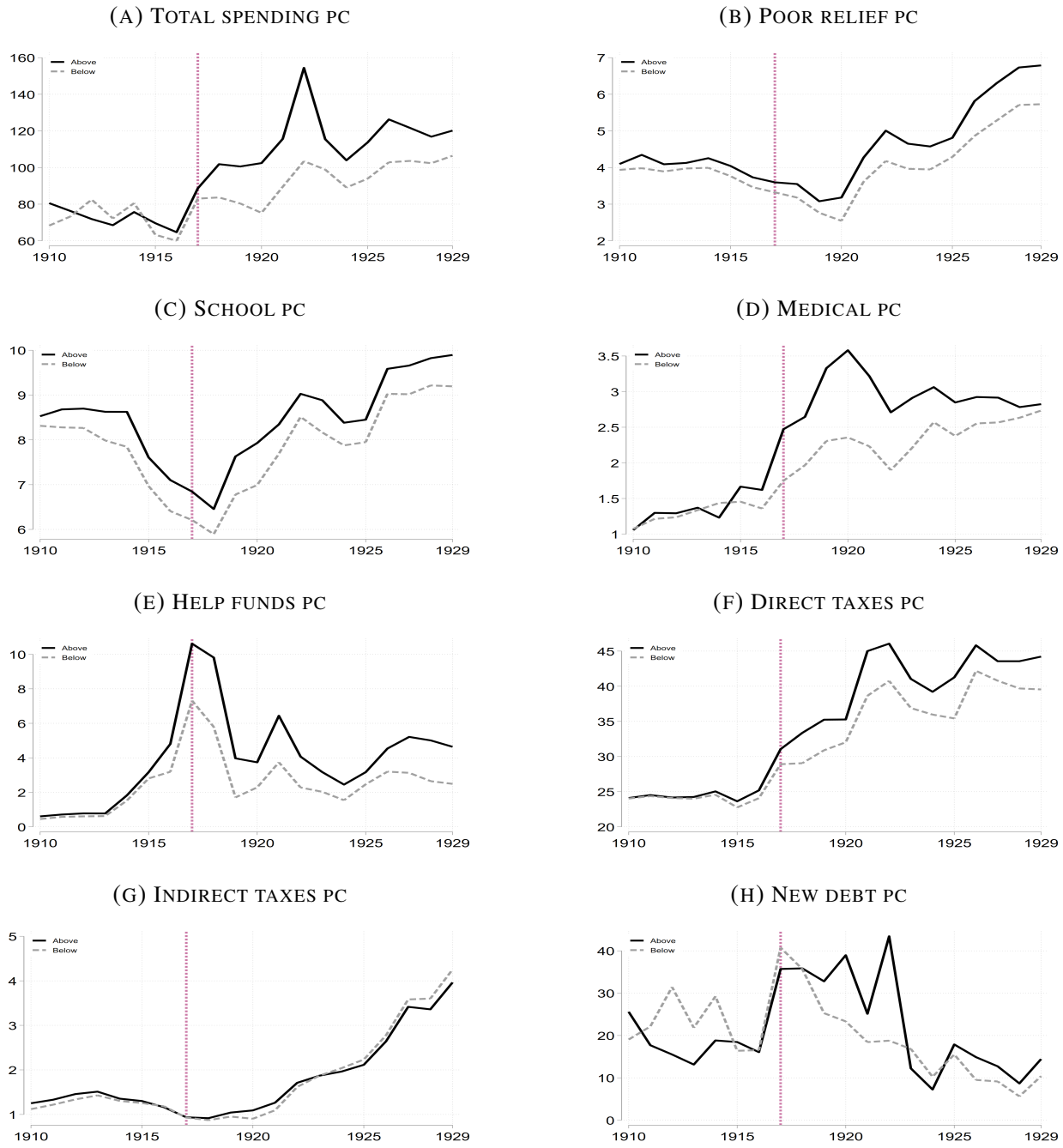
The quantitative literature on the effect of left-wing parties on government spending and redistribution uses a number of different measures for the size of government and spending as well

[6] Author's translation from Danish.

as tax revenue with redistributive effect. In this subsection, we present descriptive evidence on the the development of total spending and key spending categories highlighted in the historical narrative of the Danish welfare state (Kolstrup, 1998; Petersen et al., 2015), as well as a breakdown of tax revenues by type. Our spending and revenue data are based on the 76 markets towns used in our regressions analysis. We first note that towns (or municipalities) were the primary providers of welfare during our study period. For example, in 1916, towns (urban and rural) financed approximately 60% of all social welfare spending, compared to 30% by the state, with the remainder covered through self-insurance (Kolstrup, 1998). Over time, the state's relative contribution increased, and by 1929, state and town spending on social welfare had reached parity (Statistisk-Aarborg, 1930).

We group our 76 towns based on the median Social Democratic vote share in 1917 and present the average values for each group. Thus, besides illustrating the development of the key outcome variables during our sample period, these descriptive event studies also provide the first evidence of the identifying assumption of parallel pre-reform trends.

FIGURE 5: **SPENDING AND TAXATION BY S MEDIAN VOTE-SHARE (IN CONSTANT 1910-PRICES)**



Notes: This figure shows spending per capita and revenues (by category) for Social Democratic majority towns (solid line) and for non-Social Democratic majority towns (dashed line). All variables are in 1910 constant DKK prices. The year refers to the fiscal year; for example, 1917 covers the period from April 1, 1917 to March 31, 1918. See all variable definitions in Appendix Section A.2

Figures 5 illustrates the development of spending and revenues, with all variables expressed in DKK per capita at constant 1910-prices. Panel (A) of Figure 5 shows that from 1910 to 1916, total spending per capita remained around 60-80 DKK for both groups. After 1916, spending increased

more rapidly in Social Democratic majority towns, with the difference peaking in the 1920s at approximately 50 DKK. By the end of the sample period, this difference had narrowed to about 10-20 DKK.

Petersen et al. (2015) emphasize that a, and perhaps the, main spending through which local politicians could redistribute was poor relief. The narrative stresses that the decisions on whether and on how much to give was very much a local decision made by town councils, through the standing poor relief committees, in the urban parts of Denmark. The decision to grant poor relief to an individual was based on the idea that the person was *in need* which meant in the legal sense, when someone was lacking the necessary means for subsistence, see v. Munthe (1919). The poor law itself mentions that it is the responsibility of the town where a person in need resides to determine the manner and amount of support to be provided to her or him.[7] Panel (B) of Figure 5 shows that poverty relief per capita increased substantially more in areas with Social Democratic majority than non-majority areas, but only after the reform and this effect persisted throughout the sample period.

Kolstrup (1998) contains a number of case studies of different towns in Denmark, and examines how Social Democratic influence affected local spending on schooling and health locally. He also mentions that primary schooling had been made free from 1903, which would to a certain extent limit the possibility for large differences in spending on schooling. Yet, he highlights that Social Democrats were able to ensure more spending on schooling by relying on collaboration with liberal and conservative parties prior to the reform in 1919. Panels (C) shows that Social Democratic towns used slightly more on schooling and this gap widen somewhat after 1917. Panel (D) shows similar per capita spending on medical services before 1917, but after Social Democratic towns increased them, particularly during the Spanish Flu pandemic (1918–1919) and in the early 1920s. By the end of the sample period, spending levels converged .

Finally, Panel (E) shows spending on support to local "help funds," which generally supported deserving needy individuals who have permanent residence within the area covered by the relevant fund and who do not receive poor relief, in their efforts to support themselves without assistance from the poor relief system. This category also cover town support to the local unemployment insurance system. Although this system was run by private unemployment insurance funds (UIE), it was subsidized by both the state and the towns. The original UIE law allowed town councils to provide extraordinary support to local unemployment funds, including covering parts of the membership fee.[8] Additionally, during periods of high unemployment, temporary national laws

[7]The poor law itself stipulates that the the Poor Relief Board would question the needy about: a) Name, age, and place of birth, as well as, in the case of married persons and widows, the date and place of marriage; b) In which town he has resided since reaching the age of 18 and for how long in each of these; c) Whether he has previously received assistance from the Poor Relief system and in which municipalities; d) His need and the reason for it.

[8]The system of state recognized unemployment insurance funds was established by law in 1907 as "Forslag til lov

were often enacted, granting town councils further authority to support both the unemployed and the funds directly. We observe similar spending patterns across the two groups prior to the reform, after which a clear divergence emerges—towns with Social Democratic majorities began allocating significantly more resources to help funds (or public assistance as we also call it in this study).

Panels (F)-(H) of Figure 5 depict the development of town revenues, categorized into direct taxes (income, property, and corporate taxes), indirect taxes ("afgifter" in Danish), and new debt. Panel (F) shows that direct taxes increased during the 1920s increased more in towns with higher support to the Social Democratic party in 1917. We do not observe any big differences in indirect taxes (Panel G). Panel (H) reveals that towns with more support to the Social Democratic party acquired more new debt between 1918 and 1923.

4 Empirical framework

4.1 Data and sample

As there is no single source for the timing of the first Social Democractic mayors and the first democratically elected mayors, we decided to survey the local archives of the towns and cities in our data by contacting them by e-mail. We also asked about the timing of the first democratically elected mayor and the political party of this mayor. We supplemented this with encyclopedias made available by the local archives as well as various volumes on the history of the various towns; see Appendix A.3. We obtained the timing of the first Social Democratic mayor and the periods in which the towns had Social Democratic mayors for the years 1910-1929. In addition, we collected the vote shares for the Social Democratic Party in the elections held in 1909, 1917, 1921, and 1925 from volumes of "Statistiske Meddelelser". We use the Social Democratic vote share in 1917 as our baseline measure of treatment intensity. In the towns of Nakskov and Faaborg, only one local electoral list ran in 1917, so no election was held. For these towns, we use the Social Democratic vote share from the previous local election in 1913. In Frederikssund, we use the vote share for the local workers' party, as the Social Democrats did not run there. We also use vote share for other political parties to construct different control variables.[9]

The local spending and tax revenue data, which we already illustrated in Figure 5, were digitized from tables in "Statistiske tabelværker" published by Statistics Denmark for the period 1910-1929 (Statistiske-Tabelværker, 1910-1929). We have data on total spending, total tax revenue and various spending categories. Given the focus on the effect on Social Democratic rule, we pay special attention to spending on poverty relief, but also investigated impacts on other spending

om anerkendte Arbejdsløshedskasser."

[9]We supplement these data with already digitized data from Local Elections in Denmark, 1909-1966.

categories usually considered in the literature (schooling, medical, help funds, old-age support) as well as town administration costs. The different categories are given in Danish kroner (DKK) in the original sources. Some of the the sub-components of spending unfortunately subtract (minor) subsidies received from the state meaning that they can be negative, which nonetheless happens in very few cases. For the years 1912 and 1920, we digitized data from the poor-relief system, which provides information on the number of people receiving poor help and the amount spend on direct support to the poor. This data is only available these two years. Spending and revenue are measured over the fiscal year running from April 1 to March 31; thus, the year 1917, e.g., refers to the period from April 1, 1917 to March 31, 1918.

We also digitized data from the publications "The Folk School" (Folkeskolevæsnet in Danish) and "The Elementary School" (Børneskolen in Danish) from "Statistiske Meddelelser", which unfortunately is only available for the years 1910, 1911, .., 1916, 1921, 1926, and 1931. To maximize the number of post-treatment observations, we re-code 1931 as 1929 to match the baseline sample. The publications provide data at the town-school-year level and include information on the number of schools, pupils, teachers, and classes. They also report the type of school. These include "free schools," which mainly offered primary education (ages 7–14) free of charge. In addition, the data cover schools that fall between elementary and high school, as well as high schools and private schools. In some cases, a single school encompasses multiple types. We define a school as a "free school" if it includes this type of education (and label it "folk school"), and collapse the data to the town-year level.

Population data from tabulated censuses and income data from historical tax records were digitized by Egedesø et al. (2020) and Hansen and Jensen (2024). For the present study, we further digitized data on the profits of firms and the number of firms in each town and year, based on the same historical tax records. This allows us to examine effects on average firm profits as a measure of the business side of the local economy. Our sample includes 76 market towns affected by the institutional reform, excluding Copenhagen, which had a different municipal governance structure, and towns in Southern Jutland ("Sønderjylland" in Danish), which only became part of Denmark in 1920. The sample is unbalanced because the towns of Herning and Struer were only designated as market towns in 1913 and 1917, respectively. Rural towns are excluded, as they were not governed by royal appointed mayors and thus not subject to the reform. Figure 3 depicts the locations of the towns in our sample. The study period spans 1910 to 1929, ending in 1929 primarily because spending categories changed in the 1930s following the Social Reform of 1933—also known as the "Kanslergade Agreement"—which redefined the concept of poor relief.

4.2 Estimation strategy

Our primary objective is to estimate the causal effect of left-wing political control of the local executive on municipal spending, taxation, and related outcomes describing the local schooling system and the local economy. A central challenge in this type of analysis is reverse causality: past policy choices and spending trajectories may themselves affect subsequent political outcomes, making simple comparisons between towns with different political leadership difficult to interpret.

To address this challenge, we exploit a unique institutional setting created by the 1919 municipal reform. Prior to the reform, Danish towns lacked democratically elected mayors, and executive authority was instead exercised by royal-appointed civil servants. The reform fundamentally altered this institutional environment by introducing elected mayors, thereby making left-wing executive control politically feasible for the first time. Importantly, while the reform occurred simultaneously across all towns, the transition to Social Democratic mayoral control unfolded gradually in the years that followed. We have collected data on the year in which each town elected its first Social Democratic mayor, and we use this staggered transition as our main source of identifying variation.

In the baseline specification, we model Social Democratic rule as an absorbing state, motivated by the institutional and political persistence of welfare policies, which are often difficult to reverse once expanded. However, we also report results from specifications that allow Social Democratic rule to be reversed if a mayor from another party is subsequently elected. Panel B of Figure 3 illustrates the cumulative distribution of this staggered roll-out.

Crucially, our empirical strategy does not rely on comparing early- and late-treated towns in a standard staggered difference-in-differences design. Instead, we tightly link the roll-out of Social Democratic mayors to the 1919 reform by instrumenting it with predetermined political support for the Social Democratic party, measured by the party's vote share in the 1917 parliamentary election, interacted with a post-reform indicator. This interaction captures the idea that pre-reform left-wing political strength only translated into executive control once the institutional barrier to elected mayors was removed.

The reduced-form relationship in this two-stage least squares (2SLS) strategy can be written as a difference-in-differences design with common treatment timing (the reform), but heterogeneous treatment intensity across towns. Specifically, we estimate the following reduced-form event-study specification:

$$y_{ct} = \sum_{k=1910}^{1929} \beta_k \left(S_{1917,c} \times 1\left[t = k\right] \right) + \gamma_c + \eta_t + \varepsilon_{ct}, \tag{1}$$

where y_{ct} denotes the (typically logged) outcome in town c and year t, $S_{1917,c}$ is the Social

Democratic vote share in the 1917 election, and γ_c and η_t are town and year fixed effects.[10] Standard errors are clustered at the town level. The omitted comparison year is 1916 (i.e., for spending and revenue outcomes, the year refers to the fiscal period from April 1, 1916 to March 31, 1917). This reduced-form event study provides indirect evidence on the validity of the identifying assumptions by allowing us to test for parallel pre-reform trends and to trace the dynamic response of outcomes to the reform-induced political shift.

Under the assumption that the Social Democratic vote share in 1917 affects post-reform outcomes only through its impact on the likelihood of Social Democratic executive control, we proceed to estimate the causal effect of Social Democratic mayors using 2SLS. The first-stage equation is:

$$SoM_{ct} = \delta \left(S_{1917,c} \times I^{post}_{t \geq 1917} \right) + \lambda_c + \kappa_t + e_{ct}, \tag{2}$$

where SoM_{ct} is an indicator equal to one from the year in which town c elects its first Social Democratic mayor onward, and zero otherwise, and $I^{post}_{t \geq 1917}$ is a post-reform indicator. Town and year fixed effects are denoted by λ_c and κ_t. The identifying variation in the first stage comes from the interaction between predetermined political support for the Social Democratic party and the post-reform institutional environment. While the baseline specification assumes a linear dose–response relationship, our robustness analysis shows that the results are very similar when allowing for a nonlinear (logistic) first stage.

The second-stage equation is given by:

$$y_{ct} = \pi SoM_{ct} + \rho_c + \tau_t + u_{ct}, \tag{3}$$

where ρ_c and τ_t again denote town and year fixed effects. Econometrically, the key identifying assumptions are that the first stage is relevant ($\delta > 0$) and that the instrument $S_{1917,c} \times I^{post}_{t \geq 1917}$ is uncorrelated with the second-stage error term u_{ct}. Under these assumptions, the 2SLS estimates identify a local average treatment effect of Social Democratic executive control for towns whose transition to a Social Democratic mayor was induced by their pre-reform political support once the reform made such a transition institutionally possible.

For completeness, we also report OLS estimates of equation (3) without instrumenting SoM_{ct}, while still controlling for two-way fixed effects. While OLS estimates in roll-out designs may suffer from so-called bad comparisons (e.g., Goodman-Bacon, 2021; Roth et al., 2023), this concern does not apply to our 2SLS specification, which is where we place primary emphasis. Moreover, only around half of the towns had adopted Social Democratic rule by 1929, implying the presence

[10] For all variables measured in DKK, we use logarithmic transformations, which absorb common inflation effects in the presence of town fixed effects.

of a substantial set of untreated control towns throughout the sample period.

One potential threat to identification in the 2SLS framework is anticipatory behavior, whereby conservative or liberal mayors increase spending in response to a rising likelihood of future Social Democratic takeover. If such "threat effects" are stronger in towns with higher Social Democratic vote shares, they could bias our estimates. To address this concern, we conduct two additional tests. First, we construct a discrete version of the instrument that compares towns in the top quartile of the 1917 Social Democratic vote share distribution to those in the bottom quartile, while controlling for towns in the two middle quartiles. The intuition is that towns in the middle quartiles are precisely those where the threat of takeover is most salient, even if political control does not yet change. This specification also assesses robustness to potential concerns arising from using a continuous treatment-intensity measure with a linear dose–response relationship (Callaway et al., 2024). Second, we compute a Herfindahl index of political competition based on party vote shares in the 1917 election and include this measure interacted with year fixed effects as an additional control.

Appendix Table A.1 reports summary statistics for pre-reform outcomes (1910–1916), grouped by whether the Social Democratic vote share in 1917 was above or below the median. The table also reports standardized differences in means. Consistent with the descriptive event studies shown in Figure 5, these standardized differences are generally small (mostly below an absolute value of 0.25), indicating no substantial pre-reform imbalances across groups (Imbens, 2015). While this balance is reassuring, it is not required for identification, as our strategy relies on the exogeneity of the interaction between predetermined political support and the post-reform institutional change.

It is important to be explicit about the estimand identified by our empirical strategy. Our design does not identify the average causal effect of the 1919 municipal reform per se, which simultaneously introduced elected mayors and implemented the long-standing constitutional requirement to separate judicial and administrative functions at the local level. Instead, we identify the causal effect of "Social Democratic executive control", conditional on this institutional reform having taken place. In particular, the 2SLS estimates capture a local average treatment effect for towns in which pre-reform Social Democratic political support translated into the election of a Social Democratic mayor once the reform made executive power politically contestable. The results should therefore be interpreted as the consequences of left-wing control of the municipal executive in the post-reform institutional environment, rather than as the effect of democratizing local government independently of political ideology.

5 Effects of Social Democratic Rule

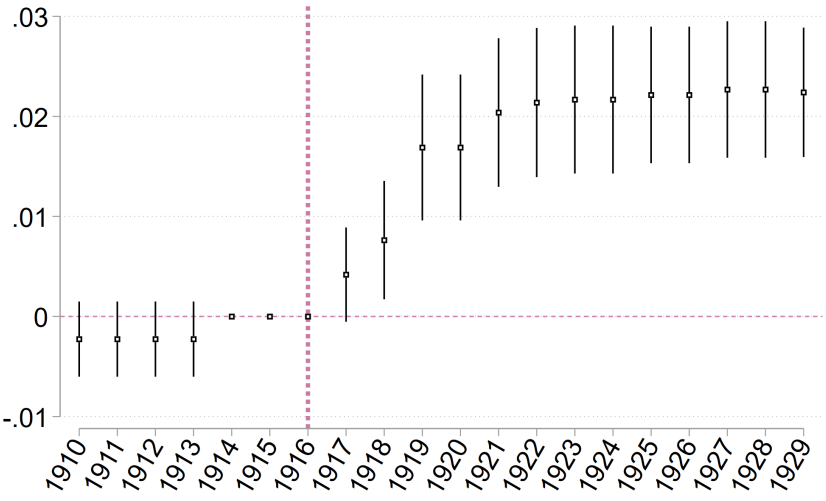
5.1 Baseline results

We begin by reporting the event study for the probability that a town had its first social democratic mayor, reported in Figure 6. The Social Democratic vote share has little significant relationship prior to 1917. The fact that we see a jump in the probability already by 1917 and 1918 is expected from the raw data and the fact that the ministry of the interior had already signaled that it was willing to follow the law by those years. In general, the pattern is that the likelihood of having had a Social democratic mayor once in the period increases substantially. Specifically, a one percentage point increase in the Social Democratic vote share increased the likelihood of an Social Democratic mayor by 2 percentage points, which can be compared to a pre-reform probability of 2%. We reach the same conclusion when we instead divide towns into two groups based on the median Social Democratic vote share, where the median corresponds to a vote share of 37%. Towns in the above-median group are nearly 60% more likely to have been governed by a Social Democratic mayor by 1929 (see Appendix Figure A.1). We also estimated a model that splits towns into quartiles based on the Social Democratic vote share, using the first quartile (vote shares = 0–30%) as the reference group. By the end of the sample period, towns in the top quartile (vote shares = 46–60%) were about 74% more likely to be under Social Democratic rule, those in the third quartile (vote shares = 37-45%) were 37% more likely, while towns in the second quartile (vote shares = 30-37%) did not differ significantly from the reference group (see Appendix Figure A.2). The relation between vote share and the transition to Social Democratic rule later serves as the first stage in our 2SLS strategy: In the baseline, we use a linear dose response, however, in the robustness subsection, we also report 2SLS estimates using a S-shaped functional form, motivated by the aforementioned quartile model.

In Panels (A)-(E) of Figure 7, we examine total spending along with aforementioned selected sub-components, all measured in logs. Across all categories, we observe relatively strong evidence of parallel pre-reform trends. For total spending (Panel A), the post-reform coefficients are positive, though they diminish in magnitude and become statistically insignificant toward the end of the sample period. Nonetheless, the significant estimates from 1917 to 1922 suggest that the reform led to an increase in total spending. The estimated magnitudes imply that a one percentage point increase in the 1917 Social Democratic vote share is associated with approximately a 0.5% increase in total spending in each of these years.

For poor relief (Panel B), we find positive and statistically significant effects that is persistent over time. The coefficients are similar in magnitude to those observed for total spending during the 1917–1923 period. To put this into perspective, moving from the town with the lowest Social Democratic support to the one with the highest would correspond to an increase in poor

FIGURE 6: THE REFORM INCREASED THE PROBABILITY OF SOCIAL DEMOCRATIC RULE



Notes: This figure shows how the probability of a town getting its first Social Democratic mayor is affected by the Social Democratic Vote Share in 1917 by year fixed effects. The excluded year is 1916. See variable definitions in Appendix Section A.2. The specification controls for town and year fixed effects. Standard errors are clustered at the town level. The vertical lines are 95-% confidence bands. $N = 76$ and $N \times T = 1,520$

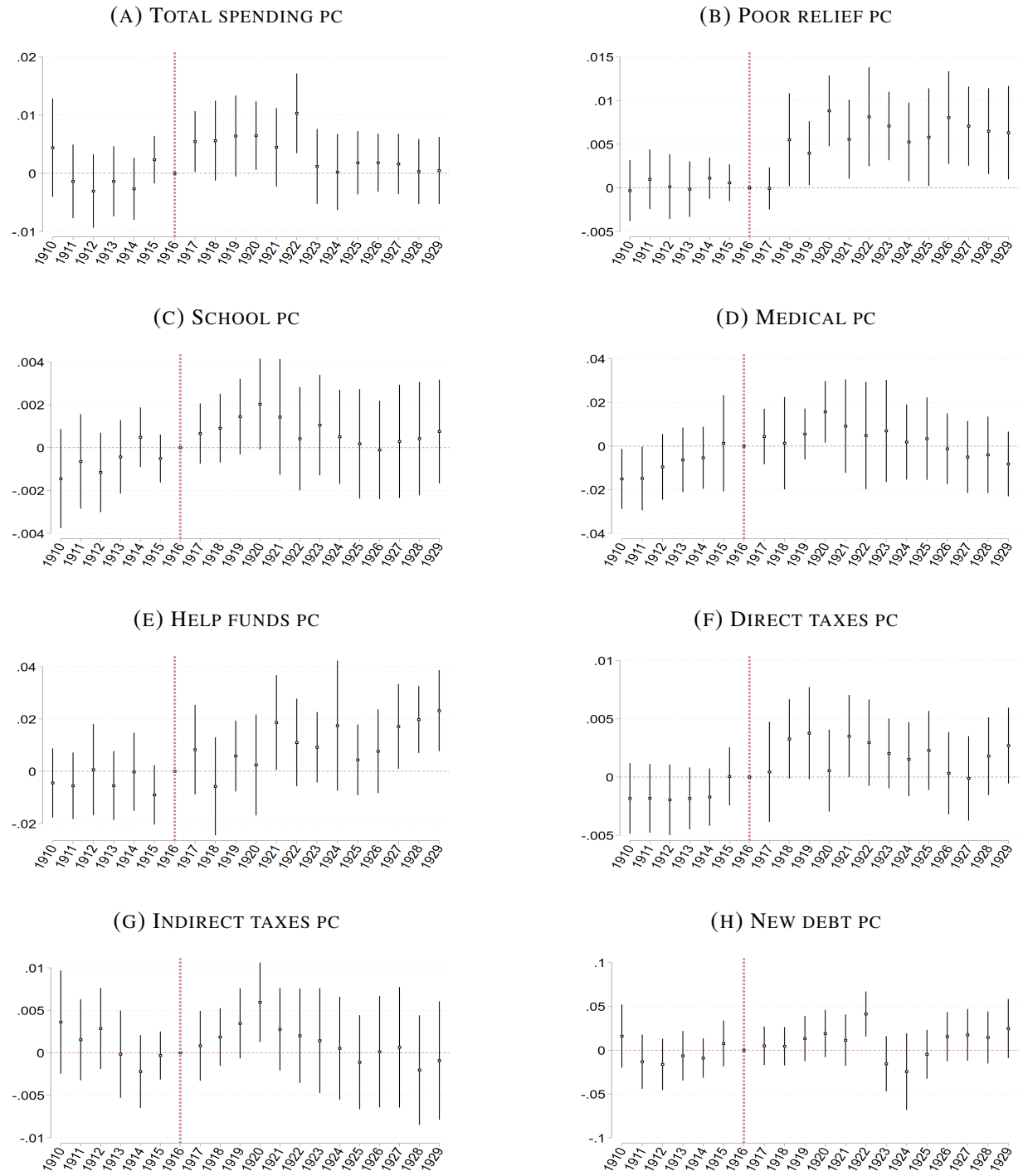
relief spending of approximately 30% per year. Panels (C) and (D) reveal only temporary effects on school and medical spending, following a pattern similar to that of total spending. Interestingly, medical spending remains elevated for three years following the 1918–1919 Spanish Flu pandemic. Finally, we find substantial long-run positive effects on help-fund spending (i.e., social welfare spending) with the 1927 and 1929 coefficients even larger in percent magnitude than the corresponding estimates for poor relief (see Panel E).[11]

Overall, the reduced-form event studies suggest that the transition to Social Democratic rule led to higher public spending, particularly on poor relief and help funds (i.e., social welfare spending). Panels (F)-(H) of Figure 7 indicates that this additional spending was financed through increases in both direct and indirect tax revenues, and to some extent, by new debt.[12]

[11] Under a national law from 1903, which remained in effect throughout our sample period, town councils that made direct cash contributions from general town funds to one or more local private poor relief funds were entitled to request reimbursement of one-third of the amount from the state. The private poor relief funds were subsumed by public help funds in 1907, which would provide help for people in need outside the public poor relief system. However, the 1903-state subsidy rule still applied. Appendix Figure A.3 shows that these state subsidies increased more after Social Democratic rule.

[12] We generally obtain the same insights if we use a median split based on the Social Democratic vote share in 1917 instead of the baseline continuous measure (Appendix Figure A.4)

FIGURE 7: **EVENT STUDIES FOR SPENDING AND REVENUES BY CATEGORY**



Notes: These event studies show how (logged) spending and revenues per capita (by selected categories) is affected by the Social Democratic Vote Share in 1917 by year fixed effects. The excluded year is 1916. The year refers to the fiscal year; for example, 1917 covers the period from April 1, 1917 to March 31, 1918. The number of observations vary from 1,420 to 1,510 due to zero or negative spending in some years for smaller towns. New debt per capita, in Panel (H), is estimating using Poisson regression, due to many zeros. The remaining variables are logged and in per capita. See also variable definitions in Appendix Section A.2. All specifications include 76 towns and control for town and year fixed effects. Standard errors are clustered at the town level. The vertical lines are 95-% confidence bands.

Next, we present our baseline estimates of the effects of Social Democratic rule on town budgets and local economic performance in Figure 8, using estimation Equations (2) and (3). Panel (A) reports OLS estimates, where we regress each outcome on the roll-out of Social Democratic rule, controlling for town and year fixed effects. Focusing on the statistically (or borderline) significant estimates, we find that total spending increases by 7%, poor relief by 11%, and help-fund spending by 20%. We also observe that direct tax revenues rise by approximately 5%. We do not find any significant effects—largely due to the small magnitude of the coefficients—on school, medical, old-age, or administrative spending, nor on indirect taxes or new debt. Additionally, the bottom four rows report the estimated impact of Social Democratic rule on the local economy. We find no measurable effects on income per capita or income per worker. However, there is a small but statistically significant negative effect on the employment rate (i.e., taxpayers per capita), suggesting that the introduction of Social Democratic rule reduced it by approximately 4%. There is no significant relationship to firms profits per capita.

Panel (B) of Figure 8 presents the corresponding 2SLS estimates, using the interaction between the 1917 Social Democratic vote share and a post-1917 indicator as an instrument for the roll-out of Social Democratic rule. The first-stage is strong, with the Kleibergen-Paap F-statistic exceeding 50 in all specifications. We observe that the magnitude of the estimated coefficients increases across the board. For example, Social Democratic rule now increases total spending by 19%, poor relief by 29%, and help-fund spending by 72%. The estimated effect on medical spending also increases notably, though it remains relatively imprecisely estimated. We have more detailed data from the poor relief system, but only for the years 1912 and 1920, and here we find that the increase in poor-relief spending was driven by more support to the poor. In particular, we find that support per poor person increased by about 40%, which is statistically significant at the 10% level, while there is no effect on the number of poor people per capita (these estimates are not reported in the figure, but available upon request).

The additional spending was financed via higher direct tax revenues which increase by 16%.[13] We also observe revenue increases from town-owned amenities, such as gas, electricity, and water, of around 20%. However, the point estimate is not significant at any conventional level and is not particularly robust (results are not shown in the figures but are available upon request). We also observe that school spending increased, although this estimates is only significant at the 10% level. We will return to this effect in subsection 5.3.

The 2SLS estimates also provide a clearer view of the economic effects. We continue to find a relatively small and statistically insignificant impact on income per capita. Based on the 95-%

[13] Since we also have data on earned income, we can estimate the effect on the town-level tax rate. This analysis shows an increase of about 0.5 percentage points in the OLS specification and 1.7 percentage points in the 2SLS specification. We obtain similar estimates if we combine direct and indirect taxes into one category.

confidence interval, the effect is bounded between -19% and $+6\%$. The effect on income per worker now becomes positive and statistically significant, indicating a 10% increase following the introduction of Social Democratic rule. This finding is consistent with the observed negative effect on employment, suggesting that some relatively low-earning workers may have exited the labor market—possibly in response to a more generous local welfare system. However, as the next subsection documents, the findings on economy are sensitive to patterns of income convergence. Finally, we cannot reject that average firm profit per capita was not influenced by Social Democratic rule.[14]

Panel (C) of Figure 8 presents the associated reduced-form estimates, where we transform the vote share into a fraction to simplify the decimal representation. First, these estimates support the conclusions from the 2SLS results. Second, if we interpret the 1917 Social Democratic vote share as reflecting the share of the electorate demanding more redistribution than that provided by the royally appointed mayor, we find that a 10-%age-point increase in this measure leads to, for example, a 3.8 % increase in total spending and a 5.7 % increase in poor relief spending.

Figure 9 presents 2SLS estimates using an alternative version of the instrument, designed to assess whether the baseline results are confounded by the "threat of Social Democratic rule;" a factor that could independently increase spending. As described above, the instrument now compares towns with the highest and lowest treatment intensity, while controlling for towns in the middle two quartiles (the reduced-form effects of these groups are not reported). First, the Kleibergen-Paap F-statistic increases to approximately 100 (not shown in the figure), indicating an even stronger first stage. Second, the resulting 2SLS estimates are similar in both magnitude and statistical significance to the baseline results, as illustrated in the figure. Thus, we argue that our baseline estimates are not confounded by the threat of Social Democratic rule. Moreover, towns in the middle quartiles are (combined) not predictive of the transition to Social Democratic rule once this modified instrument is included.[15]

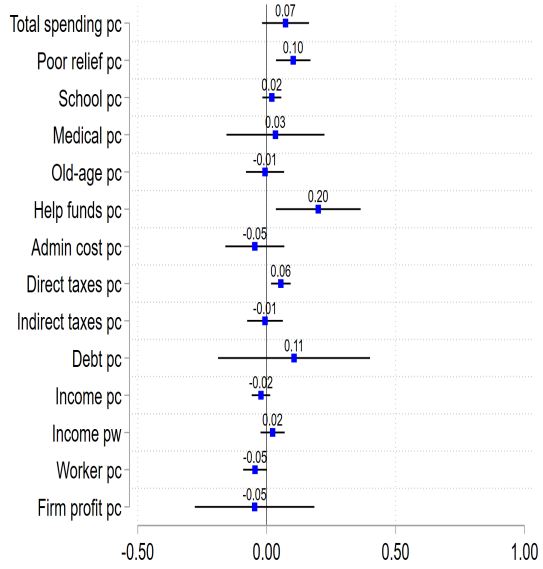
In Figure 10, we present similar results when redefining the explanatory variable to indicate whether a Social Democratic mayor was in office (equal to one if so, and zero otherwise), instead of using the broader measure of Social Democratic rule. Both the OLS and 2SLS estimates remain similar to the baseline specification, and the reduced-form estimates are unchanged.

[14] It should be noted that incomes below the standard deduction of 800 DKK are not recorded in the historical tax data. However, as mentioned, war-driven inflation brought more people above this threshold and into the tax base

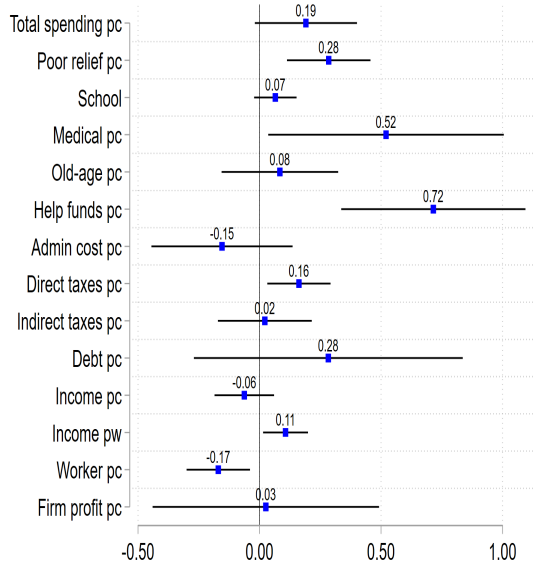
[15] When splitting the two middle quartile groups, the third quartile is predictive of a shift to Social Democratic rule, whereas the second quartile is not, consistent with the patterns in Appendix Figure A.2.

FIGURE 8: **EFFECTS OF SOCIAL DEMOCRATIC RULE**

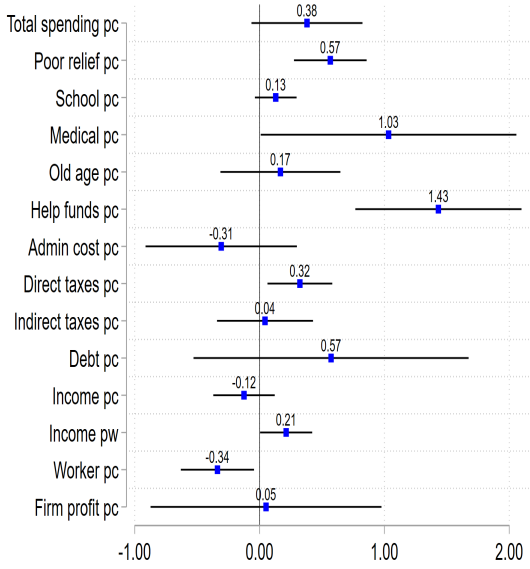
(A) OLS



(B) 2SLS

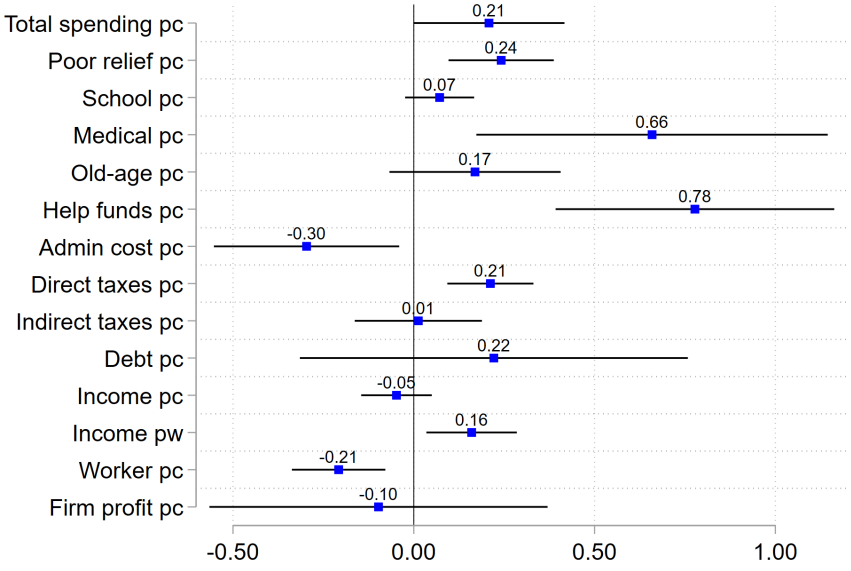


(C) REDUCED-FORM



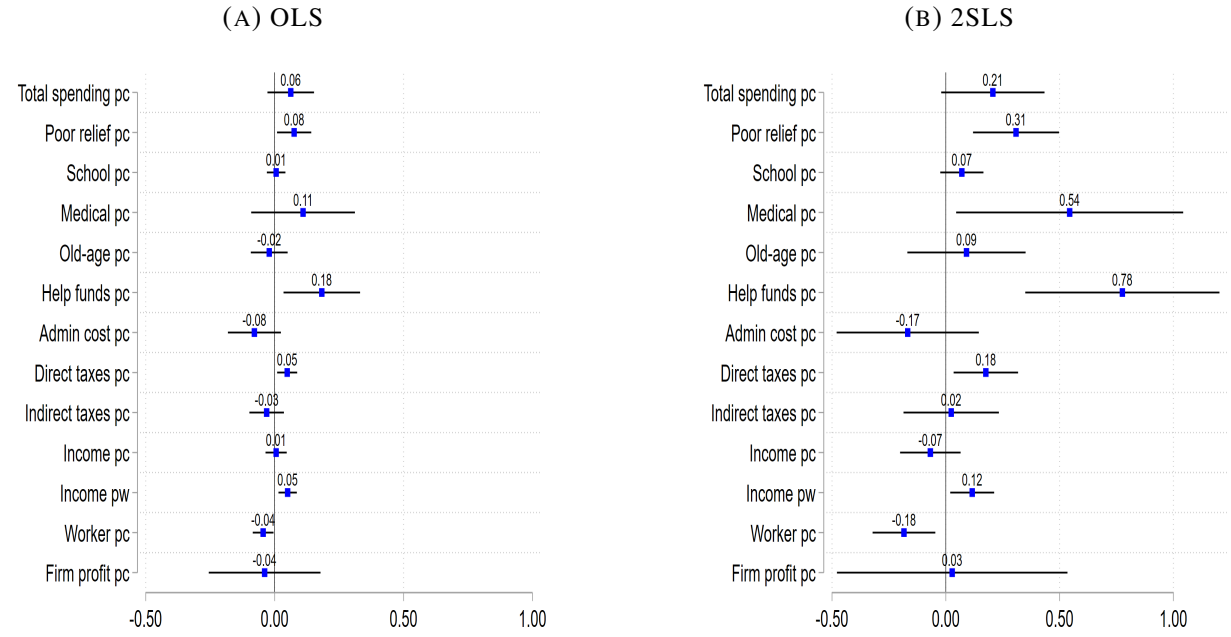
Notes: This figure presents the baseline estimates of the impact of Social Democratic rule on spending, revenues, and average income. Panel (A) reports the roll-out effects estimated using OLS. In Panel (B), we instrument for the roll-out using the Social Democratic vote share in 1917 interacted with an indicator variable equal to one for post-1917 observations. The KP-F statistic exceeds 50 in all specifications. All outcomes are log-transformed and scaled by the total population, except for "Income pw" which is scaled by the number of workers (taxpayers). See also variable definitions in Appendix Section A.2. All specifications control for town and year fixed effects and standard errors are clustered at the town level. The horizontal lines are 95-% confidence bands.

FIGURE 9: ROBUSTNESS TO THE THREAT OF SOCIAL DEMOCRATIC RULE



Notes: This figure presents a robustness check addressing the potential threat of Social Democratic rule. We modify the 2SLS specification from Panel (B) of Figure 8 by dividing towns into quartiles based on treatment intensity. The instrument now compares towns in the top quartile to those in the bottom quartile, while controlling for towns in the two middle quartiles. This adjustment strengthens the first stage, with the Kleibergen-Paap F-statistic increasing to approximately 100. As in the baseline specification, we control for town and year fixed effects, and standard errors are clustered at the town level. The vertical lines represent 95-% confidence intervals

FIGURE 10: **ROBUSTNESS TO ROLL-OUT MEASURE**



Notes: This figure presents a robustness check addressing the possible issue that we model Social Democratic Rule as an absorbing state. In this figure, we instead use a dummy which is equal to one once (and only once) a Social Democratic mayor rules a given town. Otherwise the specification is as in Figure 8, which means that we for town and year fixed effects and standard errors are clustered at the town level. The horizontal lines are 95-% confidence bands.

5.2 Additional robustness

In this subsection, we provide additional robustness checks around our baseline 2SLS specification. First, we interact the baseline treatment variable with a dummy indicating whether the Social Democratic mayor is associated with the reform. This approach effectively codes towns that first elected a Social Democratic mayor in the later 1920s as untreated (see Appendix Figure A.5).

Second, prior to 1917, the royally appointed mayors would typically be conservatives, who would have the ability to block welfare expansion. This leads us to believe that towns moving to Social Democratic rule after 1917 and those who stayed more conservative were following parallel trends prior to the reform. In this way, those towns that remained conservative after the reform can plausibly serve as a counterfactual to the towns the changed to Social Democratic rule. This might fail if, e.g., liberal parties were similar to Social Democratic ones in terms of policy. That the Liberal party could have similar policies is indeed suggested by the literature stressing the importance of liberal parties at the national level (Esping-Andersen, 1990; Nørgaard, 2000; Manow, 2009). To address this concern, we coded a dummy for whether the first democratically elected mayor was from the Liberal party and interact it by year fixed effects. This again does not change any insights (See Panel A of Appendix Figure A.6).

Third, while the reform that we investigate plausibly works through the initial Social Democratic vote share, it is also possible that that the reform increased political competition, which could by itself have influenced spending patterns. While we already probed into this in the previous section, we here provide an additional check to address this concern. In particular, we compute a Herfindahl index of political competition based on party shares from the 1917 election, and control for this variable interacted with year dummies. However, this has little effect on our baseline 2SLS estimates (See Panel B of Appendix Figure A.6).

Fourth, as discussed in e.g Aidt and Jensen (2009a), urbanization and development may drive the size of the public sector. Moreover, left-wing parties may be more likely in larger urban localities. To investigate this possibility, we control logged population size in 1917 by year fixed effects. In addition, according to Appendix Table A.1, there are minor co-variate imbalances in income per worker and workers per capita and thus we also control for these, measured in 1917, by year fixed effects. The controls for the initial economy makes the effects on income and employment small and insignificant, but the main spending effects remain robust (See Panel A of Appendix Figure A.7). Specifically, the 95-% confidence interval for income per capita remains roughly similar to the baseline, while the interval for income per worker excludes effects below -11% and above $+10\%$.

Fifth, the reform took place close to World War I, the Russian Revolution (1917-1919) and the Spanish Flu pandemic (1918–1919). Although wars are often linked to pressures for redistribution (e.g., Scheve and Stasavage, 2012), Denmark was not directly involved in the conflict, and the main

domestic economic disruption came late in the war through the North Sea blockade. Buhmann-Holmes (2025) links the Russian Revolution of 1917-1919, as a measure of the threat of revolution, to parliamentary speech patterns for the case of national politics in Denmark, While, it is possible that the Russian Revolution affected local politics, we note that the change we explore was at the national level, and believe that the effects observed are less likely to be the direct outcome of local revolutionary threats. While it is not possible to control directly for any indirect effects of the war, the impact of the Spanish Flu is more plausibly heterogeneous across Danish towns. To account for the pressure that the pandemic could have placed on local public finances, we follow Dahl et al. (2022) and include excess mortality in 1918 interacted with year fixed effects. None of these controls affects our results (see Panel B of Appendix Figure A.7).

Sixth, although women had the right to vote and run in town elections since 1909, it is still possible that our results partly reflect slow-moving effects of female suffrage.[16] Previous research has shown that women's political participation can influence welfare outcomes (Miller, 2008). To address this, we show that our findings remain robust when controlling for the gender composition of town councils in 1917, interacted with year fixed effects (see Appendix Figure A.8). Seventh, we include all the aforementioned control variables at once and observe that our findings for total spending, poor relief, and help funds are robust to all these considerations (Appendix Figure A.9).

Finally, in the baseline specification, we impose a linear first-stage relationship between the Social Democratic vote share and the shift to Social Democratic rule. To relax this functional-form assumption, we map the vote share using the following logistic function:

$$X(S_{1917}) \;=\; \frac{1}{1+\exp[-k(S_{1917}-x_0)]}, \tag{4}$$

with (k, x_0) calibrated so that $X(45) = 0.37$ and $X(50) \approx 1$ (implying $X(s)$ is near zero for vote shares below about 37%). This yields an S-shaped mapping that is flat at low support, increases sharply over 37-45%, and saturates for high support, which is in line with the non-parametric first stage evidence, reported in Appendix Figure A.2. We then use this transformed index as a continuous first-stage predictor. This transformation increases the first-stage strength significantly such that the Kleibergen-Paap F-statistic is 160 (or above) in all specifications, however, the general insight from the 2SLS estimates are pretty similar to the baseline (see Appendix Figure A.10). The most striking change is that the effect of Social Democratic rule on poor relief reduces from a baseline effect of 28% to now 16%.

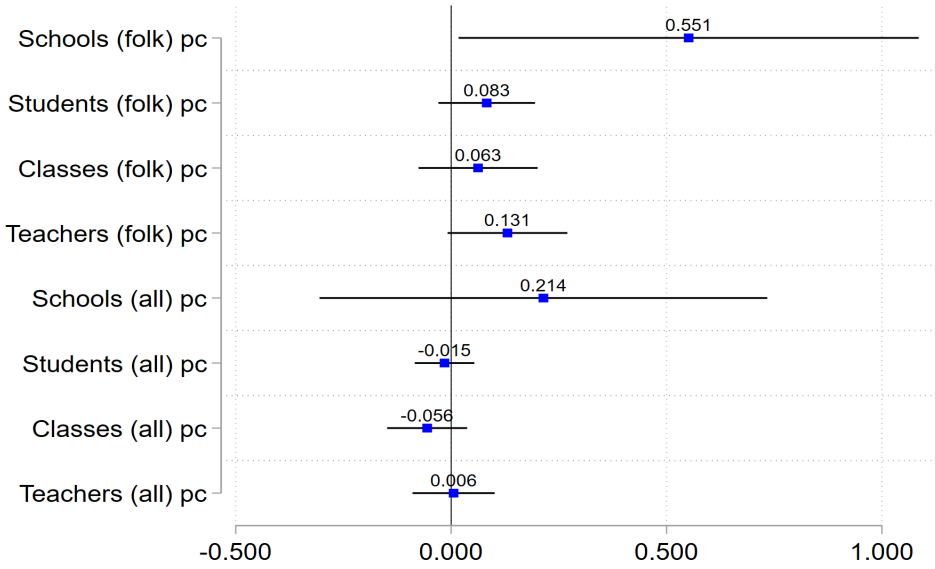
[16] Female suffrage at national elections was introduced later in 1915.

5.3 School effects

Our baseline estimates indicate a 7% increase in school spending following Social Democratic rule, although the baseline estimate is only statistically significant at the 10% level, it appears robust (e.g., Appendix Figure A.9). In this subsection, we examine how and if the additional spending translated into changes in the local schooling system; specifically in the number of schools, students, classes, and teachers.

Figure 11 presents 2SLS estimates for these outcomes, expressed in logged and per capita terms. We report results separately for two categories: free elementary schools (or folk schools) and all schools combined. The number of folk schools increased by nearly 50% (the average number of such schools was 1.8 prior to the reform). There is also some evidence that the number of students, classes, and teachers increased (these effects become statistically significant only when not scaled by population size). In contrast, when considering all types of schools, we find no significant increases in towns governed by Social Democratic mayors, suggesting that these mayors prioritized the expansion of folk schools specifically.

FIGURE 11: **SCHOOL OUTCOMES**

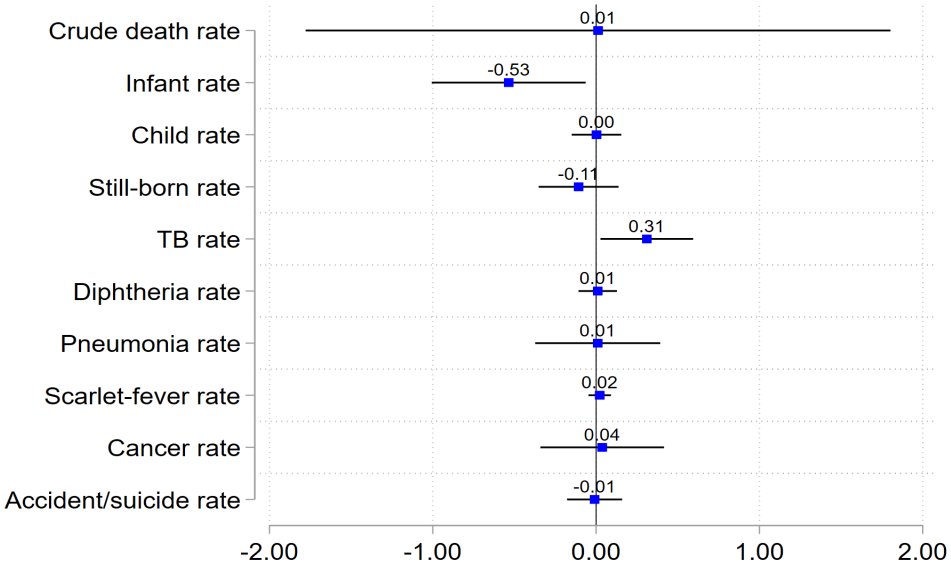


Notes: This figure reports 2SLS estimates for different school outcomes. All variables are logged and in per capita. "folk" include all schools that were either "free school" or had free schools in them. A free school would be providing primary schooling (ages 7-14) free of charge. "all" includes all types of schools, including "gymnasium" (or high schools), and private schools. "Schools" are the number of schools; "Students" are the number of pupils; "Classes" are the number of classes; "Teachers" are the number of teachers. We only observe these outcomes in 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1921, 1926, and 1931 (which is coded as 1929 to match up with our baseline sample). All variables are logged and in per capita terms. See also variable definitions in Appendix Section A.2. All regressions include town and year fixed effects, with standard errors clustered at the town level.

5.4 Mortality effect

In this subsection, we examine if Social Democratic rule and the additional spending on poor relief and social welfare contributed to the mortality transition during the early part of the 20th century. Figure 12 presents the 2SLS estimates for overall mortality (crude death rate), disaggregated by age (infant, child, and stillbirth mortality rates) and by cause of death (tuberculosis, diphtheria, pneumonia, scarlet fever, cancer, and suicide/accidents). Overall, we find no strong evidence that towns governed by the Social Democrats mayors, and which experienced increased social welfare spending, saw reductions in mortality across these categories. There is some indication of a decline in infant mortality (second row), but this result is sensitive to the functional form: when using a log-level specification instead of the level-level form reported here, the estimate becomes statistically insignificant (results not shown).

FIGURE 12: **MORTALITY OUTCOMES**



Notes: This figure reports 2SLS estimates for various mortality outcomes, all measured in levels (i.e., not logged). The crude death rate refers to total deaths per 1,000 people; the infant death rate to deaths under age 1 per 1,000; and the child death rate to deaths among ages 1–5 per 1,000. The stillbirth rate is stillborn deaths per 1,000 people. Cause-specific mortality rates include pulmonary tuberculosis, diphtheria, pneumonia, scarlet fever, cancer, and accidents/suicides—each expressed per 1,000 people. All regressions include town and year fixed effects, with standard errors clustered at the town level.

6 Conclusion

This paper has analyzed an institutional reform that caused more Danish towns to be ruled by left-wing parties. The analysis revealed that this led to more spending on poverty relief and public assistance, in particular, and prioritization of the public school system at the elementary level, after the reform and provides evidence for the view that left-wing parties mattered for the emergence of "local" welfare states. We also document that this emergence did not have robust negative effects on the local economies. Yet, our analysis only investigates one part of the argument made in the local origins of the nation-wide welfare state hypothesis. Unfortunately, our data do generally not allow us to investigate whether the local welfare states influenced the national emergence of a welfare state, although the narrative and our school outcomes suggest it. Suggestive empirical evidence for this is provided by Rasmussen and Knutsen (2024) for the case of local pensions in Norway as discussed in the literature section, but evidence using quasi-natural variation is still lacking in the literature.

In terms of the wider literature on the impact of left-wing parties and the size of government and redistribution, we provide the first, arguably, causal evidence for an impact on redistribution of left-wing parties in a historical setting. This is consistent with theories of democratization that predict increased redistribution as a consequence of increased influence by poorer voters. Moreover, our evidence suggests that left-wing parties mattered for the size of government in the wider process of democratization as we exploit a reform that changed the way that the executive was selected. In this way, the presence of left-wing parties interacted with how the local executive was selected. Interactions between aspects of democratic features have rarely been studied in the literature and are arguably a promising venue for future research.

While this study is rooted in early 20th-century Danish history, it holds relevant implications for present-day policy. It underscores that institutional structures, such as how political executives are selected, can critically shape the extent to which popular demand for redistribution translates into actual welfare policy. Our findings suggest that left-wing political control led to significant increases in welfare spending without evident economic harm, emphasizing that redistribution does not necessarily come at the expense of growth. Moreover, the central role played by local governments in welfare provision highlights their potential as drivers of social innovation even today. These insights remain highly relevant in modern democracies, where institutional constraints, rather than voter preferences alone, often determine policy outcomes.

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Online Appendix

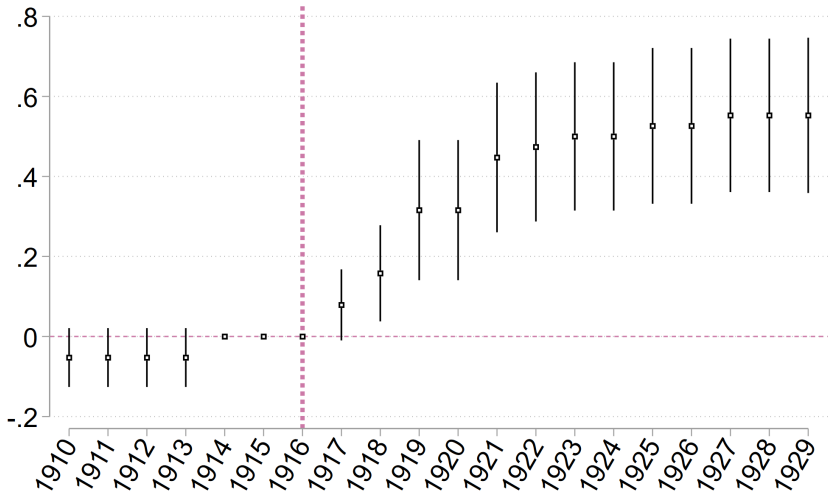
A.1 Additional material

TABLE A.1: SUMMARY STATISTICS BY SOCIAL DEMOCRATIC VOTE SHARE MEDIAN GROUP

	Above Median		Below Median		
Variable	Mean	SD	Mean	SD	Std Diff
S Share	46.89	6.26	27.26	9.03	2.53
Total Spending pc	82.03	34.50	80.64	44.09	0.04
Poor relief pc	4.65	1.24	4.38	1.36	0.21
School pc	9.33	1.51	8.70	1.53	0.42
Medical pc	1.58	1.27	1.50	1.30	0.06
Old age pc	3.58	1.47	3.37	1.20	0.15
Help fund pc	2.33	2.92	1.79	2.08	0.21
Admin cost pc	1.65	0.56	1.64	0.68	0.01
Direct taxes pc	27.90	6.49	27.38	6.89	0.08
Income pc	340.00	125.21	336.90	163.37	0.02
Income pw	2039.00	369.59	2213.00	533.36	−0.38
Workers pc	0.16	0.04	0.15	0.04	0.37
Firm profit pc	30.07	33.14	18.87	37.20	0.32
Schools (folk) pc	0.28	0.19	0.51	0.32	−0.90
Students (folk) pc	128.80	31.03	130.70	28.05	−0.07
Teachers (folk) pc	3.75	1.10	4.06	1.26	−0.26
Classes (folk) pc	4.62	1.27	4.88	1.37	−0.20
Schools (all) pc	0.34	0.18	0.55	0.31	−0.84
Students (all) pc	144.70	23.64	137.50	26.32	0.29
Classes (all) pc	4.46	0.89	4.39	1.21	0.06
Teachers (all) pc	5.33	0.97	5.22	1.31	0.10

Notes: This table presents summary statistics for outcomes measured over the pre-period 1910 to 1916, categorized by whether the Social Democratic vote share in 1917 was below or above the median. The last column reports standardized differences in means between the two groups. Standardized differences with absolute values below 0.25 indicate no significant imbalance (Imbens, 2015). The standardized difference for "S Share" is, by definition, large, as this variable is used for the median split. The last eight variables are expressed in per 1,000 people.

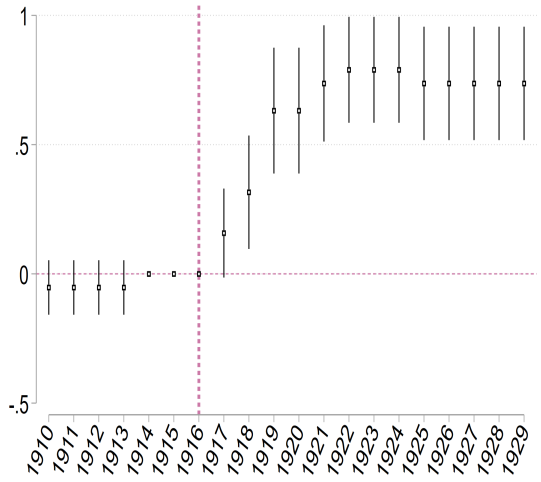
FIGURE A.1: THE REFORM INCREASED THE PROBABILITY OF SOCIAL DEMOCRATIC RULE, USING MEDIAN SPLIT



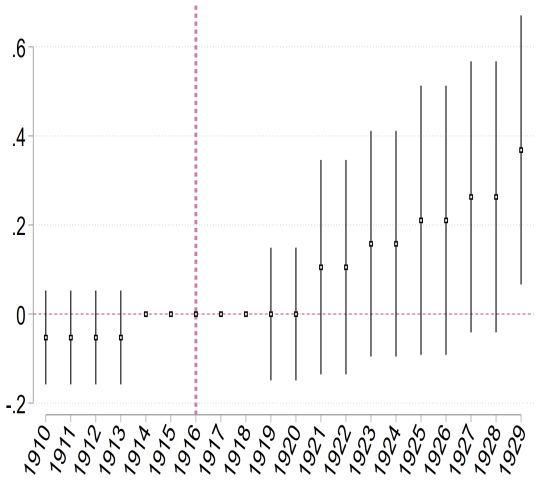
Notes: This figure shows how the probability of a town getting its first Social Democratic mayor is affected by the Social Democratic Vote Share in 1917 by year fixed effects. The excluded year is 1916. The specification are the same as in Figure 6 but here we use a median split based on the Social Democratic Vote Share in 1917 instead of the baseline continuous measure. This means that all towns with above median Social Democratic Vote Share in 1917 are coded as treated (=1) and zero otherwise.

FIGURE A.2: THE REFORM INCREASED THE PROBABILITY OF SOCIAL DEMOCRATIC RULE, USING QUARTILE SPLITS

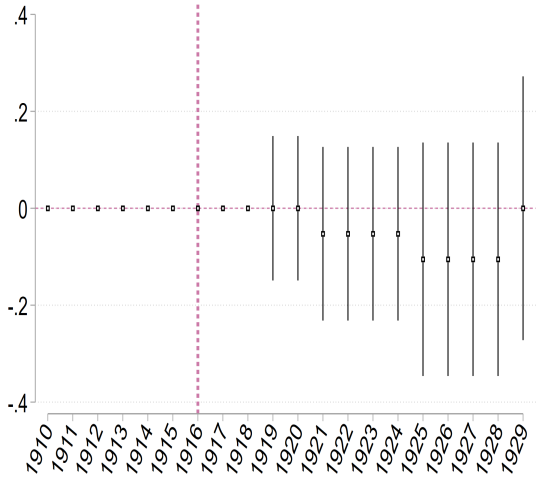
(A) Q4: 46–60%



(B) Q3: 37–45%

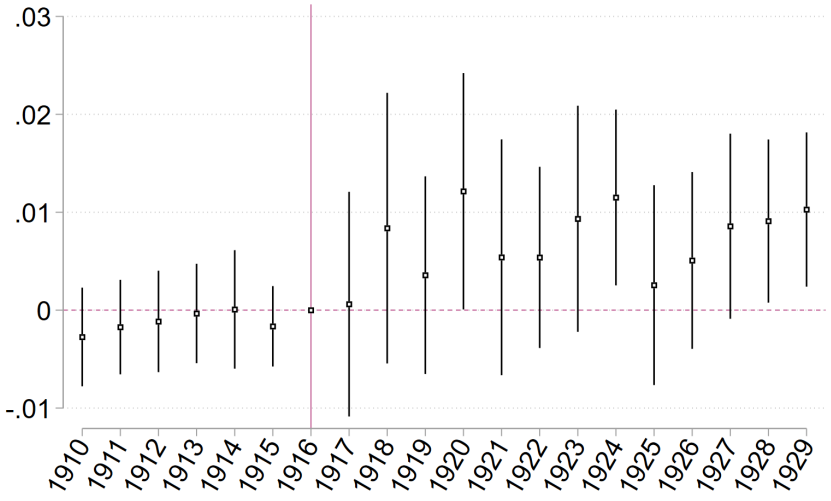


(C) Q2: 30–37%



Notes: This figure shows how the probability of a town getting its first Social Democratic mayor is affected by the Social Democratic Vote Share in 1917 by year fixed effects. The excluded year is 1916. The specification are the same as in Figure 6 but here we use splits based on quartiles of the Social Democratic vote share in 1917 (instead of the baseline continuous measure), where the lowest quartile with vote shares in the interval 0-30% is the omitted comparison.

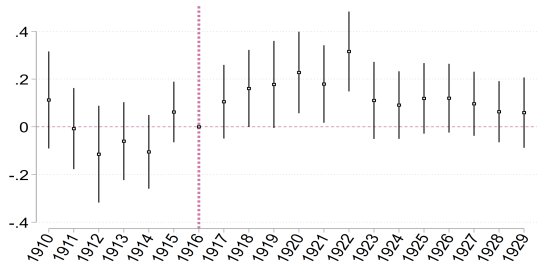
FIGURE A.3: STATE SUBSIDIES TO HELP FUNDS PC



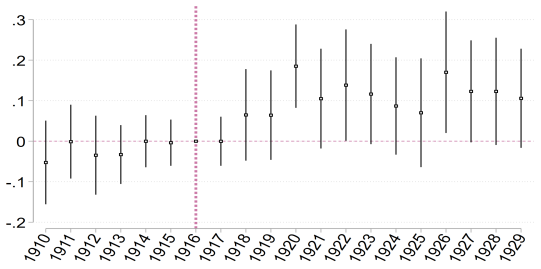
Notes: Under a national law from 1903, which remained in effect throughout our sample period, town councils that made direct cash contributions from general town funds to one or more local private poor relief funds were entitled to request reimbursement of one-third of the amount from the state. However, the state subsidy was capped at 0.1 DKK per resident, based on the town's population in the most recent census. The private poor relief funds were subsumed by town help funds in 1907, which would provide help for people in need outside the public poor relief system. This figure shows that the state subsidy (in logged per capita terms) increased more after Social Democratic rule. The specification is otherwise the same as in Figure 7.

FIGURE A.4: **EVENT STUDIES FOR SPENDING AND REVENUES BY CATEGORY, USING MEDIAN SPLIT**

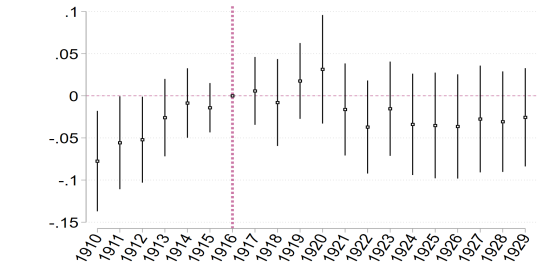
(A) TOTAL SPENDING PC



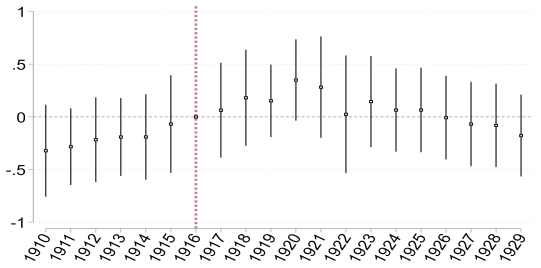
(B) POOR RELIEF PC



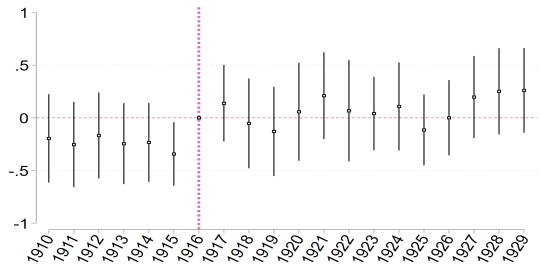
(C) SCHOOL PC



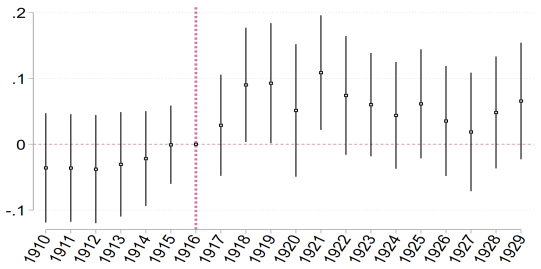
(D) MEDICAL PC



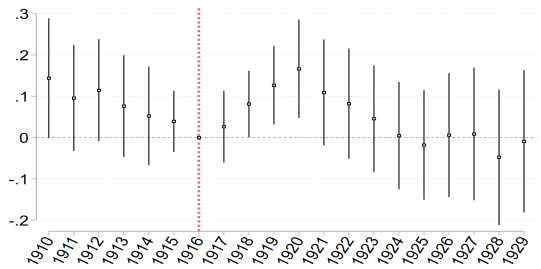
(E) HELP FUNDS PC



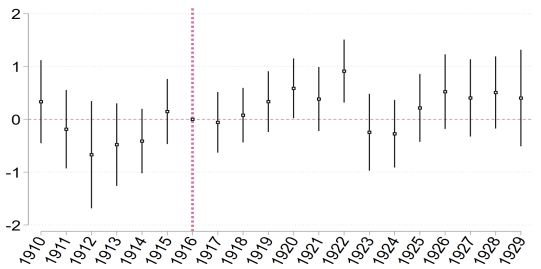
(F) DIRECT TAXES PC



(G) INDIRECT TAXES PC

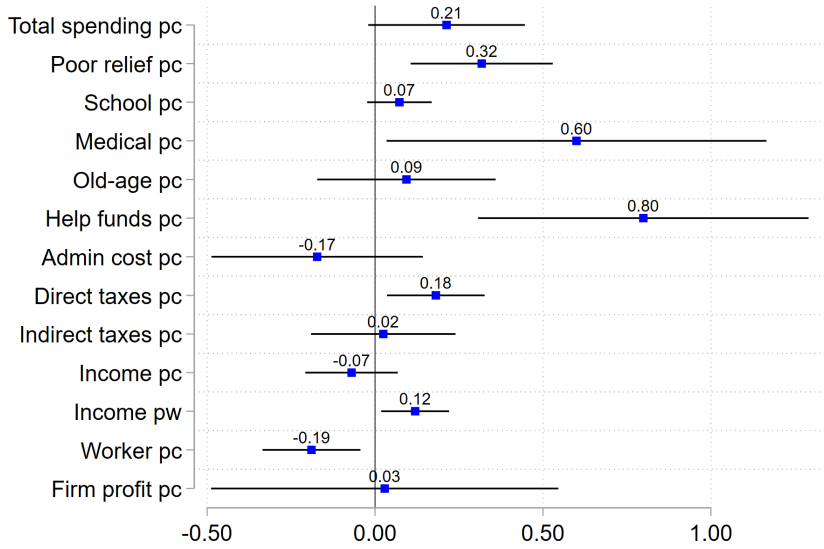


(H) NEW DEBT PC



Notes: This event graph shows how (logged) spending and revenues per capita (by selected categories) is affected by the Social Democratic Vote Share in 1917 by year fixed effects. The excluded year is 1916. The specification are the same as in Figure 7 but here we use a median split based on the Social Democratic Vote Share in 1917 instead of the baseline continuous measure. This means that all towns with above median Social Democratic Vote Share in 1917 are coded as treated (=1) and zero otherwise.

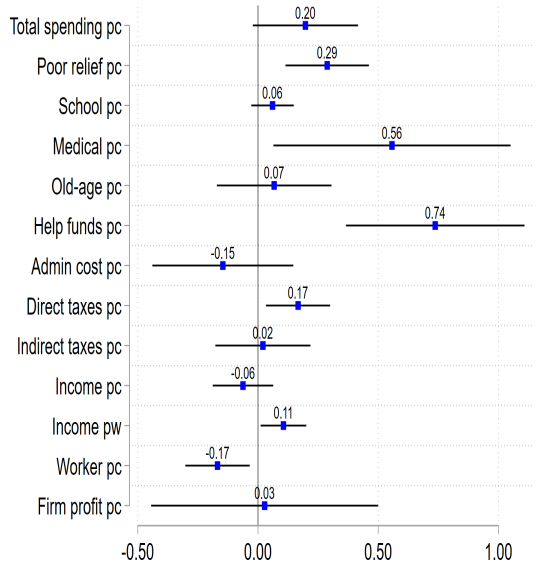
FIGURE A.5: SOCIAL MAYOR ASSOCIATED WITH THE REFORM



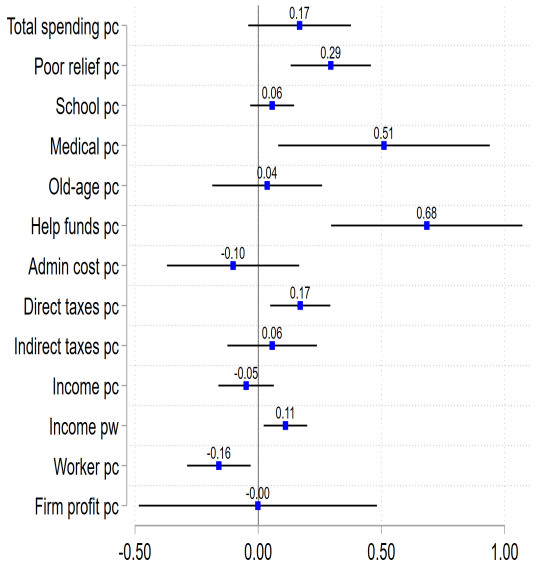
Notes: This figure examines the robustness of the results to different measures of Social Democratic rule. here we interact the baseline variable with a dummy indicating Social Democratic mayors associated with the 1919 reform. Otherwise, the specifications remain similar to those presented in Figure 8. We have omitted the estimates for new debt per capita for readability.

FIGURE A.6: **CONTROLLING FOR LIBERAL PARTY MAYOR AND POLITICAL COMPETITION**

(A) LIBERAL PARTY MAYORS



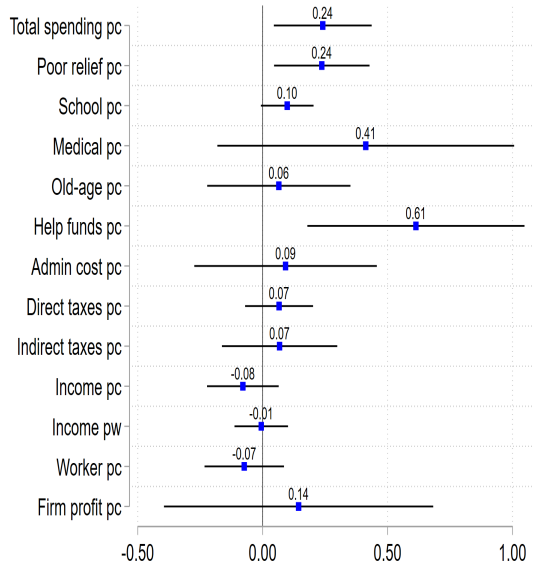
(B) POLITICAL COMPETITION



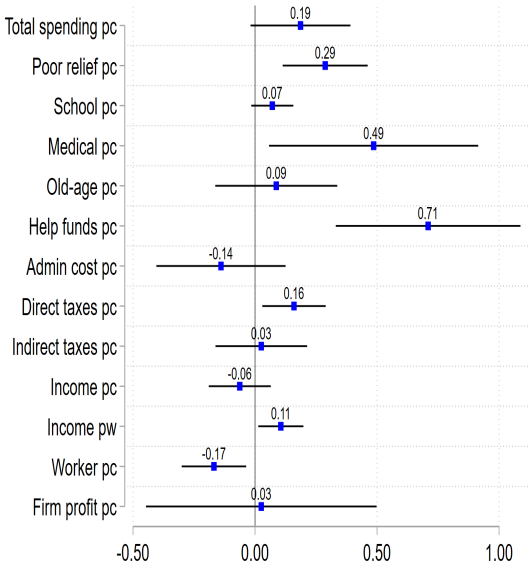
Notes: This figure examines the robustness of the results when controlling for Liberal Party mayors and for political competition, as measured by a Herfindahl index, both interacted with year fixed effects. Otherwise, the specifications remain similar to those presented in Figure 8. We have omitted the estimates for new debt per capita for readability.

FIGURE A.7: **CONTROLLING POPULATION SIZE, INCOME PER WORKER, EMPLOYMENT RATE, AND THE SPANISH FLUE**

(A) POPULATION SIZE, INCOME AND EMPLOYMENT

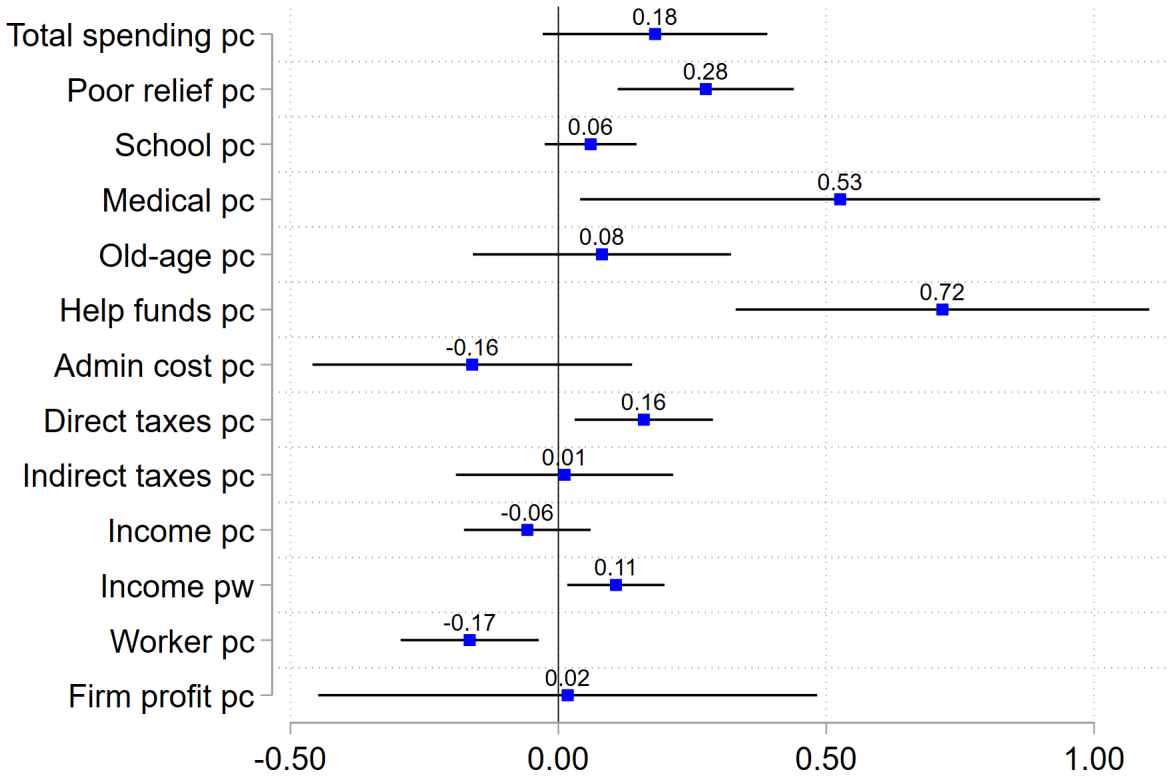


(B) SPANISH FLUE



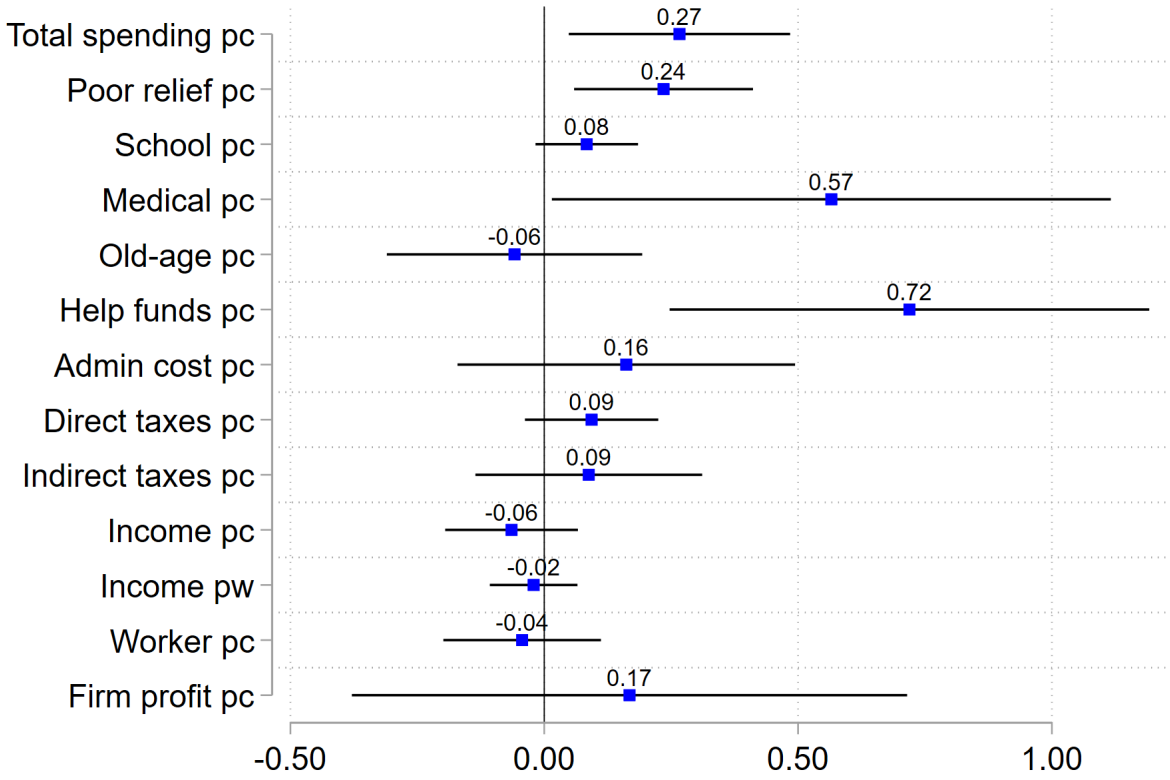
Notes: This figure examines the robustness of the results when controlling for logged population size in 1917, logged income per worker in 1917, logged workers per capita in 1917 (Panel A) and excess influenza mortality in 1918 (Panel B), all interacted with year fixed effects. Otherwise, the specifications remain similar to those presented in Figure 8. We have omitted the estimates for new debt per capita for readability.

FIGURE A.8: **CONTROLLING FOR THE GENDER COMPOSITION OF THE TOWN COUNCIL**



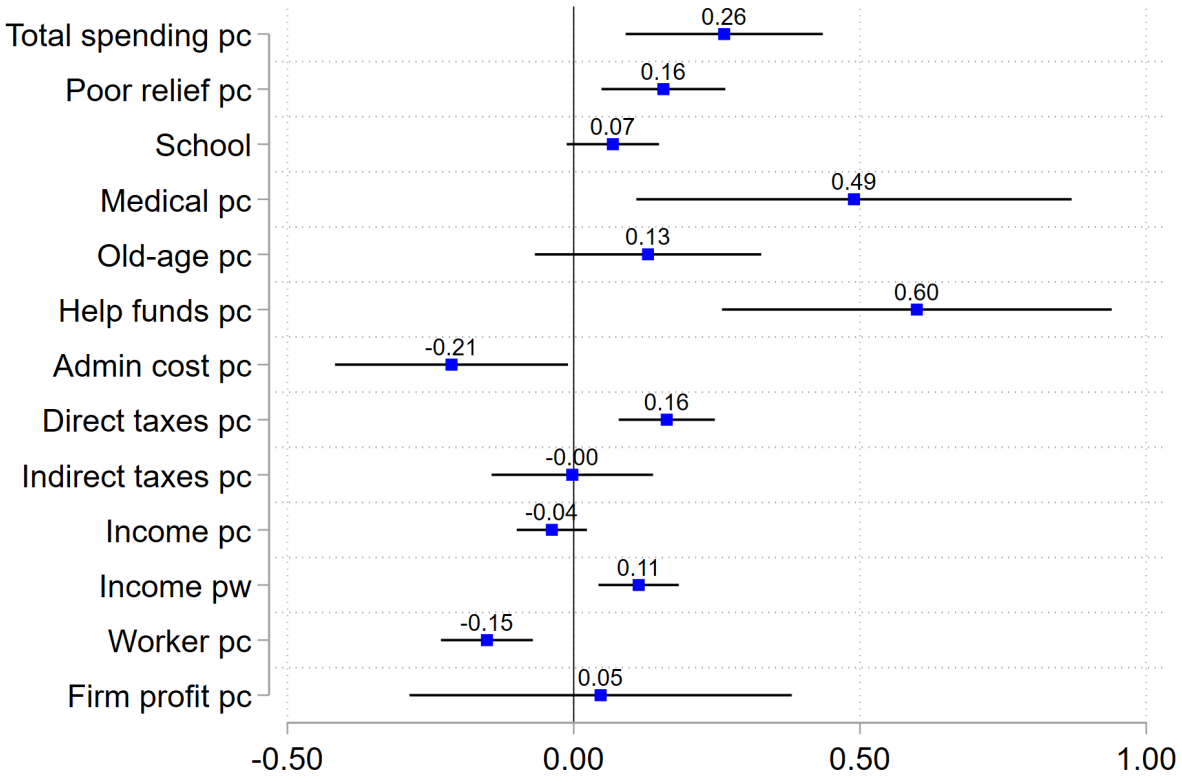
Notes: This figure examines the robustness of the results when controlling for the share of female members of town councils for the 1917 town election by year fixed effects. Otherwise, the specifications remain similar to those presented in Figure 8. We have omitted the estimates for new debt per capita for readability.

FIGURE A.9: **INCLUDING ALL CONTROLS**



Notes: This figure examines the robustness of the results when controlling all the factors from Appendix Figures A.6 and A.7 at once. Otherwise, the specifications remain similar to those presented in Figure 8. We have omitted the estimates for new debt per capita for readability.

FIGURE A.10: **ROBUSTNESS TO FIRST-STAGE FUNCTIONAL FORM: LOGISTIC MAPPING OF VOTE SHARE**



Notes: This figure examines the robustness of the first stage functional form, where instead of assuming a linear relation in the 1917 Social Democratic vote share, we apply a logistic form (S-shaped), where the shape is calibrated according to the non-parametric evidence is Appendix Figure A.2. We have omitted the estimates for new debt per capita for readability. Otherwise, the specifications remain similar to those presented in Panel (B) of Figure 8. The Kleibergen-Paap F-statistic is 160 (or above) in all specifications.

A.2 Variable definitions

Town spending variables:

- "Total spending" = total spending.
- "Poor relief" = spending on poor relief
- "School" = spending on schools
- "Medical" = spending on medical services (in particular on the local hospital sector)
- "Old age" = spending on old-age assistance (in particular public pensions)
- "Help funds" = spending on local public assistance and support to the local unemployment insurance system
- "Admin cost" spending general administration of the town
- Note: in the regression analysis all variables are logged and in per capita terms

Town revenue variables:

- "Direct taxes" = revenues from direct taxation on income, property, and companies (corporation taxes)
- "Indirect taxes" = various other taxes (e.g., amusement park taxes)
- "Debt" = new debt
- Note: in the regression analysis all variables are logged and in per capita terms

Town economy variables:

- "Income pc" = average total-earned income (in the town) before taxes per person
- "Income pw" = average total-earned income (in the town) before taxes per worker (or taxpayer)
- "Worker pc" = workers (or taxpayers) per person
- "Firm profit pc" = average net-income of firms (in the town) before taxes per capita

School variables:

- "Schools (folk)" = number of free elementary schools
- "Students (folk)" = number of pupils in free elementary schools
- "Teachers (folk)" = number of teachers in free elementary schools
- "Classes (folk)" = number of teachers in free elementary schools
- "Schools (all)" = number of all schools
- "Students (all)" = number of pupils in all schools
- "Teachers (all)" = number of teachers in all schools
- "Classes (all)" = number of teachers in all schools
- Note: in the regression analysis all variables are logged and in per capita terms

Mortality variables:

- "Crude death rate" = total number of deaths per 1,000 people
- "Infant rate" = deaths in ages 0-1 per 1,000 people
- "Child rate" = deaths in ages 1-4 per 1,000 people
- "Still-born rate" = still-born deaths per 1,000 people
- "TB rate" = number of deaths from pulmonary tuberculosis per 1,000 people
- "Diphtheria rate" = number of deaths from diphtheria per 1,000 people
- "Pneumonia rate" = number of deaths from pneumonia per 1,000 people
- "Scarlet-fever rate" = number of deaths from scarlet-fever per 1,000 people
- "Cancer rate" = number of deaths from cancer per 1,000 people
- "Accidents/suicide rate" = number of deaths from accidents and suicides per 1,000 people

Treatment (or RHS) variables:

- "SoM_{ct} = dummy variable that equals one when a town gets its first Social Democratic mayor, and 0 otherwise
- "$S_{1917,c}$" Social Democratic vote share at the 1917 town election

A.3 Collection of data on mayors

To our knowledge, there is no central source for the party of the first democratically elected mayors as well as the first social democratic mayors in the cities and towns in our sample. We therefore sent e-mails to the local archives of the cities and towns listed in the table asking them about the timing of the first social democratic mayor in their city or town as well as the timing and the party of the first democratically elected mayor. The archives answered in different forms, some simply providing the relevant years and party, and others supplementing their answer with a page from a town history or a newspaper article. We also consulted a number of city and town histories as well as encyclopedias made available by the local archives to supplement our collection of data.

First Social Democratic Mayor date

Town	First S Mayor	First Democratically Mayor from S
Roskilde	1930	No
Koge	1921	No
Helsingor	1919	Yes
Hillerod	1954	No
Frederikssund	1929	No
Holbak	1919	Yes
Kalundborg	1921	No
Nykobing S	1937	No
Ringsted	1927	No
Soro	1970	No
Slagelse	1917	Yes
Korsor	1917	Yes
Skalskor	1918	Yes
Storehedinge	1970	No
Nastved	1919	Yes
Prasto	Not in sample period	No
Vordingborg	1929	No
Stege	1925	No
Ronne	1917	No
Hasle	1921	No
Allinge og Sandvig	1982	No
Svanike	1919	No
Nexo	1952	No
Aakirkeby	Never	No
Nakskov	1914	Yes
Rodby	1919	Yes
Maribo	1919	No
Nysted	1940	No
Sakskobing	1937	No
Stubbekobing	1921	No

Town	First S Mayor	First Democratically Mayor from S
Nykobing F	1925	No
Odense	1937	No
Kerteminde	2007	No
Bogense	1925	No
Middelfart	1918	Yes
Assens	1933	No
Nyborg	1919	Yes
Svendborg	1933	No
Faborg	1946	No
Rudkobing	1929	No
Skagen	1945	No
Frederikshavn	1937	No
Hjorring	1937	No
Saby	1933	Yes
Thisted	1937	No
Nykobing M	1925	No
Aalborg	1925	No
Nibe	1936	No
Viborg	1937	No
Skive	1914	Yes
Aarhus	1919	Yes
Skanderborg	1925	No
Horsens	1918	Yes
Vejle	1919	No
Fredericia	1921	No
Kolding	1923	No
Lemvig	Not known but not in sample period	No
Holstebro	1946	No
Ringkobing	1937	No
Varde	1943	No
Ribe	1946	No
Hobro	1925	No
Mariager	1946	No
Randers	1919	No
Grena	Not known but not in sample period	No
Ebletoft	1958	No
Aroskobing	Not known but not in sample period	No
Frederiksberg	2022	No
Frederiksvark	1937	No
Marstal	Not known but not in sample period	No
Silkeborg	1922	No
Norresundby	1921	Yes
Logstor	1933	No

Town	First S Mayor	First Democratically Mayor from S
Struer	1929	No
Herning	1990	No
Esbjerg	1921	Yes

Notes: This table report the first Social Democratic mayor dates, which we collected through archival surveys. It also documents whether the first democratically elected mayor (i.e., after the reform) was from the Social Democratic party.