

Debt Restrictions and Municipal Indebtedness in the 1920s

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Abstract: Following on the heels of the municipal defaults of the late nineteenth century, states passed various laws aimed at restricting the amount of debt cities could incur. The growth of the suburbs during the 1920s encouraged local governments to invest in infrastructure, most of which was financed by bonds. This period of urban expansion greatly tested the effectiveness of the restrictions passed in previous decades. We study the relationship between several major debt restrictions—debt limits, supermajority voting referenda, and debt exceptions—and municipal indebtedness in the Roaring Twenties. We find that these restrictions became increasingly influential during the 1920s and that cities that faced more restrictive debt rules were less indebted by 1929, even as municipal governments strategically responded to particular debt exceptions to increase their overall debt spending. As cities succumbed to the weight of debt payments during the Great Depression, those in states with supermajority voting referenda were less likely to default.

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In the late nineteenth century, many states adopted constitutional or statutory restrictions on the amount of debt that could be held by local governments. These debt rules were enacted in response to a wave of defaults on railroad bonds in the 1870s and were intended to reduce a moral hazard problem whereby local governments would have incentives to incur excess debt if they believed the cost of risky investment would be borne by taxpayers outside their own jurisdictions. The debt restrictions guided the fiscal practices of cities during the era of immigration, industrialization and urbanization leading up to WWI, but their effectiveness went largely untested until the 1920s. The pressures of a booming economy, rising homeownership, and suburbanization driven by adoption of automobiles prompted cities to invest heavily in infrastructure through the issuance of bonds. Among the largest US cities, in just four years between 1923 and 1927, real spending on capital improvements increased over 60 percent; nearly 70 percent of this spending was financed with bonded debt (Hillhouse 1936, p. 4).¹ When the Great Depression hit, many cities defaulted on their obligations and many more came close to doing so. Contemporary observers often linked the municipal problems of the 1930s to the debt behavior and fiscal decisions of the 1920s (Bird 1936, Hillhouse 1936).

Figure 1 shows the growth of debt across different levels of government between 1902 and 1942. Local debt was comparable in magnitude to federal debt, and substantially higher than state debt, during much of the early twentieth century. Local debt increased at its fastest rate during the 1920s, growing by 124 percent from 1922 to 1932 with the growth rate accelerating in the second half of the 1920s. Big cities—those with more than 30,000 people—make up the bulk of local debt growth during the period. The 1920s, consequently, offer the first major test of whether debt restrictions could be effective at restricting the growth of municipal debt in the US. Most of the state restrictions on local debt present in the 1920s remain in place in some form today, as do other fiscal rules regarding budget deficits or debt issuance by local governments. Examining the role of debt restrictions in this key period contributes to the literature on fiscal rules and sheds light on the historical development of local governments in the twentieth century. The ways in which local governments responded to debt restrictions by changing the types of debt they issued or altering

¹ This statistic refers to cities with a population of at least 30,000 people.

their organizational structure resulted in longstanding shifts in institutional characteristics that continue to affect city finances today (Wallis and Weingast 2008).

We examine the impact of the state-level debt restrictions established in the nineteenth century on municipal debt behavior in the 1920s. We build a dataset of 213 large cities that combines information on municipal debt restrictions that vary across states with a variety of city debt measures collected from historical census reports. We focus on municipal debt positions up to 1929, and consider the following three state-instituted rules and restrictions in place during this time: (i) debt limits expressed as a percentage of assessed valuation; (ii) supermajority voting rules that required more than half of the voting populace to approve the issuance of bonds; and (iii) exceptions that allowed cities to incur debt outside the limits for certain purposes. We find that each of these restrictions became increasingly influential during the 1920s and were important determinants of debt positions in 1929. Specifically, cities with the state-sanctioned ability to accumulate more debt through higher debt limits had higher debt levels by 1929, as did cities in states with looser voting requirements regarding bond issuance and more exceptions to debt limits. Municipal governments also strategically responded to particular debt exceptions to increase their overall debt spending. These results hold up to the inclusion of many variables, including those capturing local demand factors and other confounders. State-level debt-limit rules were thus effective at the margin. The results further suggest that those cities with high levels of indebtedness—and hence more strained fiscal positions—during the Great Depression were those with looser debt rules governing their behavior prior to the downturn. Indeed, we also find that stricter voting rules in particular reduced the likelihood of default in the 1930s.

We contribute to a research agenda in public finance that examines the impact of fiscal rules on government debt levels and borrowing costs. At least two challenges typically plague studies of the impact of fiscal rules on government behavior. First, the decision to adopt such rules is often endogenous: governments implement rules limiting fiscal behavior when facing situations that demonstrate the need for discipline. Second, many examples of fiscal rule changes arise from national governments imposing new restrictions on subnational governments, resulting in all units being treated with the same policy at the same time. Our context is advantageous for addressing these two challenges. By using variation in the strictness of state policies adopted primarily in the late nineteenth century to examine municipal government behavior in the 1920s, we contribute evidence on the effectiveness of fiscal rules using debt restrictions that do not arise from current

circumstances, and we make use of rules that vary across states in their type and strictness. Previous studies of these particular rules have either analyzed time periods closer to the adoption of the rules themselves, or have not analyzed the variation in the strictness of the debt limits across states.

Past studies of fiscal constraints on US states' debt accumulation and the cost of borrowing generally find that stringent fiscal constraints, including debt limits, tend to be effective at curbing state indebtedness (Bayoumi, Goldstein and Woglom 1995, Eichengreen 1992, Goldstein and Woglom 1992, von Hagen 1991).² Studies that focus on the effect of federally imposed fiscal rules on municipalities in Europe generally find that country-level debt limits are effective in these settings.³ Fiscal rules that govern municipal budget deficits have proven influential in Italian cities in recent years (Grembi, Nannicini and Troiani 2016); similarly, borrowing restrictions have limited debt in Spanish cities (Cabases, Pascual and Valles 2007).⁴ An older strand of the fiscal rules literature that studies debt limits and local government debt in the US in the 1950s, 1960s (Pogue 1970), and 1970s (Farnham 1985, McEachern 1978) generally finds that state-level debt restrictions including debt ceilings and supermajority voting rules tend to reduce local borrowing, although that evidence for the effectiveness of debt limits on cities is less clear than in the modern European context.

Several studies using historical data have focused on the impact of the presence (rather than the level) of the state debt restrictions we consider here. The antecedent to the local fiscal constraints we study were the constraints on states implemented in the middle of the nineteenth century. Evidence suggests that debt limitations imposed in many states following the debt crisis of 1841 served to lower their borrowing costs in subsequent years (Dove 2012). After many cities defaulted in the panic of 1873, states implemented similar constraints aimed at curbing fiscal mismanagement and irresponsible debt accumulation at the local level; between 1880 and 1890,

² The sovereign debt crises in a number of EU countries have prompted a re-investigation of the effectiveness of fiscal rules in constraining deficits and debt and limiting moral hazard issues associated with the promise of bailout (Dovis and Kirplani 2018, Asatryan, Castellon and Stratmann 2018).

³ A meta-analysis suggests that fiscal rules are more efficacious at the municipal level than at the national level (Heinemann, Moessinger and Yeter 2018).

⁴ In Switzerland, restrictions aimed at curbing debt at the cantonal level have no impact on local government indebtedness, and may improve local government budget positions. This outcome suggests that there are important spillover effects on lower-level governments from higher-level fiscal rules (Burret and Feld 2018).

these restrictions led to lower borrowing costs for cities (Dove 2014). Debt limitations also reduced the likelihood of municipal default between 1890 and 1905, particularly in the aftermath of the panic of 1893 (Dove 2016). Previous evidence suggests that, between 1870 and 1902, local debt limits helped to constrain local government debt within states, although the estimates are imprecise (Wallis and Weingast 2008).

We also contribute to the literature examining local government structure and changes in fiscal federalism around the time of the Great Depression. Local governments comprised the largest proportion of government spending at the onset of the Depression in 1929, and bore large responsibility for providing relief to the destitute.⁵ Yet cities in the 1930s faced substantial challenges as revenues dropped and the weight of debt payments increased. Mayors had nowhere to go but the federal government. The appeals came to a head in 1934, when failures in municipal bond markets emerged as a central component of the financial crisis: 37 of the largest 310 cities had filed for bankruptcy by March of that year (Bernanke 1983).⁶ Many cities struggled to fund services and capital expenditures throughout the 1930s due to budgetary challenges, including the fixed debt payments incurred through the infrastructure spending of the 1920s (Siodla 2020).⁷ The federal government came to the aid of local governments by increasing federal transfers and introducing debt-adjustment legislation for defaulting municipalities in 1934.⁸ The New Deal thus marked a turning point in the move away from a government system dominated by local spending to a system dominated by federal spending (Wallis 1984). Cities' appeals to centralized authorities for financial assistance during the Great Depression may have helped usher in this transition to increased federal dominance (Gelfand 1975). The debt-spending behavior of cities in the 1920s preceded these appeals. Thus our focus on the variation in debt restrictions across states yields

⁵ Municipal governments rapidly increased their spending between 1905 and 1930. Cities' spending on capital improvements increased most dramatically in the 1920s—relative to other time periods and spending on other types of goods and services—as the prices of capital goods declined (Swanson and Curran 1976).

⁶ Recent concerns about systemic risk in municipal bond markets in the COVID-19 recession has focused attention on many historical episodes in which bond markets suffered (Bordo and Duca 2021). Indeed, many scholars recognize that the crisis in financial markets during the Great Depression contributed to economic decline (Calomiris 1993).

⁷ This infrastructure often led to unfinished housing subdivisions, which slowed the recovery of local areas from the Great Depression (Field 1992). Likewise, the financial difficulties cities faced in the 1930s may have delayed recovery from the crisis in local areas.

⁸ See Lehmann (1950) for a description of the origins of the original federal Municipal Bankruptcy Act in 1934 and its subsequent iterations.

insight into the effectiveness of stricter policies in curbing municipal debt accumulation during the 1920s, and by implication, the involvement of the federal government in local affairs in the 1930s.

We now turn to our examination of the impact of state-level debt restrictions on municipal debt accumulation leading up to the Great Depression. The remainder of this article is organized as follows. Section 2 provides a historical background of the establishment of the state-level debt restrictions imposed on cities, the 1920s credit boom and suburbanization, and the role of debt restrictions during that time. In Section 3, we present the basic empirical framework for the study. Section 4 then describes the data and provides summary statistics and a visual representation of the results. Section 5 presents the empirical results. Section 6 concludes with a short discussion of the implications of the results.

2 HISTORICAL BACKGROUND

2.1 The establishment of state-level municipal debt restrictions

The debt restrictions we study originated in the nineteenth century when, in their promotion of real estate development, local governments began lending their credit to aid railroad construction in their jurisdictions.⁹ Local debt increased twentyfold between 1841 and 1870, far eclipsing the less-than-twofold increase in state debt over the same period (Wallis 2000, p. 66, Table 2). Much of this increase in local debt was driven by the issuance of municipal bonds. Debt obligations became a salient burden when the depression in 1873 forced many cities into default; an estimated one-fifth of all municipal debt went unpaid at some point during the downturn and its aftermath (Hillhouse 1936, p. 39).

State legislatures and local politicians viewed this rise in debt as overly exuberant and thus the wave of subsequent defaults as avoidable. They believed the source of this exuberance to be the increase in municipal bond issues that were aimed at assisting private corporations (e.g., railroads) in the process of local economic development (Sbragia 1996, p. 81). In response, states put the brakes on local debt accumulation through a variety of measures, principally through debt

⁹ State and local governments in the nineteenth century were motivated to invest in railroads—even after it was clear that they posed significant financial risks—because they increased real estate values and hence bolstered property tax revenues (Heckelman and Wallis 1997).

limits expressed as a percentage of assessed valuation. Some states, including Iowa (1857) and Illinois (1870), already had such debt limitations in place. Other states thus had a framework to follow when, according to Monkkonen (1995, p. 39), they responded to “uncontrolled local excesses” with limits of their own. The new debt rules varied considerably across states, thus suggesting that “lawmakers had little in the nature of a scientific criterion as a guide in the selection of a particular figure” (Williams and Nehemkis Jr. 1937, p. 182).

State-instituted fiscal rules governing local debt accumulation in the 1920s were the legacy of the rules enacted in response to the municipal defaults from the nineteenth century (Bird 1936, p. 14). Furthermore, they were largely unchanged in the years and decades following their initial implementation. Although some states passed statutory limits and made other adjustments during the 1920s, the changes were small in nature and “essentially maintained the structure of control that the states imposed in the latter part of the nineteenth century” (Sbragia 1996, p. 81). As one report noted, the changes enacted after the late 1800s “...have merely involved adjustments and modifications of, rather than drastic departures from, the types of legal restrictions which originated nearly a century ago...” (Advisory Commission on Intergovernmental Relations 1961, p. 21).

2.2 The credit boom and suburbanization of the 1920s

While debt restrictions were already in place in most states before the turn of the century, it was not until the 1920s that demand for capital investment—and the palpable pressure to acquire debt—became prevalent across cities. As in the period of railroad construction, municipal governments in the 1920s aimed to boost the growth of local economies through partnerships with private developers. But this time developers built housing subdivisions rather than railroads (Hillhouse 1936).

The rise of the automobile spurred demand for housing in the suburbs. Municipal governments helped facilitate housing construction through capital investment in roads, schools, and other infrastructure, financed primarily through the issuance of bonds (Monkkonen 1988). Roughly half of the debt issued in the 1920s was for the construction of roads and schools in particular. Indeed, more than half of the growth in local government spending during the 1920s came from these sources alone (Wallis 2001). A famous example of unchecked urban growth took place in Florida, which experienced a large population and real estate boom in the 1920s and the

growth in debt to accompany it. Local officials spent money in response to optimistic growth projections during the boom, leading to a rapid rise in bonds outstanding for cities across the state (Joffe 2013, p. 15).

Contemporaries argued that real estate speculation typified the era, the costs of which were borne by city governments. According to Bird (1936, p. 14), “Municipal bonds carried the load for many a shoestring subdivider; realtors ran many local governments, in fact, sometimes were local governments.” As a result, city landscapes were often scarred with platted but undeveloped subdivisions in the aftermath of the wave of investment (Field 1992). Acres platted in Detroit, for instance, increased by 81 percent between 1920 and 1930 (Michigan Planning Commission 1939, p. 10). Much of this land remained undeveloped by 1939. A study by the National Housing Agency in 1945 noted that hundreds of thousands of plots in cities across the nation were “already equipped with paved streets, curbs, sidewalks, water and other utility mains into which millions of dollars have been sunk—enough, indeed; to have bankrupted many townships and villages...” (National Housing Agency 1945, p. 36).¹⁰

Special assessment bonds, in particular, were often a vehicle used to finance the activities of property developers. These bonds were backed by fees collected from taxpayers to help make debt payments. Cities issued special assessment bonds for many types of local improvements, including paving streets and installing street lights, sidewalks, curbs, sewers, and water mains (Chatters and Hillhouse 1939, p. 187). The 1940 U.S. Census further linked the use of these bonds in the 1920s to speculative real estate construction (U.S. Census Bureau 1940, p. 204).¹¹

In addition to the increased housing-driven demand for local investment, policy pronouncements regarding local investment spending, tax incentives, and low borrowing costs created a large group of eager buyers and sellers of municipal bonds. Herbert Hoover, as secretary of the Department of Commerce, convened a conference following the 1920–1921 recession encouraging local governments to build public works projects to help stave off future downturns.

¹⁰ As quoted in Field (2012, p. 282).

¹¹ Cities often established districts supported by special assessment fees to “...permit the improvement of undeveloped and speculative areas” (U.S. Advisory Commission on Intergovernmental Relations 1973, p. 15). Heim (2015) further describes the distributional conflicts associated with the targeted financing of urban infrastructure, comparing the implementation of special assessment fees in mid-nineteenth century Chicago to the development impact fees in modern-day Phoenix.

Cities responded by issuing bonds in record numbers in 1921 and 1922, thus jumpstarting an era of growth in bonded indebtedness (Rothbard 2000, pp. 192-193). The earnings from municipal bonds were exempt from the federal income tax introduced in 1913. Following on the heels of World War I and heavy federal taxes, many investors purchased the tax-preferred bonds of local governments. A low cost of borrowing added to these factors and fostered a recipe for growth in municipal bonds. Indeed, observers in municipal finance were already worried in the early 1920s about the potential for dangerous consequences from such favorable conditions (Raymond 1923, p. 257).

2.3 Debt restrictions and municipal indebtedness in the 1920s

The credit boom of the 1920s was universal as all cities faced at least some pressure to build infrastructure. Even so, wide variation in debt loads existed across cities. This variation prompted skepticism from Frederick Bird, Director of Municipal Research at Dun & Bradstreet, Inc., who wrote, “The wide diversity in the debt loads of cities with reasonably comparable physical equipment affords some proof that present high debts were unnecessary” (Bird 1936, p. 13). Even so, local drivers of the variation in debt abound (Bird 1935). For example, cities differed in their demand for local public goods, especially those associated with suburbanization. These differences may have been driven by such fundamental factors as demographic characteristics, income, or wealth. Additionally, cities where real estate speculation was rampant may have faced greater pressure to borrow to subsidize development. Particular forms of municipal government may have fostered political incentives to issue bonds or borrow long-term to finance current expenses (Bird 1936, p. 15). Mayor-council governments, for instance, which require both mayor and council approval, face greater constraints to spending than do council-manager forms of government, which require only council approval. Thus mayor-council governments tend to spend less money and take on fewer projects (Coate and Knight 2011).

Most important for our study is that cities faced different state-determined constraints on their ability to finance local public good spending through debt. The restrictions most emphasized by contemporary municipal practitioners and observers include debt limits (expressed as a percentage of assessed value), supermajority voting referenda, and exemptions from the debt limits themselves (Advisory Commission on Intergovernmental Relations 1961, Bird 1936, Hillhouse 1936). Debt limits were the most visible and ubiquitous form of restriction. However, their effect

on municipal indebtedness was not clear to practitioners, some of whom argued that they were easily evaded (Bird 1936, Hillhouse 1936).

One means of evasion was to create overlapping local government structures. Limits on debt, which often applied only to specific components of the municipal budget or to specific sub-state governmental organizations such as municipalities or school districts, incentivized local governments to create special districts for parks, water and sewer provision, and other special functions so that those debts did not count toward the state-imposed limit. This behavior resulted in multiple claims on the same underlying tax base. As noted by Bird (1936, p. 14), “Because of the multiplicity of overlapping local governments, each with independent borrowing power, the citizens of the average community have no intelligent conception of the weight of their local public debt.” Concerns about the use of overlapping districts to avoid debt limits were echoed by Hillhouse (1936). Because this behavior was viewed as limiting the effectiveness of debt limits overall, they were sometimes viewed as artificial (Bird 1936). However, Bird and Hillhouse were often writing about the 1930s rather than the 1920s. Indeed, the creation of special districts was not likely a major phenomenon until after the crash in 1929 (Burns 1994, p. 53). The growth of special districts became more ubiquitous in the 1930s when President Roosevelt himself urged cities to create them to evade debt limits and voting referenda (Burns 1994, p. 53).¹²

Another way to avoid restrictions was through exceptions to debt limits written into state constitutions and statutory laws. For example, some states allowed specific categories of debt, or debt accrued for specific purposes, such as for refunding debt, to be exempt from debt limits. These exceptions structured the incentives for debt financing across different local government activities. As such, they produced skepticism among municipal practitioners regarding their role in debt management (Hillhouse 1936, p. 456, Lancaster 1936, p. 316).

States also limited local debt with constitutional requirements for voting on bond issues, sometimes requiring a supermajority popular vote. Compared to debt limits, Bird (1936) saw these voting referenda as effective, comparing the moderate debt of many California cities that experienced rapid growth to New Jersey cities that had some of the highest debts in the nation.

¹² One government report noted, “The Depression, with the resulting erosion of the property tax base of local government and the impetus for construction of local public facilities provided by various Federal programs, stimulated the growth of special districts” (Advisory Commission on Intergovernmental Relations 1964, p. 1).

Atlantic City, for example, was the most indebted city in our sample (on a per capita basis) in 1929 and experienced the largest growth in debt in the 1920s. California required voters to approve all bond issues with a two-thirds popular vote, while New Jersey voters had no direct control over local government borrowing.

Other state regulations may have influenced municipal debt behavior. For instance, states often restricted property tax rates in addition to debt levels. Limits on property tax rates might have incentivized cities to incur more debt through higher property value assessments and by reducing the cost of debt financing relative to tax financing. Or, since revenue from property taxes was used to pay down debt, restrictions on tax rates may have incentivized municipal governments to incur less debt (Advisory Commission on Intergovernmental Relations 1961, p. 30). While property-tax limits are an important consideration, it is unclear how they may have impacted debt accumulation.

3 EMPIRICAL FRAMEWORK

We focus our analysis on the impact of state-implemented debt restrictions—debt limits as a percentage of assessed valuation, supermajority voting rules, and debt limit exceptions—on both the level of per capita debt in 1929 and the growth of per capita debt during the 1920s while accounting for other factors that could influence debt loads across cities. We identify the impact of debt restrictions using variation across states.¹³ As described in Section 2.1, these state-level debt restrictions were implemented decades before the 1920s. We rely on the following primary specification:

$$y_{ir} = \alpha + \beta_1 DebtLimit_i + \beta_2 SuperMajority_i + \beta_3 Exceptions_i + \beta_4 X_i + \beta_5 Region_r + e_{ir} \quad (1)$$

where y_i is the outcome variable of interest (log of 1929 real per capita debt or the log difference in real per capita debt between 1919 and 1929) for city i in census region r , $DebtLimit_i$ represents the debt limit facing the city as a proportion of assessed valuation, $SuperMajority_i$ is an indicator for supermajority voting requirements for approval of new debt, $Exceptions_i$ captures the number

¹³ We use within-state variation in a few cases in which exceptions for specific cities are codified in state law.

of debt exception categories, X_i is a set of controls with values from either 1919 or 1920, $Region_r$ is a set of census region dummies, and e_{ir} is an error term. Standard errors are robust to heteroscedasticity.

Included in X_i is a set of demographic controls, real per capita income, and real per capita taxable wealth. Here we account for a number of potential confounders that likely influenced the amount of debt incurred by municipalities. We include the following city-level demographic controls: total population, fraction of the population that is black, fraction of the population that is foreign-born, fraction of the population over 20 that is illiterate, the proportion of the population that is 45 or older, and the proportion of the population that is 14 and under. Per capita income is measured at the state level, while taxable wealth is the market value of each city's real and personal property tax base. Population, income, and wealth are in logs.

We account for a number of other factors could have influenced debt accumulation in the 1920s. Based on our discussion in Section 2.3, we also include confounding variables such as fiscal rules governing tax financing, suburbanization during the 1920s, and local government structure. Thus, in various specifications, we also include a dummy for overall property tax rate limit, the total number of residential building permits issued for single- and multi-family housing between 1921 and 1929 (in logs), population growth between 1920 and 1929, and an indicator for mayor-council form of government. The next section describes the data and provides a visual preview of our main results.

4 DATA

Two centralized sources provide information on debt restrictions in the 1920s. We collect data on debt limits, supermajority popular vote, and the number of debt exceptions principally from *The Municipal Yearbook 1936* (Lancaster 1936, p. 319) and corroborate it with information published in Moody (1921, 1925, 1931).¹⁴ We gather the following data by state: (i) debt limits (as a percentage of assessed valuation) on local government units, (ii) the voting authority necessary for creating debt, such as a supermajority popular vote, and (iii) categorical exceptions from debt

¹⁴ The difficulty of finding centralized information on state-level debt restrictions was mentioned in a government report from 1961 (Advisory Commission on Intergovernmental Relations 1961, p. 28).

limits. We combine the exceptions into three broad categories that account for actions related to refunding, special assessments, and all other permissions, so that we capture the number of exemption categories from zero to three for each city.¹⁵ These policies generally impacted all cities within a state, but in several cases, there are restrictions specific to particular cities. Details about the construction of these data are in the Appendix.

We use city debt and finance data from the U.S. Census Bureau's *Financial Statistics of Cities*, a series of comprehensive annual reports. The reports for fiscal years 1919 and 1929 serve as our primary sources of city financial information and the reports' tables provide data for each city with population of 30,000 or greater in each year (U.S. Census Bureau 1921, U.S. Census Bureau 1932).¹⁶ The 1919 report contains data for 227 cities and the 1929 report shows information for 250 cities. Because of its unique institutional arrangement, we exclude Washington, D.C., from the analysis. Furthermore, cities in Maryland and Oregon did not have explicit constitutional or statutory debt limits in 1929, and thus we also exclude cities in these states.¹⁷ Our final sample is a balanced panel of 213 debt-restricted cities with observations in both 1919 and 1929. Our period of analysis begins in 1919 to avoid the influence of the 1920–1921 recession and ends in 1929 to avoid the influence of the Great Depression, which began late that year. We use data from the reports produced between 1915 and 1935 in some analyses.

We use a variety of financial variables from the reports. Our main outcomes are the level of total per capita debt in 1929 and the growth rate of total per capita debt between 1919 and 1929.¹⁸ Importantly, the reports account for geographical coverage of cities and the services offered within them. For instance, the data account for annexations or losses of territory in any given year. They also include financial information for districts (e.g., school, sewer, water, etc.) that are coextensive with the cities themselves, which allows for equal comparisons across cities. In many cities, all municipal services are administered by the city corporation; in others, municipal functions are conducted by separate independent government units, each with its own taxing

¹⁵ According to Lancaster (1936, p. 316), the most frequent categories of exemptions were for refunding issues, special assessment debts, and self-liquidating utilities.

¹⁶ The U.S. Census Bureau did not produce a report in 1920.

¹⁷ The state of Oregon passed debt restrictions in 1929 through legislative action. See Moody (1931).

¹⁸ Another option is to analyze net debt, which reflects a city's gross debt obligations less its sinking fund assets accumulated for their amortization. Since these sinking fund assets were sometimes mismanaged and used for other purposes, we focus principally on gross debt.

authority. The overlapping structure of the data in the financial reports means that, for each city, our debt measure includes the city corporation's debt as well as the proportionate share of the debts of all independent government divisions or special districts lying within the municipality's geographic limits.

We use city population data from the 1929 financial report, which lists census population values for each city for 1910, 1920, and 1930 (U.S. Census Bureau 1932, p. 84, Table 1). We interpolate to arrive at population estimates for 1919 and 1929, which are used to compute values in per capita terms.¹⁹ Debt and all other monetary variables are deflated (in 1967 dollars) using the Consumer Price Index (CPI) given in U.S. Census Bureau (1975, pp. 210-211, Series E-135).

Figure 2 provides a visual representation of these data and the key results in our study. The figure shows real per capita debt in 1929 for each city in our 213-city sample, organized by state. The left panel shows states with supermajority requirements for debt approval, while the right panel shows states without such a requirement. Within the panels, states are ordered from those with the highest (and least restrictive) debt limits to the lowest. There is substantial variation in debt levels both within and across states and in the debt restrictions across states. Debt limits themselves range from two percent of assessed value (Indiana) to 25 percent (Arkansas).²⁰ Ten states in the sample had supermajority voting requirements for the approval of debt. Low and high debt-limit values existed in both supermajority and non-supermajority states, which suggests that these policies were independently determined. Two features of the data are worthy of note. First, cities in states with higher debt limits tended to hold more debt in 1929. This is true in both supermajority and non-supermajority states. Second, cities in supermajority states generally had low levels of per capita debt in 1929: most cities in these states had debt values below the median value (indicated by the vertical line), while most cities in non-supermajority states had debt levels above the median value.

While the results in Figure 2 are suggestive of the importance of debt restrictions in the accumulation of municipal debt in 1920s, they do not account for other sources of variation. To address this, we link our debt and state-level restriction variables to the demographic, income, and

¹⁹ We also use 1920 population as a control.

²⁰ Several cities in the 1929 *Financial Statistics of Cities* reports are in states with no debt limits. We exclude cities in such states from the analysis. Results are very similar when assigning these states a debt limit of 100 and including a dummy variable for 'no limit' states.

wealth measures described in Section 3. Demographic measures are collected from the 1920 volume of the U.S. Census of Population (U.S. Census Bureau 1922). State-level per capita income are provided in Martin (1939) and the market value of a city's real and personal property tax base are collected from U.S. Census Bureau (1921).²¹ States—rather than cities—often determined the basis of assessment (as a percentage of true market value) that taxing entities had to follow when determining assessed valuations.²² We use this basis of assessment as reported in U.S. Census Bureau (1921) to calculate the market value of each city's property tax base for 1919 in per capita terms.

We further link these data to variables that account for a variety of period-specific explanations for debt accumulation in the 1920s. Blanket property tax limits are gathered from Paquin (2015). Building permit data, which represent the total number of single- and multi-family housing units permitted in each city between 1921 and 1929, are provided in annual bulletins issued by the U.S. Bureau of Labor Statistics in the 1920s.²³ Data on government form are collected from a report issued by the city of Detroit in 1931, which provides information as of August 1929 (Detroit Bureau of Governmental Research, Inc. 1931). Most local governments took one of three forms in the 1920s: mayor-council, commission, or council-manager. Commission governments, which were largely adopted during the 1910s, were considered precursors to council-manager governments. No central data sources exist showing when these switches occurred. For this reason, we include a dummy to control for mayor-council forms relative to all others.²⁴ This focus on mayor-council forms is consistent with Coate and Knight (2011).

Table 1 provides summary statistics of our data. There is substantial variation across cities in 1929 debt levels and 1920s debt growth. In the average city, the majority of debt is funded, or long-term. In addition to the variation in debt restrictions shown in Figure 2, substantial variation also exists among other potential determinants of debt loads and city- and state-level

²¹ State-level per capita income data were provided by Price Fishback and used in Thomasson and Fishback (2014).

²² For an example, see Illinois in Moody (1931). Another indication that states determined local bases of assessment is that the bases varied across states but varied little within states.

²³ These data were provided by Price Fishback. See U.S. Bureau of Labor Statistics (1923) as an example of one such bulletin.

²⁴ Regression results with another dummy for either commission or council-manager forms as of the 1930s, when more comprehensive data on municipal government form exist, yield the same broad conclusions regarding the impact of mayor-council governments.

characteristics. For example, the differences in housing construction and population growth across cities is considerable. The variation in these measures, along with that of city-level demographics, state income, and taxable wealth suggests the importance of accounting for them in our analysis.

5 RESULTS

5.1 *Main results*

Panel A of Table 2 presents the results from estimating equation (1) for real per capita debt in 1929. Column (1) shows the basic specification, which includes the three debt restriction variables and census region fixed effects. In this specification, state-level debt restrictions limit the municipal debt that cities had acquired by 1929. Specifically, a one-percentage-point increase in the debt limit increased 1929 debt per capita by 3 percent, indicating that less-constrained cities acquired more debt. Voting rules were also important for 1929 debt levels: a supermajority vote requirement reduced debt per capita by nearly 50 percent. Last, more exceptions to debt limits led to higher debt per capita in cities. These exceptions were workarounds for many local governments, allowing them to incur debt even as other restrictions were in place.

We next account for a number of other factors driving municipal debt accumulation that could confound estimates of the effects of debt restrictions. The specification in column (2)—used elsewhere throughout the paper—includes demographic controls (from 1920), real per capita state income (in 1919), and a city’s real per capita property value (in 1919). When these controls are included, the coefficient on the debt limit declines in magnitude by roughly 25 percent but remains strongly significant. Voting rules and debt limit exceptions still matter for 1929 debt levels as well.

In columns (3)–(6), we test whether these debt restriction results are robust to accounting for other drivers of the explosive growth of local debt in the 1920s. As shown in column (3), the overall property tax rate limit does not influence a city’s debt load in 1929, which suggests that cities that were constrained on the tax-rate side did not issue significantly more debt. Column (4) includes two measures of city expansion during the 1920s: total residential building permits issued and population growth. Residential construction did influence debt loads: column (4) shows that cities that issued more residential building permits in the 1920s had more debt in 1929, which is consistent with a story of infrastructure investment driven by residential development and financed by municipal bonds. Population growth was associated with low debt per capita in 1929, although

this coefficient is only marginally significant. Controlling for these measures of expansion does not affect the coefficients on the debt restriction measures. Last, the mayor-council form of government is associated with lower debt loads in 1929 relative to other forms of government. This result is consistent with Coate and Knight (2011), who find that mayor-council governments tend to spend less than council-manager governments. Including all these controls at once, as we do in column (6), makes little difference to the results. The coefficients on all three debt restriction measures are stable in both magnitude and significance across these specifications.

Panel B of Table 2 shows the results for the 10-year growth rate in real per capita debt between 1919 and 1929. As shown in column (1), debt limits were a controlling factor: a one-percentage-point increase in the debt limit increased debt growth in the 1920s by four and a half percentage points. Having a supermajority popular vote measure in place reduced debt growth significantly—by 11 percentage points—although debt limit exceptions did not. While there are differences in magnitude and statistical significance across Panels A and B, the coefficients' signs for restrictions are consistent. Furthermore, as shown in column (2), these results are generally robust to the inclusion of controls accounting for a variety of city and state characteristics.

Cities subject to blanket property tax rate limits experienced less growth in debt during the 1920s, as shown in column (4). Consistent with a narrative of suburbanization and land development during this period, residential construction between 1919 and 1929 is positively correlated with debt accumulation. Last, we do not find a relationship between the mayor-council form of government and debt growth in column (5), although in column (6) we do find that the mayor-council form was associated with more debt growth leading up to the Great Depression. This result, taken in conjunction with the 1929 debt level results in column (6) of Panel A, suggests that cities with mayor-council forms of government may have had smaller debt levels in 1919 and hence experienced high debt growth leading up to 1929.

5.2 Dynamics and heterogeneity

Next, we take advantage of our panel data on municipal debt to examine how the importance of these debt restrictions changed over the course of the 1920s. Figure 3 shows the coefficients on the debt restriction variables from regressions using the specification in column (1) of Table 2 for

debt levels for each year between 1915 and 1935 except 1920, for which there are no data.²⁵ The top panel of Figure 3 shows that the positive relationship between higher, less restrictive debt limits and debt per capita emerged during the 1920s and remained stable in the 1930s. We do not find a relationship between debt restrictions and debt in the late 1910s and early 1920s. This is consistent with debt limits gaining importance as debt levels rose: debt levels in the 1910s and early 1920s were low and the limits were generally not binding. Supermajority voting rules are strongly associated with lower debt levels throughout our panel, although the impact appears to strengthen in the late 1920s and fall somewhat in the early 1930s. The number of debt exceptions appears to become more important in the mid-1920s as more exceptions become positively associated with higher debt. Thus, as debt limits become more important in determining debt, exceptions to those limits became more important as well.²⁶

Figure 3 provides additional insights into this period. First, the most important restrictions in any time period are voting referenda. In our analysis, they are effective at limiting debt in every year between 1915 and 1935. Other restrictions are only effective in times of high demand for debt spending. Second, the results generally support our argument that the 1920s were the first real test of these restrictions. While we do not have data before 1915, cities in these years presumably faced even less pressure to incur debt through capital expenditures. We are thus confident that debt limits and debt exceptions were not likely influential determinants of debt accumulation until the 1920s.

We now consider whether there is heterogeneity across cities in the impact of debt restrictions. Figure 4 shows the coefficients on our three debt restriction measures for a variety of sample splits. We find that cities with debt limits that are below the median for our sample (i.e., limits at or below 6 percent of assessed valuation) are impacted differently by debt restrictions than cities with above-median debt limits (top row of Figure 4). This is perhaps most striking with regard to the coefficient on the debt limit: higher limits result in higher debt for the below-median

²⁵ We present results that do not include the control variables for 1919 and 1920 city characteristics due to concerns that those controls will operate differently over the course of our panel. Nevertheless, the figure looks very similar when we include controls as in the specification in column (2) of Table 2. Also, the results are very similar when running independent regressions for each restriction.

²⁶ The cities for which we have debt data vary substantially over the 1915–1935 timespan as the rules for eligibility for the *Financial Statistics of Cities* reports changed from year to year and as cities changed in population. Figure 3 tells roughly the same qualitative story if we restrict the sample to the 66-city balanced panel for which we have data for the full 1915-1935 period.

sample, while there is no effect of debt limits on debt for the sample of cities with debt limits that are above the median. This is indicative of debt limits binding at low levels, so that debt increases as the limit increases from very low to mid-range values, while higher limits may not bind and may therefore have no impact on debt. We also see different impacts of supermajority vote requirements on cities with low vs. high limits: supermajority vote restrictions have a larger negative impact on debt in cities with above-median limits, perhaps because in the below-median cities, the limits themselves are already constraining debt. We do not see differences in the impact of debt exceptions. These outcomes suggest that states may have relied on supermajority voting rules where debt limits were less restrictive, so that these two policy measures acted as substitutes, each aimed at restricting overall debt.

There are no significant differences across cities using our other sample splits, all of which divide the sample into below-median and above-median groups on key characteristics. Cities that have below-median initial levels of debt per capita in 1919 do not differ significantly from cities with above-median debt per capita in 1919. Nor are there meaningful differences between big and small cities (based on 1920 population), rich and poor cities (based on 1919 taxable wealth), or fast-growing and slow-growing cities (based on building permits per capita issued in the 1920s).²⁷ Together, these outcomes suggest that debt restrictions were equally effective (or ineffective, as the case may be) in cities with different baseline characteristics and growth paths. Thus, the effectiveness of debt restrictions did not hinge on these things, but rather hinged on the magnitude of the debt limits themselves.

5.3 Strategic responses to debt limits

Our results show that debt limits were effective constraints on debt accumulation. Nevertheless, two means to circumvent them were emphasized by municipal practitioners at the time: (i) creation of overlapping government districts and (ii) strategic use of exemptions (Advisory Commission on Intergovernmental Relations 1961, Bird 1936, Hillhouse 1936). We now explore whether city governments facing strict debt limits engaged in these activities.

²⁷ Since larger cities were more likely to remain in our 1915–1935 panel, this is consistent with our dynamic results (shown in Figure 3) being robust to restricting our sample to a balanced panel of cities.

Special districts, such as water or park districts, often had the authority to issue their own debt. When these districts overlapped the boundaries of cities, the same population and underlying tax base might support many districts, each separately subject to debt limits. Unfortunately, there was no comprehensive assessment or data collection on these districts until the U.S. Census Bureau began to track the number of local government units in the 1930s. Although our main source, the 1929 *Financial Statistics of Cities* report, does not constitute a comprehensive census of special districts, we take advantage of the available data to construct an indicator for whether the report includes data for additional districts in 1929 aside from a city corporation, county, or school district.²⁸

Column (1) of Table 3 shows the relationship between debt restrictions and the presence of other divisions, controlling for baseline city characteristics (i.e., demographics, state income, and taxable wealth). We find no relationship between debt limits and the presence of other divisions. However, we do find that cities subject to supermajority popular vote requirements are less likely to have other divisions. Since supermajority voting referenda generally applied to all government divisions within a state, cities subject to these rules would not be able to relax debt constraints by creating new districts and would be less incentivized to do so. We also find that cities with more debt limit exceptions, and hence more flexibility to incur debt, were less likely to have other districts. As shown in column (2), the key exception is for special assessment debt. Insofar as establishing new districts and issuing special assessment bonds were substitute practices aimed at increasing overall debt spending, a special assessment exception allowed cities to issue such bonds and thus reduced their incentive to create new districts within a city's boundaries.

Another way municipal governments may have circumvented debt limits was by using exemptions for certain categories of debt to incur more debt overall. If this is true, then municipal debt portfolios would reflect strategic responses as cities substituted between types of debt. To test this, we take advantage of the breakdown of types of debt given in the 1929 *Financial Statistics of Cities* report. We focus in Table 4 on the amount of long-term debt and the amount of short-term debt. Long-term debt was used principally to fund large investments over long periods of time. Short-term debt was used to meet unexpected budget shortfalls, tide cities over in anticipation of

²⁸ Counties and school districts represent divisions other than city corporations. However, these other divisions were not generally created to skirt debt limits and were not newly formed in the 1920s.

future tax collections, or finance capital improvements in anticipation of long-term bond issues (Chatters and Hillhouse 1939, p. 165).²⁹

Column (1) shows the results for long-term debt, which makes up roughly 87 percent of total debt among the cities in our sample. The results are similar to those obtained for total debt (shown in Table 2), which suggests that stricter debt restrictions (i.e., lower debt limits, supermajority voting referenda, and fewer exceptions) were indeed effective in limiting long-run per capita debt. Since municipal governments often issued long-term debt to spread large capital expenditures over time, states effectively limited the ability of cities to invest in government buildings and local infrastructure. Facing this limitation, municipal governments may have had an incentive to use particular exemptions to work around the debt limits.

The results shown in column (2) are limited to the 198 cities with short-term debt in 1929. In this specification, we condition on a specific debt exception for refunding. This exception allowed cities to incur debt for refunding purposes over and above the overall debt limit. Refunding is a form of refinancing in which, generally, new long-term bonds are issued to replace existing short-term bonds. Thus a refunding exception may have encouraged cities to incur more short-term debt with the intention of converting it into long-term debt via refunding, thus exempting it from debt limits (Lancaster 1936, p. 316). As shown in column (2), cities with refunding exceptions carried more short-term debt than cities without this exception. The results also show that, all else equal, higher debt limits significantly reduced cities' short-term debt. Cities facing higher debt limits had more flexibility and thus were less reliant on using refunding.

Many practitioners suggested that cities strategically evaded debt limits by creating overlapping districts or using debt exceptions. While our data are not perfectly suited for analyzing this hypothesis, and we analyze only one particular year, our results do not find evidence that strict debt limits encouraged the creation of overlapping government districts in the 1920s. Our results

²⁹ The financial reports refer to long-term debt as funded or fixed debt. Funded debt includes outstanding bonds, while fixed debt is represented by instruments such as mortgages, serial notes, and certificates of indebtedness. Categories of short-term debt given in the reports include: floating debt, which are obligations payable on demand or with very short maturities; revenue bonds and notes, which are obligations issued in anticipation of the collection of user fees or other levies; and outstanding warrants, which are obligations to provide future payment on account of present lack of funds. In 1919, short-term debt obligations also included amounts held in private trust funds, which were a very small proportion of total debt (0.7 percent) for sample cities in this year. For information about these definitions, see U.S. Census Bureau (1921), U.S. Census Bureau (1932), and Chatters and Hillhouse (1939).

do, however, suggest that cities with refunding exceptions were incentivized to run current budget deficits and subsequently roll the shortfalls into long-term debt.

5.4 Debt restrictions and defaults in the 1930s

This paper shows that state-level debt limits were moderately effective at restricting total municipal debt in the 1920s, both in terms of the rate of growth between 1919 and 1929 and in terms of the level of per capita debt in 1929. Exceptions to these debt limits generally increased debt. Supermajority voting rules, widely praised as effective by industry professionals writing in the 1930s, are strongly associated with lower debt levels and debt growth in the 1920s. Did these debt restrictions protect cities from default with the onset of the Great Depression? We examine this question in Table 5 using data on municipal defaults from Joffe (2013).³⁰ These defaults reflect non-payment of general obligation bonds between 1930 and 1936. Of the cities in our sample, 16 percent had defaulted on such bonds at some point during these years. Chief among these defaulters was Detroit, a city that accumulated much debt to build and expand during the 1920s. Michigan featured higher-than-average debt limits (10 percent) and only a majority popular vote to pass bonds.

First we confirm that, as we would expect, higher debt per capita in 1929 is positively associated with defaults in the 1930s (column (1)). This outcome implies that potential drivers of debt positions in 1929, including state-level debt restrictions, indirectly influenced defaults in the 1930s. Column (2) shows the results of estimating the relationship between debt restrictions and defaults. Although the debt limit and debt exception coefficients are not statistically significant, their signs are consistent with our expectations.³¹ Nevertheless, the insignificant results are consistent with the hunch of at least one government agency that percentage debt limits were ineffective in curbing defaults in the 1930s (Advisory Commission on Intergovernmental Relations 1961, p. 50). The most influential debt restriction is the supermajority voting rule: such a rule significantly reduced the likelihood of municipal default. This state-level barrier to debt

³⁰ We are very grateful to Marc Joffe for sharing these data. The data were collected from *Moody's Municipal and Government Bond Manuals*, *Daily Bond Buyer*, *Bond Buyer* (weekly), and a variety of other sources. See Joffe (2013, p. 1) for a description of the data collection efforts and sources.

³¹ The results are similar when including individual debt exception indicators rather than the sum of debt exception categories: the coefficients on each indicator are not statistically different from zero.

accumulation was ultimately effective at preventing both municipal debt growth during the 1920s and default in the 1930s.

6 CONCLUSION

General patterns of development drove local government spending during the 1920s, but not all cities faced similar experiences in these years. This paper shows that there was substantial variation across cities in debt growth in the 1920s and debt levels in 1929, just as the Great Depression began. While demand factors such as urban expansion and residential construction contributed to municipal debt accumulation, institutional factors imposed on cities at the state level during the nineteenth century helped curb such accumulation and became especially efficacious in the 1920s. In contrast to the prevailing views of municipal practitioners of the period, debt limits did constrain the accumulation of municipal debt in the 1920s, although the effectiveness of the limits was undermined somewhat by exceptions to them. Supermajority voting rules, as suggested by those same practitioners, served as important constraints on debt, even reducing the likelihood of default during the Great Depression. While these results rely on a sample that consists of the largest cities, we suspect that smaller local government units would also have been limited by these restrictions.

A relevant question outside the scope of our paper is whether debt restrictions, effective though they were in reducing fiscal stress, may have also limited the growth potential of cities. Municipal governments used debt in the 1920s to invest in the infrastructure necessary to facilitate both current and future development. Stricter debt rules may have inhibited the ability of cities to respond to local demand for housing in a critical period of urban growth. Exploring the impact of these debt restrictions on the long-run growth potential of cities is a promising avenue of future research.

APPENDIX

We construct our state-level debt restrictions primarily from a table given in *The Municipal Year Book 1936* (Lancaster 1936, p. 319), which gives information on state-level laws governing local debt as of January 1, 1936. Since these data were given as of 1936, we further corroborate it with information described in various Moody's volumes on government securities that were published throughout the 1920s (Moody, John, *Moody's Investors Service* 1921, 1925, 1931). In the majority of cases, the data in these sources are consistent with one another. In Georgia and Pennsylvania, municipal debt limits were given as a range in the yearbook; in these cases, we code according to the upper value. Also, in some cases an absolute upper bound exists for certain purposes (e.g., Iowa), which we also code according to the upper bound. For voting referenda, the data were consistent across sources. We assume these voting referenda were established coincidentally with the debt limits. The data on exceptions are only consistently tabulated in the yearbook, so we rely on this data source for all exceptions data. Details about data collection are given for each variable below.

Debt limit. Debt limits are the amount of debt as a percentage of assessed valuation that cities within a state could legally incur. States varied in their constitutional and statutory definitions of cities, some using the term "city" and others using "municipal corporation" or "municipality." We take all these terms to refer to the cities in our sample, all of which were incorporated at the time of our study. In most states, a general limit applied to all incorporated cities. In some cases, debt limits varied based on city size.

Supermajority popular vote. A supermajority popular vote is needed to pass debt if greater than half of the voting populace is required to approve it. Other possible voting referenda include governing body approval, simple majority popular vote, or majority property-owner vote. We consider the supermajority popular vote alone since most contemporaries viewed it as an important constraint.

Debt limit exceptions. Sometimes states would exempt one or more of the following from debt limit rules: refunding debt, special assessment debt, and various other types of debt. Exceptions to the ordinary debt limits are recorded as such.

A helpful feature of the table shown in the yearbook is that it indicates the years in which state legislation was passed regarding debt limits. We use this information to construct a historically accurate dataset that reflects municipal debt restrictions as of 1929. We rely primarily on the yearbook since it summarizes the state-level debt policies in a single table. However, in several cases, the Moody's volumes provide either more information or different debt-limit values. We use information from the Moody's volumes when the yearbook does not provide a clear indication of debt limits for particular cities in the 1920s, or when there is indication in the yearbook that a particular state may have passed legislation after 1929 that potentially impacted debt limits, so that what's given in the Moody's volumes is likely most accurate. The following list shows states with inconsistencies between the two sources and how we handled them.

Alabama. The yearbook shows debt limits for cities with less than 6,000 people and no indication of debt limits for cities with more than 6,000 people. The Moody's volumes in 1922 and 1925 state that all cities above 6,000 had a debt limit of 7 percent by constitutional authority (the state constitution was passed in 1901, with no significant laws passed regarding debt limits afterwards). We code Birmingham and Montgomery with a debt limit of 7 percent. Consistent with the yearbook, we code Mobile as having a debt limit of 10 percent specific to the city (Mobile is not explicitly mentioned in the Moody's volumes).

Arkansas. The yearbook shows a 25 percent debt limit for cities. There is no indication in the Moody's volumes of such a limit, although a constitutional amendment was passed in 1926 that impacted debt restrictions. Consistent with the yearbook, we code Little Rock (the only Arkansas city in our sample) as having a debt limit of 25 percent.

Massachusetts. The yearbook indicates that all cities in Massachusetts except Boston were under a debt limit of 2.5 percent. However, the yearbook does not indicate exactly what Boston's debt limit was. The Moody's 1922 volume indicates a limit of 1.055 percent for Boston; the 1925 volume indicates 2.5 percent; the 1931 volume does not make explicit

mention of Boston. We code Boston according to all other cities in Massachusetts with a debt limit of 2.5 percent.

Michigan. The yearbook indicates a municipal debt limit of 10 percent, while all Moody's volumes from the 1920s indicate a limit of 8 percent. We code Michigan cities according to the Moody's volumes, since the yearbook indicates that legislation was passed in 1931, which may have increased the debt limits. Results are robust when coding Michigan cities as having a debt limit of 10 percent.

We also use the Moody's volumes to determine which states may have passed debt legislation in the 1920s. Recent changes were reported in each volume for each state. As described in Section 2.3, most states did not pass any local debt legislation in the 1920s, and if they did, it was relatively minor. The vast majority of debt restrictions were established well before the 1920s. Nevertheless, we identify the following states in our sample as having made potentially significant changes to their debt restrictions between 1919 and 1929: Arkansas (1926), Louisiana (1921), Missouri (1920), Nebraska (1922), North Carolina (1921), and Ohio (1927). Also, it is unclear in some cases whether cities indeed faced debt limits (Rhode Island) or when they were introduced (Tennessee and Texas). In each of these cases, we code according to the yearbook in the main analysis, but exclude cities from these states in a robustness check. The study's main results are unchanged when excluding these cities. The following list shows states in which there is uncertainty about whether debt limits were in effect at any time in the 1920s and the nature of this uncertainty.

Rhode Island. The Moody's volumes state that the constitution does not limit the amount of city debts but does provide a restriction in the case of towns. The yearbook states that a debt limit of 3 percent applies to both cities and towns.

Tennessee. The Moody's volumes contain no debt limit information for cities in Tennessee. The yearbook indicates a 10 percent limit for cities, with the constitution dating to 1870 and statutory legislation passed in 1917. Although there is no indication from these sources

of changes in the 1920s to these debt restrictions, Raymond (1923, p. 286) claims that no debt limit laws for cities existed in Tennessee as of 1923.

Texas. It is not clear when the 6 percent debt limit for cities was enacted, as indicated in the yearbook. The Moody's volumes indicate a 25 percent debt limit that may or may not include municipal corporations. Raymond (1923, p. 286) claims that no debt limit laws for cities existed in Texas as of 1923. The yearbook indicates that legislation was passed in 1925 and 1931; thus it is unclear if and when changes to debt laws may have occurred.

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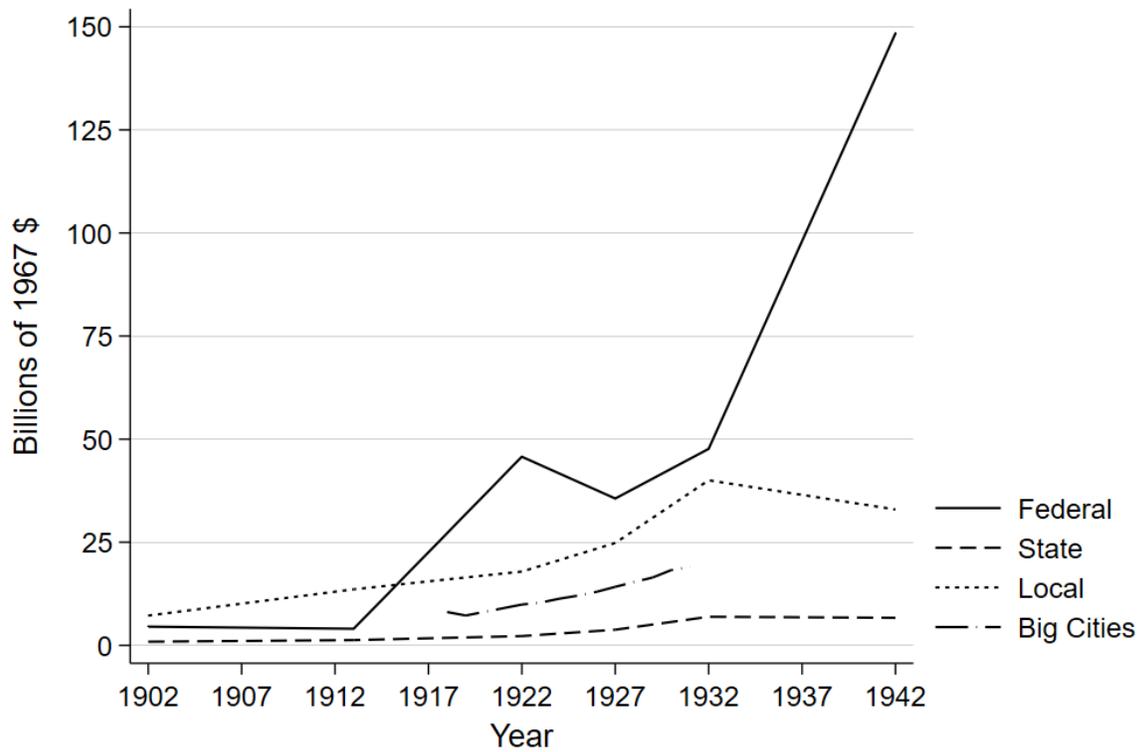
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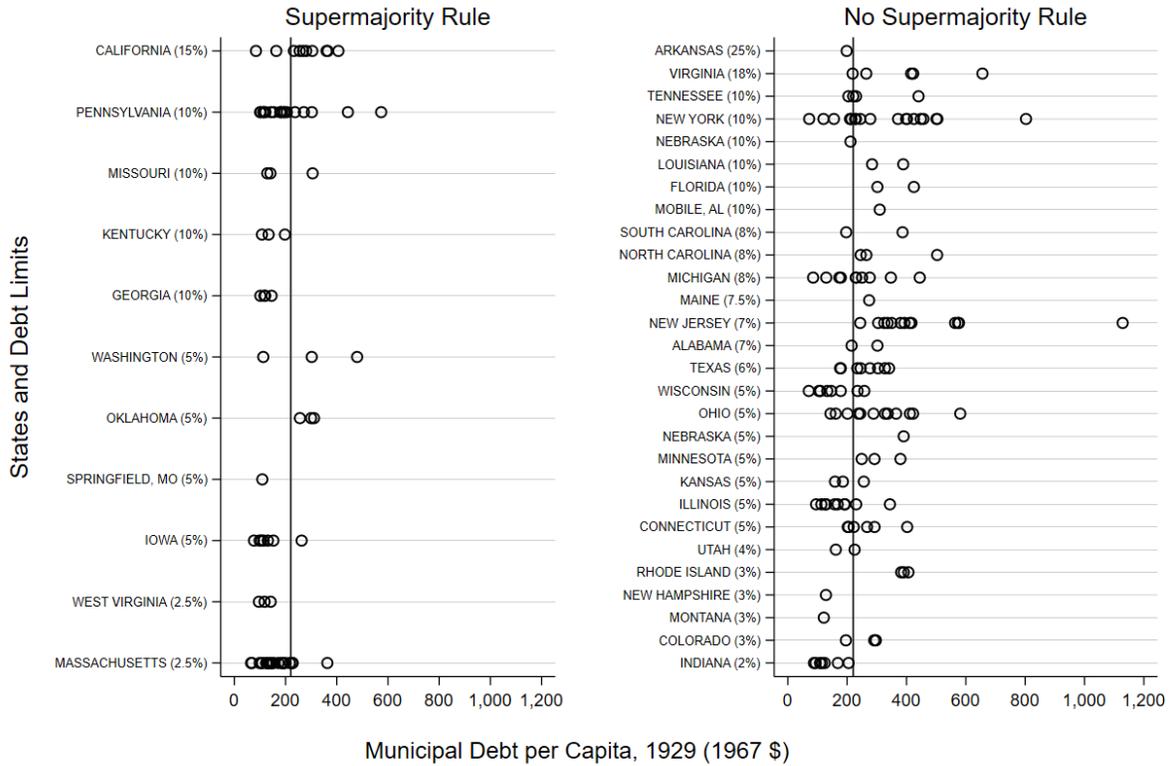
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Figure 1: Total Debt by Level of Government

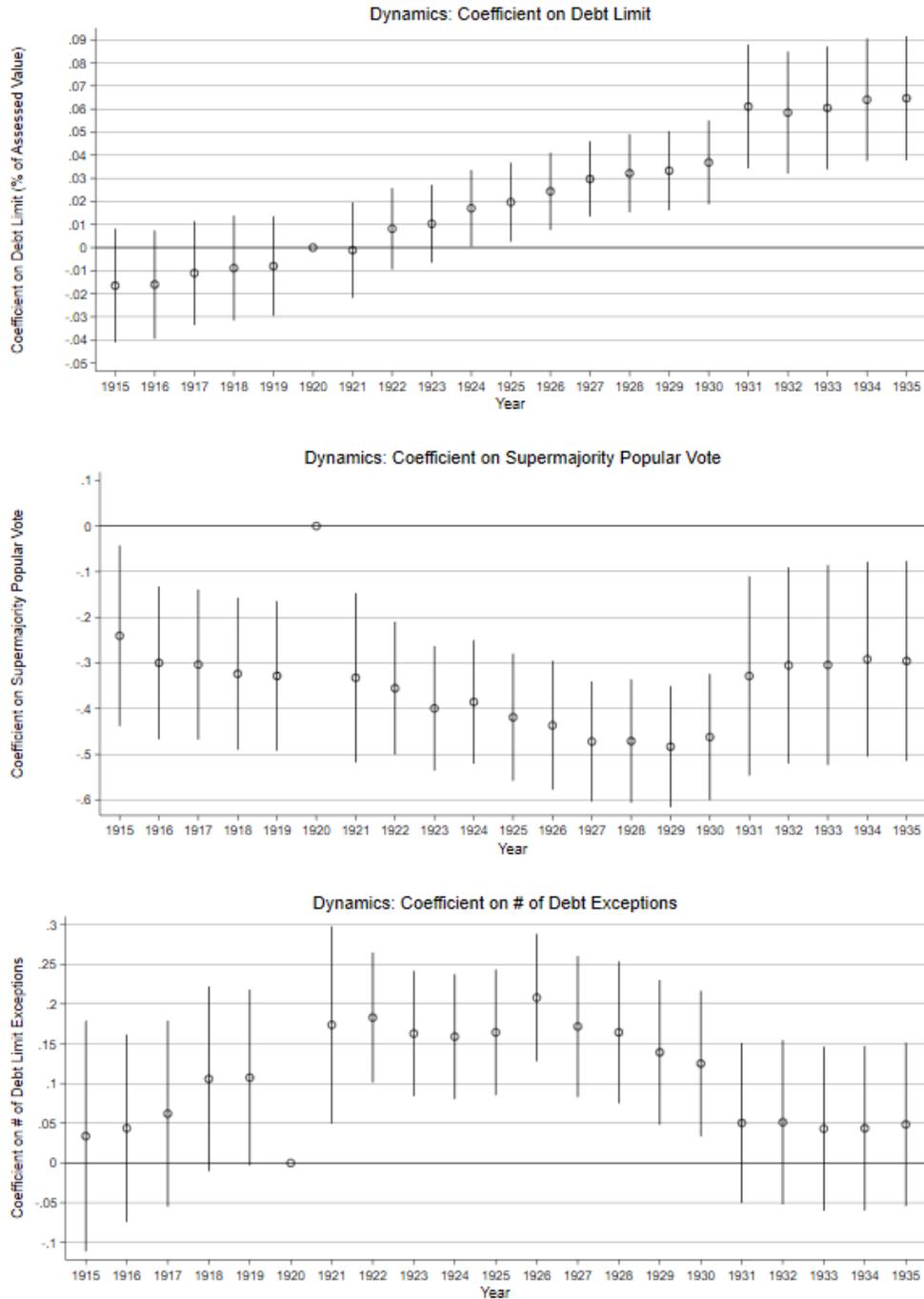
Notes: The figure shows total debt in 1967 dollars across federal, state, and local governments (which includes big cities), and big cities alone. The debt of big cities is shown between 1918 and 1931 for the 213 cities included in the sample. The debt for 1920 is interpolated for lack of data. Included in the big-city sample are cities with state-level debt limits and populations over 30,000 in both 1919 and 1929. Sources: various *Financial Statistics of Cities* reports—e.g., U.S. Census Bureau (1921), U.S. Census Bureau (1932), and other years; U.S. Census Bureau (1975).

Figure 2: State Debt Limits, Supermajority Debt Approval Requirements, and Real Per Capita Debt by City, 1929



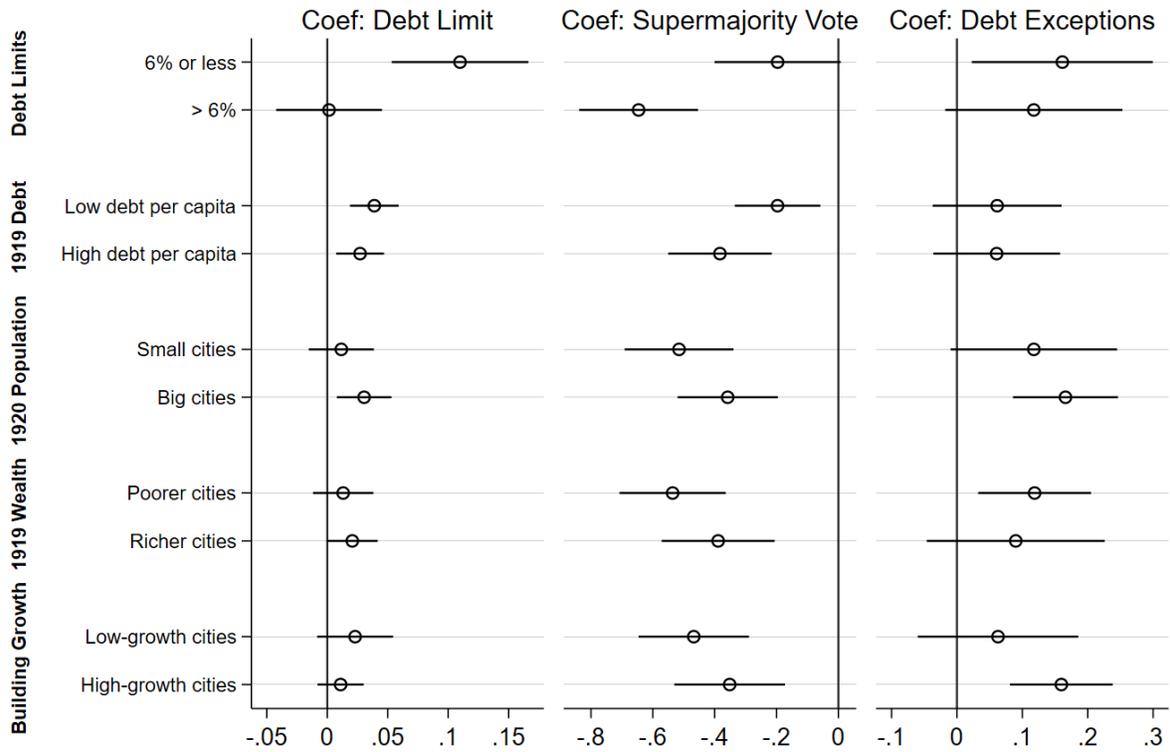
Note: States are listed in order of strictness of debt limit as a percentage of assessed value. Hollow circles indicate individual cities in our 213-city sample and show within-state dispersion of real debt per capita. Two cities in our sample (Springfield, MO and Mobile, AL) have debt limits that differ from their state's general limit and are shown separately. Vertical lines indicate median municipal debt per capita in 1929 across the full 213-city sample.

Figure 3: Dynamics of the Relationship Between Debt Restrictions and Real Per Capita Debt, 1915–1935



Note: The figure shows coefficients and confidence intervals from regressions that include the three debt restrictions (debt limit, supermajority vote, and number of debt exception categories) with no additional controls except for region fixed effects. There are no debt data for 1920.

Figure 4: Heterogeneity of Results for 1929 Per Capita Debt, by City Type



Note: The figure shows coefficients and confidence intervals from regressions for different subsamples with the same specification as that in column (2) of Panel A in Table 2.

Table 1: Summary Statistics, Estimation Sample ($n = 213$)

	Mean	St. Dev.	Min	Max
<i>Debt and other outcomes</i>				
Total municipal debt (1929), in millions of 1967 \$	77.22	392.44	2.6	5458.9
Total municipal debt per capita (1929), in 1967 \$	249.13	140.71	65.4	1128.7
Local government has other divisions	0.14	0.35	0.0	1.0
Funded debt per capita (1929), in 1967 \$	208.00	118.13	27.4	745.6
Short-term debt per capita (1929), in 1967 \$	19.55	36.28	0.0	383.1
Defaulted on debt, 1930-1936	0.16	0.37	0.0	1.0
<i>Debt restrictions</i>				
Debt limit (% of assessed value)	7.11	3.88	2.0	25.0
Supermajority popular vote	0.37	0.48	0.0	1.0
Debt limit exceptions, # of categories	1.17	0.75	0.0	3.0
Debt exception, refunding	0.19	0.39	0.0	1.0
Debt exception, special assessment	0.16	0.37	0.0	1.0
Other debt exceptions	0.83	0.38	0.0	1.0
<i>Other determinants of local debt</i>				
Overall property tax rate limit	0.08	0.26	0.0	1.0
Residential permits issued, 1921-29 (thousands)	16.25	67.77	0.1	867.0
Population growth rate, 1920-1929	17.18	16.11	-15.5	70.9
Mayor-council form	0.49	0.50	0.0	1.0
<i>City- and state-level controls</i>				
Taxable value of property per capita (1919), 1967 \$	2426.63	790.50	1083.8	6058.8
State income per capita (1919), in 1967 \$	674.60	148.27	369.6	913.6
Census population 1920 (thousands)	159.67	453.93	30.1	5620.0
Proportion black, 1920	7.86	12.05	0.1	47.6
Proportion foreign-born, 1920	16.91	10.99	0.6	41.4
Proportion illiterate, 1920	5.44	3.59	0.3	16.3
Proportion 14 and under, 1920	27.02	3.31	18.9	38.1
Proportion 45 and over, 1920	21.42	3.93	11.2	36.9

Note: Building permit data are only available for 196 cities.

Table 2: Determinants of 1929 Per Capita Debt and 1919–1929 Per Capita Debt Growth Rates

Panel A: 1929 Per Capita Debt. Dependent variable is $\ln(D_{1929})$, where D_{1929} is 1929 per capita debt in 1967 \$.

	(1)	(2)	(3)	(4)	(5)	(6)
Debt limit (% of assessed value)	0.030*** (0.009)	0.022** (0.009)	0.022** (0.009)	0.022** (0.009)	0.020** (0.009)	0.021** (0.009)
Supermajority popular vote	-0.490*** (0.067)	-0.423*** (0.061)	-0.428*** (0.063)	-0.431*** (0.063)	-0.421*** (0.059)	-0.434*** (0.063)
Debt limit exceptions, # of categories	0.096** (0.044)	0.128** (0.040)	0.131*** (0.040)	0.115*** (0.041)	0.111*** (0.041)	0.103** (0.041)
Overall property tax rate limit			0.090 (0.118)			0.149 (0.119)
$\ln(\text{Total residential permits, 1921-1929})$				0.227*** (0.060)		0.228*** (0.063)
Population growth, 1920-1929				-0.523* (0.287)		-0.489* (0.283)
Mayor-council form					-0.114* (0.061)	-0.139** (0.063)
Observations	213	213	213	196	213	196
Adj. R-Squared	0.271	0.508	0.507	0.526	0.516	0.539
Controls	No	Yes	Yes	Yes	Yes	Yes
Census region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: 1919–1929 Per Capita Debt Growth. Dependent variable is $\ln(D_{1929}/D_{1919})$, where D_{1929} is 1929 per capita debt and D_{1919} is 1919 per capita debt, both in 1967 \$.

	(1)	(2)	(3)	(4)	(5)	(6)
Debt limit (% of assessed value)	0.046** (0.008)	0.048** (0.008)	0.045** (0.008)	0.043** (0.008)	0.049** (0.008)	0.041** (0.008)
Supermajority popular vote	-0.110* (0.065)	-0.107* (0.063)	-0.081 (0.062)	-0.170*** (0.057)	-0.108* (0.064)	-0.152*** (0.055)
Debt limit exceptions, # of categories	0.048 (0.040)	0.040 (0.039)	0.022 (0.039)	0.033 (0.039)	0.049 (0.040)	0.030 (0.038)
Overall property tax rate limit			-0.424*** (0.100)			-0.390*** (0.103)
$\ln(\text{Total residential permits, 1921-1929})$				0.139** (0.057)		0.132** (0.056)
Population growth, 1920-1929				-0.044 (0.313)		-0.123 (0.299)
Mayor-council form					0.060 (0.061)	0.111* (0.058)
Observations	213	213	213	196	213	196
Adj. R-Squared	0.185	0.245	0.290	0.266	0.245	0.314
Controls	No	Yes	Yes	Yes	Yes	Yes
Census region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Huber/White sandwich robust standard errors in parentheses

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

Note: Controls included in columns (2)–(6) but not shown in the table include $\ln(\text{value of taxable property per capita in 1919})$, $\ln(\text{state income per capita in 1919})$ and the following 1920 demographic variables: $\ln(\text{population})$, percent of the population that is black, percent foreign born, percent illiterate, percent aged 14 and under, and percent aged 45 and over.

Table 3: Overlapping Government Divisions

	(1) Other Divisions?	(2) Other Divisions?
Debt limit (% of assessed value)	0.007 (0.008)	0.006 (0.008)
Supermajority popular vote	-0.085* (0.051)	-0.139** (0.064)
Debt limit exceptions, # of categories	-0.082*** (0.029)	
Debt exception, refunding		-0.037 (0.062)
Debt exception, special assessment		-0.226*** (0.072)
Other debt exceptions		-0.013 (0.081)
Observations	213	213
Adj. R-Squared	0.098	0.113
Census region fixed effects	Yes	Yes

Huber/White sandwich robust standard errors in parentheses

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

Note: All regressions include the controls used in the specification in column (2) of Table 2.

Table 4: Debt Restrictions and Funded and Short-Term Debt

	(1) Funded Debt	(2) Short-Term Debt
Debt limit (% of assessed value)	0.029** (0.012)	-0.095*** (0.032)
Supermajority popular vote	-0.303*** (0.068)	-0.103 (0.228)
Debt limit exceptions, # of categories	0.083* (0.046)	
Debt exception, refunding		1.150*** (0.245)
Observations	213	198
Adj. R-Squared	0.417	0.332
Census region fixed effects	Yes	Yes

Huber/White sandwich robust standard errors in parentheses

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

Note: All regressions include the controls used in the specification in column (2) of Table 2.

Table 5: 1929 Debt, Debt Restrictions, and Municipal Defaults in the 1930s

	(1) Default?	(2) Default?
ln(1929 per capita debt, 1967 \$)	0.209*** (0.058)	
Debt limit (% of assessed value)		0.010 (0.008)
Supermajority popular vote		-0.079** (0.040)
Debt limit exceptions, # of categories		0.069 (0.045)
Observations	213	213
Adj. R-Squared	0.207	0.177
Census region fixed effects	Yes	Yes

Huber/White sandwich robust standard errors in parentheses

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

Note: All regressions include the controls used in the specification in column (2) of Table 2.