Dysfunctional or Optimal Institutions?:
State Debt Limitations, the Structure of State and Local Governments, and the Finance of American Infrastructure

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1. Introduction

American state and local governmental fiscal institutions present a contrast. Many

scholars regard these institutions as dysfunctional. Scholars regularly find that balanced

budget provisions do not produce balanced budgets; debt restrictions do not restrict

debt issue; tax and expenditure limitations limit neither taxes nor expenditures; and

budget stabilization funds fail to provide budget stabilization. Briffault, for example,

concludes "state constitutional debt restrictions have been circumvented by new and

creative financing devices that tend to drive up the cost of borrowing, encourage the

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fragmentation of state governments, and facilitate the evasion of balance budget requirements."[1]

In contrast, American state and local governments are, by any reasonable measure of fiscal probity, quite responsible. Although they borrow large amounts of funds, they rarely fail to service and repay their debts. The vast majority of state and local debt is issued to finance infrastructure investments, and American infrastructure is in many respects the best in the world. The decentralized structure of American government, while far from perfect, is often held up as a system of how to constrain the powers of government through the institutional mechanism of federalism.

We resolve the apparent contradiction of these two views by looking deeper into the effect of fiscal rules on the structure of American governments. Historians, political scientists, and legal scholars typically take the existing structure of government as given, but the structure of American state and local governments has changed frequently, if episodically, since 1776. We argue that scholars have failed to appreciate the degree to which fiscal issues have shaped the structure of American state and local government.

The main hypothesis of this paper is that the current structure of state and local governments and their proven ability to provide infrastructure results from two centuries of evolution of constitutional rules, primarily fiscal rules about government borrowing.

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[1] Briffault, *Balancing Acts*, p, 51. Chapter 5 of Briffault has a comprehensive survey of the literature on the effectiveness of fiscal rules, pp. 55-62. "In other words, legal balance budget requirements per se do not compel balance." p. 59. There is also an extensive economics literature on the effectiveness of fiscal rules, particularly debt limitations and balanced budget restrictions. See Poterba (19**) for a review of this literature.

The structure works well at constraining state and local governments to make investments in public infrastructure and services that generate positive social returns (where the standard of working well is by comparison with the rest of the world). Driving all of these institutional changes is the almost omnivorous demand by Americans for market-enhancing public goods and services, particularly infrastructure that helps integrate new localities into the American common market. Canals, roads, improvements to rivers and harbors, railroads and banks all helped transform a large portion of American from self-sufficient farm land into market specialists for national and international markets. Roads, water, sewer, gas, electric, solid waste disposal, schools and fire services all fostered the growth of cities necessary for American industrialization.

Paradoxically, over time the effect of fiscal restrictions has been to produce more borrowing and larger governments. The growth of borrowing can largely be explained by the fact that the system works. Fiscal restrictions do not eliminate borrowing but force governments to follow procedures that ensure that debt will be issued for positive purposes and ultimately repaid. Because the fiscal restrictions succeed in this goal, citizens are willing to pay greater taxes and service larger debt – because they receive infrastructure projects of greater value.

Our approach is both historical and conceptual. We address three historical questions. First, how do we explain the dramatic changes in the structure of state and local governments over the course of the nineteenth and early twentieth centuries? Second, how do we explain the dramatic change in the structure of state and local debt: In 1841, state debt was nine times local debt; in 1902, local debt was eight times state

debt. Third, how do we interpret the evolving constitutional rules regulating state and local debt? Our focus is on the years from 1840 to 1933, the time when state and local governments adopted many of the rules that govern their internal fiscal structure.

Conceptually, a central result in normative public finance is that government debt serves a public purpose when borrowing creates social benefits that exceed the costs of the debt. Yet there is a disconnect between the normative world of public finance and the real world of politics. In public finance theory, benevolent social planners maximize social welfare by making choices between projects and choosing only those whose net returns are positive. In the real world, such choices are made by political officials who often face very different incentives than social welfare maximizers and who may choose projects for political reasons. Politicians often saddle citizens with massive debt to service incommensurate with the projects small or negligent returns. Recent state borrowing in both Argentina and Brazil exhibited these problems, and the massive central government bailout necessary to restore state finance forced these countries into financial distress that set back economic growth many years.

This type normative public finance can be called "first generation fiscal federalism" (FGFF) because it assumes benevolent maximizers of social welfare. "Second generation fiscal federalism" (SGFF) alters this perspective by studying the incentive effects of the rules governing debt on the behavior of the politicians, and to show that some rules are far more likely to create problems with debt finance than others.[2] An important normative question of SGFF is how to design fiscal institutions so

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[2]Oates (2005) and Qian and Weingast (1997) explore the distinction between first and second generation models. Wallis, Sylla, and Legler (1996) provide a SGFF model that explains

that the incentives of political officials align with the citizens they represent. In what

follows, we adopt a SGFF perspective to study the problems of state and local debt.

The structure of government determines which levels of government perform

what functions. Assigning responsibilities to different levels of government creates

various tradeoffs and hence different problems. If state governments have the primary

responsibility for providing public goods, they tend to over-provide certain local public

goods. Because each locality bears only a fraction of the total tax burden for its project,

each local government seeks a larger project at the state level than is optimal.[3] Of

course, when all localities do this, the result is inefficiency, waste, and often corruption.

Shifting the locus of decisions creates other problems. When local, or sub-local

governments – such as a sewer or school district – borrow, who has the ultimate

responsibility for the debt, the state, the local general purpose government, or the

special government? Our SGFF approach suggests that this consideration is pivotal to

the performance of local governments, including their ability to build surplus-creating

projects and to service their debt.

Although economists now understand a great deal about the optimal organization

of fiscal institutions, early Americans did not, and learned about fiscal organization

through trial and error. Consistent with this view, the evolutionary history of state and

local governments, including the provisions governing debt, exhibits a recurring cycle of

behavior. Governments pursued policies under the existing rules, which then caused

the evolution of the early American banking system into a competitive industry.

[3] Inman (1989) and Weingast, Shepsle and Johnsen (1981) emphasize the effect in state (or national) legislatures in designing local projects.

problems, including fiscal crises. The crises were followed by adjustments in the rules.

The new rules created a new set of policies, which produced another set of crises, and

another round of rule changes.

We discuss three major cycles from the birth of the republic through the mid-

twentieth century. In the first cycle, from 1790 to 1850, states invested heavily in

financial and transportation infrastructure. The financial crisis culminating in the state

defaults of the 1840s resulted in a series of constitutional amendments that created

procedural restrictions on state debts. These procedural restrictions made it more

costly for states to finance infrastructure through debt issue. In the second cycle, from

1840 to 1870s, the location of infrastructure investment shifted decisively to local

governments. The shift to local borrowing produced local default crises in the 1870s.

States again responded constitutionally, extending procedural restrictions to the issue of

local government debt. Specific limitations on local borrowing were also introduced in

the 1870s. The third cycle extends from the 1880s to the 1930s. The effect of

restrictions on local general government borrowing created incentives for the

development of "special governments": school districts, sewer and water districts, and

utility districts whose boundaries may extend across local governments or exist

completely within existing local governments. After the turn of the twentieth century,

states began limiting the liability that state and general purpose governments assume

for special district debts.

We show that the historical process created a set of rules governing state and

local finance with two major effects. The first we call the *substitution hypothesis*, which

states that greater restrictions on *state* borrowing fostered the growth of *local*

governments, in part to provide a substitute for states in providing market-enhancing public goods. Consequently, the location of borrowing moved to smaller and smaller governments (although state and general purpose governments continued to borrow when circumstances were favorable).

Our second hypothesis is the *government jurisdiction hypothesis*, which holds that Americans reacted to the recurring cycles of debt problems by designing a flexible set of local institutions, including special governments, that matched the beneficiaries and taxpayers. In general, smaller governments are able to better match the citizens who benefit from the project being built with the taxpayers responsible for servicing bonded debts. Matching taxpayers and beneficiaries more closely has the effect of ensuring better decisions about which projects are built.

Second, a critical feature of the matching of taxpayers and beneficiaries is the clear assignment of responsibility of serving the debt with the government issuing the debt and not a larger, general government. Creating clearer and more limited liability rules for special purpose governments, has two separate beneficial incentive effects. When a general government backs a special government's debt, taxpayers are willing to support some projects that benefit them but which fail to produce a social surplus. Because such taxpayers do not bear the full liability for the debt, they will sometimes build projects of private value to them knowing that others will pay some or most of the tax burden. In addition, limits on general government backing of special government debt forces lenders to play a more prominent role in evaluating the fiscal potential of government projects. When investors cannot make claims on the general government treasury to redeem their bonds, they need to evaluate much more closely the potential

revenues available to the special purpose government to service the bonds. In combination, these forces more closely align the incentives of project beneficiaries, taxpayers or users, and lenders.

This institutional structure is not perfect, but nonetheless on balance it is quite positive. America has some of the finest infrastructure in the world. State and local governments issue huge amounts of debt each year, and yet very few fail to make good on their bonds.

This paper proceeds as follows. Section 2 presents a brief overview of the history of governmental structure and infrastructure provision. Section 3 discusses our political approach to governmental policymaking with respect to infrastructure projects. Section 4 provides evidence of state governmental behavior in the first cycle, including the emerging state debt crisis after 1841. Section 5 discusses the first round of constitutional revisions in reaction to the debt crisis. Section 6 turns to the shift in infrastructure provision from state to local governments in the second cycle. Section 7 raises some of the complications involved in home rule. Section 8 treats the growing importance of special governments in the second and third cycles. Section 9 returns to local governments, including limited liability for special government debt. Our conclusions follow.

2. Government Structure and Infrastructure: A Brief History

Table 1 gives the number of governments by type from 1942 to 2002, for the Census of

Government years. Two features of this data are striking: the large number of

governments, especially given that there are only fifty states and 3,000 counties; and

the significant decline in the number of governments over the twentieth century. Nearly

all of the action is in two types of governments.[4] The number of school districts declined

from 108,579 in 1942 to 15,014 in 2002, while the number of special districts rose from

8,299 to 35,052. The number of counties, municipalities, townships, and villages is

relatively constant.

The rise in the number of special districts is evidence of flexibility in government

structure.[5] In 1880, there were probably no more than a handful of special districts. By

2002 there were 35,052 special districts, 22 percent providing infrastructure and

infrastructure services in natural resources (soil conservation, flood control, and water

supply); 20 percent providing utilities, sewerage, solid waste disposal, and water supply;

16 percent providing fire protection services, and 10 percent providing housing, (the

remaining 32 percent are spread over a wide variety of functions). These are

governments whose structure and administrative form is fitted to the services they

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[4]There was very little movement in the aggregate number of general purpose governments. There were 18,189 counties, municipalities, towns, and townships in 1942, and 18,976 in 2002.

[5]Education has accounted for about a sixth of all government expenditures (national, state, and local) throughout the 20th century. Despite the relatively stable amount of government spending to education, the structure of how education spending is administered has changed dramatically. The falling number of school districts partly reflects the consolidation of school districts into larger units and partly the increasing direct involvement of state governments in the administration of education expenditures in the later part of the century. The fluidity of educational structure demonstrates the inherent flexibility of the American system.

provide or investments they make. This flexibility is often viewed with suspicion by students of fiscal rules, who claim that the multiplication of special districts is an important reason that fiscal rules do not work. Special districts are usually fingered as major culprits in state government attempts to circumvent or subvert debt limitations and balance budget rules by creating special governments taxing and borrowing authority and through creative financial intergovernmental accounting.[6]

Table 2 gives the overall picture on government debt by level of government. The table begins with two estimates for 1838 and 1841, and then presents census numbers from 1870 to the present. One of the most striking features of the table is the large variation in the debt of state governments as a share of total government debt. The three historical cycles are clear in the table. In 1841, at the end of the 1830s internal improvement boom (the first cycle), state debt was 86 percent of all government debt. By 1922, state debt had fallen to 3 percent of all government debt. Over the course of the 20th century state debt has risen again, comprising between 10 and 12 percent of all government debt since the 1970s. This remains true even relative to the large increase in national government borrowing since the 1980s.[7]

Relative to local government borrowing, the state decline and recovery is even more marked. Another prominent feature of the table is the rise of local government debt, particularly at the end of the 19th and beginning of the 20th century (the second

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[6]See Briffault, and the sources cited in the earlier footnote that I have not filled in yet. The numbers on special districts by function are taken from the 2002 Census of Governments, *Government Organization*, Vol. 1, no. 1, table 9, pp. 13-14.

[7] Prior to World War II, the national government borrowed primarily to finance wars, but since 1945 the national government has borrowed primarily to fund budget deficiencies.

cycle and third cycles). In 1913, local debt was 72 percent of all government debt and more than triple national government debt. In 1932, local debt had grown to almost equal national government debt again (national debt had risen during World War I and gradually declined thereafter). The Great Depression and World War II brought national government borrowing to a prominence that it has yet to relinquish.

Although the national government borrows primarily to finance wars and budget shortfalls, state and local governments borrow primarily to fund infrastructure investments in education, transportation, and utilities. Table 3 provides information on the total of $1.7 trillion of state and local debt outstanding reported in the census of governments in 2002, by level of government and function. Debt for education was 20% of all state and local debt and debt for utilities was 13.3%. The table is not specifically informative about function, since most of the debt outstanding was issued as "public debt for private purposes" (25.3%) or "other" (41.3%).[8]

Nonetheless, most state and local government borrowing is for infrastructure of some type. To see this, we can get a better feel by looking at capital outlays. Table 4 gives state and local expenditures for capital outlay by function in 2002, which totaled $257 billion. The last two lines of the table give the total amount of new debt issued in fiscal 2002, $262 billion, and the amount of debt retired, $162 billion. The bulk of capital outlay went for education, 27.8%, and highways, 25.7%, with a substantial amount going to utilities, 11.8%. Not all capital outlays were financed by borrowing, of course,

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[8]A large portion of bonds issued in any year are to refinance existing debt, those debt issues end up in the "other" category, rather than in the function for which the bonds were originally issued.

but a large percentage were. The large majority of state and local borrowing has always gone to finance infrastructure. Table 5 provides the information on state and local government debt by type of government and by purpose for 1880. As in 2002, a good bit of state and local debt was issued for refunding existing debt, but the majority of debt was for infrastructure investments of a variety of types.

In contrast, the national government spends very little on infrastructure, at least directly. In 1996, total capital outlays by all governments, national, state, and local, were $225 billion. Of that total, only $21 billion were national government outlays, and of that $15 billion were for national defense. Beyond the absence of national government involvement in infrastructure investments, the nature of national government spending differs considerably from state and local spending in that it is far less geographically specific and far more diffuse. In the 2002 fiscal year, the national government outlays were $2,011 billion.[9] Of the total, $348.9 billion was for defense, $853.3 billion was for Social Security, Medicare, and Medicaid, and $171 billion for net interest. A whopping $1,373.2 billion, or 68 percent of all national government expenditures, were for programs whose incidence was not geographically specific or is spread throughout the country by formulaic allocations.[10] The national government therefore tends to provide "geographic dispersed public goods." When the national government spends money in one place or state, it tends to spend money in every state

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[9]CBO website, www.cbo.gov, "Historical Budget Data", Table 5.

[10]This is not to imply that defense spending is not geographically specific, e.g. military bases, but that military defense as a general public good is not geographically specific.

and in all places. The reasons for the national spending patterns will be apparent later in the paper.

3. Infrastructure and Politics: Second Generation Fiscal Federalism

To understand the state and local fiscal choices, we need to understand the role of borrowing. Borrowing turns out to be a critical feature in the politics of state and local governments finance of infrastructure investment. It represents more than a choice between taxing today to spend today versus borrowing today and taxing tomorrow to spend today.

In this section, we draw on SGFF models to study the political economy of financing infrastructure. Infrastructure spending, by its nature, creates geographically concentrated benefits. Financing infrastructure with geographically dispersed taxation creates a serious political dilemma for majoritarian governments, even if the project produces a positive economic surplus. Few voters will support projects that raise their taxes if they receive no tangible benefits. Within a given jurisdiction, this logic implies that, unless an infrastructure project benefits a majority of voters, the normal process of majoritarian democracy will not support it. Put simply, states have trouble making local infrastructure investments, particularly ones that do not fit within existing local jurisdictions.

This logic combines with the high value of infrastructure to create a significant demand for new institutions that can make these investments. The solution we call the

government jurisdiction hypothesis: when a mismatch of beneficiaries and taxpayers prevents existing state and local jurisdictions from providing infrastructure investments, states have an incentive to create a mechanism for special governments that arise to cover the people who benefit from the investment. Constructed in this way, special governments match taxpayers with beneficiaries, allowing majoritarian support for surplus-generating infrastructure.

A Political Model of Government Spending

Consider a government seeking to provide goods worth G at cost a total of C. Let each individual value the project at $b_i(G)$ and pay a tax share of $t_i(C)$. Then the net benefit to the polity from government activity is

(1) $\Sigma_i [b_i(G) - t_i(C)]$ [summed over all individuals, i]

In expression (1), individual citizens are better or worse off from government activity depending on whether $b_i(G) >< t_i(C)$. That is, an individual citizen is better (worse) off if the benefits he or she receives from government programs, $b_i(G)$, exceeds (is less than) his or her tax costs, $t_i(C)$.

Introducing government borrowing does not change this problem. As long as individuals pay more or less the same taxes now as in the future, and receive more or less benefits from government expenditures, introducing borrowing is just a wrinkle. In other words, the biggest issue about the enormous current increase in national

government borrowing is whether taxes will be paid now or later, not who pays the taxes.[11]

Expression (1) illuminates the problems created for infrastructure investment by democratic governments. Government expenditure for infrastructure investment tends to produce geographically concentrated gains.

If we rewrite expression (1) for individuals, we have the individual's preference function, P_i, then net benefits per voter are:

(2) $P_i = b_i(G) - t_i(C)$ $\forall i, i = 1....n.$

The majority constraint requires that at least half of all voters receive positive net benefits to support an infrastructure project:

(3) $P_i > 0$ [For at least 50 percent of all voters].

For legislation to pass a democratic legislature, at least fifty percent of the voters must be better off by the legislation.

State and local governments have always borrowed primarily to finance infrastructure. Financing localized infrastructure is a problem because it yields very large benefits for a small portion of citizens and negative benefits in the form of taxes for all the rest. Some districts, counties, or states benefit more because of proximity to the canal, railroad, bank, highway, sewage system, water system, electrical system, school buildings, or parks. As a result, the net benefits of government spending for each infrastructure project imply that the P_i are negative for most of voters. This feature of

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[11]Of course, paying taxes now or later has significant intergenerational effects, and perhaps old people should bear a larger share of the blame for supporting deficit spending than they have.

infrastructure investment causes a significant problem in a majority rule democracy. If $P_i < 0$ for a majority of the voting population, no infrastructure measures will pass.

In two previous papers we considered why states were able to undertake significant infrastructure investments in transportation and finance in the early 19th century (Wallis, 2005) and why the national government was not able to do so (Wallis and Weingast, 2005). The basic intuition is simple. There are four types of government financing options for infrastructure:

Normal Taxation: Normal taxation relies on the use of existing taxes and, as we have already noted under normal conditions, is politically incapable of financing infrastructure. Projects with concentrated benefits that are financed by taxes spread over all taxpayers fails to meet condition (3). Typically, a majority of voters pay taxes and receive no benefits and thus refuse to support the project.

Universalism, or Something for Everyone: This approach to expenditure policy covers two different means of allocating government expenditures among all of the districts, counties, or states (or individuals). The first is that expenditures are governed by an explicit formula allocate funds to states or districts. For example, the current formula for allocating national highway funds among the states depends on population, land area, and miles of rural post roads. Similarly, the legislation authorizing spending under homeland security guarantees each state a minimum of 0.75 percent of the total expenditures, regardless of risk and other factors. As a result, every state is guaranteed a positive share of these funds.

The second mechanism is universalism (Weingast 1979). The idea is that, although allocation to districts may be discretionary, most districts expect to receive some funds. Coalition politics, demographics, and programmatic need may also play a role in allocation. Something for everyone policies are the easiest policies to implement politically.

The problem with something for everyone policies is twofold. First, standard models of a higher jurisdiction providing local projects face a standard common pool problem, sometimes call the "law of 1/n": in the presence of n local jurisdictions represented in the legislature, each representative comes from a district that gains the full value of the project, but pays on the order of only 1/n of the total costs (Weingast, Shepsle and Johnsen 1981, see also Inman 1988 and Knight 2006). Therefore, the demand for the local public good by local voters is for far larger projects. The result is significant economic inefficiency.

Second, this method of finance faces significant difficulties in providing large scale, lumpy, geographically specific infrastructure investments.[12] In particular, something for everyone policies could not be used to finance the public infrastructure investment with the highest returns for states in the early 19th century, namely canals. It was simply too expensive to build enough canals to command a majority of votes, let alone a canal to every county in the state. In contrast, something for everyone could be used to finance highway construction in the 20th century, since it is feasible to build a road to every county in a state.

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[12]Interstate highways are lumpy and geographically specific, but they possess the unique feature of existing in every state. Thus, something for everyone.

Benefit taxation: Benefit taxation allocates the taxes used to finance a project according to the benefits received by individuals. Let the total benefits of a project be, B, which is greater than total costs. Then benefit taxation sets an individual's tax share as:

(4) $t_i = B_i/B$.

Under benefit taxation schemes, every individual is (weakly) better off or at least no worse off from provision of the project:

(5) $P_i = b_i(G) - t_i(C) \geq 0 \ \forall \ i$.

The genius of benefit taxation is two fold. First, a scheme of financing infrastructure investments using user fees closely approximates a benefit tax. Second, if property taxes capture through capitalization the benefits of public services, then the property tax can serve as a form of benefit taxation.[13] The property tax played, and plays, a central role in state and local provision of infrastructure, as we discuss below. The national constitutional restrictions on taxation requires that all direct national taxes must be allocated among the states according to population. The constitution limits on direct taxation requires that it be in proportion to population, and thus rules out a benefit taxation scheme as defined in expression (5). States, in contrast, face no such prohibition, so they can use property taxes as a kind of benefit tax.

Taxless Finance: The final option to finance investment is to avoid raising new taxes to provide infrastructure altogether. This sounds to good to be true, and often it is. A better term might be "contingent taxless finance," since these schemes implicitly

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[13]For an accessible introduction to this literature, see the papers in Wallace Oates, ed *Local Government and the Property Tax*, Lincoln Institute, ????.

require that taxpayers assume a contingent liability. Both historically and in contemporary America, a good portion of infrastructure is provided without levying any taxes.[14] The idea underlying taxless finance is to finance the current construction of a project without raising current taxes, in the hope that revenues, in one way or another, will materialize in the future to service the debt. As this mechanism is the least well understood of the four, we provide greater detail about its operation.

For centuries, governments have used the private, joint stock corporation as a vehicle of taxless finance. In the early nineteenth century, governments often provided some infrastructure or a service by charting a private corporation to provide the infrastructure or service. The terms of the charter gave the corporation particular advantages, perhaps even a monopoly. The first business corporation in England was the Russia company in 1551, given a monopoly on the trade with Russia. The Virginia Colony was started with the charter of the Virginia Company in 1606. American legal historians are familiar with the Charles River Bridge Company charter, given to a group of private investors (including Harvard University) to induce them to build a bridge across the Charles River in Boston. This type of taxless finance was financially safe, no bonds were issued at all, but politically costly, as it involved giving special privileges to a distinct group of citizens.

Taxless finance schemes involve far more than just incorporation. In early 19th century America capital was scarce, and state governments often provided a significant

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[14]The issue of taxation is at the heart of the legal dispute over public authority and special district finance. If special local governments levy taxes, then their debts should count against state and/or local debt limitations. If their revenues are fees, then their debts should not count.

amount of the capital of a private firm chartered to build a canal or a turnpike by issuing

state bonds.[15] The critical piece that made these projects attractive to voters – and that

made them potentially taxless – is that they held the promise that tolls or dividends from

the project would service the bonds issued for construction. In reality these were

contingent taxless finance projects: if the project failed to service the bonds, then

citizens assumed that liability.

In some cases, as with the Erie Canal, taxpayers never had to pay any taxes *ex

post* because the canal worked as promised. It generated sufficient tolls to service the

canal bonds. In other cases, such as the Pennsylvania Mainline canal begun in 1826,

taxpayers were left holding the bag when the venture, and the state, went bankrupt in

1842. Taxless finance schemes were also used at the national level to finance the First

and Second Bank of the United States in 1791 and 1816 (successfully) and to finance

the Central Pacific and Union Pacific railroads in the 1860s (with less salutary results).

The central problem with taxless finance is that it can be politically manipulated.

How can voters tell if the promoters promises are reliable? The promoters of the

Pennsylvania state works promised in 1828 that the system would pay for itself, but it

didn't. Some promoters of the Indiana system promised in 1836 that the taxpayers

would not have to raise taxes to service bonds, but ultimately they did have to raise

taxes. As a critic of the Indiana investments stated in 1851: "It was represented to the

people of that day [1836], by the political leaders, that they might go on with that

gigantic system of internal improvements without incurring any additional tax on

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[15]In the 20th century the national government has created and invested in a number of
private corporations for similar reasons, including Fannie Mae and Sallie Mae.

themselves: in fact, the proposition was made that the State could borrow money to construct these public works, and never have to pay any taxes thereon out of their own pockets – that the debt would pay itself."[16] Railroad promoters in Missouri in 1854 promised an "over flowing treasury" would result from state investment in railroads and by 1860 the state was on the verge of defaulting on its bonds, only to be saved by the onset of the Civil War.[17] In each of these cases, and many others, voters were encouraged to support bond issues under the impression that they would never have to service the bonds. Because those making the investment do not bear the full consequences of their decisions, they have less incentives to ensure that the project generates a net surplus. This mechanism requires that voters have some beliefs about the project's likely success. There is no reason to believe that voters' expectations will be accurate, particularly voters who are far removed from the project's locality. No market mechanism coordinates these beliefs. Moreover, because of the contingent liability, bond markets provide a weak constraint in this case: bondholders know that if the project fails, the general taxpayers will be asked to cover the bonds.

Implications. Taken together, this approach yields the following predictions. First, normal taxation will rarely be used to finance infrastructure. Second, something for

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[16]Indiana State Convention Journals (get proper citation from below), p. 663.

[17]For Pennsylvania see Hartz, *Economic Development*, p. ??; for Indiana see Wallis, "The Property Tax" and the quote that follows in the text from the constitutional convention of 1851; for Missouri see Heckelman and Wallis, "Railroads and Property Taxes," p. ??. Almost all of the debt issued on behalf of banks in the southern states up to 1838 was supposed to be serviced by the banks, not the taxpayers. When the banks defaulted and the debt holders approached the state for repayment, Florida, Mississippi, Louisiana, and Arkansas explicitly or implicitly repudiated their bonds. See Wallis "Answering Mary Shirley's Question."

everyone is politically sustainable, but not practical for large specific projects. It may be used for dispersed projects and is thus more likely to be used by the national government (such a lighthouses). We should observe both benefit taxation and taxless finance used to finance infrastructure. However, because the Constitutional prohibition on the national government's use of benefit taxation, the states should be observed to use this method, while the federal government should not be observed to use it. Taken together, this suggests that, states and not the national government should finance the very largest infrastructure projects in the early 19th century.

4. Evidence from the First Cycle: State and National Borrowing and Spending 1790 to 1860

Tables 6 and 7 present evidence on the predictions. Table 6 studies the $60 million that the national government spending on transportation improvements between 1790 and 1860 (plus an item about the Union Pacific Railroad). It organizes these expenditures by method of finance: $2 million for projects financed by normal taxation; $41 million for something for everyone projects; nothing financed by benefit taxation; and $17 million for taxless finance projects. Table 7 presents information on the $186 million of the state debt outstanding in 1841 that can be allocated to one of the four forms of financing.[18]

As predicted, none of the state projects used normal taxation or something for

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[18]Over the entire period 1790 and 1860, state and local governments spent an estimated $450 million on transportation investments, seven times the national expenditures. Goodrich, 1960, p. ___.

everyone, but $53 million was borrowed for projects financed by benefit taxation and

$133 million was borrowed for taxless finance projects.

The national government relied extensively on something for everyone projects.

Typically, national transportation projects were financed through omnibus "rivers and

harbor" legislation including funding for dozens of individual projects spread throughout

the country. Most of these projects were small and localized.

Throughout the nation's history, when the national government participated in

infrastructure investment, it tended to use something for everyone policies. State

governments, on the other hand, initially used a mix of benefit taxation and taxless

finance. It was in reaction to the dangers of taxless finance that the first budget rules

were adopted in the 1840s.

5. The First Rules and Their Effect on States: The First Cycle of Constitutional Changes

Between 1790 and 1841, state governments borrowed over $200 million to invest in

canals, railroads, and banks.[19] In 1841 and 1842, eight states and the Territory of

Florida defaulted on their sovereign debts. Florida and Mississippi repudiated all of their

debts. Louisiana, Arkansas, and Michigan repudiated part of their debts.

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[19]The classic history of state borrowing is McGrane *Foreign Bondholders*. McGrane can be supplemented with Ratchford, *State Debts*. More recent research includes English *AER*, Wallis, "Constitutions, Corporations, and Corruption" *Journal of Economic History*, 2005, and Wallis, Grinath, and Sylla, "Sovereign Default and Repudiation," NBER Working Paper.

These defaults created a political crisis in these states. In reaction to the default crisis, twelve states wrote new constitutions between 1842 and 1852. Eleven of those constitutions mandated procedural restrictions on the way state and local governments borrowed money (one of the eleven, Indiana, banned state borrowing altogether).[20] Although these constitutions did not contain the first language about revenues and expenditures in state constitutions, they were the first direct constitutional provisions with respect to borrowing.

Significantly, the constitutional provisions were not intended to eliminate state and local government borrowing. They were intended to eliminate taxless finance. In what follows, we use the phrase *debt restrictions* to mean procedural restrictions on the issue of debt and the phrase *debt limitation* to mean absolute limits on the amount of debt a state or local government can issue. Absolute limits may be stated in dollars or as fractions or percentages of assessed value or personal income.

Eliminating taxless involved three related constitutional changes. First, states had to prohibit themselves from investing in private corporations or giving individual corporations special deals to provide public services. The result was the widespread

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[20]It is sometimes asserted that the state constitutions of the 1840s did not regulate local borrowing or local governments, and that is part of the reason that local governments began borrowing so heavily after the Civil War (Krane, Rigos, and Hill, 2001, p. 9) "Curiously while debt limits were imposed on state governments, local governments were left unrestricted, so enterprising investors turned to municipal corporations as sources of capital." But this seems to be an overstatement. Several state constitutions in the 1840s and 1850s (and certainly in the 1870s) extended explicit limits on local governments, sometimes through granting powers to legislatures. For example, the Ohio Constitution of 1851, Article 13, Section 6: "The general assembly shall provide for the organization of cities and incorporated villages, by general laws, and restrict their power of taxation, assessment, borrowing money, contracting debts, and loaning their credit, so as to prevent the abuse of such powers." Similar provision were included in the constitutions of Indiana, Michigan, New York, Wisconsin

adoption of general incorporation acts and prohibitions on public investment in private

corporations. Second, states had to prohibit themselves from giving tax breaks to

corporations and other interests to provide public services.[21] The result was the general

property tax imposed at the same rate on all property. Third, states had to require that

taxes be raised before money was borrowed. This required voters to approve tax

increases (and legislatures to implement tax increases). The text of the New Jersey

Constitution of 1844, which is one of the first debt restrictions and typical of those that

follow, is given in Appendix table I.

States sought to eliminate taxless finance in the 1840s, not to prevent

government borrowing.[22] The most direct evidence is that only Indiana banned state

borrowing outright. Every other state continued to allow borrowing, in general or for

specific purposes, subject to the procedural requirements that: 1) the purpose and

amount of debt issued be identified; 2) taxes sufficient to service and redeem the debt

be levied (such taxes were to be "irrepealable"); and 3) voters must approve the new

taxes in a referendum. (We provide the specific details of the various state constitutional

restrictions on debts in Table 8).

To summarize, the new restrictions sought to solving the problems that people

believed created the previous debt crisis by eliminating taxless finance. Voters now had

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[21]The use of tax breaks to induce railroads and other public utilities to provide services was a pervasive problem in the late 19th century.

[22]The evidence and argument is detailed in Wallis, "Constitutions, Corporations, and Corruption." The major conclusion of Goodrich's article "The Revulsion against Internal Improvements" is that states were not trying to prevent state and local investments in infrastructure, but to modify the process through which projects were selected and funded.

to approve each new debt issue and tax increase prior to new debt issues. States

therefore allowed themselves and their local governments to continue to borrow for

many purposes, provided that a majority of the voters approved a tax increase before

the project was begun.

This was very much the sense of purpose that delegates expressed at the

constitutional conventions in the 1840s. For example, Judge Kilgore of Indiana spoke in

favor of procedural restrictions and against the absolute ban on state debt in the Indiana

constitutional debate in the following words:

> If, with the light of the past to guide them, with the heavy burthens [sic] of the
> present to remind them of past errors, the people coolly and deliberately decide
> at the ballot-boxes to again borrow money, I shall aid to place no Constitutional
> barriers in their way to prohibit them from carrying out their will; *provided,* sir, that
> at the time they give the Legislature authority to contract a debt they provide by
> direct taxation for the payment of the interest, and the canceling of the principal,
> within twenty-five years. Right here, sir, and nowhere's else, was the great error
> committed by the people and their representatives in 1836 [leading to Indiana's
> debt crisis]. Gentlemen may confine themselves to the simple assertion that the
> people of that day were mad; I shall not deny it; they were mad, and very mad;
> but, Mr. President, had a provision been made before the public debt was
> created that a direct tax must be levied, high enough to pay the interest and to
> wipe out the whole debt in eighteen or twenty-five years, all would have been
> comparatively well. A provision of this kind, sir, would have brought the people to
> their right senses, and my word for it, before State Bonds to the amount of four
> millions of dollars had been sold, they would have risen and denounced the
> whole system as projected.[23]

Judge Kilgore also called for benefit taxation and castigated the perils of taxless

finance, and called for a direct tax, which in 1850 meant *ad valorem* property taxation,

before any future debt could be issued.[24]

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[23]Ibid, p. 676.

[24]Events in Indiana are considered in detail in Wallis, "The Property Tax."   The general
movement to rewrite constitutions and eliminate taxless finance is the subject of Wallis,

So states changed their constitutions to require that taxes be raised before bonds were issued and eliminating taxless finance. Such a tax increase was not necessarily a benefit tax, it was normal taxation since everyone's taxes went up immediately. If, however, voters expected property values to rise as the benefits of the project are capitalized in property values, then the burden of taxation on property that did not rise in value would fall. The way property taxes were administered in the 19th century was not to set a permanent rate and then collect whatever taxes came in. Typically the state or local government established an amount to be raised by the property tax, divided by total assessed valuation to determine that year's tax rate, and then allocated the taxes amongst taxpayers according to their share in the assessed value of all the property in the state. So, holding the total amount raised by the property tax constant, if the property values rise in areas that benefit from the project, then property taxes will fall in areas where property values do not rise.

The debt restrictions had several measurable effects, but before turning to those, we consider the effects of a mandatory bond referendum on all state or local borrowing in the context of the model presented in the previous section.

A bond referendum eliminates taxless finance while creating a higher bar for benefit taxation. Since all voters are voting to have their current taxes raised immediately, even voters who receive no benefits from the project still pay higher taxes. This eliminates the possibility that voters who receive no benefits, and therefore pay no

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"Constitutions, Corporations, and Corruption."

taxes, will not vote *against* the project. Now a majority of voters must receive positive

net benefits before they will vote yes on the bond proposal.

We expect three results. In general, it will be easier to obtain majorities in

smaller jurisdiction where infrastructure provision more closely matches the voters.

First, debt restrictions should reduce the borrowing of state governments. Second, debt

restrictions may increase local borrowing. This prediction must be qualified by two

factors. One, if there is no substitutability between state and local provision of projects,

than lowering state borrowing should have no effect on local borrowing. It appears that

there is some substitutability, however. When states stopped borrowing to finance

railroads in the Midwest, local governments increased their borrowing to finance

railroads. Two, state debt restrictions may also apply to local as well as state

governments. Third, debt restrictions create pressure to form new governments whose

boundaries closely match the beneficiaries of the infrastructure investment. These

special districts provide better matches of taxpayers and beneficiaries of public services.

Because a greater portion of voters experience a rise in property values, voters are

more likely to approach surplus-generating projects.

**An Initial Look at State and Local Debt Experience, in the
    Second Cycle: 1841-1902**

Table 9 provides information on state debt in 1841, 1853, and 1860, and state

and local debt in 1870, 1880, 1890, and 1902. These numbers are taken from the

Census, which did not collect information on local government until 1870.[25] The first panel of the table gives average debt by level of government in the nation at each date, as well as the number of states in existence at that date and the aggregate level of all debt. The second panel of the table reports similar averages for states without any type of state level debt restrictions. The third panel reports averages for states with debt restrictions. The first state debt restrictions were adopted after 1842, so none of the states in 1841 had debt restrictions.

Table 10 compares 1841 and 1860 using a difference in difference estimate. Average state debt, in levels and per capita, are given in the first rows of the table for states with and without debt restrictions. The difference in the level and per capita debt is given in the last column of the table. For example, between 1841 and 1860, total debt rose in states without restrictions from $3,185,239 to $7,722,462 and difference of $4,548,224. In contrast, total state debt in states with restrictions fell from $11,827,651 to $8,314,827, a difference of -$3,512,825. The difference in the two differences – $8,061,048 – provides an estimate of the effect of state debt restrictions in reducing state borrowing. The effect of debt restrictions were equally large if we measure them in per capita terms.   In 1840, per capita income was about $100, and in 1860 slightly less than $200. States with debt restrictions had $13.26 less per capita debt than states without restrictions. The debt restrictions therefore had large and immediate impacts on state borrowing before the Civil War.

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[25]Hillhouse suggests that local government debt was quite small in 1840, only about $25 million. While it grew before the Civil War, there are no acceptable aggregate estimates of local debt, although there are series for individual cities.

The table provides a nice example of endogeniety. The states that ultimately adopted debt restrictions had much higher total and per capita debts in 1841 that states without debt restrictions. The debt restrictions were the result, not the cause, of high debts in 1841.[26] Total state debt per state stayed roughly constant between 1841 and 1860, but state debt per capita fell steadily over those years (Table 9). State debts rose dramatically during the Civil War, as evidenced by the increase in state debt from 1860 and 1870. So there is both a pre-, during, and post-war story to be told. Debt restrictions mattered during the war. Total debt rose from $8 to $13 million in states without restrictions (from $12.71 to $19.72 per capita), and fell from $8 to $7 million in states with restrictions ($6.51 to $5.14 per capita), between 1860 and 1870.

**6. Playing Against the Rule: Local Governments in the
      Second Cycle, 1870 to 1902**

During the 1870s states made substantial changes to their debt provisions that affected both the state and local levels. Many more states, including most of the southern states, adopted some form of debt provisions. State debt restrictions really mattered between 1841 and 1870. What about local governments?

The census did not begin collecting any systematic information on local governments until 1870 and did not conduct a complete census of all local governments until 1902. We therefore have only scattered information about local government

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[26]This is not the case in every state. New Jersey and Rhode Island had no state debts, and were the first two states to adopt procedural restrictions in the 1840s.

borrowing, taxing, and spending before the Civil War.[27] The census began collecting

information on local government debt in 1870 and our evidence on local government

borrowing begins then.

We expect that procedural restrictions on state borrowing will make it more likely

that governments will borrow at the local level, even if local governments face the same

procedural restrictions. Thus it will appear that governments are subverting the intent of

the constitutional rule limiting the issue of government debt at the state level by shifting

borrowing to the local level. So when local governments increase their borrowing in

ways not anticipated in advance, this appears to be "playing against the rule," a form of

creative reaction to constraints by which political officials and citizens create new ways

to borrow within the rules. Did this happen after 1870? We know from Table 2, that

state debts were roughly nine times local debts in 1841 and by 1902 local debts were

roughly eight times state debts. Did debt restrictions and limitations have anything to do

with the shift?

During the 1870s states tightened their constitutional restrictions on debt

significantly. As already discussed, states in the North and South borrowed heavily

during the Civil War and came out of the war with substantial debts. Prior to the war,

both Indiana and Maine adopted constitutional provisions that limited the amount of debt

the state could issue (Indiana banned debt altogether). After the war, a number of

states adopted similar debt provisions, both for state and local governments. As new

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[27]The numbers on local government that we do have are based on samples based on the records of local governments that do remain. Sylla, Legler, and Wallis have made the largest collection of local records, but their numbers are not complete enough to enable a reliable estimate of local activity by state.

states entered, some adopted procedural debt restrictions and others adopted more stringent debt limitations. Table 11 presents a brief summary of state constitutional provisions with respect to state and local borrowing.

Columns (1) and (2) of the table present state debt restrictions before 1860 and between 1865 and 1890. States with a "0" had no restrictions on debt; states with a "1" had procedural restrictions of one type or another; states with a "2" had provisions that limited the absolute amount of debt issued in some way.[28] States also began limiting the borrowing of local governments in a number of ways. These included absolute prohibitions on debt issue, debt limitations tied to property valuations, limits on the purpose of debt issue, and several cases of tax or expenditure limitations. Column (3) notes whether local governments were, in any substantial way, affected by state rules.

Between 1865 and 1875, Southern states underwent Reconstruction. When they regained control of their governments in the 1870s, southern states faced a confusing situation. Their debts were a mix of pre-Civil War debt which they might repudiate, Civil War debt which the federal government required them to repudiate, and Reconstruction debt that many states wanted to repudiate. In the 1870s, southern states rewrote their constitutions. Several states formally repudiated their Reconstruction debts. Before the Civil War the only southern states with debt restrictions were Louisiana and Texas. After the war, all of the former confederate states except Arkansas adopted some form

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[28]Whether a state is a "1" or a "2" is a matter of interpretation. Some states appear to have absolute limits, but state them in a way that gives the state a considerable amount of leeway in the amount of debt they issue, and thus are classified as restricted states, "1", rather than limited states, "2." Ohio and Alabama are examples of such states.

of debt restriction, and Georgia, Louisiana, and Virginia adopted absolute limits; and most imposed a variety of restrictions on local governments.

At the local level, many things changed between 1870 and 1902. The growth of the economy, industrialization, and immigration all resulted in a rapid increase in the size of cities, particularly the rise of large urban commercial and industrial centers. Urbanization should have increased local government borrowing even in the absence of changes in constitutional borrowing rules. Table 12 presents regression results, covering the entire period from 1870 to 1902. These regressions are able to take advantage of the changing debt requirements over time, the rise and fall of state and local debts at the state level, and changes in urbanization and population, as well as dummy variables for individual years. State level debt restrictions lower state borrowing, as shown in Panel A of the table. In the local regressions, Panel B, states with state level debt restrictions have *higher* local debt, while local debt restrictions reduce local debt.[29] More urban states have much more local debt, but the effect of debt restrictions on local borrowing remains even when urbanization is controlled for.

State and local debt restrictions and limitations continued to matter and to exert significant fiscal effects on the structure of state borrowing in the late 19th century. They also began exerting an influence on the structure of government, moving more a larger share of fiscal activity towards local governments in the states with debt restrictions. A

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[29]The coefficients on state and local debt restrictions in the local regressions are not statistically significant, and there are issues of interpretation here. Since this is the entire universe of states, the coefficients represent the true effect of the debt restrictions on local debt. But the high standard errors indicate that the effect varies widely across states. The coefficients on state debt restrictions in the state equation are both economically and statistically significant.

lot more was going on in the late 19th century, however, and to those complicating issues we now must turn.

7. Complications and Home Rule in the Second Cycle, 1875 to 1900

The empirical results in the previous section demonstrated that states with debt restrictions and limitations had smaller state debts and larger local debts, controlling for population size and urbanization, but they do not establish a causal relationship between state fiscal institutions and the changes in the structure of state and local government. Many other factors also changed at the end of the 19th century, and identifying causal relationships would require far more detailed empirical tests than we undertake in this paper. Rather than giving up in the face of complexity, however, it seems that we can grasp one of the thorniest problems and turn it to our advantage.

"Home rule" is the historical term associated with the movement that began in the late 19th century to give local governments, initially municipalities and counties, more control over their internal structure, elected officials, and policies. Home rule presents a serious statistical problem, since changes in local government borrowing may have been a result of changes in the fiscal rules under which local governments operated. While debt restrictions can be characterized by a small set of quantitative variables, home rule provisions are enormously complicated and cannot be easily incorporated into an empirical analysis. Moreover, the late 19th century was not just a period of home rule, it was also a period of state rule. There were more cases where state governments

tightened their control over local governments (Table 11) than cases where states

loosened control by allowing local governments to write their own charters. States also

began imposing administrative control over local provision specific public functions, like

water supply and sewers.[30]   A close look at the changing relationship between state

and local governments after 1870 reveals that no simple empirical analysis along the

lines of the previous section will enable us to delineate the lines of causation and

interaction between fiscal and political institutions and fiscal outcomes.

On the positive side, however, it seems clear that the regulation of state debt

issue quickly led to the involvement of states in local debt issue. For example, Article 8

of New York constitution of 1846, which enacted the debt restriction, contained section 9

which read: "It shall be the duty of the Legislature to provide for the organization of cities

and incorporated villages, and to restrict their power of taxation, assessment, borrowing

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[30]Here is how Teaford describes, and resolves the apparent conflict: "... there emerged two movements that had a limited impact in the nineteenth century, but were of vital significance after 1900. These were the much-ballyhooed municipal home-rule crusade, which sought to ensure cities the right to draft and ratify their own charters, and the movement for state administrative supervision of the cities, which favored the transfer of decision making authority from amateur legislators to professional administrators. Each traced its origins to the late nineteenth century, and each gained adherents during the century's final decades. On the surface, the two movements seem contradictory.... The conflict, however, was largely illusory. Both movements were seeking the same goal-an end to the helter-skelter, uncoordinated and unchecked deluge of what amounted to "legislative interference" by those storekeepers, real estate dealers, young lawyers, and ward heelers who represented the city in the legislature. Early advocates of municipal home rule sought to liberate the city not from an unresponsive legislature but from one that was all-too responsive, that granted too much with too little thought. Early supporters of state administrative supervision likewise wished to free the city from unthinking and uninformed legislative action and endeavored to ensure expertise and professional standards of procedure and service. Municipal home rulers did not fear state power per se, only state power in the hands of greedy contractors, political hacks, and even service-hungry citizens who mindlessly boosted the urban tax rate. State power in the hands of professional experts who valued efficiency and soberly calculated costs and benefits was deemed not only less threatening but highly attractive." *The Unheralded Triumph*, p. 104.

money, contracting debts and loaning their credit, so as to prevent abuses in

assessments, and in contracting debt by such municipal corporations." In 1875, the

Constitution was amended to make explicit the way in which the state was regulating

local debt issue: Article 9 section 11: "No county, city, town or village shall hereafter give

any money or property, or loan its money or credit to or in aid of any individual,

association or corporation, or become directly or indirectly the owner of stock in, or

bonds of, any association or corporation; nor shall any such county, city, town or village

be allowed to incur any indebtedness except for county, city, town or village purposes."

The section was amended again in 1884 to include the additional provision that:

This section shall not prevent such county, city, town or village from making such provision for the aid or support of' its poor as may be authorized by law. No county containing a city of over one hundred thousand inhabitants, or any such city, shall be allowed to become indebted for any purpose or in any manner to an amount. which, including existing indebtedness, shall exceed ten per centum of the assessed valuation of the real estate of such county or city subject to taxation, as it appeared by the assessment-rolls of said county or city on the last assessment for State or county taxes, prior to the incurring of such indebtedness; and all indebtedness in excess of such limitation, except such as may now exist, shall be absolutely void, except as herein otherwise provided. No such county or such city whose present indebtedness exceeds ten per centum of the assessed valuation of its real estate subject to taxation shall be allowed to become indebted in any further amount until such indebtedness shall be reduced within such limit. This section shall not be construed to prevent the issuing of certificates of indebtedness or revenue bonds issued in anticipation of the collection of taxes for amounts actually contained, or to be contained in the taxes for the year when such certificates or revenue bonds are issued and payable out of such taxes. Nor shall this section be construed to prevent the issue of bonds to provide for the supply of water, but the term of the bonds issued to provide for the supply of water shall not exceed twenty years, and a sinking fund shall be created on the issuing of the said bonds for their redemption, by raising annually a sum which will produce an amount equal to the sum of the principal and interest of said bonds at their maturity. The amount hereafter to be raised by tax for county or city purposes, in any county containing a, city of over one hundred thousand inhabitants, or any such city of this State, in addition to providing for the principal and interest of existing debt, shall not in the aggregate exceed in any one year two per centum of the assessed valuation of the real and personal estate of, such

county or city, to be ascertained as prescribed in this section in respect to county or city debt.

The specific nature of the 1884 amendment are revealing. New York allowed more freedom for local governments to borrow to finance relief expenditures or water systems. But it clamped down on the ability of large cities to issue bonds, both with a restriction on the amount of debt that could be issued and the amount of taxes that could be raised to service debt. At the same time it opens a loophole for debt secured by future revenues. It is difficult to determine whether, on balance, the specifics of the amendment made it harder or easier for local governments in New York to borrow.

New York's regulation of local borrowing was not unique in timing or complexity. States began asserting a formal constitutional right to limit the debt of local governments and public corporations in the 1840s (table 9). In the 1870s, most states adopted some type of local restrictions. By 1890, 36 states had imposed, or asserted the right to impose, regulations on local borrowing. In 22 states, constitutional provisions limited the amount of debt local governments could issue, 16 states had specific limits, and 12 of those states specified maximum debts as a percentage of assessed property value.

The complicated changes in state and local government caution us against interpreting the empirical results of the two preceding sections as depicting causal relationships. Without a great deal more empirical work, it impossible to say whether debt restrictions caused a change in state or local borrowing, or the reverse. But they do support a major element in our history of the second cycle. States responded to the increase in local borrowing by changing the constitutional structure of the state and local system. The confusing welter of home rule, state rule, and state regulation of local

government borrowing and activity is strong evidence that the increase in the local share

of government activity was both a cause of and a result of changing fiscal institutions. If

we could sort out the causation issue, we would be able to be more precise about how

much of the growing importance of local government was caused by changing fiscal

rules. But there is no doubt that moving government activity to the local level was not

something that just happened. State and local governments consciously decided to

have local governments assume more of the burden of infrastructure investment and

public service provision.

8. The Rise of Special Purpose Governments in the Second and Third Cycles, 1850 to 1933

As noted, in the 1840s, state debt restrictions were not intended to eliminate debt

altogether, but to eliminate taxless finance. As states continued to struggle with their

own political problems and extended their control over local government borrowing, the

emphasis still remained on eliminating taxless finance, not on preventing debt issue. But

reactions of both state and local governments to the existing rules opened up new

possibilities and challenges, many unanticipated.

In 1851, just five years after enshrining a procedural debt limitation in the

constitution of 1846, the New York legislature "enacted a law directing the Comptroller

to issue $9,000,000 of 'canal revenue certificates' for the purpose of enlarging the Erie

Canal and completing the Genesee Valley and Black River Canals."[31] The bonds were

issued without *a tax increase or a bond referendum.* The bonds were to be paid out of a

"special fund" established with future surplus canal revenues. The bond issue was

upheld in *People v. Newell,*[32] but overturned as unconstitutional in *Rodman v. Munson.*[33]

The decision overturning the law induced some consternation, ultimately leading

to a bond referendum and tax increase to fund the debt. The argument proposed in

favor of the law "that the constitution did not intend to prohibit debts 'which would

certainly and eventually pay for themselves'" was refuted decisively by Judge Strong.[34]

> Indeed, the most extravagant works in the state, and some of them were very
> extravagant, had been urgently supported, and finally adopted, upon that
> supposition. The convention [in 1846] had the sagacity to see that the practice of
> granting away the public money upon the annual productiveness of such works
> was a dangerous one, and that in fact no human foresight could enable the
> legislature to determine with certainty that any projected improvements "would
> certainly and inevitable [*sic*] pay for itself." Indeed, there had been sad mistakes
> on that subject, for which the state had severely suffered. The convention knew
> that the legislature had too readily listened to sanguine, loose and interested
> calculations, and no doubt designed to avert the danger of incurring heavy debts
> under such pretenses.[35]

Judge Strong understood that the purpose of the constitutional debt restriction was

precisely to eliminate taxless finance, to make it impossible for promoters to fund

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[31]Quirk and Wein, "A Short Constitutional History", p. 538.

[32]13 Barb. 86 (N.Y. Sup. Ct.), *rev'd,* 7 N.Y. 9 (1852), as cited in Quirk and Wein, p. 539.

[33]13 Barb. 63 (N.Y. Sup. Ct.), *aff'd,* 13 Barb. 188 (N.Y. Sup. Ct.), *aff'd sub nom.* Newell v. People, 7 N.Y. 9 (1852), as cited in Quirk and Wein, p. 539.

[34]The quotation is from Quirk and Wein, p. 539 citing 13 Barb., at 204.

[35]As quoted in Quirk and Wein, p. 539, citing *Id.*

projects that would "certainly and eventually pay for themselves" without raising current taxes. Judge Strong spoke against taxless finance as clearly as Judge Kilgore had done in Indiana.

But the underlying issue was more complicated. What was the problem with a state issuing bonds whose security was surplus canal funds, for which creditors could not make claims on the state in the absence of a canal fund surplus? The impossibility of clearly defining a canal fund surplus doomed the cause of this particular issue of New York bonds. But surely there were cases where a distinct fiscal source could be identified, the burden of which fell primarily on individuals who benefitted from the service provided by the government and where it was possible to insulate the state and its taxpayers for liability in case the revenues did not materialize. Equally, there were cases where a majority (or more) of taxpayers could be induced to acquiesce to a rate increase to fund bonds for the provision of a value public service. Sometimes the taxpayers were located within the boundaries of an existing government, but sometimes it was necessary to create such a government, a special district or public authority (e.g. the New York Port Authority), whose boundaries overlapped several existing jurisdictions or whose boundaries were smaller than an existing jurisdiction (e.g. school districts).

Whether these special districts were financed by user fees or by property taxes, it was possible to create governments financed by benefit taxation. There were perfectly good economic and political reasons for creating more local governments. Indeed, if we press the logic of social welfare maximization embodied in equation (1), it is clear that a society with flexible governmental forms can craft governments to provide infrastructure

and market-enhancing public goods in ways that a society with inflexible government forms (e.g., boundaries) cannot. By allowing fragmentation of government into flexible, potentially overlapping government units, what might be called "Tieboutizing" local governments, better outcomes could be reached. But the benefits came at the risk of some serious downside risk.

First, it was absolutely necessary to prevent local governments from investing in private corporations, period. One of the most common forms of taxless finance was for governments to issue bonds, turn the bonds over to the private company to purchase stock, and require the private company to service the bonds, thus eliminating the need to raise current taxes. This type of arrangement had been used by the national government to finance the First and Second Banks of the United States and the Union Pacific Railroad. It had been used by Florida, Mississippi, Louisiana, and Arkansas to finance banks. A procedural debt restriction would not, by itself, prevent voters from approving a bond issue to invest in a private corporation that would service the bonds! It was well understood by the 1870s that such taxless finance arrangements were an invitation to trouble.

Not surprisingly, state constitutions began stipulating that no local governments could invest in private corporations. Almost all of the state with "local provisions" in Table 11 prohibited local governments from investing in private corporations.[36] Constitutions also began making it clear that state and local governments were not

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[36]The census of 1880 section on "constitutional provisions relating to state and local debts" opens with a table of state restrictions on "the power of state and minor political divisions to lend their credit to or in aid of corporations, etc., or to become stockholders in any corporations:" *Valuation, Taxation, and Public Indebtedness*, p. 649.

responsible for the debts of special governments, special districts, or public authorities.[37]

This was the second round of constitutional prohibition of taxless finance. The

constraints on local government borrowing and investment produced, as might have

been expected, a growing number of special local governments. The "Tieboutization" of

local government was well underway.

9. Back to Local Governments: Limiting Liability for Special District Debt in the Third Cycle

Anyone who has attended a school board meeting to establish boundaries or a county

council meeting to site a road learns that local governments are not so small that they

are able to provide homogenous public goods within their jurisdictions. But local

governments are either small enough, homogenous enough, or flexible enough in

creating their boundaries that they are able to finance a considerable amount of

infrastructure even when required to gain majority approval for bond referenda. Local

governments have also been endowed by the various debt rules that govern them, with

a credible ability to go to private capital markets to raise funds. It may seem backwards,

but stringent debt restrictions, particularly debt restrictions that prohibit special purpose

government from gaining access to general government revenues aid the promotion of

infrastructure investment and raising money in the capital market. To get to those

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[37]Quirk and Wein have a great discussion of how this debate played out in the New York Constitutional convention of 1938, where the protagonist wanting to prevent the constitution from prohibiting state or local governments from assuming the debts of public authorities was Robert Moses.

issues, we first need to address the reasons why fragmented government might be a

good thing.

Recall the expression (1) depicting the social net benefits of an infrastructure

project:

(1) $SNB = \Sigma\, b_i(G) - t_i(C)$ [summed over all individuals, i]

Now think of this summation as being over individuals, i, projects, j, and combinations of

individuals (or geographic areas), k. So there a "k" ways of combining all the

individuals, and not all individuals are included in every combination. Call the

combinations of individuals "districts," even though they do not necessarily have to be

geographically contiguous.

If we constrain infrastructure projects to the state level, then there will be a group

of projects that yield positive net social benefits and meet the majority constraint, that P_i

> 0 for more than half the voters. Call those projects JP for the j projects with positive

social benefits:

(5) $SNB_{JP} = \Sigma\, \Sigma\, b_{ij}(G) + t_{ij}(C)$ [summed over j projects and all individuals, i].

Now suppose that it is possible to design smaller governments that do not include

everyone. It is likely that there are projects that fail to meet the majority rule criteria at

the state level, that will meet the majority rule criteria at a lower level. Moreover, if we

allow more flexibility in designing the government boundaries, it will increase the number

of socially beneficial projects that voters can pursue.

Since all state level projects in JP already meet the majority criteria, it should be

relatively easy to show that the set of all profitable projects that we can pursue of sub-

state governments are allowed to form will be larger. Call these projects KP

(6) $SNB_{JP} < SNB_{KP} = \Sigma \Sigma \Sigma b_{ijk}(G) + t_{ijk}(C)$ [summed over j projects and all

individuals, i, and all districts k].

An example helps clarify the issues. Suppose that each of two surplus-generating

projects benefits twenty percent of the citizens in a state and neither group of citizens is

coincident with a local government. The state is unlikely to meet the majority rule

constraint of expressions (2) and (3), and no local jurisdiction covers these citizens. So

a structure with just states and fixed local governments cannot build these projects. If,

however, each group of citizens can form a special government, then they can create a

jurisdiction with majority support to generate the taxes and financing necessary to build

the project. Put simply, the system of flexible, special governments helps provide a

greater variety of public goods and services.

What are the problems with implementing a infrastructure investment scheme like

equation 6? First, who gets to be a government? Second, who gets to draw the

boundaries? Third, how do you insure that the taxes will be levied, the project will be

built, and the debt will be repaid? All these problems falling under the general rubric of

"transparency," that is knowing what the government is doing, but clearly there are lots

of transaction costs in implementing such a scheme.

As we have already discussed, when state governments first got involved in

infrastructure investments, they pursued both benefit taxation and taxless finance. The

financial failures in 1841 resulted in the first cycle of constitutional provisions to

eliminate taxless finance; in the process, these provisions raised the bar for benefit

taxation without eliminating it. The state provisions created incentives for an expansion

of local infrastructure investment, again as we have seen. In the 1850s, but increasingly

in the late 1860s and 1870s, local governments used both benefit taxation and taxless finance. Initially local governments were heavily involved in railroad assistance, but by the 1870s and 1880s they had begun investing in what we now consider the standard local public goods and services: water, sewers, utilities, schools, etc. The recession and deflation of the 1870s caused a round of local government financial crises, including a wave of defaults and ingenious attempts by local governments to avoid their debts.

States responded in the 1870s with a second cycle of constitutional changes, placing restrictions on local governments or tightening restrictions already in place, as we saw with New York. Initially the restrictions were intended, as at the state level in the 1840s, to eliminate taxless finance. Local governments were forbidden to invest in any private corporations, and bond referenda and higher taxes were required for any new debt issue. Some states instituted debt limits for local governments as well as restrictions.

Local governments were able to maneuver within these restrictions. Because local governments were not bound by state requirements to levy general property taxes, they could levy special assessments on improvements approved by micro-electorates.[38] From special assessments it was a small step to special taxing districts. By 1884, New York allowed cities to issue bonds in anticipation of revenues, as we saw earlier, without violating their local debt ceilings. By the 1890s, public authorities were beginning to

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[38]See Robin Einhorn *Property Rules,* for a detailed history of how Chicago was able to finance street and sewer improvements using special assessments street by street. Water supply, however, required a city wide program, and so faced a much higher bar.

appear, special purpose governments with the power to issue debt payable out of special revenues, such as port fees or bridge tolls.

The question of taxless finance arose in this environment in a new guise. Remember that taxless finance usually involved the taxpayers assuming a contingent liability if the project failed. If a public purpose, pursued by a public authority, financed by bonds to be repaid from user fees or special assessments was to be allowed, who was ultimately responsible for the debt? Did state or local governments assume either a direct or a moral obligation to repay debt if the public authority they created went bankrupt? Where was the contingent obligation? Were special districts just another version of the taxless, but contingent finance of the 1830s?

What happened in some places, and appears to have happened in most states, is the creation of clear bright constitutional lines about debt liabilities. In the 1938 New York constitutional convention, a debate arose over this very issue. The public authorities, led by the legendary Robert Moses of the Triborough Bridge Authority, battled with reformers at the convention who wished to make it constitutionally clear that neither the state nor any local government could be liable for the debts of a public authority.[39] The result of the constitutional convention, eventually adopted by the voters, made it very clear that the bonds of public authorities were the liability only of the public authority. In other words, special purpose governments in New York could not create liabilities for either the state or local governments. Were prospective bond holders interested in making an investment in which they could hope to receive their interest and

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[39]Quirk and Wein, "A Short Constitutional History, pp. 552-579. The debate concerned the amendments proposed by Abbot Law Moffat and Philip Halpern.

principle payments with some certainty, the investors had best make sure that the public authority was a sound investment on its own terms.

This was a different constitutional twist, since it was not a provision to prohibit taxless finance. The state and local governments of New York had already shown too much ingenuity in evading the attempts of previous constitution writers to believe that taxless finance could be permanently and completely banned. Instead, the provisions adopted by New York in 1938 were credible and effective attempts to insure that taxless finance would indeed be taxless. By eliminating the contingent obligation of the general taxpayers to stand liable for special purpose government debts, these new provisions greatly reduced the common pool problems associated with financing projects. Because solely the taxpayers of the special jurisdiction were liable for the project, taxpayers, political officials, and bondholders had stronger incentives to evaluate critically any proposed project.

No doubt these provisions could be abused in the future, and they certainly have been, but the provisions marked another stage in the long battle in reducing the perils of taxless finance. States at this critical stage emphasized eliminating any contingent liability on the general taxpayer, and transferring most of the burden of risk to the bondholders.

Per our SGFF, the new set of institutions have helped align the interests of political officials with those of their citizens. In many respects, the mature system, arrived at the end of three cycles of action, problems, and new constitutional rules, comes close to being optimal. The formation of special governments combines with the limits that insist that solely these governments are responsible for the debt to produce

good incentives for political officials, citizens, and the bondholders. In particular, limits

on the responsibility of debt eliminate a series of incentive and common pool problems.

10. Conclusions

In this paper, we have studied the interaction of the striking demand by Americans to

finance a wide range of infrastructure with state and local governmental fiscal structure.

Scholars have failed to recognize the central role that solving problems in debt finance

has had on the structure of state and local governments.

The structure of these governments has gone through three phases, reflecting

three cycles of financing projects, debt problems, and new constitutional rules: 1790-

1850, 1850-1880, and 1880-1933. States were initially the primary builders of

infrastructure, from 1800-1850 (Wallis and Weingast 2005). After states ran into

financial distress during the debt crisis of 1841, they enacted new constitutional rules

that made it difficult for states to finance new infrastructure, particularly local

infrastructure. The requirement for state-wide majority approach effectively prohibited

financing a wide range of valuable projects whose effects were local. Per our

substitution hypothesis, a major response to these procedural restrictions at the state

level was to move more government borrowing for infrastructure to the local level. Local

defaults led to stricter restrictions on local borrowing in the 1870s. Per our

governmental jurisdiction hypothesis, those restrictions led to creative responses in the

form of special districts and public authorities in the early twentieth century. And the development of those special purpose governments led to more strict enforcement of taxless finance.

We have drawn on SGFF models to study aspects of the demand, supply, and finance of infrastructure projects. One of our main results is the importance of aligning the set of taxpayers and beneficiaries of the projects. We argue that, by the mid-twentieth century, special governments served an important and powerful role in providing infrastructure. The flexibility of this form of government allowed them to provide a close alignment between the project's beneficiaries and the taxpayers who must finance it. We argue that a pivotal institutional feature of these governments is that they alone, and not a general government, are responsible for their debt.

Special government responsibility for debt has two related incentive effects. First, were a general government liable, taxpayers would be willing to agree to finance projects that benefit themselves but which do not create a new social surplus. The reason is that taxpayers are not fully liable for the costs of the project, some of which will be born by the taxpayers of the general government. Second, if the general government backs this debt, bondholders are much less concerned about the project's success – as long as they believe the general government is sound, they don't have to worry. Sole responsibility for debt, therefore, forces both taxpayers and bond markets to scrutinize projects more carefully and to choose only positive surplus projects – only these have a hope of attaining financing. Briffault emphasizes the second source of incentives: one result of the mature system governing state and local borrowing is that "The real

discipline for the state thus comes from capital markets."[40] But it is not these incentives alone that matter. The bond market induces important effects on those who design special governments and the associated projects.

FGFF, with its benevolent maximizers of social welfare, tends to ignore these problems. SGFF emphasizes the importance of aligning the incentives of political officials with citizen interest. Moreover, the SGFF approach suggests that the fiscal institutions governing debt and infrastructure provision in mid-twentieth century America arrangement are good ones in the sense that they limit the ability of citizens from undertaking projects that fail to create a positive social surplus. Infrastructure finance around the world has trouble doing exactly this, as the American financial problems in the 19th century and the more recent problems in Argentina and Brazil reveal.

The result of this evolution of constitutional rules and practice is a very "fragmented" form of government in the United States. Fragmentation, of course, has both good and bad features. Since 1942, the vast majority of government units created in the United States have been special governments (Table 1). Moreover, America has some of the best infrastructure in the world. Not all public infrastructure is provided by special purpose governments by any means. Most of it is still provided by traditional local governments. But the system seems to work well in several dimensions, perhaps it is time to recognize why.

We end our paper with a brief look ahead. In the late twentieth century, concerns with big and often runaway government have led to tax, expenditure, and debt limits at

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[40]*Balancing Acts*, p. 61.

the state level. As Briffault shows, some political entrepreneurs have reacted to these

restrictions by creating special governments that cover a major portion or even an entire

state. Such institutional mechanisms may well be simply a means around state debt

limits. Moreover, per our theory, larger governments that supply local public goods are

likely to do so at an inefficiently large scale. Many scholars, as we noted in the opening,

claim that something is wrong with American. It may well be that these problems call for

a fourth round of constitutional changes adjusting fiscal institutions. A full analysis of this

period is obviously beyond the scope of this paper. We nonetheless end by simply

observing that today's problems pale in comparison with the truly major fiscal crises of

the 1840s, the 1870s, and the 1930s.

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Appendix I

New Jersey Constitution of 1844:
Article 4, Section 6, Part 4

      The legislature shall not, in any manner, create any debt or debts, liability or liabilities, of the State which shall, singly or in the aggregate with any previous debts or liabilities, at any time exceed one hundred thousand dollars, except for purposes of war, or to repel invasion, or to suppress insurrection, unless the same shall be authorized by a law for some single object or work, to be distinctly specified therein; which law shall provide the ways and means, exclusive of loans, to pay the interest of such debt or liability as it falls due, and also to pay and discharge the principal of such debt or liability within thirty five years from the time of the contracting thereof, and shall be irrepealable until such debt or liability, and the interest thereon, are fully paid and discharged; and no such law shall take effect until it shall, at a general election, have been submitted to the people, and have received the sanction of a majority of all the votes cast for and against it, at such election; and all money to be raised by the authority of such law shall be applied only to the specific object stated therein, and to the payment of the debt thereby created. This section shall not be construed to refer to any money, that has been, or may be, deposited with this State by the government of the United States.

Table 1
Number of Governments, by Level and Type
1942 to 2003

Year	Total	National	State	Local >>>					<<< Local (cont)
				Total	County	Municipal	Township and town	School districts	Special districts
	Number	Number	Number	Number	Number	Number	Number	Number	Number
1942	155,116	1	48	155,067	3,050	16,220	18,919	108,579	8,299
1952	116,807	1	50	116,756	3,052	16,807	17,202	67,355	12,340
1957	102,392	1	50	102,341	3,050	17,215	17,198	50,454	14,424
1962	91,237	1	50	91,186	3,043	18,000	17,142	34,678	18,323
1967	81,299	1	50	81,248	3,049	18,048	17,105	21,782	21,264
1972	78,269	1	50	78,218	3,044	18,517	16,991	15,781	23,885
1977	79,913	1	50	79,862	3,042	18,862	16,822	15,174	25,962
1982	81,831	1	50	81,780	3,041	19,076	16,734	14,851	28,078
1987	83,237	1	50	83,186	3,042	19,200	16,691	14,721	29,532
1992	86,743	1	50	86,692	3,043	19,296	16,666	14,556	33,131
1997	87,504	1	50	87,453	3,043	19,372	16,629	13,726	34,683
2002	87,576	1	50	87,525	3,043	19,429	16,504	13,506	35,052

Table 2
Government debt by level of Government,
Levels and Shares
1838 to 2002

YEAR	State Debt (Millions)	Local Debt (Millions)	National Debt (Millions)	State Share	Local Share	National Share	State Share of S&L Debt
1838	$172	$25	$3	86.0%	12.5%	1.5%	87%
1841	$190	$25	$5	86.4%	11.4%	2.3%	88%
1870	$352	$516	$2,436	10.7%	15.6%	73.7%	41%
1880	$297	$826	$2,090	9.2%	25.7%	65.0%	26%
1890	$228	$905	$1,122	10.1%	40.1%	49.8%	20%
1902	$230	$1,877	$1,178	7.0%	57.1%	35.9%	11%
1913	$379	$4,035	$1,193	6.8%	72.0%	21.3%	9%
1922	$1,131	$8,978	$22,963	3.4%	27.1%	69.4%	11%
1932	$2,832	$16,373	$19,487	7.3%	42.3%	50.4%	15%
1942	$3,257	$16,080	$67,753	3.7%	18.5%	77.8%	17%
1952	$6,874	$23,226	$214,758	2.8%	9.5%	87.7%	23%
1962	$22,023	$58,779	$248,010	6.7%	17.9%	75.4%	27%
1972	$59,375	$129,110	$322,377	11.6%	25.3%	63.1%	32%
1982	$147,470	$257,109	$924,600	11.1%	19.3%	69.6%	36%
1992	$369,370	$584,774	$2,999,700	9.3%	14.8%	75.9%	39%
1997	$456,657	$764,844	$3,772,300	9.1%	15.3%	75.5%	37%
2002	$642,202	$1,042,904	$3,540,400	12.3%	20.0%	67.8%	38%

Table 3
State and Local Government Debt by Type of Debt,
By level and type of Government, and by Purpose, Fiscal 2002
(Millions of Dollars)

Total Debt	$1,686,106	Per cent of Total
Long Term	$1,642,864	97.4%
Full Faith and Credit	$618,719	36.7%
Non-guaranteed	$1,034,146	61.3%
Short Term	$43,242	2.6%
By Level of Government:		
State	$642,202	38.1%
Local Total	$1,043,904	61.9%
County	$205,855	12.2%
Municipal	$398,667	23.6%
Township	$23,342	1.4%
School District	$198,155	11.8%
Special District	$217,886	12.9%
By Purpose:		
Long Term Debt	$1,642,864	
Education	$329,198	20.0%
Public Debt		
for Private Purposes	$415,906	25.3%
Utilities	$218,507	13.3%
Other	$679,252	41.3%

Source: 2002 Census of Governments, *Compendium of Government Finances, 2002,* Vol. 4, no. 5.

Table 4
State and Local Government, Capital Outlay,
Fiscal 2002, By Function
(Millions of dollars)

All Capital Outlay	$257,214	Per cent of Total
Education	$71,582	27.8%
Social Service	$7,177	2.8%
Transportation		
Highways	$66,170	25.7%
Air	$8,551	3.3%
Parking	$329	0.1%
Water	$1,691	0.7%
Public Safety	$8,726	3.4%
Natural Resources	$4,247	1.7%
Parks and recreation	$9,093	3.5%
Housing and comm. dev.	$6,939	2.7%
Sewerage	$11,574	4.5%
Solid Waste	$1,607	0.6%
Govt Administration	$8,156	3.2%
Other	$20,139	7.8%
Utilities	$30,228	11.8%
Water	$11,198	4.4%
Electric	$6,538	2.5%
Gas	$358	0.1%
Transit	$11,514	4.5%
Exhibit:		
Long-Term Debt Issued	$262,339	
Long-Term Debt Retired	$162,463	

Source: 2002 Census of Governments, *Compendium of Government Finances, 2002,* Vol. 4, no. 5.

Table 5
Debt By Level and Type of Government and by Function, 1880
(Millions of Dollars)

Total Debt	$1,117,105,546	Per cent of Total
State	$246,974,476	22.11%
Local Total	$870,041,070	77.88%
County	$106,767,946	9.56%
Township	$29,881,548	2.67%
School Districts	$9,869,117	0.88%
Cities&Towns		
Population > 7,500	$681,616,460	61.02%
Population < 7,500	$41,905,999	3.75%
Bridges	$24,853,388	2.22%
Cemeteries	$288,816	0.03%
Fire Departments	$2,514,082	0.23%
Improvement of	$36,224,548	3.24%
Harbors, rivers, etc.	$40,612,536	3.64%
Parks and Public		
Places	$48,493,952	4.34%
Public Buildings		
Railroad and	$185,238,948	16.58%
Other Aid		
Schools and Libraries	$26,429,457	2.37%
Sewers	$21,370,536	1.91%
Streets	$86,674,860	7.76%
War Expenses	$75,154,400	6.73%
Water Works	$146,423,564	13.11%
Miscellaneous	$180,188,633	16.13%
Funding		
Floating Debt	$159,949,095	14.32%
Refunding Old Debt	$138,748,730	12.42%

Source: 1880 Census, *Valuation, Indebtedness and Public Taxation*.

Table 6
Model Predictions and National Spending Patterns,
1790 to 1865

Method	Prediction	Amount	Cases
Normal Taxation	No	$1,917,000	Chesapeake and Delaware Chesapeake and Ohio
Something for Everyone	Yes, small projects	$41,435,000	Unspecified Navigation Rivers Harbors Aids to Navigation Internal Navigation Miscellaneous Roads
		??	Distribution
Benefit Taxation	No	0	
Taxless Finance	Yes, big projects	$4,750,000 $6,800,000 $5,250,000	Public Land Funds Cumberland Road Land Grant Equivalents (4,000,000 acres)
Total		$60,152,000	
Other Taxless Finance		$2,000,000 $7,000,000 $30,000,000	First Bank of the United States Second Bank of the United States Union Pacific Railroad

Source: Wallis and Weingast, "Equilibrium Impotence"

Table 7
Model Predictions and State Spending Patterns,
1790 to 1840, from state debt outstanding in 1841

Method	Prediction	Amount	Cases
Normal Taxation	No	0	
Something for Everyone	Yes, but Unlikely Projects are too small	0	Some education and roads
Benefit Taxation	Yes	$53,000,000	Canals and RR, in NY, OH, IN, IL
Taxless Finance	Yes	$53,000,000 $80,000,000	Banks in South Transportation in North
Total		$186,000,000	

Source: Wallis and Weingast, "Equilibrium Impotence"

Table 8
Constitutional Restrictions on State Debts

New Const.		Procedural Restriction	Credit Not Loaned	Short Term Limit	Absolute Limit	Refer- enda	Time Limit	Ways and Means	Single Object	No Repeal
Rhode Island	1842	Y		50,000	N	Y				
New Jersey	1844	Y	Y	100,000	N	Y	35	Y	Y	Y
Louisiana	1845	Y		100,000	N			Y	Y	Y
	1851	Y		100,000	8,000,000			Y	Y	Y*
New York	1846	Y		1,000,000	N	Y	18	Direct Tax	Y	Y
Illinois	1848	Y		50,000		Y		Y		Y
Kentucky	1850	Y	Y	500,000		Y	30	Y		
Michigan	1843	Y				Y			Y	
Michigan	1850	NO II	Y	50,000						
Virginia	1850		Y				34			
Indiana	1851	Prohibited		Prohibited						
Maryland	1851	Y	Y	100,000	100,000		15	Y		
Ohio	1851	NO II	Y							

First Const.		Procedural Restriction	Credit Not Loaned	Short Term Limit	Absolute Limit	Refer-enda	Time Limit	Ways and Means	Single Object	No Repeal
Iowa	1847	Y		100,000	N	Y	20	Y	Y	
	1857	Y	Y	250,000	N	Y	20	Direct Tax	Y	
California	1849	Y		300,000		Y	20	Y	Y	Y
Wisconsin	1848	Y		100,000			5	Y	Y	Y
Florida	1838	nothing								
Amended										
Pennsylvania	1857	Limited	Y	750,000						

Notes:

Constitutional provisions were taken from the text of the relevant constitutions. The texts are available online at Wallis, NBER/Maryland Constitution project or from Thorpe, *Constitutions*.

Procedural Restriction is Yes "Y" if state has some legislature cannot increase debt unilaterally.

"No II" if state cannot issue debt for internal improvements.

Credit Not Loaned is "Y" if state cannot loan credit to private individual or corporation.

Short Term Limit is the dollar limit on "casual debt"

Absolute Limit is limit of the total amount of debt outstanding, regardless of purpose.

Referenda is "Y" if voter approval is required for debt issue (aside from casual debt).

Time Limit is the maximum number of years bonds can be issued for.

Ways and Means is "Y" if a taxes must be provided to service the debt.

Direct Tax is "Y" if a property tax increase must be provided.

Single Object is "Y"s if legislation authorizing debt must be constrained to one object.

No Repeal is "Y" if the laws authorizing taxation cannot be repealed, are "irrepealable."

Table 9
State, Local, and Total State and Local Debt
1841 to 1902

All States	Average State Debt	Average Per Capita State Debt	Average Local Debt	Average Per Capita Local Debt	Average All Debt	Average Per Capita All Debt	N	Level of All Debt
1841	$7,026,311	$14.76					27	$189,710,399
1853	$6,210,578	$8.86					31	$192,527,913
1860	$8,042,312	$8.83					32	$257,353,990
1870	$9,536,936	$11.87	$13,835,629	$12.45	$23,372,567	$24.32	37	$864,784,971
1880	$6,844,233	$5.62	$24,089,003	$15.70	$30,933,237	$21.32	38	$1,175,463,010
1890	$4,717,936	$3.93	$20,484,164	$14.16	$25,202,100	$18.09	44	$1,108,892,382
1902	$5,120,332	$4.85	$35,651,168	$21.11	$40,771,500	$25.97	45	$1,834,717,513
No Restrictions								
1841	$7,026,311	$14.76					27	$189,710,399
1853	$5,385,091	$7.08					16	$86,161,459
1860	$7,733,462	$12.71					15	$116,001,937
1870	$13,486,446	$19.72	$9,363,183	$10.97	$22,849,633	$30.69	15	$342,744,489
1880	$7,915,780	$8.18	$20,696,995	$21.41	$28,612,775	$29.59	6	$171,676,647
1890	$3,901,057	$4.80	$17,921,466	$16.56	$21,822,522	$21.36	6	$130,935,133
1902	$11,918,256	$5.73	$32,523,594	$21.95	$44,441,850	$27.67	6	$266,651,102
Restrictions								
1841	---						0	
1853	$7,091,097	$10.76					15	$106,366,454
1860	$8,314,827	$5.41					17	$141,352,053
1870	$6,844,089	$6.51	$16,885,024	$13.45	$23,729,113	$19.97	22	$522,040,482
1880	$6,643,318	$5.14	$24,725,005	$14.62	$31,368,324	$19.77	32	$1,003,786,363
1890	$4,846,917	$3.79	$20,888,800	$13.79	$25,735,717	$17.58	38	$977,957,249
1902	$4,074,498	$4.72	$36,132,333	$20.99	$40,206,831	$25.70	39	$1,568,066,411

Table 9 Sources:

1841: William Cost Johnson Report
1853: Ratchford, *American State Debts*, Table 9, p. 127 (Ratchford constructed his estimates for 1853 based on the essay on the "History of State Debts" in the 1880 Census).
1860 - 1902: Censuses of 1860, 1870, 1880, 1890, and 1902.

Table 10
Difference in Difference Estimates of the Effect of State Debt Restrictions
1841 to 1860

Average State Debt		1841	1860	Difference
		(1)	(2)	(2) - (1)
Levels of Debt				
No Restriction	(3)	$3,185,239	$7,733,462	$4,548,224
Restriction	(4)	$11,827,651	$8,314,827	($3,512,825)
Difference in Difference	(3)-(4)			$8,061,048
Per Capita Debt	(5)			
No Restriction	(6)	$12.11	$12.71	$0.60
Restriction	(5)-(6)	$18.07	$5.41	($12.66)
Difference in Difference				$13.26

Table 11
State Constitutional Debt and Borrowing Provisions,
1841 to 1890

	Pre-1860 State Debt Measure (1)	Post-1860 State Debt Measure (2)	Local Provisions (3)	Debt Measure (4)	Local Provisions (5)
Alabama	0	2	1	1875	1875
Arkansas	0	0	1		1874
California	1	1	1	1849,1879	1879
Colorado		2	1	1876	1876
Connecticut	0	0	1		1877
Delaware	0	0			
Florida	0	1	1	1868,1875	1868,1875
Georgia	0	2	1	1877	1877
Idaho		1	1	1889	1889
Illinois	1	1	1	1848,1870	1870
Indiana*	2	2	1	1851	1851, 1881
Iowa	1	1		1857	
Kansas	1	1		1859	
Kentucky	1	1		1850	
Louisiana**	1	2	1	1845,1879	1879
Maine*	2	2	1		1868,1878
Maryland	1	1	1	1851,1867	1867
Massachusetts	0	0			
Michigan	1	1	1	1850	1850
Minnesota	1	1	1	1857	1879
Mississippi	0	1	1	1875	1875
Missouri	0	2	1	1875	1875
Montana	1	1	1	1889	1889
Nebraska		2	1	1866,1875	1875
Nevada		2	1	1864	1864
New Hampshire	0	0	1		1877
New Jersey	1	1		1844	
New York	1	1	1	1846	1846, '74, '84
North Carolina	0	1	1	1876	1876
North Dakota		2		1889	1889
Ohio	1	1	1	1851	1851
Oregon	2	2	1	1857	1857
Pennsylvania	1	1	1	1858,1873	1873
Rhode Island	1	1			
South Carolina	0	1	1	1868, '73, '84	1868,1884
South Dakota		2		1889	1889
Tennessee	0	1	1	1870	1870
Texas	2	2		1845, 1876	1876
Utah		2			
Vermont	0	0			
Virginia	0	2		1870	
Washington		1		1889	1889
West Virginia		2	1	1872	1872
Wisconsin	1	1	1	1848	1848,1874
Wyoming		1	1	1889	1889

Notes:

The provision in the table are taken from the Census reports from 1880 and 1890, supplemented by the constitutional texts on the NBER/Maryland Constitution project, www.stateconstitutions.umd.edu.

In the first two columns, states are blank if they are not yet states, (with the exception of Florida in 1841), have a "0" if they have no restrictions on state debt; have a "1" if they have a restriction that limits the procedures by which states can issue debts, typically a referendum; and a "2" if the have absolute dollar limits on debt.

States with local provisions, the third column, are states with some type of restriction or regulation on the issue of debt by local governments.   These range from procedural restrictions, e.g. referendums, absolute dollar limits, and percentage valuation limits.

The dates in column (4) refer to the first year a state adopted a debt restriction or limitation, and subsequent years where significant changes occurred. The dates are not absolutely accurate, in the sense that they do not consider the confederate or reconstruction constitutions in southern states. Several reconstruction constitutions had debt limits which were ignored, and interpreting those limits problematic. The dates in column (5) refer, with the same caveat, to local provisions.

* Indiana and Maine had absolute limit provisions in their constitutions before the Civil War.
** Louisiana wrote constitutions in 1845, 1852, 1861, 1864, 1868, and 1879, as well as 1898 and 1913. The table only refers to the original 1845 provisions and the modifications made in 1875.

Table 12
Regression Estimates
State and Local Debt, 1870 to 1902

Panel A: State

Dependent	Level of State Debt		Per Capita State Debt		Level of State Debt		Per Capita State Debt	
Independent variable	coefficient	st error	coefficient	st error	coefficient	st error	coefficient	st error
Intercept	9,292,359	2,029,667	13.77	2.74	10,161,444	2,165,667	16.53	2.97
State Restriction	(4,905,118)	1,901,064	-7.46	2.56	(4,614,832)	1,964,779	-5.21	2.69
Urban Percent	4,034,493	3,906,331	-4.92	5.27	2,744,200	4,107,100	-0.51	5.63
1880 Dummy					(2,142,993)	2,283,895	-4.77	3.13
1890 Dummy					(4,617,386)	2,231,702	-6.35	3.06
1902 Dummy					(4,674,494)	2,262,138	-5.07	3.10
Population					1,657	631	-0.00	0.00
R2	0.05		0.06		0.12		0.09	
Adj-R2	0.04		0.04		0.08		0.06	

Panel B: Local	Level of Local Debt		Per Capita Local Debt		Level of Local Debt		Per Capita Local Debt	
Intercept	(18,410,000)	7,760,798	4.58	1.83	(26,320,000)	6,323,013	3.39	2.16
Local Restriction	11,064,605	7,098,332	-1.83	1.67	229,460	5,713,277	-2.65	1.95
State Restriction					(3,041,143)	5,884,710	2.09	2.01
Urban Percent	124,420,000	16,214,434	46.20	3.82	73,658,320	11,959,404	47.55	4.08
1880 Dummy					1,829,106	6,822,660	2.55	2.33
1890 Dummy					(8,113,325)	6,798,510	-1.39	2.32
1902 Dummy					(1,665,995)	6,883,020	4.37	2.35
Population					25,005	1,819	-0.00	0.00
R2	0.27		0.49		0.68		0.53	
Adj-R2	0.27		0.48		0.67		0.51	

Table 12
(cont).

Panel C: Total

	Level of Total Debt coefficient	st error	Per Capita Total Debt coefficient	st error	Level of Total Debt coefficient	st error	Per Capita Total Debt coefficient	st error
Intercept	(10,980,000)	9,762,210	19.54	4.22	(15,550,000)	6,960,270	20.68	4.39
Local Restriction	2,506,339	9,354,929	-3.22	4.05	(6,825,340)	6,477,793	-2.09	4.08
State Restriction	5,726,548	8,436,828	-7.82	3.65	(2,470,045)	6,289,083	-6.03	3.96
Urban Percent	127,800,000	17,633,198	40.41	7.63	75,323,769	13,164,718	45.69	8.30
1880 Dummy					623,064	7,510,274	-1.04	4.73
1890 Dummy					(11,620,000)	7,483,689	-6.36	4.72
1902 Dummy					(5,225,603)	7,576,717	0.70	4.78
Pop					26,773	2,002	-0.00	0.00
R2	0.25		0.20		0.66		0.23	
Adj-R2	0.24		0.18		0.65		0.19	