

# **Equilibrium Impotence: Why the States and Not the American National Government Financed Infrastructure Investment in the Antebellum Era**

John Wallis and Barry R. Weingast\*

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## **1. Introduction**

In the antebellum era, American states actively promoted economic development, pouring huge resources into large-scale internal improvements, such as canals, banks and, later, railroads (Callender 1903, Goodrich 1960, North 1961, Taylor 1960, Larson 2001). Indeed, during this period their financial efforts were an order of magnitude larger than the federal government's. Between 1800 and 1860, the federal government spent \$54 million on transportation improvements, while state and local governments spent over \$450 million. Given the modern leadership of national government in virtually all aspects of social and economic policy, the relative absence of federal action for America's first century remains a major puzzle. Further,

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\*Professor, Department of Economics, University of Maryland and Research Associate, National Bureau of Economic Research; and Senior Fellow, Hoover Institution, and Ward C. Krebs Family Professor, Department of Political Science, Stanford University. The authors gratefully acknowledge Douglas Grob and Douglass North for helpful conversations.

during the antebellum era, Federalists and later Whigs consistently proposed policies promoting a greater role for the national government in economic development. Yet, after 1800, these parties failed to attract majority support, while their opponents dominated elections.

A second puzzle concerns federalism. The United States Constitution provided for a national government of limited and enumerated powers. Riker (1964) and others demonstrate that all governments in federal systems have a tendency to encroach on one another's powers. In particular, the central government often overawe's subnational governments, as has occurred in so many federations around the world, including Argentina, Brazil, Germany, India, and Mexico. In modern America, the federal government dominates the states in ways inconceivable during America's first century.

Recent work on federalism suggest that a major puzzle is how the restrictions on each level of government power become self-enforcing in the sense that national and subnational governmental officials have an incentive to abide by them.

Our approach provides an answer to both questions. By explaining why the federal government failed to act in the area of internal improvements, we provide insights into the second question, how the constitutional rules regarding the relative powers of the federal and state governments became self-enforcing. We argue that the striking limits on the national government reflected a national politics of impotence – of many sources of veto groups that prevented national action. The sources of this impotence are several.

To address the first question, we model the political economy of large infrastructure investment. The model has three related results. First, we show that the natural political constraints inherent in majority rule prevented the federal government from financing large

infrastructure projects. These projects provided highly concentrated benefits with diffuse costs, implying that federal financing made most areas of the country worse off. Although logrolling, in principle, might enable several projects to be built at once, in practice the immense scale of these infrastructure investments, such as the Erie Canal or a transcontinental railroad, implied that only a few could be built at once.

Second, we show that for smaller projects, such as building lighthouses and roads or dredging harbors, two separate political forces push Congress toward *universalism*, that is, to assemble large packages of small projects with something for everyone in order to satisfy the majority rule constraint. First, the coalitional politics of these projects push toward universalism (Weingast 1979). Second, we argue that Congress, however, was further constrained by what we term the *exit constraint*, the fear that states would leave the Union if federal policies left them significantly worse off (as the states of the south eventually did leave the Union). Schlesinger (1922), for example, shows that there were secessionist movements in every state at some point during the antebellum era. The exit constraint also imposes a limit on coalition politics. It implies that minimum winning coalitions, especially regional coalitions, are inconsistent with the democratic norms that developed in the early national period. The reason is that such coalitions risk secession by the losers. As a result, the construction of small federal projects involved “something for everyone:” projects built throughout the country, in every state. Universalism emerged as a solution to both the majority constraint and the exit constraint.

Third, we show that “benefit taxation” provides one potential solution to the various political constraints. If the government can tax each locality or state in proportion to the benefits it receives from the project, then regions outside the area benefitting from the project pay no

taxes and thus are not financially harmed by the project. But benefit taxation raises an institutional problem: the Constitution requires that federal direct taxes must be allocated among the states on the basis of population. The Constitution therefore prohibits the federal government – but not the states – from using benefit taxation to finance projects.

The constitutional limit on benefit taxation combines with our first result to imply that the logic of congressional politics implied that the federal government could not finance large projects. In contrast, the states do so using benefit taxation. Indeed, we show that they used this mechanism to solve the political benefit problem at the state level, allowing them to finance far more internal improvements than the national government. We show the persistent differences in the way state and federal projects were financed.

Finally, these results bear on our second puzzle about how federalism – in this context, limits on the national government’s power – became self-enforcing. Our approach shows why the national government remained a government of limited powers: the political and constitutional constraint on national coalition politics prevented the national government’s action on internal improvements, allowing states to finance these projects.

The paper proceeds as follows. Section 2 provides a brief historical background on the policies of the federal government. Section 3 develops the theory of coalition formation and legislative choice, and derives our various results about state and federal legislature policy decisions. Sections 4 and 5 apply these results to the antebellum era’s national and state programs to finance economic development. Section 6 considers the role of constitutional constraints on federal finance.

## **2. The History of Antebellum Internal Improvements**

Internal improvements was one of five areas of federal government activity before the Civil War: military defense and international relations; regulation of international trade and the import tariff; sale of public land and regulation of the western territories; regulation of banking and currency; promotion of internal improvements; and slavery.<sup>1</sup> In defense and international relations the government pursued an active policy throughout the 19<sup>th</sup> century: acquisition of the Louisiana Territory in 1803; the failed invasion of Canada in the War of 1812; acquisition of Florida in 1819 ; annexation of Texas in 1845; the Oregon Compromise with Britain in 1846; the invasion of Mexico and the Treaty of Guadalupe Hidalgo in 1848; the Gadsen Purchase in 1853; and the purchase of Alaska in 1867.<sup>2</sup> Land policy was established in the Land Ordinances of 1785 and 1787. Alexander Hamilton and the Federalists laid out and implemented a policy structure for tariffs and banking in the early 1790s that included a mildly protective revenue tariff and a national bank. Between 1795 and 1836, the federal government did little to change land policy;<sup>3</sup> raised a protective tariff and then repealed it under the threat of nullification in 1832; and chartered national banks in 1791 and 1816 neither of which could get its charter renewed. Slavery in the territories remained completely in the hands of the federal government. But with the exception of fugitive slaves and drawing a line for free and slave territories in the Missouri Enabling Act in 1820 – not to mention considerable debate – the federal government made little explicit policy on slavery. During this period, slavery largely remained in the policy domain of the states. The United States acquired more territory, otherwise the federal government did not move forward in any significant area of policy.

The federal government's failure to build or finance any substantial transportation improvements was not for lack of popular support, presidential willingness, or congressional attention. The \$450 million spent by state and local governments is evidence of popular support, only a few states failed to promote transportation investment at one time or another. Presidents from George Washington through Thomas Jefferson, James Madison, John Quincy Adams, and even Andrew Jackson supported the idea of federal internal improvements. Legislation was constantly before Congress to approve money for a road, a canal, or river and harbor improvements. Curtis Nettels analyzed the votes on 117 pieces of internal improvement legislation considered by Congress between 1815 and 1829 alone.<sup>4</sup>

Goodrich, Larson, Harrison, and many others have tracked the frustrated history of federal attempts to build a national transportation system. They agree on the reason for federal failure: "In the defeat of the federal program, however, the conflicts of state and sectional interests seem to have played a larger part than either the belief in states' rights or any positive faith in the states' capacities. Throughout the debates these rivalries stood in the way of the adoption of specific measures or agreement on a general program. One Maryland congressman declared that Pennsylvania seemed more inclined "to put a mountain in the middle of the Cumberland road than to repair it," ..."<sup>5</sup> Geographic competition was not always sectional rivalry, it was often more neighborly, Maryland, for example, often aligned against Pennsylvania and Virginia. When sectional rivalries dominated the debate, as they sometimes did, it was the rivalry between the east and west that mattered, not the north and south.<sup>6</sup>

Our understanding of federal failure begins with this insight on the importance of geographic competition. The main problem to be overcome in the federal funding of a project,

such as a canal, was the difference in the distribution of the benefits from building the canal relative to the distribution of the costs. We do not propose a different explanation for federal impotence than Goodrich, Larson, or Harrison. We do, however, provide an explanation that explains a great deal more of the details of the kind of transportation legislation the federal government did fund, explains how and why federal internal improvement legislation ended up linked to public land policy, explains the larger pattern of federal financing in banking, and, finally, explains the pattern of state financing of internal improvements as well. Before we get to the details of our framework, allow us to review the history of federal internal improvements.

One approach the history is quantitative. Figure 1 presents federal transportation expenditures by year from 1791 to 1860, in nominal dollars and as a share of all federal expenditures.<sup>7</sup> For comparison, Figure 2 gives federal expenditures per capita in nominal dollars. Figure 3 provides the federal expenditure share for defense and interest, separately and for the two combined. Figure 4 gives federal revenue shares for custom duties, excise taxes, and land sales. Table 1 reports federal transportation expenditure by Presidential administration, both in total nominal dollars, nominal dollars per capita, and as a share of federal expenditures (the latter two averaged over the years in each administration).

What stands out most prominently from these figures is the gradual rise in transportation expenditures, capped by a dramatic increase during the administrations of Jackson and Van Buren. Thirty five percent of all transportation expenditures between 1791 and 1860 were made in the twelve year Democratic administrations of Jackson and Van Buren.

A second element in the figures is the fiscal constraints imposed on the federal government before 1815. Hamilton's financial plan refinanced existing federal obligations and

assumed the debts of the states, a total of \$74 million. The new bonds were serviced out of revenues from an import tariff, excises on spirits, and profits from the post office (devoted to a sinking fund). In the 1790s, interest payments were half of all federal expenditures (Figure 3), and combined interest and defense expenditures more than 80 percent. The remainder of federal expenditures went to simply administering the government, there was no money for anything else. Federal finances began looking better around 1804 and 1805, and as we will see, Jefferson proposed a larger internal improvement program, but the start of the War of 1812 again put pressure on federal finances (Figure 2). Not until the end of the War was it possible to again consider a systematic program of federal works. From 1816 to 1837, federal finances steadily improved, as the debt was paid down, interest payments fell (Figure 3), and revenues rose with the growing volume of international trade. It is perhaps unsurprising that federal expenditures for transportation projects increased over this period, with only one significant set back in the second administration of James Monroe.

The history can also be organized by presidential administration, as is done in Table 2. The table reports whether the President was pro internal improvements, whether the President expressed concerns over the constitutionality of some aspect of federal participation in internal improvements, whether he vetoed a congressional internal improvement bill, and whether the administration generated systematic plans for federal involvement. “Systematic” has particular meaning, since every President signed multiple bills authorizing expenditures for lighthouses, or after 1802 roads and canals, or after 1822 rivers and harbors. Congress regularly passed small bills funding small projects, an important policy that plays a central role in our analysis. The problem was not funding small projects, it was funding large projects.

George Washington was an early and enthusiastic proponent of transportation improvements. He was an organizer, supporter, and promoter of the Potomac Company, a joint venture of Maryland and Virginia.<sup>8</sup> As President, Washington and the federal government were occupied by the ongoing fiscal crisis and could do little in the 1790s to support internal improvements. Later in his life, Thomas Jefferson adamantly opposed federal involvement in internal improvements. But in his second inaugural Jefferson, with the federal government enjoying increasing surpluses as both defense and interest expenditures declined (Figure 3), suggested that “the revenue thereby liberated [from paying off the national debt] may, by a just repartition among the states, and corresponding amendment of the constitution, be applied, *in time of peace*, to rivers, canals, roads, arts, manufactures, education, and other great objects within each state.”<sup>9</sup> In 1807 Congress translated Jefferson’s request into a directive to the Secretary of the Treasury to “prepare and report to the Senate, at their next session, a plan for the application of such means as are within the power of Congress, to the purpose of opening roads and making canals, together with a statement of the undertakings of that nature, which, as objects of public improvement, may require and deserve the aid of the Government.”<sup>10</sup> Gallatin produced his famous report in 1808, laying out a national system of improvements, primarily canals, with nine large projects and several smaller ones, that would connect the entire country, at an estimated cost of \$20 million.<sup>11</sup> But the timing of the Gallatin report was not propitious, the government was on the verge of declaring war with Britain which once again threw federal finances into disarray (Figure 2).

Although Congress did not follow up on any of the Gallatin projects until the 1820s, it did spend money in two other lines of transportation. Table 3 gives Malone’s tabulations of

federal expenditures for transportation by purpose and time between 1800 and 1860. In the first decade of the 1800s, the federal government spent \$193,000 on roads and lighthouses. Road expenditures took two forms. The first, explicitly authorized by the Constitution, was for the construction of post roads. The annual appropriation for post roads quickly became an exercise in pork barrel, log rolling politics.<sup>12</sup> The other road expenditures resulted from the admission of Ohio, the first public land state admitted to the Union.<sup>13</sup> In the Ohio enabling act, the state agreed not to tax federal land and not to tax land sold by the federal government to private individuals for five years after the date of sale. In return for the tax moratorium, five percent of revenues from the sale of land in Ohio went to the construction of transportation projects in or leading to Ohio. Ohio asked that the five percent fund be divided, three percent going directly to the state and two percent to the federal government.<sup>14</sup> The “two percent fund” was earmarked for transportation to Ohio, committing the federal government to build roads to Ohio.<sup>15</sup> Once committed, Congress had to decide how and where to build the road. Immediate concerns about the location were raised. In the end, the Senate appointed a committee that proposed a road leading from Washington, D.C. through western Maryland and the Cumberland gap. The bill passed the House 66 to 50. 38 of the 50 nay votes came from representatives in Pennsylvania and Virginia with alternative routes in mind, an early and clear case of geographic competition.

The return of peace at the end of the War of 1812 created the next opportunity for federal action at the end of Madison’s second term. The charter of the first Bank of the United States expired in 1811. A charter for a new bank passed Congress and was signed by Madison in 1816. The Bank agreed to pay a “bonus” to the federal government of \$1.5 million, and to loan the government \$7 million to purchase its stock (the bank was capitalized at \$35 million). John

Calhoun and Henry Clay proposed that a revolving fund be created to support transportation projects, based on the bonus payments and subsequent dividends on bank stock. The Bonus Bill did not specify any projects, for as Clay stated “He conceived the first and only step necessary to be taken at the present session, was to set apart and make an inviolable pledge of the fund. If we attempt anything beyond this; if we touch the details; if we go into a specification of the objects on which the fund is to be expended, the inevitable effect will be, that we shall do nothing.” (Annals, House, 14<sup>th</sup> Congress, 2<sup>nd</sup> Session, p.866).

Allocating these funds created a dilemma: Calhoun and Clay knew that a debate about where to spend the money would degenerate into a free for all, but a bill that did not specify where the money would be spent could not generate a majority. The bill was amended to allocate the fund between states on the basis of Congressional representation; and so amended, it passed by a bare majority. Unexpectedly, President Madison, in one of his last acts, vetoed the bill, citing constitutional concerns over the power of the federal government to carry out projects within the states.

Madison’s constitutional objections will be considered later. The important element of the Bonus Bill debate was the use of Congressional representation as a solution to the coordination problem. Representatives were unwilling to support the creation of a fund that did not specify where the money would be spent and they were unable to come to an agreement about which specific projects should be funded with the \$1.5 million, but they were willing to divide the money up according to representation based on population. This formula, and another closely related formula that allocated funds directly on population, came to be one accepted way of appropriating internal improvement funds. In 1833, 1836, and 1841 Clay proposed legislation

passed by Congress to fund internal improvements by distributing federal land sales revenue according to a distribution formula. Clay's schemes were unlucky. Jackson pocketed vetoed the 1832 bill, the 1836 distribution went through, and the 1841 distribution was negated by President Tyler.<sup>16</sup>

The administration of James Monroe was troubled throughout its tenure by constitutional debates over the relative power of the federal government. The Missouri crisis posed the greatest immediate danger, but Clay defused the crisis by compromising on the issue of slave and free states by dividing the territory acquired in the Louisiana purchase into slave and free territory and balancing the admission of Missouri as a slave state with Maine as a free state. Appropriation bills for the Cumberland road came regularly before Congress. Proponents and opponents continued to debate the constitutionality and practicality of the road. The debates continued even as Congress admitted Indiana, Illinois, and Missouri all with enabling acts creating internal improvement funds, as in the Missouri Act:

That 5 per cent. of the net proceeds of the sale of lands lying within the said Territory, of State, and which shall be sold by Congress, from and after the first day of January next, after deducting all expenses incident to the same, shall be reserved for making public roads and canals, of which three-fifths shall be applied to those objects within the State, under the direction of the legislature thereof; and the other two-fifths in defraying, under the direction of Congress, the expenses to be incurred in making of a road or roads, canal or canals, leading to the said State.<sup>17</sup>

The inclusion of the two percent fund in the Enabling Act for Missouri, passed by Congress and signed by Monroe, clearly indicated a legitimate and constitutional role for the federal government in transportation improvements. But when Congress passed "An Act for the preservation and repair of the Cumberland road" which allowed the federal government to erect toll booths and collect tolls dedicated to repairing the road, Monroe vetoed it.

“The power to establish turnpikes with gates and tolls, and to enforce the collection of tolls by penalties, implies a power to adopt and execute a complete system of internal improvement. A right to impose duties to be paid by all persons passing a certain road, and on horses and carriages, as is done by this bill, involves the right to take the land from the proprietor on a valuation and to pass laws for the protection of the road from injuries, and if it exists as to one road it exists as to any other, and to as many roads as Congress may think proper to establish... This power[s] can be granted only by an amendment to the Constitution and in the mode prescribed by it.”<sup>18</sup>

Monroe’s veto seemed to slam the door on federal funding for internal improvements. In a 25,000 word message sent to Congress on the same day, he explained why he felt federal support for internal improvements could not go ahead without a constitutional amendment.<sup>19</sup> Monroe’s concerns were reflected in low appropriations in 1821 and 1822. But then, reversing his main position, Monroe indicated in his seventh annual message to Congress (December 1823) that

Connecting the Atlantic with the Western country in a line passing through the seat of the National Government, it [a canal from the Chesapeake to the Ohio River] would contribute essentially to strengthen the bond of union itself. Believing as I do that Congress possess the right to appropriate money for such a national object (the jurisdiction remaining to the States through which the canal would pass), I submit it to your consideration whether it may not be advisable to authorize by an adequate appropriation the employment of a suitable number of the officers of the Corp of Engineers to examine the unexplored ground during the next season and to report their opinion thereon. It will likewise be proper to extend their examination to the several routes through which the waters of the Ohio may be connected by canals with those of Lake Erie.<sup>20</sup>

Monroe officially opened the door to federal support, as long as the project served a “national object.” Later in 1824, Congress took up his suggestion and passed the General Survey Bill, authorizing the Corp of Engineers to locate, survey, and site potential canals and other improvements. When John Quincy Adams won the contested election of 1824, it appeared that the moment for a federal system of internal improvements had finally arrived.

This is almost what happened. In his first message to Congress, Adams called for a

system of federal improvements. Expenditures on transportation increased sharply, and Adams was able to persuade Congress to extend land grants to aid states in the building of canals in Indiana, Illinois, Ohio, and Alabama and with stock subscriptions to the Chesapeake and Delaware canal and the Chesapeake and Ohio canal.

Despite his successes, Adams failed to put into place a coordinated system of improvements. Faced with a President who would sign, not veto, internal improvements bills, Congress failed to come up with legislation along the lines of the Gallatin plan, or even to implement the results of the systematic surveys begun under Monroe. Larson calls what ensued “a scramble for preferment,” a political free for all in which every state and interest insisted on its own “national object.” In the debate over another Cumberland Road bill in 1825, McClane of Delaware lamented that “The friends of the cause create impediments, of which its opponents take advantage.... We are forbidden to exert our new power in one part of the country, unless we employ it in every other.”<sup>21</sup> The problem was the same that plagued Calhoun and Clay in 1816: states would only support a systematic bill if their slice of the pie was guaranteed up front.

Adams won the election of 1824 over Jackson in the House of Representatives, despite Jackson’s plurality in the popular and electoral vote. Jackson and his allies began the 1828 campaign for President in 1824. Counting Calhoun and Van Buren among his chief lieutenants, Jackson’s congressional supporters began staking firmly staking out the old constitutional ground that federal involvement in transportation projects within states was unconstitutional. These lieutenants provided the opposition leadership in Congress that took advantage of the disarray created by the selfish interests of the friends of internal improvement.

Jackson’s election in 1828 set the stage for a retrenchment in internal improvements.

Nonetheless, what followed was more complicated. As Figure 1 and Tables 1 and 3 show, federal transportation expenditures were never higher than in the administrations of Jackson and Van Buren. Yet when a series of appropriation bills were sent to Jackson in 1830 – including one for the Maysville road, totally within the boundaries of Kentucky and the route home for Henry Clay, Jackson’s arch rival – Jackson vetoed the bill as unconstitutional. This was a brazen case of political *obiter dicta*, there were ample precedents for the Maysville appropriation and it could easily be made to fit into Monroe’s national object criteria. But Jackson’s veto announced his direct opposition to systematic development of federal improvements. Jackson was successful. As Goodrich wrote:

Referring to internal improvements in his Farewell Address, Jackson boasted that he had “finally overthrown... this plan of unconstitutional expenditure for the purpose of corrupt influence”; and the Era of National Projects may be thought of as ending in his administration...

... the negative decisions, though never officially stated in precise terms, were in their broad lines unmistakable. The national government might aid transportation in various ways which returned no direct income, but it must refrain from building revenue-producing public works. It was not to construct roads and canals on which tolls were to be collected. It was not to subscribe to the stock of improvement companies. Most certainly, it was not to undertake the burden and the responsibility of a comprehensive and scientifically planned system of national improvements.”<sup>22</sup>

How do we reconcile the end of the era of national projects under Jackson with the enormous increase in transportation expenditures in his administration? The key is to ask how and what transportation was funded, not how much. As Malone’s figures in Table 3 show, the majority of federal expenditures were for rivers, harbors, and aids to navigation. These expenditures were typically “small” projects of \$100,000 or less. Even the Cumberland Road, which ultimately cost the federal government \$7 million, was funded through an ongoing series of small appropriations to build or repair specific sections of the road. The largest appropriation

for a single project was the \$1.5 million stock subscription to the Chesapeake and Ohio canal.

### **Implications**

The main implications of this history are fourfold. First, every President from Washington to John Quincy Adams supported the idea of a large system of federally planned and financed improvements. Jefferson, Madison, and Monroe felt that a constitutional amendment was necessary to carry out a national plan, but they were in favor nonetheless.

Second, Congress failed to produce an integrated national plan, neither when presented with Gallatin's proposals nor Adams's willingness to cooperate. The states represented in Congress failed to set aside their individual interests long enough to create a national system.

Third, Jackson's political genius was at once to embrace the small and reject the large. He was the first President to oppose an integrated, federally planned system. His opposition cost him ideological support from a wide spectrum of politicians and citizens who wanted a more active and responsible federal government, the core group of what became the Whig Party. But Jackson's support of the small project won him the day to day political support of state and local politicians who found that the doors to the federal treasury were open as they never had been before. In this, it did not hurt that Jackson was President during the fiscally flush early 1830s. Jackson embraced Goodrich's "rivalries [that] stood in the way of the adoption of specific measures or agreement on a general program" and Larson's "scramble for preferment."<sup>23</sup>

Fourth, the discussion shows that we need an understanding of representative democracy as practiced in early nineteenth century America that makes appropriate distinctions between small and large, explaining why the national government could finance large numbers of small

projects while failing to finance the largest and arguably the most valuable ones. Although our paper explains why the federal government spent so little on internal improvements, that is not its primary purpose. Our answer is the same as already provided by Harrison, Goodrich, and Larson. Instead, we start with the knowledge that a federal system of internal improvements failed because states could not agree among themselves how to divide up federal funds. We build on that insight to develop a model of constitutional democracy and see how that predicts and explains the financial choices the federal government did make.

### **3. A Theory of Legislative Choice and Infrastructure Investment**

We turn to the theory of legislative choice to understand the three phenomena to be explained: the federal government's inability to promote economic development through financing large infrastructure projects; its ability to finance many small projects, such as lighthouses and rivers and harbors; and why the states were not plagued by the same problems.

Today we think of the president as the national leader, including the source of most major legislative initiatives. Yet this is a modern phenomenon, the product of the twentieth century. In the nineteenth century, Congress was at the center stage of national legislation. All the famous compromises that revised aspects of the American national framework and helped sustain the United States were negotiated and written in Congress, including those of 1820, 1833, 1850, and 1877. We begin with expenditure policies, that is, those policies which seek to spend revenue in various ways across the country. Important policies in this category include building

transportation links – roads, canals and, later, railroads – post offices, rivers and harbors projects, such as dredging rivers and harbors and providing for lighthouses.

The model applies to both the federal and state governments, so we talk about generic legislatures and districts, rather than states, districts, or counties. Both Congress and state legislatures are geographically oriented.<sup>24</sup> Because legislators are elected from specific geographic constituencies their electoral incentives force them to concern themselves about the incidence of policies on their district. Although national or statewide interests matter, it is primarily the effects of policies on their district that determine whether a given member favors a policy (Stewart 2002).

Consider an expenditure policy to provide a public good,  $(x) = (P_1(x), P_2(x), \dots, P_n(x))$  where  $n$  is the number of districts,  $(x)$  is a public policy, and the  $P_i(x)$  represent the incidence of the policy on district  $i$ .<sup>25</sup> The various functions are written as a function of  $x$ , which can be considered as a scale or scope factor that reflects the size of the policy.

$P_i(x)$  can be broken into the benefits,  $b_i(x)$ , and costs,  $c_i(x)$ , where  $P_i(x) = b_i(x) - c_i(x)$ . We assume that the benefits are concave and the costs are convex as a function of  $x$ ; that is,  $b_i > 0$ ,  $b_i < 0$ , and  $c_i > 0$  and  $c_i > 0$   $i$ .

The total net social benefits for the state is represented as:

$$E(x) = \sum_i P_i(x) = \sum_i (b_i(x) - c_i(x)).$$

The economically efficient policy,  $x^*$ , is such that at  $x^*$ ,  $E = 0$  and  $E < 0$  so that at  $x^*$  the marginal net social benefits are zero; i.e.,  $\sum_i (b_i(x) - c_i(x)) = 0$ . Legislative outcomes are unlikely to meet this criteria, however.

Let  $C = \sum_i c_i(x)$  be the total costs of the project, and let  $T$  be the total taxes needed to

finance the project. We assume a balanced budget constraints, so that  $T = C$ . Further, district  $i$ 's tax share is  $t_i$ , so that its tax share for a particular project is  $t_i C$ .

District  $i$ 's legislator's objective function is  $P_i(x) = b_i(x) - t_i C(x)$ .<sup>26</sup> Legislators consult only their own objective function, ignoring the effects of the project on other districts, and hence the project's social implications. When choosing between two projects, or between building a particular project and not, each legislator supports the alternative that provides them higher net benefits. Moreover, we assume a convention about indifference: if a legislator's district bears no costs for a project, she votes in favor even if her district receives no benefits.<sup>27</sup> It is clearly costless for such a legislator to do so.

Legislatures are constrained in two ways. First, passage of individual legislation is only possible if a majority of legislators benefit from the proposed legislation.<sup>28</sup> This "majority rule" constraint applies to individual pieces of legislation. Logrolling makes it possible to fund individual projects (as opposed to legislation) that benefit a minority of legislators, as long as the project is paired with enough other projects that a majority of legislators receive positive net benefits from the entire package. For simplicity, the majority rule constraint requires that all of the necessary logrolls be bundled into one bill.

The second constraint applies to all of the legislation passed by the legislature. In aggregate, every individual legislator (district, county, or state) must receive positive net benefits from the sum of all legislation passed, or that geographic unit will "exit." The exit constraint requires, for  $j$  policies and  $i$  legislative districts that

$$P_{ij}(x) > 0 \text{ (summed over } j \text{ policies, } i \text{ )}.$$

The exit constraint requires that no district is hurt, on balance, by the aggregate actions of the

government. We will return to consider the historical relevance of both the majority and the exit constraint later.

Legislatures must make simultaneous decisions about the size of the project, the allocation of benefits across districts, and the allocation of tax burdens across districts. We characterize four general solutions to the problem: normal taxation, benefit taxation, taxless finance, and something for everyone. These categories are not mutually exclusive, nor are they exhaustive, but they give us a framework to discuss the choice set facing state legislatures in the early 19<sup>th</sup> century. We continue to consider one big project, like the Erie canal.

**A. One large project: Normal taxation.** Large projects have several relevant characteristics. First, they require very large expenditure relative to the budget, implying that at most only one or two such projects can be built at once. Second, these projects concentrate the benefits in a small geographic area while spreading the tax costs across the entire state. This implies that some districts receive large benefits relative to their tax cost:  $b_i(x^*) > t_i C(x^*)$ ; but many districts receive no benefits while bearing their tax cost:  $P_i(x) < 0 \quad x > 0$ , since  $b_j(x) = 0$  while  $t_j C(x) > 0$ .

The concentration of benefits in a few districts implies that most receive no benefits but bear costs. These districts naturally prefer not to build the project. The majority rule constraint implies that no project is built. The size of the project makes it impossible to find enough logrolling options to compensate districts that do not gain from the large project. Even if it is possible to find a project that benefits a majority of districts, a simple majority fails to meet the exit constraint. In short, it is difficult for government to build a large, expensive, geographically concentrated project through normal taxation.

“Normal” taxes are the general revenue instruments already in use by the government. In the case of the federal government in the early 19<sup>th</sup> century, financing expenditures by normal taxation involved raising more revenue from import duties.

**B. One large project: Benefit taxation.** The first result assumed that the financial costs of the project were spread across the state through general taxation. Suppose instead that the project could be financed by a tax scheme, *benefit taxation*, whereby district  $i$ 's tax share is a function of the benefits it receives from the project.

Let the  $B(x) = \sum_i b_i(x)$  be the project's total benefits. Define a *benefit taxation scheme* so that  $t_i = b_i/B$ . Under this tax scheme, districts that receive no benefits from the project also pay no taxes regardless of the project's total cost:  $b_i = 0$  implies that  $t_i = 0/B = 0$ . Districts pay their share in taxes in proportion to the benefits they receive.

As long as the project's total benefits exceed the total costs ( $B > C$ ), each district with positive benefits also has positive net benefits after paying their tax share.<sup>29</sup> Thus, assuming that representatives who are indifferent to the project – including legislators whose districts receive no benefits but also incur no costs – vote in favor of the project, every legislator (weakly) favors the project, so it will pass. In contrast to the case where projects are financed out of general revenue, benefit taxation implies that, even in the case of a large project like the Erie canal, most districts receive no benefits and incur no costs, and so can costlessly support the project.

The widespread use of the property tax provided states with a potential mechanism for creating a benefit tax. If the value of transportation improvements is capitalized in land values, and property taxes are used to fund construction, it may be possible for every district to, at worst, be indifferent to the large project. The use of benefit taxation to finance a single large project

simultaneously satisfies the majority and exit constraints. The central problem with a single large project is the inability to balance off the losses to districts that do not benefit from the project because the state is unable to afford multiple large projects. Benefit taxation solves that problem. The Constitution explicitly prohibited the federal government from using benefit taxation: “Representation and direct taxes shall be apportioned among the several States which may be included in this Union, according to their respective Numbers...” (Article 1, Section 2).<sup>30</sup>

**C. One large project: Taxless finance.** There are several alternatives to financing a project through taxes. We consider three financing schemes that share a common element: building the project does not entail raising current taxes, thus *taxless finance*. We might also call these schemes contingent tax finance, since two variants involve the assumption of a contingent liability by taxpayers.

Suppose the canal is expected to generate a stream of toll revenues, but requires government assistance in the form of eminent domain, limited liability, or some other privilege.<sup>31</sup> Private entrepreneurs may be willing to privately finance the project in exchange for a corporate charter granting these privileges. The value of the charter could be enhanced by granting the owners exclusive rights or other privileges. In return for the grant of special privilege, the government acquires an ownership interest in the private company.<sup>32</sup> Public grants of monopoly were common in 18<sup>th</sup> and early 19<sup>th</sup> century Britain and the United States, as was state ownership of private company stock. This scheme requires only that some districts benefit from the charter, as no additional taxes are raised.<sup>33</sup>

Of course, the first variant of taxless finance requires that private owners raise capital themselves. In antebellum America it was difficult to use this mechanism alone to finance large

transportation projects.<sup>34</sup> A second variant of taxless finance used the good faith and credit of the government to secure operating capital by issuing bonds. The government then invested the borrowed funds in the private corporation by purchasing stock. Expected dividends from the government's investment would cover the government's interests costs. Taxpayer's liability in this case was contingent on the success of the project. If the project succeeded, the government received a steady flow of dividends, net of interest costs, and taxpayers paid lower taxes. If the project failed, the government and its taxpayers would assume the debt service.<sup>35</sup> The First and Second Banks of the United States were financed in this manner.

Sometimes projects were so large that private entrepreneurs could not be found. A third variant of taxless finance was for the government to construct and operate the enterprise itself. In this case, the government borrowed sufficient funds to cover both building the project and the interest charges in the early years of the project before revenues were expected to materialize. Of course, borrowing funds left taxpayers with a contingent liability – if *ex post* the project failed to generate sufficient revenues to cover the costs of the bonds, taxpayers had to pay the difference in proportion to their tax share. This type of taxless finance was common at the state, but not the federal level in the early 19<sup>th</sup> century. It was, however, used by the federal government to finance intercontinental railroads in the 1860s.

Taxless finance works politically because of the implicit benefit received by all districts. Current taxes may not rise, but taxpayers do assume an expected, contingent liability:

$$CL_i = t_i C(x)(1-s)$$

where  $s$  is the *ex ante* probability of project success. If the project fails *ex post*,  $CL_i$  will be positive for all districts. Note that  $P_i(x)$  is negative for any districts who receive no immediate

benefits, i.e. for whom  $b_i(x) = 0$ . A taxless finance scheme that does not provide benefits to all districts, *ex ante*, will have a negative expected value to a majority of districts and will not be supported:

$$P_i(x) = b_i(x) - t_i C(x)(1-s) < 0 \quad (\text{ i where } b_i(x) = 0).$$

Taxless finance does not work that way, however. All three variants propose that the project will return money to the state treasury, either in the form of dividends on the government's investment in the private corporation or in the form of toll revenues or profits. If  $M$  represents the potential profit of the enterprise to the government, then the calculation of net benefits for each district becomes:

$$P_i(x) = b_i(x) + t_i M(s) - t_i C(x)(1-s).$$

That is, each district expects its taxes to go down by  $t_i M$  if the project is successful. The critical issue for districts who do not benefit directly from the canal, districts where  $b_i(x) = 0$ , is whether  $t_i M(s) >> t_i C(x)(1-s)$ . Taxless finance works politically because it promises every district that its taxes will be lower if the project succeeds.<sup>36</sup>

As with benefit taxation, taxless finance can simultaneously satisfy the majority constraint and the exit constraint.

#### **D. Many projects: Something for Everyone.**

We have placed emphasis on single large projects because of their relevance for state transportation investments in the 1830s. But the development of small transportation projects was particularly relevant for federal investment. Consider a legislature facing decisions over a range of projects, each with concentrated local benefits and paid for through general taxation.<sup>37</sup>

For simplicity, we assume that each legislator has one possible project; and that each project

benefits her district and her district alone.<sup>38</sup> Moreover, assume that each project is small relative to the budget, so that there is no problem financing many or all at the same time. Suppose that the benefits to each district from its project are  $b$ ; that these are identical across districts, as are all the costs,  $c$ ; and that each district pays an equal tax share of  $1/n$  of the total costs.<sup>39</sup>

Legislators now consider bundles of projects. Given each legislator's preferences, the ideal bundle of projects is simple to characterize. Each legislator receives positive benefits only if the project for her district is built. Building any or all other projects merely raises the district's taxes. So each legislator's ideal policy is to build her project alone. Unfortunately any legislation of that type will be defeated by a vote of  $n-1$  to  $1$ , with only the legislator benefitting voting in favor. Legislators therefore have an incentive to create bundles of projects though logrolling.

When a majority party exists, it might finance expenditures in its districts but not in those of their opponents. Suppose that the majority party holds  $m$  seats in the legislature, where  $(n+1)/2 < m < n$ ; and the minority party holds  $n-m$  seats. If each legislator has a project to build in her district and the majority party finances only those in districts they represent, the total number of projects is  $m$ ; the net benefits to each district represented by the majority are  $b - (m/n)c$ ; and the net benefits to each district represented by the minority party are  $-(m/n)c$ . The problem with partisan coalitions is the exit constraint. A majority party that votes beneficial projects only to the districts it controls, necessarily imposes net costs on the districts it does not control, violating the exit constraint.

As an alternative, the legislature might choose a policy of universalism, or *something for everyone*. The legislature builds a project in each district.<sup>40</sup> The intuition is simple. Suppose that spending is allocated among districts by some formula or rule of thumb (such as equal grants

per capita). Grant shares to individual districts are given by  $g_i$

$$P_i(x) = b_i(g_i x) - t_i C(x).$$

Further suppose that at an arbitrarily small amount of spending,  $x$ , produces net benefits for all districts:

$$P_i(x) = b_i(g_i x) - t_i C(x) > 0 \quad \forall i.$$

Now the only problem facing the legislature is how much to spend. If the exit constraint is binding, expenditures will increase until the first district receives no net benefits. If the exit constraint can be eased by logrolling, then expenditures can increase further.

A simple virtue of something for everyone policies is that the same formula can often be used to allocate taxation and expenditures. For example, the constitution constrains the federal government to allocate direct taxes according to population. Direct taxes could be raised to finance expenditures and funds could be divided between states according to population. It is important to note, however, that the  $t_i$  and  $g_i$  need not be the same. They only need to be known.<sup>41</sup>

### **E. Legislative Choices**

As noted, governments could finance investments in transportation and finance in four ways. Building a canal or bank with limited geographic benefits was politically infeasible using normal taxation. Too many geographic interests obtained nothing except the prospect of higher taxes. Building financial and transportation infrastructure with something for everyone policies was politically feasible, but fiscally impossible if the projects were large. New York could not afford to build an Erie Canal to every county. Something for everyone policies required equal, or close to equal, allocation of funds to every district. Small projects were politically feasible, but

in the end did not develop an interregional transportation system.

A large canal or bank investment could be made with benefit taxation or taxless finance. Benefit taxation worked very differently from taxless finance, however. Benefit taxation required that taxes be raised simultaneously with the onset of construction and borrowing. Taxless finance allowed taxpayers to assume a contingent tax liability, one that would only be assumed in the event the project failed. Both benefit taxation and taxless finance held out the promise of significant benefits.<sup>42</sup> The constitutional restrictions placed on federal direct taxation made it difficult, if not impossible, for the federal government to use benefit taxation. We turn next to the policies used by federal and state governments to finance investment between 1790 and 1860.

#### **4. Federal Internal Improvement Finances**

The framework identifies four ways the federal government could have used to finance internal improvements: financing large projects, one at a time; financing many small projects; using benefit taxation; and using taxless finance. Table 4 presents the model's predictions about each method; the amounts actually spent by the federal government under different financing methods; and a brief description of the major projects for each mode of financing.

Our framework's main prediction is that the federal government will not finance transportation projects with normal taxation or benefit taxation, but will use something for everyone and taxless finance. This prediction is borne out. In total, 97 percent of all federal

transportation expenditures were financed in using these two methods. The government financed 68 percent using something for everyone schemes. Rivers and Harbors bills were the main legislative vehicle for funding these improvements. Exhibit 1 presents the first omnibus “Harbors and Rivers” bill, HR 192, from 1826. The bill funds 19 projects (depending on how projects are counted) in eight states. All of the projects were small, and as was usually the case, individual bills embodied logrolling within one piece legislation.<sup>43</sup>

The national government financed another 28 percent of expenditures with taxless finance. The use of public land funds (the 3 percent funds that went to states), the Cumberland Road appropriations (much of which came from the 2 percent funds), and the direct grants of land to states like Indiana and Illinois for support of their canals are all treated as taxless finance schemes.

The motivation behind land grants was explicitly fiscal. The original 5 percent fund in Ohio was designed to raise land values and speed land sales in Ohio by lowering the cost of transportation to and from Ohio. If the federal government lowered transportation costs to the west, it could sell public lands at a higher price. The following is from the *Congressional Annals* report of the debate to grant land to Indiana for a canal between the Wabash and Miami rivers in 1824:

MR. TEST contended, that giving a mile on each side of the canal did not violate the terms of the cession more than 90 feet – it was in the spirit of that cession, because it enhanced the value of all the rest of the lands ceded [by Virginia]. Unless this land was given, Indiana would be unable to effect the object. This was the only opportunity, at once, of giving timely aid to the canal, and of enhancing the value of the public lands... MR. BROWN, of Pennsylvania, thought that, if the canal would so greatly enhance the value of the public lands, it would be better for the United States to make the canal than to give all the benefits to Indiana. The calculation was, that the canal would cost only \$300,000, and they asked land to the value of \$500,000. He for one would never consent

to give it.<sup>44</sup>

Land grant schemes depended on the expectation that the value of public land near the improvement would rise. Indiana was given about 500,000 acres of land, worth about \$625,000 at \$1.25 per acre. If other land prices in Indiana did not rise, then taxpayers in the rest of the country had given up \$625,000 in potential revenue. There is little doubt that the expectation that a canal would raise Indiana land values was justified, *in principle*. When Indiana began working on its canals in earnest in 1836, land values in the states rose from \$5 to \$9 an acre, with the largest increases concentrated in counties along canal routes.<sup>45</sup> Had revenues from the 10,000,000 acres of public land in Indiana risen by an average of \$4 an acre because of the land grant, the grant would have paid for itself many times over. Unfortunately, higher land values did not translate into higher land prices at federal land auctions, in Indiana or elsewhere after 1820. Public land sold for a minimum of \$1.25 an acre. The actual price was the minimum price: average land sale prices were right around \$1.25 from the 1820s up to the 1860s. Over 4,800,000 acres of federal land were sold in Indiana in 1835 and 1836 alone, but for an average price of \$1.25 acre. As Gates documents, transportation proponents always argued that land grants to canals, and later railroads, would raise land values. But those increases never materialized.<sup>46</sup> Land grants were *ex ante* taxless finance schemes that turned out, *ex post*, to cost federal taxpayers lost land revenues. This was a lesson Congress was quick to forget, however. In the 1860s it made large land grants to the Union Pacific and Central Pacific railroads, only to find that land sales did not justify the grants.

Financing transportation expenditures through normal taxation was possible on occasion. In the Adams administration, Congress appropriated funds to purchase stock in the Chesapeake

and Delaware and Chesapeake and Ohio canals, as well as other smaller canals. Table 4 credits the \$1,917,000 spent on canals entirely to normal taxation. These appropriations were made during the Adams administration, under the President most actively trying to build internal improvements. By comparison, the State of New York spent \$7,000,000 to build the Erie Canal between 1818 and 1825. Normal taxation was possible, it just did not amount to much.

The entry in the table for “Distribution” requires further explanation. Recall the 1816 Bonus Bill. The Bank had paid a \$1.5 million dollar bonus, plus a loan to the government of \$7 million to purchase bank stock. Clay and Calhoun proposed “That the United States’ share of the dividends of the National Bank, and the Bonus for its charter, be and the same are hereby set apart and permanently pledged as a fund for constructing roads and canals; and this it be subject to such specific appropriations, in that respect, as Congress may hereafter make.”<sup>47</sup> Clay and Calhoun knew that “A bill filled with details would have but little chance of passing. The enemies to any possible system in detail and those who opposed it in principle, would unite and defeat it.”<sup>48</sup> Calhoun’s introductory remarks when the bill was presented in the House emphasized the need for a system of roads and canals, a coordinated system throughout the country. But an openhanded grant of \$1.5 million to an unspecified fund was too much for the House. Robertson of Louisiana “... was unreasonable enough to wish to know some such facts as these: where and when and by whom were these roads and canals to be made; who was to have the care and management of them?” Robertson “...concluded his remarks by offering an amendment, directing that the fund should be distributed among the several States according to their representation, to be applied by them to such objects of improvement as they might think proper.”<sup>49</sup> The bill, as amended, eventually passed by a narrow majority but was vetoed by

Madison. We will return to the rationale for Madison's veto later.

The Bonus Bill established two important precedents. First, Congressional support for a system of internal improvements was possible if the formula for allocating funds within the system was explicit. Second, it tied the name and reputation of Henry Clay to the notion of "distribution." In November of 1806, the then 29 year old Henry Clay was elected by the Kentucky legislature to serve out the remaining few months of John Adair's Senate term.<sup>50</sup> Clay came to Washington for a few months, with no hope of further federal office. Clay nonetheless began politicking, supporting federal legislation to build a canal around the falls of the Ohio at Louisville, a matter of great importance to his constituents. Clay saw his chance in an alliance with James Bayard of Delaware, who wanted federal support for the Chesapeake and Delaware canal. Ironically, John Quincy Adams, who did more to promote internal improvements than any President, rose in opposition to the canal when it came to the Senate floor. Adams accused the bill's supporters of log-rolling, and called for a systematic and scientific study of a national system. Although Adams was voted down that day, his motion eventually passed, and so Congress requested what would become the Gallatin report.<sup>51</sup>

Clay was chosen to fill out another unexpired Senate term in 1810, and later that year was elected in his own right as a Representative. Clay was a gifted orator and a legislative genius whose ability to find the legislative middle ground was legendary.<sup>52</sup> He brokered the Missouri Compromise in 1820, the settlement of the Nullification Crisis in 1833, and the Compromise of 1850. Clay's skills as a wheeler and dealer gave him power in Congress, but hurt his public image. Adams had excoriated Clay and his fellow logrollers in 1807 for doing exactly what Clay was good at: cutting deals. His career in Washington became inextricably tied to Adams in the

election of 1824, when the “corrupt bargain” put Adams in the White House with Clay’s support. The Bonus Bill distribution scheme provided a transparent way for Clay to promote internal improvements, a central element in his American system, without descending into the messy business of logrolling. Distribution by formula gave something to everybody, neatly achieved the legislative compromise Clay sought, without appearing to privilege one state or geographical region over another.

Federal land policy began in the 1780s with a desire to quickly transfer land from the government to the private sector and, at the same time, help the federal treasury. The public lands were held in trust for all the states, as the Virginia cession mandated “according to their usual respective proportions in the general charge and expenditure.” But to western states, the conditions of statehood and structure of federal policy seemed like a cruel joke. The original states came into possession of all the land within their borders at independence, and enjoyed the fiscal security that came with a taxable base of landed wealth. The typical western state had almost no land within its border that it could tax, as most land in public land states was unsold at the date of statehood. Worse, the tax moratorium prohibited states from taxing land for five years after its sale to private individuals, further limiting their access to the only economically valuable, taxable, immobile asset on the frontier.<sup>53</sup> Eastern states, on the other hand, viewed the vast public domain as their patrimony. Western states sought lower land prices and federal policies to encourage the rapid in migration of population from the settled east. Eastern states consistently opposed policies that made it cheaper and easier to settle in the west. After the reapportionment following the 1820 census the western states were numerically strong enough to act independently in both the House and the Senate, but not strong enough by themselves to

command a majority.<sup>54</sup>

But the west itself did not have a unified land policy. The proponents of the two leading western policies were Clay and Benton of Missouri. The west wanted more rapid settlement of public land. Benton proposed to give them that through “graduation:” a gradual reduction in the price of land from the minimum price of \$1.25 according to how long the land had gone unsold at public auction. Clay proposed making public land more attractive by financing internal improvements and lowering transportation costs to the west. His scheme was to earmark land sales revenues for internal improvement investment, and then distribute land sales revenues to all of the states on the basis of population, or on the basis of Congressional representation, with an extra share going to state in which the land was sold. A series of proposals were made in Congress in the 1820s, although none came to a vote.<sup>55</sup> In 1832, Clay proposed a distribution plan allowing every public land state to keep 10 percent of all land sales revenue (net of administrative costs), over and above the 5 percent fund already set aside for transportation. The remainder of the land sales revenues were to be divided between all states on the basis of population. Clay’s bill passed the Senate, but failed in the House.<sup>56</sup>

Then, in the fall of 1832, South Carolina voted to nullify the federal tariff, creating a crisis. Clay resolved the crisis by engineering the Compromise of 1833. The compromise had three elements: Congress passed the Force bill, giving Jackson the authority to use force to collect the tariff; it passed a new tariff bill in which the tariff of Abominations, passed in 1828, would gradually be reduced over the next ten years, saving South Carolina pride and allowing them to claim victory; and it passed a distribution bill, distributing 12½ percent of net land sales revenues to the state in which the land was located, and the balance to all states on the basis of

population. All three bills passed Congress by March 2 and on March 3 Congress adjourned. President Jackson signed the Force and tariff bills, but left Clay's distribution bill unsigned, a pocket veto.

Clay felt betrayed. The loser in the 1832 election to Jackson, he put aside his personal feelings for the good of the country; crafting a compromise that solved the Nullification crisis and saving Jackson's Presidency. In return, Jackson vetoed Clay's distribution bill. In Jackson's second term, Jackson's Democrats and Clay's Whigs crystalized as political parties around a series of economic issues: federal regulation of banking and currency, the tariff, public lands, and federal support for internal improvements. Jackson did not back away from supporting transportation projects (Table 1), but he adamantly opposed any federal "system" based on the systematic construction of large internal improvements.

Clay and the nascent Whigs were first and foremost anti-Jackson, and the initial Whig platform was active federal promotion of economic development in banking, tariff, lands, and internal improvements. The only federal system of internal improvements that could possibly pass Congress was something for everyone. Distribution of federal land revenues to support internal improvements became a pillar of Whig policy. What is striking about internal improvements in the 1830s is that both parties supported increased expenditures and both parties realized that something for everyone finance was the only political means of financing them. The Democrats chose to continue the existing policy of financing small projects in omnibus bills, while the Whigs chose (perhaps by default) to promote a system of improvements financed by distribution.

Distribution did not die in 1833. Had Jackson signed the Distribution bill in 1833, the

\$25 million in land sales in 1835 and 1836 would have been distributed directly to states, rather than sitting in federal deposits in state banks.<sup>57</sup> Clay pushed another distribution act in 1836 that passed the Senate, but failed again in the Democrat-controlled House. Two days later, Calhoun devised a surplus distribution scheme that avoided constitutional objections by distributing the surplus as unconditional loans to the states. “Everyone understood that the deposit [the surplus was to be “deposited” with the states according to Congressional representation] would never be returned and was, in fact, a gift. But Calhoun’s amendment neatly sidestepped the constitutional objections to distribution, and in disentangled the problem of the Treasury surplus from that of public lands.... ‘An Act to regulate the deposits of the public money,’ including a modification of Calhoun’s proviso, passed the Senate easily, Benton among its six opponents.”<sup>58</sup> The \$27 million actually distributed in 1837 is not included in Table 4, as there was no requirement that the states spend the money on transportation, but were it included, something for everyone finance would rise from 69 percent to 79 percent of all federal transportation expenditures.

Clay and the Whigs got one more crack at distribution when the country elected William Henry Harrison as President in 1840. Harrison’s unfortunate death led to his quick replacement by the intractable John Tyler, who opposed central elements in the Whig party’s program. The Whig controlled Congress passed a distribution bill in 1841 similar to Clay’s 1832 bill, with this provision about tariffs: “That if anytime during the existence of this act, there shall be an imposition of duties on imports inconsistent with the provisions of the act of March 2, 1833 ... to wit: [rates higher than] twenty per cent. on the value of such imports, or any of them, then the distribution provided in this act shall be suspended and shall so continue until this cause of its suspension shall be removed...”<sup>59</sup> Tyler raised tariff rates over 20 percent and ended distribution.

As party competition intensified in the 1830s and 1840s, both major parties wanted to fund internal improvements. The Whigs continued to pursue a national system while the Democrats did not; but neither party put forward a scheme to finance improvements through normal taxation. Both parties relied on something for everyone financial schemes.

Our approach helps explain this fundamental fact. The primary reason that a large, interregional transportation link was not constructed by the federal government was grounded in this political reality. An Erie canal required \$7,000,000 and the federal government could not afford to build an Erie canal in every state. The federal government could only finance transportation projects if it did something in every state simultaneously; it was politically impossible to concentrate its efforts along one route.

The last question to consider is why the federal government relied so little on taxless finance. As the next section shows, states used it extensively. The states, however, came to regret their use of taxless finance in the 1840s, when they unexpectedly had to pay taxes to repay their debts.

The lower panel of table 4 lists three classic taxless finance projects undertaken by the federal government: the two Banks of the United States, and the Union Pacific Railroad created in 1862. The First Bank was chartered in 1791, with a capital of \$10 million of which the government subscribed \$2 million. The Second Bank was chartered in 1816, with a capital of \$35 million of which the government chartered \$7 million. In both cases, the government paid for its stock by issuing federal bonds to the banks (private subscribers could pay in specie or federal bonds). The banks paid dividends semi-annually, and the dividends paid to the federal government for its stock always exceeded the interest payments on the bonds the federal

government used to purchase stock. This illustrates the principle of taxless finance: no taxpayer paid higher taxes because of the federal government investment in either Bank of the United States.

Despite a few problems, historians generally agree that both banks performed their functions well, but neither bank was able to renew its charter after its first twenty year term. Both banks were assailed as bastions of privilege. Although both banks had branches throughout the country, bank stock was concentrated in few hands. Jackson made a great deal of the substantial foreign holdings of BUS stock in his message vetoing the charter renewal of the second bank in 1832, even though foreign stockholders could not sit on the board of directors or vote for directors. A similar attack on banks as privileged monopolies was underway in the 1830s in New York and Pennsylvania. In New York the response was free banking. Free banks were not free from regulation, but anyone with who met minimum requirements could obtain a bank charter.

After abandoning the national bank in 1836, the federal government would not charter another bank outside of the District of Columbia until the National Banking Act in 1863. The new national banks were “free banks,” anyone could obtain a charter who met the entry requirements. In a different form, and without the element of geographic competition, free banking was a form of something for everyone banking.<sup>60</sup>

The Union Pacific Railroad combined two forms of taxless finance, land grants and bond issues. The company’s charter promised to give the railroad ten square miles of public land for every mile of railroad the company completed.<sup>61</sup> In addition, the federal government would give the company \$16,000 in federal bonds for every mile of track completed. The bonds were an

“ipso factor ... first mortgage on the whole line of the railroad and telegraph.” The company was responsible for servicing the bonds and repaying the principle.<sup>62</sup> Tax payers were not supposed to pay to service the bonds, and the value of federal lands were supposed to increase enough to outweigh the substantial acreage given to the railroad.

Just as Indiana in the 1830s, however, federal land prices did not rise along the route of the railroad, although undoubtedly public land was sold more quickly than it otherwise would have been. As Gates showed, public land continued to sell for \$1.25 (or less, graduation was finally adopted in 1854). Worse, the Union Pacific Railroad went bankrupt, throwing the obligation to service the federal bonds it had received bank onto the federal government. Taxpayers ended up losing land sale revenues and footing the bill for the interest on the Union Pacific bonds.

Taxless finance could work at the federal level, as the First and Second Banks of the United States suggest. But taxless finance suffered from two problems at the national level. First, the federal government possessed millions of acres of land in the west and the natural tendency was to use land grants as part of taxless finance packages. Unfortunately, giving away some land in order to raise the value of the land the federal government retained, did not work. The revenues from public land sales did not rise along the route of intenal improvements.<sup>63</sup> Second, several variants of taxless finance work by selling privileges to select private groups in return for the provision of public services. The political costs of creating special privileges was high and growing over time in early 19<sup>th</sup> America. States used taxless finance more extensively than the federal government, but by the 1840s they were beginning to limit its use through explicit constitutional changes. By the 1840s the states had already learned that taxless finance

could be costly, a lesson the federal government had forgotten when it chartered the Union Pacific Railroad.

## **5. State Investment in Internal Improvements**

State investment in transportation outstripped federal investment by an order of magnitude. Goodrich estimates that state and local expenditures for transportation were a combined \$450 million before the Civil War, while federal government expenditures were \$60 million (Table 1).<sup>64</sup> An easy way to characterize state activity is to look at the state debt outstanding in 1841, just at the end of the dramatic expansion of state investment in canals, railroads, and banks in the 1830s. Since states faced the same political constraints as the federal government – a democratic legislature attempting to build geographically concentrated projects to satisfy geographically diverse constituencies – we expect to see the same pattern of outcomes with two differences. One, states are not prevented from using benefit taxation. Two, states are so small, with many numerous subdivisions (counties), that something for everyone is unlikely to be used to finance large projects, and small projects will be very small indeed.

Table 5 duplicates the structure of Table 4 for the \$200 million in state government debt outstanding in 1841. We are able to classify state expenditures for \$183 million of the \$200 million.<sup>65</sup> Almost all of the state borrowing was for large projects, and there were no something for everyone state schemes. States did, however, use formulas extensively to finance education expenditures and to distribute road funds, but because these expenditures were not financed by

debt issue they are not included in the table. No large state projects were financed by normal taxation.

States financed \$53 million in canals by benefit taxation. New York included a provision allowing for a special “canal tax” in counties bordering the canal should canal tolls and other fiscal resources of the canal fund prove insufficient to service canal bonds. Ohio, Indiana, and Illinois moved explicitly to *ad valorem* property when they adopted their canal systems.<sup>66</sup>

States financed another \$53 million in bank investments using taxless finance. Southern states used several variants of the method used to finance the Second Bank of the United States. The states purchased stock in banks by issuing bonds that the banks were responsible for servicing. States had been successfully investing in banks in the United States since the 1780s. In the 1810s, Massachusetts began taxing bank capital, well as investing in banks. When the state realized the capital tax was more remunerative than dividends, it sold its bank stock. By the 1830s, more than half of all Massachusetts state revenue came from the tax on bank stock. Pennsylvania receive roughly a quarter of its state revenues from bank dividends and bonus fees for bank charters.<sup>67</sup>

The final \$80 million were financed by taxless finance as well, only this borrowing was primarily for transportation. After the success of the Erie, states like Pennsylvania and Maryland began borrowing to build canals, but did not raise tax rates. Instead, they paid current interest on their bonds out of bond premiums or, as time went on, out of current borrowing. Pennsylvania was the worst state in this regard, and by 1841 it had the largest debt of any state, \$33 million. New York began borrowing in the late 1830s to expand the Erie network, and did not raise taxes when it did so.

The state adventures were remarkable. In 1836 and 1837, Indiana, Illinois, and Michigan, with a combined population of slightly more than 1,000,000 people, authorized the issue of over \$25 million in state bonds. An amount greater than the entire federal expenditures for transportation in the Jackson and Van Buren administrations combined. All of the state internal improvement spending in the 1830s was financed by benefit taxation or taxless finance, just as the model predicts.

Of course, some of their investments came back to haunt the states during the depression that began in 1839. By 1842, eight states and the Territory of Florida were in default on their bonds. Mississippi and Florida repudiated all of their debts outright in 1842, Arkansas and Michigan repudiated part of their debts, and Louisiana quietly failed to pay back some of its debts. New York, Ohio, and Alabama narrowly avoided default.<sup>68</sup>

In the 1840s, states reassessed how they got themselves into this mess. They concluded that taxless finance had been the problem. Unscrupulous promoters of canals, railroads, and banks convinced naive and optimistic voters and legislators that internal improvement projects would pay for themselves. Bonds were issued, construction started, and when tolls and dividends failed to materialize, taxpayers were stuck with tax bill. Their contingent liabilities came home to roost. There is some truth to this story, but it was also the case that states' troubles were rooted in an extremely bad economic situation beyond their control.

Beginning in 1842, twelve states wrote new constitutions. Eleven of them directly addressed the problem of taxless finance. First, new procedural restrictions on the issue of government debt required that any state, or local, government proposing to issue bonds had to impose taxes sufficient to service the bonds before the bonds were issued. Further, the higher tax

rates had to be approved by the voters. Thus the bond referendum was born. By requiring voters to approve taxes before bonds could be issued, it was no longer possible to implement “taxless” finance. The political advantages of making tax liabilities contingent future liabilities was closed off.

Second, the new constitutions required states to adopt general incorporation laws. These laws allowed anyone who wanted to obtain a charter to do so. Free banking laws were general incorporation laws for banks. By opening chartering to everyone, the states significantly reduced the economic rents conveyed to the group holding a restrictive charter (the issue that caused so much trouble for the First and Second Banks of the United States). Some states prohibited special charters. This eliminated the option of promoting internal improvements through the creation of a special privileged corporation altogether.<sup>69</sup>

States financed internal improvements exclusively with benefit taxation and taxless finance. Both methods got states in trouble after 1839, when the depression began. States responded in the 1840s by systematically changing their constitutions to eliminate taxless finance as fiscal option.

## **6. Constitutional Considerations**

The essence of our argument is that Congress and the President possessed the power to expand federal promotion of transportation in the 19<sup>th</sup> century, but in the end did not exercise these powers because of constraints imposed by the internal political logic of the democratic process.

Implicit in our claim is that Congress had the power to appropriate funds for internal improvements under the Constitution. As we have seen, there was by no means agreement on the “constitutionality” of federal canals. How large an impediment was the Constitution? We are inclined to agree with Goodrich who concluded “Yet it is difficult for a modern student to believe that the constitutional issue, for all the passion with which it was contested, was in fact the decisive one.”<sup>70</sup> Nonetheless, we must address this issue directly.

Some review. The Constitution limited the national government to enumerated powers, with unenumerated powers specifically reserved to the states. The Constitution says nothing about building canals or chartering corporations, ergo the federal government does not possess those powers, according to the strict construction view. Alexander Hamilton persuaded President Washington to support the Bank of the United States over the opposition of his Secretary of State, Thomas Jefferson, and his Attorney General, Edmund Randolph, with the following argument:

In entering into the argument, it ought to be premised that the objections of the Secretary of State and the Attorney General are founded on a general denial of the authority of the United States to erect corporations. The latter, expressly admits, that if there is anything in the bill which is not warranted by the Constitution, it is the clause of incorporation.

Now it appears to the Secretary of the Treasury [Hamilton] that this *general principle* is *inherent* in the very *definition* of government, and *essential* to every step of the progress to be made by that of the United States, namely: That every power vested in a government is in its nature *sovereign*, and includes by *force* of the *term*, a right to employ all the *means* requisite and fairly applicable to the attainment of the *ends* of such power, and which are not precluded by restrictions and exceptions specified in the Constitution, or not immoral, or not contrary to the *essential ends* of political society.<sup>71</sup>

Thus, Hamilton laid the basis for loose construction.

A signal virtue of the Constitution is brevity, and in operation the line between strict and loose construction always had to be drawn. How to draw the line is in part informed by the

Constitution itself, but more often by the interaction of political interests.

The first problem with the idea that constitutional restrictions prevented a federal internal improvement program is that Constitution does not make a provision for how it is to be interpreted. The Supreme Court's assertion of that power evolved with practice and habit and was not a major factor during the antebellum years. In the early 19<sup>th</sup> century Presidents, Congressmen, and judges all rendered their opinion about constitutionality. In his veto of Clay's 1833 Distribution bill, Jackson wrote:

I am fully sensible of the importance, as it respects both the harmony and union of the States, of making, as soon as circumstances will allow of it, a proper and final disposition of the whole subject of the public lands, and any measure for providing for the reimbursement to the United States of those expenses with which they are justly charged that may be *consistent with my views of the Constitution*, sound policy, and rights of the respective States will readily receive my cooperation. (Emphasis added)<sup>72</sup>

Madison's veto of the Bonus Bill, Monroe's veto of the Cumberland Toll and Repair Bill, and Jackson's vetoes of the Distribution Bill, the Maysville Road Bill, and the Bank Charter Bill all express their personal view of what the Constitution meant.

The vetoes did not, however, express the reality of the Constitution as a "rule of law" rather than a rule of men. What one president declared unconstitutional another did not; indeed the presidents had trouble maintaining consistency with themselves. Monroe vetoed the Cumberland Toll Bill, then in his next annual message to Congress suggested that he would approve an appropriation for a survey of projects of national importance. There had never been any suggestion that the Cumberland Road was not a national object, it had been one since the Ohio Enabling Act in 1802. Jackson vetoed the Maysville Road because it lay completely within Kentucky, yet signed other bills for roads that lay entirely within one state. Madison vetoed the

Bonus Bill, which proposed a distribution of federal funds identical to distribution passed by Congress and signed by Presidents (including Jackson!) in 1836 and 1841.<sup>73</sup> This kind of constitutionality was personal and idiosyncratic, seemingly pragmatic politics. Constitutionality was a politic concept in the early 19<sup>th</sup> century, not an absolute constraint on federal policy. There was nothing constitutional preventing a congressional majority from implementing the Gallatin plan and having it signed by a president like Adams, except the political impossibility of getting Congress to pass the bill in the first place.

The second problem with the idea that constitutional limitations prevented the federal government from financing internal improvements was the range of policy options open to Congress. Few congressmen balked at giving money to the states as the Deposit bill did in 1836, and only a few more balked at giving money with the prescription that it be spent on internal improvements. Postal roads were constitutional. Navigable river improvements were constitutional. Harbor improvements were constitutional. Promoting interstate commerce was constitutional, but how much did that constitutionality extend to building roads and canals? At the other extreme, few congressmen would have condoned building a federal canal through a state, without the state's permission, using eminent domain. There was always a constitutionally acceptable way of doing something to promote internal improvements. The question was not whether a constitutionally acceptable way could be found, it was whether there was political support for doing so.

Finally, the structure of the constitutional amendments that were proposed in Congress to allow for federal promotion of internal improvements gives some insight into the political, not constitutional, constraints operating in Congress. When Congress proposes an amendment, the

amendment is, by definition, constitutional if it is ratified.<sup>74</sup> Jefferson, remember, called for a constitutional amendment in his second inaugural, and when Madison vetoed the Bonus Bill he was careful to say that he was not against federal internal improvements, only that a constitutional amendment was necessary before it could happen. Monroe asked Congress for such an amendment in his first annual message.<sup>75</sup>

In response on December 9, 1817, Senator Barbour brought forward an amendment to the Constitution:

Congress shall have power to pass laws appropriating money for constructing roads and canals, and improving the navigation of water-courses; *Provided, however,* That no road or canal, shall be conducted in any State, nor the navigation of its waters improved, without the consent of such State: *And provided also,* that whenever Congress has appropriated money to these objects, the amount thereof shall be distributed among the several States, in the ratio of representation which each state shall have in the most numerous branch of the National Legislature. But any portion of any State, with its own consent, may be applied to the purpose aforesaid, in any other state.<sup>76</sup>

The proposed constitutional amendment enshrined the principle of something for everyone, requiring that the federal government make equal per capita expenditures in every state. Every proposed amendment included a provision allocating federal funds between the states by population.<sup>77</sup> It was the only form of a constitutional amendment that had a chance of passing Congress. Constitutionality was a political concept in the early 19<sup>th</sup> century, a concept growing toward the abstract and revered status of the 20<sup>th</sup> century. The same forces that limited to political outcomes to something for everyone and taxless finance were working in the constitutional realm.

The main implications of this section are twofold. First, Constitutional interpretation in the early nineteenth century was pragmatic and political. As the quote above from Goodrich

suggests, the Madison and Jackson's vetoes of funds for internal improvements seem at least in part politically motivated, not simply a matter of the Constitution and its constraints. Second, when pragmatic politics pushed toward a Constitutional amendment to address these issues, it enshrined the principle of something for everyone. Per our theory, this is the only form that could pass the United States Congress.

## **7. Conclusions**

The central puzzle of this paper concerns why the states and not the federal government were the primary locus of the promotion of economic development during the antebellum era. As noted, states spent an order of magnitude more than the national government in providing various forms of economic infrastructure, notably, roads, canals, railroads, lighthouses, harbors, and banks. We demonstrate that these programs were popular with the voters, and that the federal government regularly sought to promote them. Yet, while many states financed huge economic projects, the federal government's spending was not only much smaller, but typically focused on small projects, such as building lighthouses and dredging harbors, rather than on large projects.

To address this puzzle, we provide a model of political choice based on the theory of legislative choice. The model yields several conclusions concerning the financing of large projects – where large projects are defined as those whose financial commitments are so large that only a one or two can be built at once. First, legislatures have difficulty voting to fund large projects because the benefits are typically concentrated, while the expenses are spread over all

through general taxation. This means that, typically, a majority of districts receive no direct benefits from the project and yet pay their share of the costs. Because their net benefits are negative, these districts oppose building the project.

Second, benefit taxation affords a potential way out of this problem. Benefit taxation sets a district's taxes in proportion to the benefits it receives, so that districts with the most benefits pay the most taxes; but in particular, districts receiving no benefits pay no taxes. Projects with perceived positive expected values can be financed in this way because there is no natural opposition.

Third, legislatures easily finance large packages of small projects; that is, when they simultaneously build different projects in most or nearly all districts. This includes the standard pork of rivers and harbors projects, lighthouses, post offices and postal roads. In contrast to a single large project, large packages of small projects gain majority support by including projects for most or nearly all districts,

The final piece of the puzzle is institutional: The United States Constitution created an asymmetry between the national and the state governments with respect to taxation. Although states were free to use benefit taxation, the Constitution prohibited the national government from using it: the Constitution requires that all direct taxes be in proportion to the federal ratio.

These results help explain the pattern of governmental expenditure in antebellum America. First, although promoting economic development through infrastructure was quite popular with national and state voters, the Constitutional asymmetry on benefit taxation implied that states were able to use this financial mechanism to create majorities in favor of large projects, whereas the federal government was not. Although proposals for promoting

infrastructure development regularly came to the Congress, few passed. The major exception is that, per the results above, the national government did spend a considerable amount funding large collections of small projects, such as lighthouses and dredging harbors.

An additional benefit of our approach concerns the issue of federalism. A major concern in the literature on federalism concerns the question of what provides for federalism's stability. As Riker (1964) observed, most federal states fail, either by disintegrating or by becoming centralized ones. In order for federalism to be stable, it must be self-enforcing in the sense that government both national and subnational government officials have the incentive to abide by the restraints of federalism (de Figueiredo and Weingast 2003).

Our paper provides insights into this question for the antebellum United States. A major issue here is why the national government was relatively small in comparison to the states. Our approach shows that the Constitution provided a structure that allowed states to finance infrastructure projects but not the national government. This effect helped keep the national government smaller and the states larger. Were the national government able to use benefit taxation, it would have undoubtedly been far larger and the state governments far smaller.

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Table 1  
Federal Spending on Internal Improvements  
by President

Administration	Dates	Aggregate	Per Capita	Share of all Federal Expenditure
Washington	1788-1796	\$229,968	\$0.009	0.74%
J Adams	1797-1800	\$303,896	\$0.015	0.94%
Jefferson	1801-1808	\$994,678	\$0.020	1.36%
Madison	1809-1816	\$2,066,910	\$0.033	1.52%
Monroe	1817-1824	\$2,997,914	\$0.042	1.57%
J Q Adams	1825-1828	\$3,861,265	\$0.083	5.89%
Jackson	1829-1836	\$14,452,376	\$0.129	9.51%
Van Buren	1837-1840	\$7,528,064	\$0.118	5.62%
Harrison/Tyler	1841-1844	\$3,068,753	\$0.042	3.47%
Polk	1845-1848	\$3,197,824	\$0.038	2.29%
48-52	1849-1852	\$4,071,541	\$0.043	2.31%
53-56	1853-1856	\$9,642,863	\$0.091	4.33%
57-60	1857-1860	\$9,515,536	\$0.080	3.51%
Total		\$61,931,588.728		

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Table 2  
Presidential Administrations

Administration	Dates	Pro-Improvements?	Constitutional Concerns?	Veto?	Systematic Proposals?
Washington	1788-1796	Very Positive	No	No	No
Adams	1797-1800	Yes	Yes	No	No
Jefferson	1801-1808	Yes	Yes	No	Gallatin Plan
Madison	1809-1816	Yes	Yes	Bonus Bill	No
Monroe	1817-1824	Yes, but worried	Yes/No	Cumberland Toll and Repair Bill	General Survey Bill
JQAdams	1825-1828	Very Positive	No	No	Multiple Projects
Jackson	1829-1836	Positive/Negative	Yes	Maysville Road	No
VanBuren	1837-1840	Negative	Yes	No	No

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Table 3  
Federal Transportation Expenditures  
1800 to 1860  
thousands of dollars

By Function	Level	Share	Itemized	Not Itemized
Unspecified Navigation	\$14,240	0.26		\$14,240
Roads	\$9,821	0.18	\$9,821	
Harbors	\$8,256	0.15	\$7,737	\$519
Coastal Navigation	\$7,428	0.14	\$5,511	\$1,917
Rivers	\$5,845	0.11	\$5,327	\$518
Public Land Funds	\$4,745	0.09	\$4,745	
Canals	\$1,917	0.03	\$1,917	
Internal Navigation	\$1,695	0.03	\$1,692	\$3
Other	\$940	0.02		\$940
Total	\$54,888	1.00	\$36,750	\$18,137
Itemized Total	\$36,750	0.67		
NonItemized Total	\$18,138	0.33		
By Decade				
1800-1809	\$193	0.01		
1810-1819	\$1,931	0.05		
1820-1829	\$4,465	0.12		
1830-1839	\$16,365	0.45		
1840-1849	\$3,178	0.09		
1850-1859	\$9,790	0.27		
1800-1860	\$36,750	1.00		
By Region				
New England	\$3,185	0.09		
Mid-Atlantic	\$4,260	0.12		
East-North Central	\$10,006	0.27		
West-North Central	\$2,414	0.07		
South Atlantic	\$9,340	0.25		
East-South Central	\$3,081	0.08		
West-South Central	\$3,152	0.09		
Mountain	\$663	0.02		
Pacific	\$648	0.02		
Total	\$36,750	1.00		

## *Equilibrium Impotence*

Source: Malone, 1998, Tables 2.1, 2.2, 3.1, and 3.3.

Note: Non-Itemized Rivers and Harbors were reported as \$1,037,521;  
I have divided them equally between "Rivers" and "Harbors."

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Table 4  
Model Predictions and Federal Spending Patterns

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 Equivalentents (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

*Equilibrium Impotence*

Table 5  
Model Predictions and State Spending Patterns

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		\$183,000,000	



*Equilibrium Impotence*



## *Equilibrium Impotence*

### Endnotes

1. The list is six if defense and international relations are treated separately, which doesn't seem appropriate; and seven if we include innovations in the field of law and justice.
2. Gates, 1968, pp. 75-86.
3. Feller's history of public land policy concludes: "Considering its central place in the Jacksonian debate over political economy, federal land policy did not change much during those years." Feller, *Public Lands*, p. 194.
4. Nettels, 1924, p. 353.
5. Goodrich, 1960, p. 45. See Larson, 2001, pp. And Harrison, 1954, p.
6. "[John Quincy] Adams's charge that the national program was overthrown by what he called "the Sable Genius of the South is therefore a great over-simplification." Goodrich, 1960, p. 46. Nettels, 1924, focuses on the importance of the West's growing voting power and awareness of their collective interests as the key factor that forced a decision about the national government's role in transportation improvements early in the Jackson administration.
7. The data underlying the figure some from *Statement of the Appropriations and Expenditures for Public Buildings, Rivers and Harbors, Forts, Arsenal, Armories, and Other Public Works from March 4, 1789 to June 30, 1882*, 47<sup>th</sup> Congress, 1<sup>st</sup> Session, 1882. Figure 1 and Table 1 include expenditures for "Rivers and Harbors," "Roads and Canals," and "Light Stations, Beacons, Buoys, and &." This is the information that underlies Malone's 1998 tabulations, which we report elsewhere. The figure and table actually count appropriations, which accounts for the sawtooth pattern of expenditures. Congresses usually passed a large transportation bill in one year and a smaller in the next.
8. Larson's, 2001, chapter "The Designs of the Monied Gentry" is particularly informative on Washington and early, unsuccessful, attempts to build transportation links into the west, Chapter 1, pp. 9-37.
9. Richardson, *Messages and Papers of the Presidents*, Vol. I, p. 367. For Jefferson's position on internal improvements see Larson, 1993.
10. *Annals of Congress*, 9<sup>th</sup> Congress, 2<sup>nd</sup> Session, p. 97.
11. For the Gallatin reports specifics you can read the original report in *American State Papers*, Miscellaneous, I, 724-921. Or you can consult Goodrich, 1960, pp. 26-37.
12. See Richard John, *Spreading the News*.

13. Kentucky had been admitted by cession from Virginia, and the North Carolina cession that became Tennessee governed the administration of lands in Tennessee, most of which already belonged to private individuals.

14. Similar funds were created when other western states were admitted. The entry for “Public Land Funds” in Table 1 represents expenditures made out of these funds.

15. The road fund provision was a Jeffersonian measure, opposed by Federalists, passed without any obvious qualms about violating strict construction. It is ironic, and in character, for Jefferson to sign a bill committing the federal government to build roads, and then later to oppose as unconstitutional federal support for road building.

16. The 1836 distribution of “surplus revenue” was not tied specifically to internal improvements, although it was widely believed that many states would apply their share of the funds to projects then underway or being planned.

17. “Enabling Act for Missouri,” Poore, 1878, pp. 1103-4.

18. Richardson, “Veto Message,” May 4, 1822, pp. 711-12.

19. The message is in Richardson, pp. 713-752.

20. Richardson, “Seventh Annual Message,” December 2, 1823, p. 785.

21. Larson, 2001, p. 161-173. McClane quote from *Register of Debates*, 18<sup>th</sup> Congress, 2<sup>nd</sup> Session, p. 290.

22. Goodrich, 1960, pp. 42-43.

23. Larson, 2001, p. 173, describes the evolving public perception of Congress: “Driven by ambition, greed, and opportunity, and fostered (or at least justified) by the rhetoric of disbelief and citizen vigilance that rested at the center of Jefferson’s creed, private interests and public officials had drifted toward an image of Congress as a market where members traded as little as they could of their constituents’ rights and interests for the greatest share of national benefits they could command. Such a Congress proved utterly incapable of “embracing every interest” or transcending “local consideration.” If they delegated power to the president, someone conjured up fantasies of patronage, privilege, corruption. Surrendering to the experts proved even less acceptable, how could the people’s representatives dare to let a hireling belonging to the War Department set aside forever as “local” or “impractical” the projects dearest to the hearts of their constituents. Historians notes with alarm the rise of “sectional feelings” in this period, but sectional resentments sprang as much from intentional and distorted propaganda complaining of alleged “unequal treatment” as from real injuries or conflicts of interest.”

In this environment, embracing the small was the only policy that made sense.

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24. This discussion draws on modern theories of congressional decisionmaking, particularly in a historical context. See, e.g., Aldrich, Cox and McCubbins, Krehbiel, Polsby, Rohde, Schickler, Stewart, Shepsle, Sinclair, Weingast and Marshall.

25. In what follows, we adapt the models in Shepsle and Weingast (1984) and Weingast, Shepsle, and Johnsen (1981).

26. Each legislator  $i$  has an ideal policy of  $x_i^*$  which solves the problem  $\max P_i(x)$  and which occurs when the marginal benefits to district  $i$  equals the districts costs, i.e.,  $b_i(x) = t_i C(x)$ .

27. All voting models require an assumption about what happens when a legislator is indifferent between two alternatives.

28. Given a single dimensional policy choice, such as the choice over the scale of a single project, the majority rule equilibrium is the ideal policy of the median district. Standard results show that, except in very special circumstances, no majority rule equilibrium exists when the legislature chooses the scale of many projects simultaneously. These concepts are defined in Hinich and Munger (1907), Shepsle and Bonchek (1997), and Stewart (2002).

29. To see that  $b_i > t_i C$  under benefit taxation, substitute on the right hand side:  $t_i C = (b_i/B)C = (C/B)b_i$ . Since  $C/B < 1$ , the first inequality holds.

30. The federal government levied a property tax in 1799, 1814, and 1862, but the tax had to be allocated between states on the basis of population, it could not be allocated on the basis of benefits as measured in increased wealth or property values.

31. Canals required eminent domain and banks required limited liability and, often, the privilege of note issue.

32. It was common in early charters for the state to “reserve” shares of stock for the state at no cost to the state.

33. This, obviously, abstracts from any consideration of general opposition to corporations, or the possibility that the group that does obtain the charter may deprive some other group of the charter.

34. The inability of purely private corporations to engage in large scale transportation projects is a central element in Callender’s [1902] argument about the need for state intervention in capital markets.

35. The second taxless finance variant was commonly used to finance state investments in banks.

36. By 1830, states were able to draw on 40 years of experience with investment in banks, with the expectation that “M” was positive and large, and that the probability of a successful investment, “s,” was close to one. Canal investments in New York and Ohio had also proven profitable. Governor Ford of Illinois, spoke directly to the *ex ante* expectations of the Illinois politicians when he explained how the state got itself into difficulties in his message to the legislature of December 8, 1842 “No scheme was so extravagant as not to appear plausible to some. The most wild expectations were made of the advantages of a system of internal improvements, of the resources of the State to meet all expenditures, and of our final ability to pay all indebtedness without taxation. Mere possibilities appeared to be highly probable, and probabilities wore the livery of certainty itself.” Quoted in House Document, p. 1051.

37. This subsection draws on the large literature on universalism, including Collie (1988), Inman and Fitts (1990), Niou and Ordeshook (1985), Shepsle and Weingast (1981), Stein and Bickers (1995), and Weingast (1979).

38. Both of these restrictions are easily generalized, for example, to projects that benefit a small number of (perhaps contiguous) districts simultaneously.

39. All of these assumptions can easily be generalized, so that the benefits,  $b_i$ , costs,  $c_i$ , and tax share,  $t_i$ , differ across districts.

40. Various “universalism theorems” show that, in comparison to the uncertainty of partisan politics (e.g. minimum winning coalitions) that build fewer projects than one for each district (but at least a majority), every legislator is better off under universalism (Niou and Ordeshook 1985, Shepsle and Weingast 1981, Weingast 1979).

41. The federal government could not use benefit taxation. The federal government could use something for everyone, and federal allocations of funds were often made by population formula. For example, see the allocation of the Bonus Bill funds in 1816 (vetoed by Madison) and the allocation of surplus funds in 1837.

42. Benefit taxation and taxless finance were not mutually exclusive policies, a state could use a little of each. Both benefit taxation and taxless finance legislation were easier to pass when there were large expected returns from the project.

43. The largest single federal project, aside from the Cumberland Road, was the Delaware breakwater, which received \$2.1 million in total. The breakwater funding was appropriated piecemeal, however, through rivers and harbors legislation.

44. *Annals of Congress*, 18<sup>th</sup> Congress, 1<sup>st</sup> session, May, 1824, p. 2601.

In this case, the land at issue in Indiana had been ceded to the federal government by Virginia in 1783. The terms of Virginia’s cession required “That all the lands within the territory ... shall be considered as a common fund for the use and benefit of the United States as

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have become, or shall become, members of the confederation or federal alliance of the said states, Virginia inclusive, according to their usual respective proportions in the general charge and expenditure, and shall be faithfully and *bona fide* disposed of for that purpose, and for no other purpose whatsoever;" Poore, 1878, "Virginia Act of Cession," p. 428. Opponents of the measure argued that the terms of the Virginia cession required the proceeds of the land to be held in a common fund, and that Indiana would reap the share of benefits, but proponents successfully argued that the grant of canal lands to Indiana was in the spirit of the cession.

Andrew Jackson used this argument in 1833 when he vetoed Clay's distribution bill. Richardson, 1897, Vol. II, pp. 1275-1288, particularly page 1276.

45. Wallis, 2003.

46. Gates, 19\_\_.

47. HR 29, 14<sup>th</sup> Congress, 2<sup>nd</sup> Session, 1816.

48. Calhoun's introductory remarks, as paraphrased in the *Annals*, 14<sup>th</sup> Congress, 2<sup>nd</sup> Session, p. 857.

49. *Annals*, 14<sup>th</sup> Congress, 2<sup>nd</sup> Session, First quote, p. 864; second quote, p. 866.

50. "John Adair had resigned the office in pique after losing reelection to a six-year term by John Pope." Remini, *Henry Clay*, 1991, p. 43.

51. The incident is discussed in Goodrich, 1961, pp. . And Larson, 2001, pp. .

52. Clay is the only representative in the history of the Congress to be elected Speaker of the House in his first term. Clay was elected Speaker of the 12<sup>th</sup> Congress on November 4, 1811 on the first ballot.

53. For the importance of the property tax as a revenue source for western states see Wallis, 2001 and Wallis 2004 (?).

54. Nettels traces the emergence of a coherent western voting bloc on internal improvements and land policy. Feller examines the changing sectional and party alignments growing up around the land issue.

55. Graduation and distribution are discussed in detail in Feller, *Public Lands*, 1984. The proposals in the 1820s can be found in *Annals*, 18<sup>th</sup> Congress, 1<sup>st</sup> Session, pp. 2594; *Register of Debates*, 18<sup>th</sup> Congress, 2<sup>nd</sup> Session, p.42 and 67; *Register of Debates*, 19<sup>th</sup> Congress, 1<sup>st</sup> Session, p. 861.

56. The details of all the important recorded votes on land bills are analyzed by party and region in Feller, 1984.

57. The counterfactual is rich. Had the distribution bill passed, the federal surplus would never have grown large, it would have been distributed. Jackson carried out the Bank War by taking the federal surplus, held as balances in the Bank of the United States, and redepositing the balances in state banks.

58. Feller, *Public Lands*, 1984, p. 183.

59. *An Act to appropriate the proceed of the sales of the public lands and to grant pre-emption rights*, Act of September 4, 1841, ch 16, Stat 1.

60. Unlike something for everyone financing of transportation, free banking worked.

61. The land was given in alternating one-square mile sections, in a strip ten miles to either side of the road. Land was transferred to the company after it completed each 40 mile long section of track. Section 3, *An Act to Aid the Construction of a Railroad*, 37<sup>th</sup> Congress, 2nd Session, Chapter 120.

62. Section 5, *An Act to Aid the Construction of a Railroad*, 37<sup>th</sup> Congress, 2nd Session, Chapter 120.

63. This is despite the clear evidence that private land values did rise. See Heckelman and Wallis, 1997 and Wallis, 2003.

64. Malone reports \$54 million in federal transportation expenditures, but when we add up the figures from the 1892 Congressional report, we get \$60 million. We have not yet resolved the difference.

65. This entire section of the paper is based on Wallis, "Constitutions, Corporations, and Corruption: State Constitutional Change 1842 - 1852." Mimeo, 2004.

66. See Wallis, 2003, for detailed consideration of the role that *ad valorem* property taxation played in Indiana, and an over view of actions in the other states.

67. For state involvement in banking see Wallis, Sylla, and Legler, 1994.

68. The default crisis is covered in English, 1996, and Wallis, Grinath, and Sylla, 2001.

69. Again, the constitutional issues are discussed in Wallis, "Constitutions,..."

70. Goodrich, 1960, p.44.

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71. Hamilton's letter to Washington on the Constitutionality of a National Bank, McKee, p. 101, emphasis in the original.

72. Richardson, 1897, "Veto Message." p. 1276. Jackson did not veto Clay's Distribution bill because it was unconstitutional. He vetoed it because he felt it was inconsistent with the terms of the Virginia cession of 1783.

73. The reasons for Madison's veto have been studied by Larson, 2001 and 19 and by McCoy, *Last of the Fathers*,

74. None of the proposed amendments passed Congress to be sent to the states for ratification.

75. See the discussion in Larson, p. 111-12.

76. *Annals*, 17<sup>th</sup> Congress, 1<sup>st</sup> Session, p. 22.

77. There were several other proposed amendments, all embodying the distribution principle, but I cannot put my hands on them at the moment.