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The Political Economy of New Deal Spending Revisited, Again: With and without Nevada*

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During the New Deal the federal government initiated a policy of massive grants to states for support of social welfare and other programs. Since that time scholars have debated whether the allocation of these grants between the states during the New Deal was motivated primarily by political or social and economic objectives. This paper shows that, during the 1930s, both political and economic effects were important determinants of grant allocation. The importance of all the political variables is dramatically affected by the inclusion or exclusion of Nevada. The "Nevada" effect seems to be the result of the state's very small population. An alternative specification of the grant process produces new results that overturn some of the results in the existing literature. © 1998 Academic Press

I. INTRODUCTION

The federal government has always supported state and local governments. Beginning with the Northwest Ordinance and the sharing of public land sales revenues and continuing with the assumption of state debts after the Revolutionary War, the Surplus Distribution of 1837, grants for the support of agricultural and mechanical colleges, and the federal highway program in 1916, there has always been a trickle of national government aid to state and local government. The trickle became a flood during the New Deal. In 1902, federal grants supplied 0.7% of all state and local revenues, in 1934, 13.7%, and in 1992, 21.4%. The increase in federal government outlays between fiscal 1934 and fiscal 1940 (over the level of fiscal 1933 outlays) totaled $21,769 million. Expenditures for "cooperatively administered programs," a category that included both grants to states and direct federal expenditures in the states, rose by $26,982 million, more than the total increase in federal expenditures.[1] Average annual expenditures for

* I acknowledge the generosity of Gavin Wright, who supplied some of the data in this paper and several helpful comments, and the support of George Stigler when I was a fellow at the Center for the Study of the Economy and the State long ago. Farley Grubb was my research assistant then, and I have more recently been helped by Robert Satterfield and Brad Lewis. Wally Oates, Shawn Kantor, and Price Fishback provided helpful comments.

[1] These numbers are discussed in greater detail in Wallis and Oates (1998). The jump in grants was completely a New Deal phenomenon. In 1927, federal grants were only 1.5% of state and local revenues, and the bulk of those grants were for highways.

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cooperative programs in those years were $3,854 million, more than total federal expenditures in any year from 1922 to 1931.

The New Deal set in motion a permanent change in the structure of American government. Under Roosevelt and the new Democratic majority in Congress, the national government began a systematic program of subsidizing state and local governments to provide specific services. Relief and social welfare programs made up the majority (60%) of New Deal cooperative expenditures, while agricultural price supports and public works (roughly 15% each) made up most of the balance.[2] The underlying purpose of these grants was questioned in the 1930s and continues to be questioned today. New Dealers defended them as a necessary part of their efforts to alleviate the suffering of the depression, make lasting reforms in the social order, and improve the public estate. Roosevelt's critics accused him of using the allocation of national expenditures for political purposes. In recent years a number of scholars have tried to infer what was driving the system by examining the pattern of allocations among the states.

New Deal "spending" was a combination of several kinds of fiscal assistance. Federal grants to states were made when federal funds legally passed to the control of the state government. Direct federal expenditures within a state were made when the federal government maintained ownership of the funds until they were disbursed, but worked cooperatively with the state administration.[3] Both grants and direct expenditures were allocated among states in a number of ways: by legislated formula, by matching grants, and at the discretion of the relevant federal administrator. It was the discretionary part of the grants that raised the specter of political manipulation. Roosevelt and Harry Hopkins, the relief administrator, insisted that grants were allocated on the basis of need, but their detractors never hesitated to argue that they were based on political expediency. And Roosevelt was given more latitude, particularly in the early 1930s, than any other peacetime president has ever had. The need to get New Deal programs in operation quickly often resulted in considerable discretionary authority being given to the executive branch. The largest single New Deal appropriation, the Emergency Relief Appropriation Act of 1935, authorized Roosevelt to spend up to $4.8 billion for the relief of the unemployed. The legislation did not create specific agencies or programs, but gave Roosevelt authorization to create whatever programs were necessary, the most important of which became the Works Progress Administration (WPA). On the other hand, formulas did matter in the allocation of grants and expenditures, and these were largely under the control of Congress. The use of explicit and implicit matching grants meant that the spending patterns of state and local governments mattered as well.

The fundamental question in the New Deal spending literature has been: Did Roosevelt and the New Dealers allocate money between states to achieve their

[2] A detailed analysis of New Deal expenditures and the importance of the New Deal in 20th century public finance is provided in Wallis (1984).

[3] There were also a number of loan and insurance programs.

stated goals of relief and reform by giving more money to states with lower employment and lower incomes, or did they promote their own interests and allocate more money to states that were politically sensitive?[4] This question has produced an econometric counterpart: were economic or political factors more important determinants of New Deal spending? An answer that political influences explain most or all of the allocation pattern of New Deal spending leads directly to the conclusion that the politicians deliberately used federal spending to promote their own interests while lying about their true motivation. While provocative, asking the question this way may not be the most productive way to find out what really determined the allocation of federal spending. One of the conclusions of this article is that the arbitrary classification of variables as economic or political not only produces econometric problems, but also misses some essential features of the New Deal.

Arrington, Reading, Wright, Wallis, and Anderson and Tollison have reached different conclusions on the importance of economic versus political determinants of grant allocations and expenditures. The first part of this article brings together all of this literature, casts the issues into a common framework, and reworks the data from the individual studies into a common data set that facilitates comparability between hypotheses. The New Deal spending functions are re-estimated using the common data set, and the independent effects of economic factors, presidential politics, and congressional politics are analyzed. One of the key political variables is leadership in the Senate and Nevada's senator, Key Pittman, was president pro tempore of the Senate for the entire New Deal. When Nevada is excluded from the analysis all of the political variables, not just Senate leadership, are altered dramatically.

Was Nevada or Key Pittman driving this result? The case of Nevada is examined closely, but the historical evidence is inconclusive. An alternative approach begins by asking whether Nevada and other western states received disproportionately large per capita New Deal spending simply because they had small populations and New Deal spending was lumpy. That is, if each state received some fixed amount of spending regardless of population, then states with small populations would receive larger per capita grants. Since small states have more electoral votes per capita and electoral votes per capita is an important component of several of the political variables, the statistical relationship between spending and the political variables may be the result of arithmetic rather than behavior.

The effects of the new specification on the political variables are similar to the results without Nevada, but the changes are more far-reaching. At least one major result each from Reading, Wright, Wallis, and Anderson and Tollison's work is called into question by the new specification, changes that affect both the

misspecified models. Another conclusion is that both economic and political forces were important determinants of New Deal spending. The closing sections of the paper show how political and economic influences on policy were intertwined during the New Deal, particularly when accommodating political interests was relatively inexpensive. A complete history of New Deal spending would treat these as complementary, rather than competitive explanations.

II. A BRIEF REPRISE OF THE ARGUMENTS

Arrington (1969, 1970) first pointed out that New Deal expenditures tended to be highest in states in the West with relatively high incomes, and lowest in states with relatively low incomes in the South. If Roosevelt had been rewarding his friends, the pattern would have been reversed, since the South was solidly Democratic and Democratic support in the West was unreliable. Reading (1974) implemented an econometric analysis of New Deal expenditures at the state level. In a 1934 fireside chat, FDR expressed the goals of the New Deal as "relief, recovery, and reform." He also identified improvement of national assets, particularly water resources, as another goal. Reading tried to determine whether the pattern New Deal expenditures was driven by the goals of relief, recovery, reform, or improving national assets.

Both Reading and Arrington based their studies on a report published by the Office of Government Reports in 1940.[5] This report detailed expenditures, by state and year, for each of the major New Deal programs. Reading assembled a set of proxy variables for each of the three hypothesis (pp. 795–799). He found support for the idea that New Deal expenditures were intended to promote the natural resources of the country, as expenditures were higher in states with more federal land. There was also support for the idea that the New Deal compensated for the effects of the Depression, as expenditures were higher where incomes had fallen most between 1929 and 1933 (a relief and recovery proxy). There was no support for the idea that New Deal programs promoted reform. The proxies for reform goals were per capita income, percentage of the population that was black, and the percentage of farmers who were tenants. None had an effect on the allocation of expenditures.

Wright (1974), using Reading's spending data, tested the hypothesis that political considerations were an important part of the allocation process. Utilizing information on the historical patterns of voting in presidential elections, Wright constructed a "political productivity" index, as well as several related political variables. He used a set of economic and political variables to explain the allocation of expenditures. The economic variables were decline in income from 1929 to 1933 income, unemployment in 1937, percentage of the population on relief in 1935, percentage of land in the state owned by the federal government, and the percentage of the population living on farms. The political variables will

[5] U.S. Office of Government Reports, Statistical Section, Report No. 10, Vol. II, Washington D.C. 1940.

be discussed shortly. Wright found that his political variables did a much better job of explaining the pattern of expenditures across states than did the economic variables: "a 'political' model explains between 58.7% and 76.9% of the variance in per capita spending over the whole period!" (p. 33). Wright's conclusion that political factors had more influence over New Deal policy than economic concerns is fundamentally important to New Deal history. The suggestion that Roosevelt and the Democrats were motivated by narrow political concerns is much different from the image of New Dealers as motivated by broad social objectives that the Democrats projected in the 1930s.

There are problems with the way both Reading and Wright set up their estimation procedures. Because of data limitations, they focused on the national government and limited themselves to one cross-section of 48 states, covering the entire period from 1933 to 1939. Most of the New Deal programs involved state and local governments, and many involved explicit or implicit matching grants. In a 1984 paper that looked closely at the behavior of state and local governments, Wallis showed that national grant policy was, in fact, responsive to state and local spending. This raised several important questions about Wright's conclusions about the role of economic versus political factors. For example, if states with higher incomes tended to spend more on relief (which they did), and states that spent more on relief got larger matching grants from the national government, then national grants would be positively associated with state income even if part of the national government's "reform" policy was to give states with lower incomes bigger grants. In order to explore those issues, it was necessary to move to a richer data set that included more detailed observations across the New Deal and better data on economic performance during the Depression.

In a second paper (1987), Wallis incorporated information on annual state level employment and annual per capita income to create a panel of seven years and 48 states.[6] Unfortunately, state and local government expenditures over the years 1933 to 1936 are not available. Using the panel data set, it was apparent that both economic and political factors had an effect on New Deal policy. On balance it appeared that the economic effects were more important quantitatively than the political effects, but the total effect on grants was relatively small. That is, neither political or economic factors alone, as proxied by employment and Wright's political productivity measure, drove New Deal allocation policy. The results, however, still showed that states with higher income received larger grants and left open the question of how state and local fiscal behavior affected national allocations.

Most recently, Anderson and Tollison (1991) suggested that Wright and Wallis had erred in their characterization of the political process. Wright's political measures are built around voting returns from presidential elections. Congress,

[6] The employment index is presented and explained in Wallis (1989). There are no consistent, state level unemployment estimates for the 1930s, so employment rather than unemployment is used in the panel estimates.

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however, exercises an important role in the allocation of national grants and spending through the choice of allocation formulas and control over agency funding. Anderson and Tollison incorporated several variables that proxied for the political influence of Congressional members—key leadership positions, tenure in office, and tenure on the appropriations committees—and found that these Congressional political variables had an important effect on the allocation of New Deal expenditures. Unfortunately, Anderson and Tollison did not test their hypothesis directly against Wright's political variables or utilize the more revealing panel data.

III. THE DATA

It would be nice if one could sit down with the five articles and compare the reported results to see which conclusions one wanted to choose, but this is difficult.[7] Although the papers use the same basic data set, they use it in different ways. The dependent variable in everybody's regressions is some measure of national activity per capita. Reading and Anderson and Tollison, use dollars of spending per capita; Wright and Wallis use thousands of dollars of spending per capita. The original reports present totals for three kinds of fiscal activity: expenditures, loans, and insurance. Reading reports four different combinations of these measures in his paper: expenditures (spending), loans, expenditures and loans, and total allocations (expenditures, loans, and insurance).[8] Wright (p. 33) limits his analysis to spending, explicitly excluding loans and implicitly excluding insurance. Wallis uses just spending. Anderson and Tollison (p. 166) define their variable as spending: "federal spending per state for New Deal programs (1933–39) per capita;" but the mean they report for their variable, $448.36 (p. 170), is the arithmetic mean of the total allocations from Reading (p. 794).

The confusion is understandable. What the original report terms "expenditures" is the sum of grants and direct expenditures made within states by the national government. The distinction between grants and direct expenditures was not a clear one for many New Deal programs. For example, under the Federal Emergency Relief Administration (FERA), relief grants were made to the states. The states then distributed the grants to local relief agencies which distributed the funds to individuals. Under the WPA, which succeeded FERA in 1935, state and local WPA agencies and employees were national government employees and agencies. WPA wages were given "directly" to individuals. Federal spending for FERA programs was grants, federal spending for the WPA programs was direct expenditures.[9] Both programs are treated as New Deal "spending" in the data set. There is no distinction between grants and direct expenditures.

While Wright was working on his article, Reading was working on his

[7] The five articles are Reading (1973), Wright (1974), Wallis (1984) and (1987), and Anderson and Tollison (1991).

[8] Totals for each of the three categories by state are given in Reading's appendices, pp. 808–810.

[9] FERA policies are described in Williams (1939). WPA policies are described in Howard (1943).

dissertation. Reading kindly sent his working notes to Wright, heavily annotated, from which Wright took his spending numbers. Reading subsequently finished his dissertation and published his numbers in the *Journal of Economic History.* Wright's numbers, therefore, deviate slightly from Reading's numbers. While writing my dissertation in 1981, I asked Wright for a copy of his numbers. He graciously sent me a copy of a preliminary computer run that he had kept. Since I was working from a preliminary set of numbers, I was not surprised to find that my results were very close to Wright's published results, but not exactly the same. I was more interested in the political productivity measure, since I was developing my own spending numbers. Then the economics department at the University of Michigan burned down, and I was in possession of the last copy of Wright's data.

The result is that only Reading and Anderson and Tollison use exactly the same data set in their estimates, since they took their data directly from Reading's article. Yet you would compare the wrong regression in Reading with Anderson and Tollison if you followed their text and assumed that they had used Reading's expenditure measure, when they had used the total allocation measure. In attempts to replicate Wright's results, I found that my estimates were closer to his original results when I used total allocations per capita than when I used just spending per capita. Despite this, as Wright noted (p. 33): "Only regressions for expenditures are reported, but the conclusions of the article hold for loans and expenditures combined." Indeed, the qualitative results are unaffected whether one uses Reading's total allocations per capita, Reading's expenditures per capita, Wright's total allocation per capita, or Wright's expenditures per capita (as the Wright data came to me in 1981).

It is important to be clear about terms and measures. This paper uses Reading's expenditure numbers as reported in his Appendix Table 1, p. 808. The panel estimates for 1934 to 1939 use annual expenditures data from Wright's worksheets. The terms spending and allocations refer to this measure. Loans and insurance have been excluded from the empirical work. When the spending attributable to a specific federal agency is discussed, I will use the terms grants and expenditures to denote that spending, depending on how the bulk of the money allocated by the agency was distributed. There is no distinction between grants and direct expenditures in the data set, but there is in the narrative.

There are three groups of independent variables:

The Economic Variables

These include the proportion of the population living on farms (Wright and Wallis); the change in per capita income, 1929 to 1933 (all); the percentage of land owned by the federal government in each state (all);[10] the number of cases on relief as a percentage of population (Wright and Wallis); unemployment in 1930

[10] Reading uses the percentage of federal land published in 1937 (see his footnote 5). Anderson and Tollison report in their text that they use data from 1948, although they provide no references from 1948 in their data sources, footnote 12. I have gone with the Reading numbers.

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(Anderson and Tollison); unemployment in 1937 (Reading, Wright and Wallis); and total farm value per capita in 1929 including land, buildings, implements and machinery, and livestock (Anderson and Tollison).

The decline in income can be calculated as the difference in levels or the percentage difference using 1929, 1933, or an average of the two years as the base, and it can be calculated in real or nominal terms. I calculate it as the change in real income (1935 dollars) as a percentage of the 1929 level of income: real income in 1932 minus real income in 1929, divided by real income in 1929. In the panel data set, annual real per capita income is entered directly.

The farm variables are quite different. Wright's percentage of the population living on farms is, more or less, a rural percentage. Anderson and Tollison's per capita farm value is interpreted as suggesting that "New Deal farm subsidies were disproportionately aimed at states where larger agribusiness firms were important, regardless of the number of small family farms, contrary to much of the political rhetoric offered at the time." (p. 170) To capture the agribusiness effect, Anderson and Tollison should have looked directly at average value per farm, rather than per capita, controlling for the general influence of farmers in the state via a measure like Wright's.[11] I include all three measures at different times in the analysis.

Unemployment in 1930 and unemployment in 1937 are both poorly measured variables by modern standards. When replicating Anderson and Tollison I use the 1930 numbers; when replicating Wright I use the 1937 numbers. The panel data employs an annual state employment index, 1929 = 100, which allows for more careful control of employment conditions. The employment index proves to be an important variable.

The political variables are broken into two groups, the presidential variables and the congressional variables.

The Presidential Variables

The basic premise of Wright's argument was that grant dollars should be politically more productive when spent in states that, historically, were likely to swing between the two parties. Wright collected information on the Democratic share of the presidential vote from 1896 to 1932. By fitting a linear trend to the data he "predicted" the vote in 1936. Then using information on the standard deviation around the trend, he constructed a voting distribution for each state, with the predicted mean and the observed standard deviation. He then evaluated the probability that the democratic vote would be 50 percent or greater, Pr_0, and compared that to the probability that the vote would be 50 percent or greater if the whole distribution was shifted 1 percent towards the Democrats, Pr_1. The change in probability is the difference between the two: $Pr_{0.01} = Pr_1 - Pr_0$. Since

[11] The way Anderson and Tollison measure farm size, a very large farm in New York will produce a much smaller per capita farm value than a small farm in North Dakota. The intention is to measure size per farm. Including a measure such as percentage of population living on farms controls for the general prevalence of agriculture in a state.

presidential elections are winner take all at the state level, the change in the probability has to be multiplied by the number of electoral votes in a state, V_i, to get the expected benefit of shift in the voting distribution, which Wright terms $E_i = V_i \Delta \mathrm{Pr}_{0.01}$.

Votes are not free, however. Wright assumes that a given amount of expenditure per capita in a state can purchase 1% of the vote. Since states vary in the sizes of their electorates, Wright divides E_i by 1% of the total vote in the state, T. The final measure of political productivity, which Wright terms VL_i, is

$$\text{Political Productivity} = VL_i = V_i \Delta \mathrm{Pr}_{.01}/(0.01T). \quad (1)$$

An alternative way of writing the equation transforms the 1% of the total vote into 1% of the population times the voter participation rate,

$$\text{Political Productivity} = VL_i = (V_i/P_i)(\Delta \mathrm{Pr}_{0.01}/0.01 \times \mathrm{PR}_i) \quad (2)$$

where P is population and PR is the voter participation rate. This form of the equation will be useful later.

In addition, Wright included the standard deviation of the Democratic share of the presidential vote as a measure of the variability of a state's voting behavior. States with a higher variance require greater expenditures in order to ensure a majority with a given level of confidence.[12]

Wright estimates one regression, Eq. (11) in his paper, where he uses components of the political productivity measure rather than the measure itself. These are electoral votes per capita, the standard deviation of the vote, and the absolute difference of the predicted vote from 50%. Anderson and Tollison do not use Wright's political productivity measure, the standard deviation of the vote, or the difference of the predicted vote from 50%. But they do include electoral votes per capita and another measure, Roosevelt's share of the total vote in the 1932 election. Both Anderson and Tollison and Wright find that electoral votes per capita are an important explanatory variable: "In [equation] (11), the variation in *V*/POP [electoral votes per capita] is particularly important. Small wonder that the small states favored the system of centralized discretionary disbursement" (Wright, p. 33).

Congressional Variables

The heart of Anderson and Tollison's argument is that key Congressional leaders should have been able to obtain larger grants for their constituents. They used six measures, three each for the Senate and the House. In the Senate these are a dummy variable if a state's Senator was president pro tem or Senate Majority Leader during the period from 1933 to 1939; the length in months of the

[12] Elsewhere, I have interpreted this measure differently. If states that switch votes between parties more frequently are presumed to be more easily swayed by federal largess, then the standard deviation of the vote can be interpreted as a measure of how easy it is to buy votes in a state with grants. There is no obvious test that would discriminate between Wright's interpretation and mine.

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consecutive tenure of the state's Senate delegation in December 1937, and the length in months of the consecutive tenure of Senators serving on the Senate Appropriations Committee in December 1937. The House variables are the same, with the exception that the House leadership positions are Speaker of the House and Majority Leader.

A few problems with these variables arise immediately. First, while both Senate and House tenures are counted in months, their table of summary statistics, Table 1, p. 170, gives the average tenure in the Senate as 187 months, while the average tenure in the House is 0.22 months, roughly 7 days. Average tenure on the Senate Appropriations committee is given as 55 months, while average tenure on the House Appropriations committee is given as 0.01 months. This is carried through in their regression results where, in Table 2 Eq. (2), the effect of one month's additional tenure on the Senate Appropriations committee results in an increase in national spending of $0.34 in a state between 1933 and 1939, while one month's additional tenure on the House Appropriations committee results in additional spending of $842.35. Given that the average spending over the years 1933 to 1939 was only $448.36, membership on the House committee would have been quite valuable. Clearly there was an error in their coding.

In the data used here, tenure is dated in months from the opening day of the Congressional session beginning January 3, 1937 rather than in December of 1937.[13] I find average Senate tenure of 176 months (compared to 187 in Anderson and Tollison's data), average House tenure of 582 months, average Senate Appropriations Committee tenure of 42 months (compared to 55 months), and average House Appropriations Committee tenure of 59 months. There is no obvious way to fix the Anderson and Tollison numbers for House tenure. In the results that follow I present Anderson and Tollison's original results and my re-creation of their estimates. Since the House tenure variables enter into every regression, my results are different from theirs, sometimes significantly so.

A second problem comes with their leadership variables. Senate leadership is based on whether a state's Senator was the majority leader or president pro tempore. Since Key Pittman of Nevada was president pro tempore for the entire period, Nevada gets a 1 in the dummy variable for Senate leadership. Unfortunately, Nevada also received far and away the largest per capita grants. In Reading's total allocations Nevada receives $1,499.39, fully one half again as much as the next state, Montana with $986.30, and more than triple the national average.[14] Not surprisingly, Senate leadership is consistently positive. Any variable that proxies for Nevada will be positive.

There is another problem as well. Anderson and Tollison report a mean for their

[13] Using the opening date of the Congressional session rather than December 1937 was done to facilitate collection of the panel data, which vary according to Congressional session. As the numbers in the text suggest, my tenure numbers for the Senate are essentially Anderson and Tollison's less 12 months.

[14] Nevada was also the leader in per capita expenditures with $1,130. Detail on the expenditure numbers are given in Arrington (1969). The data on expenditures by agency are particularly helpful.

Senate Leadership variable of 0.04, implying that Senators from two states held leadership positions between 1933 and 1939 (2/48 = 0.04). In fact, three Senators held leadership positions. Joseph Robinson of Arkansas was elected Majority Leader for the 73rd, 74th and 75th Congresses, spanning the years 1933 to 1939. But Robinson died on July 14, 1937 and was replaced by Alben Barkley of Kentucky on July 22. Three states, not two states, should be included in the Senate Leadership dummy variable: Nevada (Pittman), Arkansas (Robinson), and Kentucky (Barkley).

It is surprising that Anderson and Tollison did not question their finding that Senate leadership is consistently positive while House leadership is not. The Speaker of the House should have exercised dominant control over the Congressional agenda when it came to the details of things such as grant formulas.[15] The Senate was not without resources, but spending legislation originated in the House and the Speaker could control what bills entered the stream of legislation that, ultimately, would go to conference committee. As the empirical result show, however, House leadership is not important and Senate leadership is important only under certain conditions. We turn to the results.

IV. THE NEW DEAL RESULTS

The first step is to replicate Wright's, Wallis's, and Anderson and Tollison's results using comparable data sets.[16] Table 1 reports variable means and standard deviations for the simple cross-section of 48 states used to replicate Wright and Anderson and Tollison and the panel data set with 6 years of data used to replicate the Wallis (1987) results. The dependent variable in the regressions that follow is per capita expenditures as reported by Reading, measured in nominal dollars for Wright and Anderson and Tollison and 1935 dollars for Wallis. The decline in income is the decline in real per capita income from 1929 to 1933 as a percentage of 1929 per capita income. The congressional variables are described in the previous section and, because of the correction of errors, do not duplicate the Anderson and Tollison House Tenure, House Committee Tenure, or Senate Leadership variables.

Table 2 replicates the key regressions from Wright and Wallis. The major difference in the replicated results is scale.[17] Most of the coefficients are a thousand times larger, since spending is measured in dollars rather than thousands of dollars. The lagged grant variable in the Wallis regression stays at the same

[15] There were three Speakers in the House between 1933 and 1939: Rainey of Illinois, Byrnes of Tennessee, and Bankhead of Alabama. All three had been majority leader while their predecessor was Speaker. The fourth House leadership position went to Rayburn of Texas, majority leader in 1939, who became Speaker in 1940.

[16] I have not replicated Reading's results, as they are superseded by all of the versions that include political measures.

[17] Other differences between the original and replicated results are the result of minor improvements made to the employment index, the different measure of decline in income, and small corrections made to the spending variables.

TA
Variable Means an

Aggregate variables, 1933–1939 (*N*
Per capita national spending
Percentage decline in income
Unemployment 1930
Unemployment 1937
Farm value per capita
Farm population share
Percent federal land
Democratic vote, 1932
Per capita electoral votes
Rank of electoral votes
Senate leadership
House leadership
Senate tenure
House tenure
Senate appropriations
House appropriations
Political productivity
Standard deviation of vote
Annual variables, 1934–1939 (*N* =
Per capita national spending
Percentage decline in income
Farm population share
Percent federal land
Senate leadership
House leadership
Senate tenure
House tenure
Senate appropriations
House appropriations
Political productivity
Standard deviation of vote
Employment index
Per capita real income
Lagged per capita spending

magnitude, as it is simply the lagged de
measured differently, and produces diff

Table 3 replicates two regressions fr
replicated regression coefficients are s
The exceptions are Income Decline, Ho
Income Decline coefficient should b
standardized way described earlier. Th
correctly in months and its coefficien

TABLE 1
Variable Means and Standard Deviations

Aggregate variables, 1933–1939 ($N = 48$)	Mean	Standard deviation
Per capita national spending	293.44	178.11
Percentage decline in income	−28.73	7.89
Unemployment 1930	5.75	2.25
Unemployment 1937	4.22	0.89
Farm value per capita	0.64	0.55
Farm population share	0.29	0.16
Percent federal land	13.45	20.63
Democratic vote, 1932	64.75	12.74
Per capita electoral votes	0.0060	0.0045
Rank of electoral votes	24.50	14.00
Senate leadership	0.063	0.24
House leadership	0.083	0.28
Senate tenure	175.90	121.97
House tenure	582.46	721.74
Senate appropriations	41.79	65.75
House appropriations	59.15	110.87
Political productivity	0.041	0.036
Standard deviation of vote	10.18	4.33
Annual variables, 1934–1939 ($N = 288$)	**Mean**	**Standard deviation**
Per capita national spending	43.78	27.34
Percentage decline in income	−0.29	0.08
Farm population share	0.29	0.16
Percent federal land	13.45	20.45
Senate leadership	0.042	0.20
House leadership	0.042	0.20
Senate tenure	175.16	114.04
House tenure	559.60	697.96
Senate appropriations	42.47	65.08
House appropriations	67.10	109.71
Political productivity	0.041	0.036
Standard deviation of vote	10.18	4.29
Employment index	85.98	9.84
Per capita real income	456.85	164.99
Lagged per capita spending	37.77	28.36

magnitude, as it is simply the lagged dependent variable. The decline in income is measured differently, and produces different, but insignificant coefficients.

Table 3 replicates two regressions from the Anderson and Tollison paper. The replicated regression coefficients are similar to the originals for most variables. The exceptions are Income Decline, House Tenure, and the Senate variables. The Income Decline coefficient should be different, since it is measured in the standardized way described earlier. The House Tenure variable is now measured correctly in months and its coefficient is much smaller, although it is still not

TABLE 2
Original and Replicated Wright Results and Wallis Results (t-stat)

	Wright original (1)	Wright replicated (2)	Wallis original (3)	Wallis replicated (4)
Constant	0.058	45.22	0.03	40.99
		(0.42)	(2.6)**	(2.48)**
Income decline	0.54	−0.20	−0.00	10.81
	(1.36)	(−0.07)	(−0.4)	(0.7)
Unemployment	−0.0043	−6.06	—	—
	(−0.23)	(−0.33)		
Farm population	0.238	118.71	0.05	63.18
	(1.95)	(0.85)	(3.8)**	(3.68)**
Federal land	0.0048	4.98	0.00	0.14
	(4.79)	(4.87)*	(3.1)**	(1.79)*
Relief cases	0.093	0.00	—	—
	(0.34)	(0)		
Political productivity	1.36	1277.34	0.09	92.20
	(2.74)	(2.63)**	(3.5)**	(3.48)**
Standard deviation	0.0109	11.16	0.0009	0.93
	(2.06)	2.28)**	(3.4)**	(3.47)**
Employment index	—	—	−0.0006	−0.80
			(−4.6)**	(−3.46)**
Real income	—	—	0.00003	0.04
			(2.3)**	(3.08)**
Lagged spending	—	—	0.56	0.56
			(14.0)**	(13.27)**
R-squared	0.75	0.73	—	—
N	48	48	288	288
F-stat	—	—	—	129

significant. The Senate Appropriations committee variable does not change much in magnitude, but it is now insignificant at the 5% level.

The Senate leadership issue is complicated. Anderson and Tollison had several specifications, one which included electoral votes per capita, Model 3 (columns (1) and (2) in the table) and the other which included the state's rank in electoral votes per capita, Model 4 (columns (3) and (4) in the table).[18] Electoral votes per capita picks up the Nevada effect. The value for Nevada, per 1,000 population, is 0.039. The state with the next highest value is Delaware with 0.012. The state with the lowest value is New York with 0.0037. The national average is 0.006, with a standard deviation of 0.0044. Nevada is the only state significantly more than one standard deviation from the mean, with three times the value of the next state, and five times the mean value. Not surprisingly, when electoral votes per capita are included, the coefficient on Senate Leadership is substantially reduced and statistically insignificant. When the rank of electoral votes per capita is included,

[18] They also have a set of regressions that include tenure on the House Appropriations committee and drop the total House tenure.

TABLE 3
Original and Replicated Anderson an

	A&T original model (3) (1)	A&T replicated model (3) (2)	A&T mod
Constant	−175.74	−185.70	−16
	(−1.01)	(−1.46)	(−
Income decline	2.38	−2.45	
	(0.76)	(−1.25)	(
Unemployment	16.94	10.77	2
	(2)	(1.45)	(
Farm value	212.77	101.40	23
	(5.41)**	(3.35)**	(
Federal land	4.3	3.54	
	(5.65)**	(4.4)**	(
FDR vote	2.19	1.94	
	(1.64)*	(1.57)	(
Senate leader	139.21	25.76	32
	(1.81)*	(0.49)	(
House leader	−3.87	−28.75	2
	(−0.08)	(−0.68)	(
Senate tenure	−0.04	−0.11	−
	(−0.38)	(−0.96)	(−
House tenure	−86.05	0.01	12
	(−0.73)	(0.4)	(
Senate approp	0.33	0.20	
	(1.95)*	(1.07)	(
Electoral votes	19,280.11	19,487.00	
	(4.49)**	(5.19)**	
Rank	—	—	
			(
R-squared	0.90	0.88	
N	48	48	4

the coefficient on Senate Leadership is positi
results, columns (2) and (4), the coefficient i
per capita is included, but significant when r
included.[19]

To test for the Nevada effect, column (5) c
reported in column (4), but excludes the obse
on Senate leadership falls from 169 to 18 and
of the Anderson and Tollison results turn
Senator Key Pittman. Controlling for Nevad
results.

Table 4 reports two sets of regressions usi

[19] The coefficient, 169.83, is also economically signifi
would raise spending by $169.83, roughly a third of avera

TABLE 3
Original and Replicated Anderson and Tollison Results (*t*-stat)

	A&T original model (3) (1)	A&T replicated model (3) (2)	A&T original model (4) (3)	A&T replicated model (4) (4)	A&T replicated w/o Nevada (5)
Constant	−175.74	−185.70	−162.03	−151.62	−143.77
	(−1.01)	(−1.46)	(−0.72)	(−0.82)	(−0.97)
Income decline	2.38	−2.45	1.49	0.27	−3.46
	(0.76)	(−1.25)	(0.39)	(0.11)	(−1.66)*
Unemployment	16.94	10.77	20.42	10.63	8.66
	(2)	(1.45)	(1.97)**	(1.09)	(1.11)
Farm value	212.77	101.40	233.06	127.58	83.44
	(5.41)**	(3.35)**	(5.07)**	(3.39)**	(2.64)**
Federal land	4.3	3.54	4.84	4.97	3.73
	(5.65)**	(4.4)**	(5.11)**	(5.12)**	(4.54)**
FDR vote	2.19	1.94	1.49	2.57	1.38
	(1.64)*	(1.57)	(0.96)	(1.61)	(1.06)
Senate leader	139.21	25.76	321.01	169.83	18.82
	(1.81)*	(0.49)	(3.9)**	(2.98)**	(0.33)
House leader	−3.87	−28.75	22.07	−29.84	−24.42
	(−0.08)	(−0.68)	(0.38)	(−0.56)	(−0.57)
Senate tenure	−0.04	−0.11	−0.06	−0.21	−0.17
	(−0.38)	(−0.96)	(−0.41)	(−1.44)	(−1.44)
House tenure	−86.05	0.01	127.16	0.03	0.03
	(−0.73)	(0.4)	(0.91)	(0.95)	(1.41)
Senate approp	0.33	0.20	0.45	0.26	0.15
	(1.95)*	(1.07)	(2.27)**	(1.1)	(0.77)
Electoral votes	19,280.11	19,487.00			
	(4.49)**	(5.19)**	—	—	—
Rank	—	—	3.33	3.20	3.64
			(2.23)**	(1.84)*	(2.61)**
R-squared	0.90	0.88	0.87	0.81	0.77
N	48	48	48	48	47

the coefficient on Senate Leadership is positive and significant. In the replicated results, columns (2) and (4), the coefficient is insignificant when electoral votes per capita is included, but significant when rank of electoral votes per capita is included.[19]

To test for the Nevada effect, column (5) of Table 3 duplicates the regression reported in column (4), but excludes the observation for Nevada. The coefficient on Senate leadership falls from 169 to 18 and becomes insignificant. At least part of the Anderson and Tollison results turn on the uniqueness of Nevada and Senator Key Pittman. Controlling for Nevada also has an impact on the Wright results.

Table 4 reports two sets of regressions using aggregate data for 1933 to 1939.

[19] The coefficient, 169.83, is also economically significant. Having a Senate leader from your state would raise spending by $169.83, roughly a third of average spending nationally.

TABLE 4
Aggregate Data from 1933 to 1939 with and without Nevada

	Wright model (1)	A&T model (2)	Wright model w/o Nevada (3)	A&T model w/o Nevada (4)
Constant	−31.25	−47.11	−38.14	62.54
	(−0.26)	(−0.25)	(−0.38)	(0.37)
Income decline	1.70	0.77	−0.38	−1.91
	(0.55)	(0.27)	(−0.14)	(−0.75)
Unemployment 1937	10.55	—	16.32	—
	(0.55)		(1.02)	
Unemployment 1930	—	3.99	—	1.80
		(0.28)		(0.15)
Farm value	7.80	7.40	5.87	4.13
	(2.20)**	(2.04)**	(1.96)*	(1.27)
Farm population	321.09	319.95	238.37	235.88
	(2.04)**	(1.29)	(1.79)*	(1.10)
Federal land	5.08	4.97	4.16	4.48
	(4.72)**	(4.21)**	(4.50)**	(4.37)**
Relief cases per capita	149.82	—	295.53	—
	(0.52)		(1.22)	
FDR vote	—	0.46	—	−0.68
		(0.28)		(−0.47)
Political productivity	778.54	907.46	151.89	337.55
	(1.51)	(1.79)*	(0.33)	(0.72)
Standard dev of vote	4.26	5.11	2.38	3.79
	(0.76)	(0.92)	(0.51)	(0.79)
Senate leader	111.98	103.20	−11.98	−9.85
	(1.74)**	(1.55)	(−0.19)	(−0.15)
House leader	−2.55	−14.32	5.93	−10.35
	(−0.04)	(−0.24)	(0.12)	(−0.20)
Senate tenure	−0.17	−0.18	−0.16	−0.16
	(−1.03)	(−1.07)	(−1.19)	(−1.17)
House tenure	−0.006	−0.003	−0.017	−0.004
	(−0.25)	(−0.12)	(−0.79)	(−0.2)
Senate approp	0.16	0.14	0.21	0.13
	(0.60)	(0.53)	(0.95)	(0.55)
R-square	0.79	0.79	0.74	0.71
N	48	48	47	47

The first set inserts the Anderson and Tollison congressional variables into the Wright model (columns 1 and 3). The second set inserts the Wright political variables into the Anderson and Tollison model (columns 2 and 4). The regressions are run with and without Nevada. I have modified both models slightly by including the percentage of population living on farms, "Farm Population," and the average value per farm, "Farm Value." This variable captures the size of the typical farm and should get at Anderson and Tollison's idea that agribusiness was important. The electoral vote variables are dropped, since Wright's political productivity variable incorporates that information.

The first two columns of the table
1930 or 1937, and in the inclusion of
share of the vote in 1932. Had An
directly against Wright's hypothesis,
reported in column (2). In neither spe
fare very well. Interestingly, in th
leadership is the only significant po
specification, column (2), Political
variable. The farm variables and fe
specifications.

Even the limited affect of politics
is dropped in columns (3) and (4). N
even at the 10% level. In a direct
against Wright's hypothesis, using A
the congressional variables matter. T
presidential or congressional, is crit

These outcomes, however, are li
observation and 14 variables. Table
covering 1934 to 1939. These regre
ment index, annual real per capita
drop the unemployment variable. T
least squares. The employment inde
with and without Nevada. As in
eliminating Nevada from the data se
of political productivity and of Sena

In general, the regressions in Tabl
explanation of grants than the po
population, farm value, and income
we use the coefficients from the spe
Nevada, a one-standard-deviation
grants by about 11% ($4.82 per
increase the share of federal land in
and a one-standard-deviation incre
farms would increase grants by 16%
the political productivity index w
standard-deviation increase in the
about 5% as well ($2.36). Of cou
smaller.

With the exception of the Sena
Nevada, none of the congressional

[20] The instrument for the employment in
in a state based on movements in annual
detailed explanation.

h and without Nevada

Wright model w/o Nevada (3)	A&T model w/o Nevada (4)
−38.14	62.54
(−0.38)	(0.37)
−0.38	−1.91
(−0.14)	(−0.75)
16.32	—
(1.02)	
—	1.80
	(0.15)
5.87	4.13
(1.96)*	(1.27)
238.37	235.88
(1.79)*	(1.10)
4.16	4.48
(4.50)**	(4.37)**
295.53	—
(1.22)	
—	−0.68
	(−0.47)
151.89	337.55
(0.33)	(0.72)
2.38	3.79
(0.51)	(0.79)
−11.98	−9.85
(−0.19)	(−0.15)
5.93	−10.35
(0.12)	(−0.20)
−0.16	−0.16
(−1.19)	(−1.17)
−0.017	−0.004
(−0.79)	(−0.2)
0.21	0.13
(0.95)	(0.55)
0.74	0.71
47	47

n congressional variables into the
ıd set inserts the Wright political
el (columns 2 and 4). The regres-
e modified both models slightly by
on farms, "Farm Population," and
is variable captures the size of the
ollison's idea that agribusiness was
dropped, since Wright's political
tion.

The first two columns of the table differ in the measure of unemployment used, 1930 or 1937, and in the inclusion of relief cases per capita in 1937 or Roosevelt's share of the vote in 1932. Had Anderson and Tollison tested their hypothesis directly against Wright's hypothesis, they would have run an equation like the one reported in column (2). In neither specification, however, do the political variables fare very well. Interestingly, in the Wright specification, column (1), Senate leadership is the only significant political variable; in the Anderson and Tollison specification, column (2), Political Productivity is the only significant political variable. The farm variables and federal land are consistently significant in both specifications.

Even the limited affect of politics on grants, however, disappears when Nevada is dropped in columns (3) and (4). None of the political variables are significant, even at the 10% level. In a direct test of Anderson and Tollison's hypothesis against Wright's hypothesis, using Anderson and Tollison's specification, none of the congressional variables matter. The importance of political variables, whether presidential or congressional, is critically dependent on Nevada.

These outcomes, however, are limited by the data. The regressions have 48 observation and 14 variables. Table 5 presents estimates from the panel data set, covering 1934 to 1939. These regressions include an annual state-level employment index, annual real per capita income, lagged real per capita spending, and drop the unemployment variable. The regressions are estimated using two stage least squares. The employment index is endogenous.[20] The table presents results with and without Nevada. As in the case of the aggregate data in Table 4, eliminating Nevada from the data set reduces the coefficient and significance both of political productivity and of Senate leadership.

In general, the regressions in Table 5 indicate stronger support for the economic explanation of grants than the political. Grants rise significantly with farm population, farm value, and income, and fall significantly as employment rises. If we use the coefficients from the specification in column (1) of Table 5, including Nevada, a one-standard-deviation improvement in employment would reduce grants by about 11% ($4.82 per capita per year), a one-standard-deviation increase the share of federal land in a state would increase grants by 10% ($4.50), and a one-standard-deviation increase in the share of the population living on farms would increase grants by 16% ($7.14). A one-standard-deviation increase in the political productivity index would raise grants by 5% ($2.10) and a one-standard-deviation increase in the variability of voting would raise grants by about 5% as well ($2.36). Of course, if Nevada is excluded, all the effects are smaller.

With the exception of the Senate leadership variable, which is plagued by Nevada, none of the congressional influence variables have a measurable impact

[20] The instrument for the employment index is a measure of aggregate movements in employment in a state based on movements in annual national industrial employment. See Wallis (1987) for a detailed explanation.

TABLE 5
Panel Data from 1934 to 1939 Two-Stage Least Squares

	Wallis model (1)	Wallis model w/o Nevada (2)
Constant	31.37	21.29
	(1.97)*	(1.70)*
Income decline	5.00	−9.24
	(0.31)	(−0.72)
Farm value	0.56	0.32
	(3.11)**	(2.21)**
Farm population	44.60	38.06
	(2.61)**	(2.81)**
Federal land	0.22	0.18
	(2.76)**	(2.85)**
Political productivity	58.41	33.99
	(2.03)**	(1.49)
Standard dev of vote	0.55	0.52
	(1.89)*	(2.30)**
Senate leader	9.25	−2.05
	(2.02)**	(−0.48)
House leader	−2.16	−3.21
	(−0.55)	(−1.04)
Senate tenure	−0.01	−0.01
	(−1.8)*	(−1.86)*
House tenure	−0.0004	−0.0009
	(−0.3)	(−0.94)
Senate approp	0.0100	0.0130
	(0.76)	(1.2)
Employment index	−0.49	−0.38
	(−2.24)**	(−2.17)**
Real income	0.018	0.019
	(1.31)	(1.76)*
Lagged spending	0.53	0.56
	(13.04)**	(15.0)**
F-stat	84	77
N	288	282

on spending. One odd result in Table 5 is the persistently negative, significant, but small effect of Senate tenure on grants. A one-standard-deviation increase in Senate tenure would reduce grants by about $1.14 per capita per year. This probably reflects the fact that, in the 1930s, it was the South (Democrats) and New England (Republicans) whose Senators were most likely to have long tenures and states in both regions received smaller grants. States with higher incomes still received higher grants, contradicting part of the reform explanations.

It is troubling when one observation exerts so much influence over the results. Was Nevada really a unique outlier or does it reflect more systematic features of the allocation process? One solution would be an estimator incorporating state fixed effects. But several of the important variables in the panel data set do not

vary over time, including the poli
variables cannot be included in su
are picked up by variables that
standard deviation of the vote, de
federal land, and the farm variab
Nevada and Key Pittman. The fol
alternative to see if the Nevada eff
data.

V. NEVADA

Was Nevada so unusual becau
Pittman powerful enough to bring
would have gone elsewhere? No de
historical evidence. The case for
influence rests on several facts. Be
million in federal spending, or $1,
72% of all Nevada's spending. T
Bureau of Reclamation for $34.5
Public Roads for $17.3 million and
Corp (CCC) for $16.5 million and
were extremely high. The states w
three agencies were the Bureau
Public Roads, Wyoming, $87, and

Bureau of Reclamation expendi
yon project. The project was begun
and was not influenced by Pittman
funds were allocated primarily by
and miles of rural post road. Neva
but 3.8% of the nation's land area
capita road grants would be 15 tim
have affected the choice of the gra
advantage of all western states wit

[21] These figures are taken from Arringt
program.

[22] Stevens (1988) has written an excelle
than a ceremonial role.

[23] The Bureau of Public Roads Annual
funds were to be allocated between the stat
balance of $394,000,000 was apportione
Seven-eighths of the total was apportion
authorizations, i.e., three equal parts eac
post-road mileage of the participating gove
population" (p. 9). Under that formula, Nev
the basis of land area alone (0.038 × 0.33
times one-third of the grant remaining after

vary over time, including the political productivity index, and so state dummy variables cannot be included in such a regression. State fixed effects, as a result, are picked up by variables that do not vary over time: political productivity, standard deviation of the vote, decline in income from 1929 to 1932, percent federal land, and the farm variables. The next section takes a closer look at Nevada and Key Pittman. The following section works through an econometric alternative to see if the Nevada effect is the result of more general patterns in the data.

V. NEVADA AND KEY PITTMAN

Was Nevada so unusual because of its unique characteristics, or was Key Pittman powerful enough to bring millions of dollars to his state that otherwise would have gone elsewhere? No definite conclusions emerge from a review of the historical evidence. The case for Nevada's uniqueness and against Pittman's influence rests on several facts. Between 1933 and 1939, Nevada received $102 million in federal spending, or $1,130 per capita. Just three agencies account for 72% of all Nevada's spending. They were, in total and per capita terms: the Bureau of Reclamation for $34.5 million and $380 per capita, the Bureau of Public Roads for $17.3 million and $217 per capita, and the Civilian Conservation Corp (CCC) for $16.5 million and $213 per capita. These per capita expenditures were extremely high. The states with the next highest per capita grants for these three agencies were the Bureau of Reclamation, Arizona, $98, the Bureau of Public Roads, Wyoming, $87, and the CCC, Idaho, $127.[21]

Bureau of Reclamation expenditures were for the Hoover Dam/Boulder Canyon project. The project was begun under Hoover, was continued under Roosevelt, and was not influenced by Pittman in any apparent way.[22] Bureau of Public Roads funds were allocated primarily by a formula that combined population, land area, and miles of rural post road. Nevada had only 0.07% of the nation's population, but 3.8% of the nation's land area. On the basis of land area alone Nevada's per capita road grants would be 15 times the national average.[23] While Pittman might have affected the choice of the grant formula, the formula worked equally to the advantage of all western states with large land areas and small populations. CCC

[21] These figures are taken from Arrington's (1969) detailed breakdowns of spending by state and program.

[22] Stevens (1988) has written an excellent history of the Dam, one in which Pittman plays no more than a ceremonial role.

[23] The Bureau of Public Roads Annual Report for 1934 described how $400,000,000 in highway funds were to be allocated between the states: "After deduction of 1½% for Federal administration the balance of $394,000,000 was apportioned in the manner required by the act of June 16, 1933. Seven-eighths of the total was apportioned, as required in the manner prescribed for Federal aid authorizations, i.e., three equal parts each were divided according to the area, population, and post-road mileage of the participating governmental units; and one-eight was divided in proportion to population" (p. 9). Under that formula, Nevada would receive 1.1% of the $394,000,000 allocation on the basis of land area alone ($0.038 \times 0.33 \times 7/8$); that is, Nevada's share of the nation's land area times one-third of the grant remaining after one-eighth had been allocated by population.

east Squares

llis model w/o Nevada (2)

21.29
(1.70)*
−9.24
(−0.72)
0.32
(2.21)**
38.06
(2.81)**
0.18
(2.85)**
33.99
(1.49)
0.52
(2.30)**
−2.05
(−0.48)
−3.21
(−1.04)
−0.01
(−1.86)*
−0.0009
(−0.94)
0.0130
(1.2)
−0.38
(−2.17)**
0.019
(1.76)*
0.56
(15.0)**
77
282

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allocations were politically valuable and there is no reason to believe that Pittman would not have tried to garner CCC money for Nevada, just as every other Senator would.[24] In short, over half of the money that Nevada received could not have been affected by Pittman.

On the other hand, Pittman was a powerful Senator. First elected to the Senate in 1913, Pittman would become the chairman of the Senate Foreign Relations committee in 1933. An early supporter of Roosevelt, he played a role in helping Roosevelt obtain the Democratic nomination in 1932 and regularly voted for New Deal proposals in the Senate in 1933. Pittman was elected president pro tempore of the Senate on March 9, 1933, a position that he filled with some skill as a parliamentarian. Pittman was a leader of the Democratic party in the Senate and an important force to reckon with.[25] Pittman's role in shaping international monetary policy brought direct benefits to Nevada and other silver-producing states in the west.

Pittman led the western silver bloc to triumph in the passage of the Silver Purchase Act of 1934. The Act committed the Secretary of the Treasury, at his discretion, to purchase silver until the national monetary stocks were balanced at one-fourth silver and three-fourths gold. The average New York price of silver in 1932 had been $0.28 an ounce, by 1935 it was $0.64 an ounce, and the official Treasury price for newly mined silver reached $0.78 an ounce. Between July of 1934 and June of 1938 the Treasury acquired 219 million ounces of silver for $163 million in silver certificates, an average of $0.74 an ounce [Brennan (1969), pp. 153, 157]. If we assume the purchases represent a subsidy of $0.40 an ounce, Pittman and the Silver Bloc were able to deliver $87,600,000 in benefits to silver producers in Nevada and other western states, an amount close to total federal spending in Nevada.[26] In other words, Nevada was unique and Pittman was powerful and it is not easy to distinguish between the two.

[24] See Salmond (1967) for a history of the CCC.

[25] This brief description is based on material in Glad (1986).

[26] Pittman was only one of several leaders in the Silver Bloc, but he played a central role in obtaining the silver subsidy. It is interesting to compare how Pittman fits into the history of silver as compared to the history of Hoover Dam or the New Deal. Pittman is the major player in Brennan's *Silver and the First New Deal.* He is prominent in the story and his entry in the index is as long as Roosevelt's, far longer than for any other politician. Pittman barely earns a footnote in Stevens' *Hoover Dam: An American Adventure.* He appears only four times, each in a purely ceremonial role. (See also Duran and McBride (1993), Moeller (1971), and Wolf (1996) for the history of Hoover Dam.) By comparison, the active role that Washington state senators and representatives played in securing funding for Grand Coulee Dam is documented in Pitzer (1995). Pittman's biographers, Glad and Israel, spend far more time on silver and foreign relations than they do on domestic affairs. Pittman is a visible player in general histories of the New Deal, but again for his role in silver legislation and foreign relations, particularly the Neutrality Acts (see, for example, Leuchtenberg (1963) and Freidel (1973)). Glad concluded that: "Except for his role in shaping monetary policy, . . . Key Pittman played no central role in shaping New Deal programs" (p. 182). There is no evidence in the traditional New Deal history that Pittman exerted the kind of influence over domestic New Deal program allocations that is reflected in the disproportionate per capita amounts that Nevada received.

VI. AN ALTERNAT

The historical evidence is mixed, explains not only the Nevada effect bu explicit assumption, one that other ir spending is the appropriate measur specification in Tables 2 through 5. Th of the political variables are based on both per capita spending and per capi state's population. The strong, positive capita electoral votes, and therefore matter of construction rather than subs

As Wright noted, it was almost im give money to a state; the political p simply too strong.[27] Suppose that the amount, and then an additional amo mined by

$$S_i =$$

where S is total spending, P is popul Equation (3) is a model without politi is constant across states. Equation (3)

$$S_i/P_i =$$

Empirical estimates of Eqs. (3) and $11,982,000 in Eq. (3) and $11,600,0 is $29.11 in Eq. (3) and $30.42 in Eq.

Electoral votes are determined by

$$V_i = 2 + I$$

where V is electoral votes and ϵ_v is an the interval from -1 to 1. Populatio 280,000 for each of the 435 represe capita are

$$V_i/P_i = 2/P_i +$$

The rub comes when electoral vo variable in a regression in which per Anderson and Tollison do this explic "rule-of-thumb" model, his Eq. (11) votes implicitly, since electoral votes political productivity measure (see Eq

[27] See the discussion in Wright, p. 32, and hi

VI. AN ALTERNATIVE SPECIFICATION

The historical evidence is mixed, but there is a quantitative alternative that explains not only the Nevada effect but the western effect as well. Wright made an explicit assumption, one that other investigators have accepted, that per capita spending is the appropriate measure of federal largess. This produces the specification in Tables 2 through 5. There is cause for concern, however. Several of the political variables are based on a measure of electoral votes per capita, and both per capita spending and per capita electoral votes decline with the size of a state's population. The strong, positive association of per capita spending and per capita electoral votes, and therefore some of the political variables, could be a matter of construction rather than substance.

As Wright noted, it was almost impossible for the federal government not to give money to a state; the political pressure to give every state something was simply too strong.[27] Suppose that the federal government gave every state a fixed amount, and then an additional amount per person. Spending would be determined by

$$S_i = a + bP_i, \tag{3}$$

where S is total spending, P is population in state i, and a and b are constants. Equation (3) is a model without political influence: marginal spending per capita is constant across states. Equation (3) can be rewritten in per capita terms:

$$S_i/P_i = a/P_i + b. \tag{4}$$

Empirical estimates of Eqs. (3) and (4) are given in Table 6. The value of a is \$11,982,000 in Eq. (3) and \$11,600,000 in Eq. (4), while the estimated value of b is \$29.11 in Eq. (3) and \$30.42 in Eq. (4).

Electoral votes are determined by

$$V_i = 2 + P_i/280{,}000 + \epsilon_v, \tag{5}$$

where V is electoral votes and ϵ_v is an error term with a uniform distribution over the interval from -1 to 1. Population in 1930 was 122,000,000, an average of 280,000 for each of the 435 representatives in the House. Electoral votes per capita are

$$V_i/P_i = 2/P_i + 1/280{,}000 + \epsilon_v/P_i. \tag{6}$$

The rub comes when electoral votes per capita are used as an independent variable in a regression in which per capita spending is the dependent variable. Anderson and Tollison do this explicitly. Wright includes electoral votes in his "rule-of-thumb" model, his Eq. (11). Wright and Wallis also include electoral votes implicitly, since electoral votes per capita are a component part of Wright's political productivity measure (see Eq. (2) above). In a bivariate regression of per

[27] See the discussion in Wright, p. 32, and his reference to Howard (1943, p. 603).

TABLE 6
Bivariate and Multivariate Regressions

	Total spending (1)	Per capita spending (2)	Per capita spending (3)	Predicted total spending (4)	Per capita spending (5)
Constant	11,982	30.42	17.2	15.9	38.36
	5.71**	23.4**	9.15**	48.1**	7.81**
Population	29.11	—	—	—	—
	49.5**				
1/Population	—	11,600	—	—	18,040
		18.63**			4.63**
Electoral votes per capita	—	—	4428	4648	−2559
			17.57**	104.7**	−1.68*
R-squared	0.8956	0.5483	0.5190	0.9746	0.5527
Adjusted *R*-squared	0.8952	0.5467	0.5173	0.9745	0.5496
N	288	288	288	288	288

capita spending on electoral votes per capita,

$$S_i/P_i = \alpha + \beta V_i/P_i + \epsilon, \tag{7}$$

which is equivalent to

$$a/P_i + b = \alpha + \beta(2/P_i + 1/280{,}000 + \epsilon/P_i) + \epsilon. \tag{8}$$

If we use the values of a and b from Eq. (3), and if we evaluate (8) at the mean state population, roughly 2,541,000, and the mean ϵ_v, which is zero, then

$$\beta = \alpha/(2/P_i + 1/280{,}000) + 34.99/(2/P_i + 1/280{,}000) = (\alpha/0.00435) + 33.82. \tag{9}$$

Column (3) of Table 6 reports a bivariate regression of spending per capita on electoral votes per capita from Eq. (7). The constant is 17.2. If $\alpha = 17.2$, the implied value of β from Eq. (9) is 4,082. The estimate of β in column (3) is 4,428 with a standard error of 252. The closeness of the two numbers suggests that a substantial portion of the explanatory power of electoral votes stems from the arithmetical similarities in the construction of spending per capita and electoral votes per capita, with some explanatory power coming from political effects.

There are other ways to test this. Using the coefficients in column (1) of Table 6, we can construct predicted total spending and divide by state population to get predicted per capita spending. Variation across states in this predicted variable is due solely to differences in state populations. Column (4) of Table 6 reports a bivariate regression of predicted spending on electoral votes per capita. The results are almost, but not quite, identical to the regression of actual per capita spending on per capita electoral votes reported in column (3). Again, it appears that most of the explanatory power of per capita electoral votes results from arithmetic.

A final test is presented in column (5) of Table 6. Equation (4) suggests the regression specification in column (2) of the table. Adding electoral votes per

capita to a regression of per capita spend
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per capita spending and the positive e
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0.5467; the adjusted R^2 when electora
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This is not to say that Eq. (3) is the
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spending: one type of spending alloca
call that S^f, and the other spending allo
forces depicted by Reading, Wright, W
S^p. The later type of spending may ha
amounts, and can be represented gene

$$S_i^p/P_i =$$

where X is the vector of political a
through 5, and ϵ is a normal error ter
Total per capita spending is the sum

$$S_i/P_i = (S_i^f + S_i^p)/P_i =$$

The variables are as defined in Eq.
per capita spending, the same as in
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between 1933 and 1939, and is c
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Nevada, with its population of
distribution and, as a result, has th
electoral votes per capita. The co
electoral votes per capita are extren
the correlation between population

[28] In alternate specifications where elec
and, in the case of the panel data, signif
significance to the negative coefficient on p

capita to a regression of per capita spending on the inverse of population produces column (5). In this specification per capita electoral votes has a *negative* effect on per capita spending and the positive effect of the inverse of population on per capita spending is accentuated. The adjusted R^2 of the column (2) estimates is 0.5467; the adjusted R^2 when electoral votes per capita is added is .5496. Per capita electoral votes represent essentially the same information as the inverse of population.

This is not to say that Eq. (3) is the last word in the political economy of New Deal spending. Political and other forces were important. But part of the allocation process, such as the population component of the highway grants, operated in the manner depicted in the equation. We can think of two types of spending: one type of spending allocated by processes such as those in Eq. (2), call that S^f, and the other spending allocated in response to political and economic forces depicted by Reading, Wright, Wallis, and Anderson and Tollison, call that S^p. The later type of spending may have been allocated with an eye to per capita amounts, and can be represented generally as

$$S_i^p/P_i = \lambda + \theta X_i + \epsilon, \tag{10}$$

where X is the vector of political and economic variables utilized in Tables 2 through 5, and ϵ is a normal error term.

Total per capita spending is the sum of the S^f and the S^p in a state:

$$S_i/P_i = (S_i^f + S_i^p)/P_i = (b + \lambda) + a(1/P_i) + \theta X_i + \epsilon. \tag{11}$$

The variables are as defined in Eq. (3) through (10). The dependent variable is per capita spending, the same as in Tables 2 through 5. The only difference is including the inverse of population. Table 7 presents the results of estimating equation (11). The dependent variable in column (1) is aggregate spending between 1933 and 1939, and is comparable to column (1) of Table 4. The dependent variable in column (2) is annual spending from 1934 to 1939, and is comparable to column (1) of Table 5. Both specifications include Nevada. Including the inverse of population has the same effect on the main political variables as excluding Nevada did in Tables 4 and 5. The coefficient on political productivity is reduced and it becomes statistically insignificant, while the effect of Senate leadership becomes zero.[28]

Nevada, with its population of 91,000, is at one extreme of the population distribution and, as a result, has the highest levels of spending per capita and electoral votes per capita. The coefficients on political variables that include electoral votes per capita are extremely sensitive to the exclusion of Nevada. But the correlation between population, per capita spending, and per capita electoral

[28] In alternate specifications where electoral votes per capita are included their effect is negative and, in the case of the panel data, significantly so. The coefficient is similar in magnitude and significance to the negative coefficient on per capita electoral votes in Table 6, column (5).

Predicted total spending (4)	Per capita spending (5)
15.9	38.36
48.1**	7.81**
—	—
—	18,040
	4.63**
4648	−2559
104.7**	−1.68*
0.9746	0.5527
0.9745	0.5496
288	288

(7)

$\epsilon/P_i) + \epsilon.$ (8)

evaluate (8) at the mean
hich is zero, then

$= (\alpha/0.00435) + 33.82.$ (9)

of spending per capita on
is 17.2. If $\alpha = 17.2$, the
f β in column (3) is 4,428
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ral votes stems from the
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by state population to get
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al votes per capita. The
ssion of actual per capita
mn (3). Again, it appears
ctoral votes results from

Equation (4) suggests the
dding electoral votes per

votes is present throughout the states. Controlling for the inverse of population affects more than the coefficients of political productivity and Senate leadership.

The coefficient on the standard deviation of the vote rises in magnitude and statistical significance. The coefficient on the tenure of a state's delegation in the House becomes positive and significant, while the coefficient on the tenure of a state's delegation in the Senate becomes negative and significant. The coefficient on House tenure is never significant in any other regressions, but the method used to measure House tenure includes the tenure of all the representatives from a state (following Anderson and Tollison). Since states with large populations have large House delegations, they have longer tenure in total (if not on average). Controlling for population purges the spurious size effect.[29] The negative coefficient of Senate tenure is still puzzling. But, as noted earlier, the explanation probably lies in the fact that states with long Senate tenures were likely to be New England Republican states or Southern Democratic states. Neither type of state was receptive to federal relief programs and, subsequently, both received small amounts of spending.

Including the inverse of population has other important effects as well. Most important is the effect on the group of variables that reflect economic performance: income decline, unemployment in 1937, the employment index, and real per capita income. In the aggregate data, the coefficient on unemployment in 1937 is positive and statistically significant. In the panel data, the income decline coefficient is negative and significant (indicating that states whose incomes fell further received more spending), the employment index coefficient is negative but becomes quantitatively smaller and statistically insignificant, and the coefficient on per capita income, for the first time in any specification, becomes negative. These variables are the heart of Reading's "relief, recovery, and reform" measures. These are the only empirical results in the literature where their coefficients all have the right sign, if not statistical significance.

"Relief, recovery, and reform" may have been an effective rhetorical device in Roosevelt's fireside chat, but it has little practical meaning to the economic historian. Far from representing distinct categories, income decline, employment, and per capita income reflect different dimensions of the same phenomenon: how deep and lasting were the effects of the Depression in each state. Judicious manipulation of specifications and variable definitions, not reported here, shows that, in the panel data set, the three variables are closely related.[30] What is most significant in these results is the effect of the specification on the signs of the coefficients.

The specification change also affects the farm variables. The coefficient on the

[29] That is, a state should not have an advantage in garnering per capita federal spending simply because it has many representatives, but, controlling for the size of the state, the longer the tenure of its delegation the more senior its representatives and the more per capita spending it receives.

[30] Specifically, by excluding income decline and varying the measure of employment used it is possible to obtain larger and significant coefficients on per capita income and the employment index. The results presented in the tables represent what I feel are the best specifications.

share of the population living on farms ha
most specifications, but becomes small
population is included. The coefficients
percentage of federal land remain positiv
surprising since both variables are distinct
ness" is not related to population and, th
inverse of population in the specification
detail in the next section.

The alternative specification of the a
produces an apolitical explanation of Nev
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Controlling appropriately for population
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VII. AN ALTERNATI

Just as it proves impossible to measur
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federal land. The focus is on the West,
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tions for why the West received so mu
political, and the third a mixture.

In 1930 many western states were n
Large amounts of unoccupied land wer
that land would be much more producti
control. Plans to reclaim those lands h
century.[31] From a purely economic p
presented an investment opportunity v
external) returns. The Boulder Canyon P
government's investment in construction
contracts for the sale of hydroelectric po

[31] The literature on western development is ex
Lowitt (1985).

share of the population living on farms had a positive and significant coefficient in most specifications, but becomes small and insignificant when the inverse of population is included. The coefficients on both average value per farm and the percentage of federal land remain positive and statistically significant. This is not surprising since both variables are distinctly western variables, but their "westernness" is not related to population and, therefore, is not affected by including the inverse of population in the specification. Federal land will be discussed in more detail in the next section.

The alternative specification of the allocation process embodied in Eq. (3) produces an apolitical explanation of New Deal spending that explains 90% of the allocation of total spending and 55% of the allocation of per capita spending on the simple basis of population alone. The use of electoral votes per capita as a proxy for political importance conflates the effect of population with politics. Controlling appropriately for population reduces the size and significance of both the political productivity and Senate leadership variables. Politics are still important, however. The standard deviation of the Presidential vote, and House and Senate tenure significantly affect spending allocations. Measures of economic performance also affect allocations, suggesting that the New Deal did respond to economic distress. But Reading's hope of separating the effect of relief, recovery, and reform goals is unrealistic.

VII. AN ALTERNATIVE PERSPECTIVE

Just as it proves impossible to measure separately the quantitative importance of relief, recovery, and reform as goals of New Deal policy, we should also abandon the attempt to distinguish between purely economic and political influences as competing explanations of New Deal spending. This section develops a complementary explanation of the role of political and economic forces and provides some quantitative support by closely examining the role of federal land. The focus is on the West, where the unusual amount of per capita spending is of central interest. What follows are three different possible explanations for why the West received so much. One is purely economic, one purely political, and the third a mixture.

In 1930 many western states were not far removed from their frontier days. Large amounts of unoccupied land were still available, and significant parts of that land would be much more productive if provided with irrigation and flood control. Plans to reclaim those lands had been developing since the late 19th century.[31] From a purely economic point of view, the large water projects presented an investment opportunity with large anticipated (although largely external) returns. The Boulder Canyon Project Act required that repayment of the government's investment in construction costs was to be guaranteed by executing contracts for the sale of hydroelectric power before the dam was built. By July of

[31] The literature on western development is extensive. See Worster (1985), Hundley (1975), and Lowitt (1985).

1930, $327 million in contracts had been signed, enabling construction to go forward (Stevens, pp. 31–32). When the New Deal began looking for ways to promote recovery through expansion of public works, the most attractive works were in the West. Proponents of western water projects were ready to step in and offer the government ready opportunities to expand employment and stimulate recovery. The geographic distribution of economically feasible public works projects was skewed toward the west. The western states' small populations produced very large per capita expenditures on these projects. Completely rational economic forces can explain this allocation pattern.

Turn next to silver. Roosevelt was interested, for economic reasons, in expanding the money supply.[32] In 1933, he systematically began purchasing gold and silver. The Silver Repurchase Act was of a piece with Roosevelt's economic strategy. Appeasing the Silver Bloc was important for Roosevelt's relationship with the Senate (the silver states had very little representation in the House). By raising the price of silver, FDR earned the gratitude of a bipartisan group of powerful Senators from the West. By continuing to hold silver prices above world market levels, he was able to insure their continued support through the 1930s.[33] Thus, by pursuing the economic goal of reflation, Roosevelt was able to obtain political influence in the Senate as well.

Finally, Roosevelt could simply have been following the electoral strategy laid out by Wright. The South was solidly Democratic and New England solidly Republican. Voters in the Northeast, Midwest, and West would be crucial to Democratic success, and western voters had traditionally been less stable in their voting parties. With their disproportionate weight in electoral votes, the West was an attractive political plum. In Table 7, the standard deviation of the Presidential vote continues to be an important explanatory variable.

These three scenarios are neither exhaustive nor are they mutually exclusive. All three explanations—investment in public works, silver, and electoral votes—were probably at work in the New Deal. There were certainly other forces at work as well. The point is that if Roosevelt, one of the most gifted politicians in the nation's history, acted rationally he would have been aware of all of the competing forces, political and economic, and responded to each appropriately at the margin. The coefficients in tables reflect these marginal responses. What did Roosevelt's response really cost?

The percentage of federal land in a state is the most robust variable across regression specifications. The mean percentage of federal land is 13.45% and the standard deviation is 20%. A one-standard-deviation increase in federal land would raise spending by $3.80 per person per year, 8.6% of the average annual per capita spending of $43.78. But increasing the percentage of federal land in each

[32] See Romer (1992) on the role of silver and gold purchases in generating economic recovery.

[33] Patterson (1967, pp. 312–315) recounts how, in 1939, Roosevelt was able to resist an attempt by conservative Senators to remove the president's powers to devalue the dollar, a power given to him in the Thomas Amendment to the Agricultural Adjustment Act of 1933. The cooperation of the Silver Bloc was critical to Roosevelt's success.

Regression Results

	pe
Constant	
Income decline	
Unemployment 1937	
Farm value	
Farm population	
Federal land	
Relief cases per capita	
Political productivity	
Standard dev of vote	
Senate leader	
House leader	
Senate tenure	
House tenure	
Senate approp	
Employment index	
Real income	
Lagged spending	
1/population	
R-squared	
F-stat	
N	

state by 20%, that is, giving a fifth o
would be anything but standard. Fed
13% but the median value is just 3.8%
land are Nevada (83%), Arizona (63
by Oregon, Wyoming, California, N

TABLE 7
Regression Results Including Inverse of Population

	Aggregate per capita spending 1933–1939 (1)	Annual per capita spending 1934–1939 (2)
Constant	−184.94	9.28
	−2.18**	0.61
Income decline	−0.46	−26.72
	−0.22	−1.78*
Unemployment 1937	29.76	—
	2.24**	
Farm value	5.72	0.41
	2.35**	2.43**
Farm population	256.69	3.25
	2.38**	0.19
Federal land	2.64	0.19
	3.19**	2.38**
Relief cases per capita	277.90	—
	1.42	
Political productivity	110.74	29.25
	0.30	1.10
Standard dev of vote	4.88	0.81
	1.29	3.03**
Senate leader	2.44	0.0019
	0.05	0.00
House leader	4.78	−4.78
	0.12	−1.31
Senate tenure	−0.086	−0.0130
	−0.77	−1.67*
House tenure	0.012	0.0022
	0.69	1.78*
Senate approp	0.11	0.0026
	0.60	0.22
Employment index	—	−0.046
		−0.21
Real income	—	−0.017
		−1.20
Lagged spending	—	0.44
		11.08**
1/population	59359	4977
	6.32**	6.62**
R-squared	0.91	—
F-stat	—	97.2
N	48	288

state by 20%, that is, giving a fifth of New York back to the federal government, would be anything but standard. Federal land is a western variable. The mean is 13% but the median value is just 3.8%. The states with the largest shares of federal land are Nevada (83%), Arizona (63%), Utah (60%), and Idaho (58%), followed by Oregon, Wyoming, California, New Mexico, Montana, Colorado, and Wash-

ington. South Dakota, with 16%, is the only state outside the Pacific and Rocky Mountain regions with a federal land share greater than 13%.

A common way to measure a variable's impact is to multiply its coefficient by one standard deviation. An alternative measure can be calculated by increasing federal land in each state by 1%, multiplying by each state's population, and summing the changes across all states to get the average effect on New Deal spending of an increase of federal land by 1%. Note that this is a proportional increase of 1%. Rather than increasing the percentage of federal land in Maryland from 1.8% to 21.8%, it increases to 1.818%, while the percentage of federal land in Nevada increases from 83 to 83.83%.

Table 8 presents the results of two calculations base on the coefficients reported in column (2) of Table 7. The second column calculates the effect of a one-standard-deviation shift in each independent variable on annual per capita spending per state. The third column calculates the effect of a 1% increase in each independent variable in each state on the level of total spending. The 1% measure is far from perfect, but it does point out an important facet of the data: several variables have a large impact on *per capita* spending while their impact on *total* spending is relatively small. This is particularly true of variables that are quantitatively larger

TABLE 8
Effect of Variables on Per Capita and Total Spending Allocations

	Significance (1)	Effect of one standard deviation change on annual $ per state per capita (2)	Effect of one percent change on annual $ per state total (3)
Income decline	*	($2.09)	$192,429
Farm value	**	$2.59	$110,675
Farm population	—	$0.52	$19,958
Federal land	**	$3.88	$29,262
Political productivity	—	$1.04	$22,838
Standard dev of vote	**	$3.47	$196,645
Senate leader	—	$0.00	$1
House leader	—	($0.96)	($7,663)
Senate tenure	*	($1.48)	($54,292)
House tenure	*	$1.55	$65,202
Senate appropriations	—	$0.17	$2,449
Employment index	—	($0.46)	($101,983)
Real income	—	($2.79)	($217,138)
Lagged spending	**	$12.40	$321,101
1/Population	**	$8.69	$49,774
Average annual grant		$43.78	
Average annual spending per state 1934–1939			$86,147,769

Notes. All coefficients are taken from column (2) of Table 7. Column (1): significance levels: ** 5%, * 10%. Column (2): coefficient: one standard deviation of variable (from Table 1 lower panel). Column (3): sum, over all states, of $X \times$ coefficient $\times$ 0.01 $\times$ population, divided by 288 (48 states and 6 years), where X is the value of the variable in each state in each year.

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in a state and the inverse of population.

The fact that western political interest
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goals were complements, rather than s
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throughout the country that wanted impr
power generation, at the same time that h
and silver producers who wanted inflatio
time that he was able to channel money t
more likely to switch their votes. At the
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in the west where populations are smaller, such as the percentage of federal land in a state and the inverse of population.

The fact that western political interests could be taken care of with a relatively small amount of money is the key to understanding why economic and political goals were complements, rather than substitutes. By supporting water projects and silver repurchasing Roosevelt was able to satisfy the liberal elements throughout the country that wanted improvements in public lands and more public power generation, at the same time that he was able to satisfy monetary extremists and silver producers who wanted inflation and a higher price for silver, at the same time that he was able to channel money toward voters who had been, traditionally, more likely to switch their votes. At the same time Roosevelt was able to devote billions of dollars to unemployment relief, 60% of total spending, which went primarily to urban, industrialized states in the north central and north east. He was able to do this because appeasing western political interests was very inexpensive. Nevada received $102 million between 1933 and 1939, 0.3% of the $26 billion in New Deal spending. But Nevada comprised only 0.07% of the nation's population. Reducing Nevada's spending to its share of the population would have given Roosevelt only an additional $75 million to spend elsewhere, less than a few months' relief appropriations for a state like New York. But by keeping Nevada and other western states flush, he could muster the votes of the silver bloc in support of large relief expenditures and other New Deal programs whose primary purpose was economic. Politics and economics worked together, not at cross purposes.

VIII. CONCLUSIONS

The Great Depression and the New Deal were a turning point in American political and economic history. When the government assumed a larger responsibility for social welfare, agricultural price supports, and economic regulation it changed what the government did. When intergovernmental grants and cooperation became the predominant method of financing and administering programs it changed how the government operated. Whether the changes were for better or worse has been a fundamental dividing point between Democrats and Republicans, liberals and conservatives in the half century since the New Deal. Do the coefficient values in these regressions tell us whether the New Deal was good or bad?

While there is a tendency to believe that actions motivated by purely political motives serve only the interest of the politicians, this is a questionable assumption at best. Evidence that political factors were the only empirical variables with any explanatory power and that economic variables, like income, had coefficients with the wrong signs, gave credence to the idea that the New Deal may not have been what it seemed. But as we have seen, much of the explanatory power of the political productivity variable and per capita electoral votes come from population size rather than political influence. Both political and economic influences seem to have been at work during the New Deal.

As to the coefficients, the results in Table 7 impartially overturn everyone's existing results. Reading's conclusion that unemployment did not matter is reversed in column (1). The importance that Wallis attached to the employment index is undermined by its statistical insignificance and reduced magnitude in column (2). Wright's political productivity variable is not significant in either specification. The weight that Anderson and Tollison placed on Senate leadership and per capita electoral votes was misplaced. There are compensations, however. Reading's general idea that the New Deal was directed toward relief, recovery, and reform finds much more support. Wallis's conclusion that both economic and political forces were important still holds. Wright's other political variable, the standard deviation of the Presidential vote, is still statistically and economically significant. And, saving Anderson and Tollison, House tenure exerts an appropriate effect on New Deal spending.

Exactly how much weight we should place on any individual coefficient estimate is not clear. None of these regression results are robust with respect to changes in specification. Trying to distinguish whether policy was motivated by "relief, recovery, or reform" is virtually impossible. The different hypotheses are not well enough defined, and the variables used to proxy for the policies are too closely related. While the gap between the economic and political hypothesis may seem wide, finding measurable variables that correspond to theoretical concepts is very difficult. When electoral votes per capita, the political variable that explains the largest share of the variation in spending, turns out to be a proxy for demographics, we know there are problems.

This does not mean we know nothing about the allocation process. Acknowledging that the federal government had to give some money to every state and that some programs, such as the highway grants, were allocated on the basis of population, gives us a better starting point. The inverse of population accounts for over half of the variation in per capita spending by itself. Adding political and economic variables to the simple model does improve our understanding. Both in the statistical sense that the economic and political variables add to the explanatory power of the regression, and in the fact that their coefficients make sense.[34] States with more variable voting patterns received more spending, as did states with more senior Representatives. States where incomes fell further, with lower employment, or lower incomes received more spending, although the effect is not always statistically significant.

The New Dealers certainly paid attention to both economic and political influences. Their most basic political policy was to mitigate the effects of the depression through the relief programs. Responding to economic distress was good politics; it returned Roosevelt to office regularly and kept the Democrats in power in Congress for decades. Undoubtedly more venal political interests played a role in spending patterns, but shifting money to states such as Nevada was small

[34] Tests of exclusion restriction on either the economic or political variables produce F-statistics showing that both sets of variables should be included in the regressions.

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change in the larger scheme of things. The New Dealers were able to achieve two goals simultaneously: giving more money to western water projects dovetailed perfectly with the older progressive tradition that encouraged improving national assets and providing competition for private power interests and it also placated monetary extremists. Perhaps Roosevelt's most durable achievement during the New Deal was creating a new set of government priorities in social welfare and economic regulation that shared the wide support of the voting population, and doing so in a manner that garnered support for the Democratic party from both voters and politicians. The Democratic Congressional majorities that appeared in the New Deal lasted until the 1980s. Many New Deal policies are as strong now as they ever were. Economic and political forces were as interconnected as mortar and brick in the process.

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Comparing British and Ame Performance 1860–1993:

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This paper considers the persistence of leadership, using the time series properties pace, and timing of convergence. We repo processes for GDP per capita and real wag gap between the two economies appears n after 1870. The evolution of distinct indu industrial technology transfer in GDP per c ity tests and calibration methods are used to education underpin the disparities in Br performance during the 20th century. © 19

INTRO

Changes in economic and industri industrial revolution and engendered l interest to economic historians, now a example, Brezis, Krugman, and Tsidd economic fortunes provide one of the b nature, timing, and causes of eventual Simon and Novak's (1964) pioneerin commercial success of the United State ing the 1890s as the crucial decade, (1980), and Wright (1990) follow the (1986) and Baumol (1986) shift attenti

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