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Did the New Deal Solidify the 1932 Democratic Realignment?

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When I took office, the first thing we had to do was mount an aggressive response to the worst economic crisis we'd seen since the Great Depression, because we didn't want a second Great Depression . . . And by the way, one of those steps was called the Recovery Act. And I want everybody to understand here's what it did . . . Now, sometimes you've got people who were critics of what we did, but they'll show up at the ribbon cutting. So I just want to make clear here what we did, because people try to score political points by attacking the Recovery Act, that's what they're attacking . . . relief for laid-off workers, investment in your community – 2.5 million Americans went to work today who otherwise wouldn't have gone to work.

–President Barack Obama, “Remarks by the President at Ottumwa, Iowa Town Hall,” April 27, 2010

I. Introduction

The election of 1932 was a turning point in the fortunes of the Democrats and Republicans. Democrats had won just three of the previous ten presidential elections and held a majority in both the House and the Senate in only four of the previous 20 sessions of Congress. After the “critical election” of 1932, Democrats won seven of the ten presidential elections from 1932 to 1968, and won majorities in both the House and the Senate in all but two of the 19 Congressional elections during this period. The New Deal, of course, which was not foreshadowed in Roosevelt's 1932 campaign, was not the cause of the 1932 election results. Hoover and the Republicans lost that election more than the Democrats won it. But there was nothing inevitable about the Democrats becoming the

majority party for the next fifty years, they could have squandered the opportunity handed to them by the nation's deepest depression, but they did not.

This paper seeks to measure the importance of the New Deal in facilitating the Democrats' control of the federal government well into the 1960s. From July 1933 to June 1941 (from fiscal year 1934 to fiscal year 1940), the federal government spent over \$27 billion on programs cooperatively administered by state and local governments aimed at relieving the unemployed, building the nation's infrastructure, and supporting farmers' incomes, among other programs. Total federal government expenditures in fiscal year 1929 amounted to only \$3.2 billion, so the New Deal spent more each year on programs administered in conjunction with state and local governments than the federal government spent in total prior to the onset of the Depression. Our aim is to estimate the impact of that spending on electoral outcomes over the course of the 1930s. This analysis will not tell us why the Democrats became the majority party in the middle of the 20th century, but it will help us to understand the role that an expanding federal government may have played in securing that majority.

The Roosevelt administration funded a variety of different programs in an attempt to revive economic activity. The Public Works Administration (PWA) handed out grants to build civil infrastructure, while the Federal Emergency Relief Administration (FERA), the Civil Works Administration (CWA), and the Works Progress Administration (WPA) granted state and local governments funds to provide work relief and direct relief and to build and maintain infrastructure. The New Deal launched the farm programs that paid farmers to alter their land usage. New Deal agencies loaned funds to state and local governments, banks, homeowners, farmers, and to industry in order to provide needed

liquidity. Through the Federal Housing Administration (FHA) the federal government sought to prop up the housing sector by insuring home improvement and mortgage loans.

Not all states or counties fared equally in terms of federal support. There was substantial geographic variation in how New Deal grants were distributed and there were great differences in the recoveries of local economies during the course of the New Deal. We have constructed a data set that measures federal spending of various types in over 3,000 counties from 1933 to 1939. We focus on two sets of grants programs that potentially directly impacted local citizens' economic well-being: relief and public works spending and AAA spending. Relief and public works spending was used to provide employment by hiring people to build a variety of public works projects or to perform a number of public maintenance activities. In contrast, the AAA grant payments were specifically designed to pay farmers to take land out of production in an attempt to curtail supply so that prices, and consequently farmers' incomes, would rise. Thus, the AAA potentially had perverse economic and political effects because as farmers were encouraged to reduce acreage, farm workers would have been disadvantaged. In fact, Fishback, Horrace, and Kantor (2005 and 2006) have shown that greater AAA spending in a county caused retail sales to decline and encouraged greater out-migration.

We test whether long-differences in the county-level electoral support for Democratic presidential candidates after the 1932 election can be attributed to the New Deal's interventions into local economies. We also investigate more narrowly whether voters rewarded Roosevelt from 1932 to 1936 and from 1936 to 1940 for his efforts to stimulate depressed local economies. Our working hypothesis, based on fundamental principles in both the political economy and political science literatures, is that local

voters should have rewarded the president's efforts to help their economies emerge from the Great Depression, all else constant. Though the predicted impact of AAA spending is more uncertain and remains an empirical question, as the economic benefits of AAA spending were unequally distributed across various segments of the farm population. In the process of estimating the contemporaneous electoral impact of local New Deal spending, we must be cognizant of the potential for endogeneity that would tend to bias an OLS estimate downward. First, the Democrats might have allocated New Deal funds strategically. In places where political leaders saw support for the President or the Democrats waning, New Deal spending might have been targeted in an attempt to bolster support. Second, if we are unable to fully measure economic shocks that were occurring at the county level, we might omit a variable, such as a negative economic event, that might have triggered greater New Deal spending but also placed blame on the Democrats. In both of these cases, an OLS coefficient would be biased downward and we would underestimate the true effect of New Deal spending on Roosevelt's local electoral support. Therefore, we adopt an instrumental variables approach that enables us to isolate the causal role of New Deal spending on Roosevelt's electoral outcomes. One clear benefit of examining the long-term effect of New Deal spending is that the allocation decisions can be considered exogenous to voting decisions decades later.

II. A Brief Overview of the Geographic Variation in the Great Depression

The 1930s was a decade of lost output for the U.S. economy. By 1933 both real per capita GDP and per capita retail sales had fallen to approximately two-thirds of their 1929 peaks. In per capita terms real retail sales returned to its pre-Depression level by 1939, while real GDP returned to its 1929 level by 1940.¹

Gauging economic performance at the local level during the 1930s is somewhat complicated because modern indices of local economic activity, such as unemployment rates and personal income, were unavailable. As an alternative, retail sales, which were reported for every county in the U.S. in 1929, 1933, 1935, and 1939, is a credible measure of local economic activity. Retail sales is clearly an important measure of macroeconomic activity because even today the U.S. Bureau of Economic Analysis uses retail sales figures to create annual estimates of personal consumption of durable and nondurable goods for the National Income and Product Accounts.² Retail sales also are strongly related to personal income in cross-sectional comparisons across states. Correlations of state-level per capita personal income and retail sales for the years 1929, 1933, 1935, and 1939 are .87, .89, .88, and .90, respectively.

Using retail sales as an indicator of how local economies performed over the course of the Great Depression and New Deal reveals substantial variation across the U.S. The ratio of 1939 retail sales to 1929 retail sales at the state level ranged from a low of 77 percent in Mississippi to a high of nearly 125 percent in South Carolina. The New England states appear to have had the most success in recovering to their pre-Depression levels as every state had higher real retail sales in 1939 than in 1929. Within many states there was substantially more variation than there was across the states. Table 1 contains information on the distribution of the ratio of 1939 to 1929 retail sales across counties within each state. Texas counties experienced some of the greatest variation as the discovery of new oil fields led to an explosion of economic activity in some counties, while the Dust Bowl and its aftermath contributed to a continuation of the Depression in some agricultural counties.

III. New Deal Grants

The crisis of the Great Depression led the Roosevelt administration to distribute unprecedented amounts of federal money in the form of nonrepayable grants. The federal government distributed \$16.5 billion in nonrepayable grants from 1933 to 1939. The grants

represented a new role for the federal government during peacetime, as the New Deal increased the federal government's outlays as a share of GDP from about four to eight percent.

Furthermore, the federal government began spending large amounts of money where it had spent very little before, setting the stage for a long-term structural shift in the financial responsibilities of the national, state, and local governments.³ As a share of government expenditures at all levels, the New Deal raised the proportion of federal spending from 30 percent in 1932 to 46 percent by 1940.⁴

In 1940 the U.S. Office of Government Reports (OGR) produced county-level statistics on federal spending on over 30 New Deal programs for the period March 3, 1933, through July 30, 1939.⁵ We divide the nonrepayable New Deal grants into two distinct categories that potentially had quite different impacts on local economies: public works and relief grants; and Agricultural Adjustment Administration benefits paid to farmers.⁶ We group public works and relief grants together because the programs had broadly similar goals of hiring workers to build various public works projects and to provide other public services. Relief grants were primarily distributed under the aegis of the Works Progress Administration (WPA), the Federal Emergency Relief Administration (FERA), the Civil Works Administration (CWA), the Social Security Administration's Aid to the Blind, Aid to Dependent Children, and Old-Age Assistance, and the Farm Security Administration's "rural rehabilitation" programs. The principal goal of these programs was to provide immediate relief to the unemployed and low-income people, as 85 percent of the grants were used to hire the unemployed on work relief jobs. These relief jobs ranged from make-work activities to maintenance activities to the building of sidewalks, post offices, schools, local roads, and other additions to local infrastructure. The public works grants included expenditures by the Public Works Administration (PWA), Public Buildings Administration (PBA), and the Public Roads Administration (PRA). These grants were also used largely to employ workers, but the programs were administered differently as they focused less on hiring people from the relief rolls and, thus, were able to employ a broader class of skilled

workers. The public works programs also focused more on building large-scale projects like dams, roads, schools, sanitation facilities, and other forms of civil infrastructure.⁷

The federal New Deal expenditures that provided the primary aid to the farm sector came through the AAA's payments to farmers to remove land from production. The impact of the AAA grants on local economic outcomes was likely smaller than the impact of the relief grants and potentially even negative. On the one hand, farm owners might have received higher net incomes from the AAA program. Payments typically exceeded the income farmers would have earned on the land that they took out of production because the least productive land was removed first. If the AAA succeeded in raising farm prices, the farmers also would have earned more on the crops they produced. In addition, the higher prices and the limits on land usage would have encouraged farmers to raise yields on the land they kept under cultivation. On the other hand, the AAA might well have had an adverse effect on the incomes of farm laborers, tenants, and sharecroppers. There is evidence that sharecroppers and tenants did not receive their full share of the AAA payments on the lands that they had cultivated and that some were demoted to wage laborers.⁸ Further, the AAA payments required that the farmer remove land from production. Consequently, the demand for farm labor likely fell, leading to declines in laborers' incomes.⁹ Previous research has shown that the net effect of the AAA was in fact negative as greater AAA spending in a county led to diminished retail sales and out-migration.

Table 2 shows the variation in state averages for the major grant categories, as well as summary statistics for the variation within states. As was the case with the recovery in retail sales, there was substantial variation in the extent of per capita New Deal spending across the country. The patterns of New Deal spending across states and within states differed for the two broad categories. Spending on relief and public works was over \$125 per person in the heavily urbanized states in the Northeast and Midwest and was well over \$200 per person in many western states. Meanwhile, relief and public works expenditures were below \$80 per person in many southern states. AAA expenditures were highest in agricultural regions, particularly the

West North Central region and the Mountain West. The South received substantially higher amounts per capita than did the Northeast, but much less than the amounts spent in the West and the West North Central.

IV. Estimating the Impact of the New Deal of Electoral Outcomes

Our first goal is to measure whether New Deal spending affected the long-term success of the Democratic Party after the so-called “critical election” of 1932. To test this idea, we regress the long-difference in the Democratic support for its presidential candidates in the 1950s relative to the pre-Roosevelt era on New Deal spending and structural socioeconomic variables.

Specifically, we estimate the following equation:

$$\bar{V}_{i,1952-1960} - \bar{V}_{i,1896-1928} = \beta_1 \text{NDPR}_i + \beta_2 \text{NDA}_i + \beta_3 X_{i,1930} + \beta_4 S + \varepsilon_i \quad (1),$$

where $\bar{V}_{i,1952-1960}$ is the average vote for the presidential candidates in 1952, 1956, and 1960 in county i . We chose 1960 as the terminal year in our study because political scientists debate whether 1964 or 1968 were critical elections themselves. $\bar{V}_{i,1896-1928}$ is the average vote for the Democratic presidential candidates from 1896 to 1928, inclusive, in county i . NDPR_i is real per capita New Deal public works and relief spending in county i from March 1933 to December 1939, and NDA_i is real per capita New Deal AAA grants over the same period. $X_{i,1930}$ is a vector of socioeconomic variables describing county i in 1930, S is a set of state fixed effects, and ε_i is the error term.

The second idea we examine is whether the New Deal had an impact on Roosevelt’s electoral outcomes at the county level in both 1936 and 1940. As noted above, the analysis is complicated by the fact that the endogeneity of New Deal grant spending will likely bias an OLS estimate downward. Therefore, we seek to find means of reducing the endogeneity bias of the New Deal variables’ impacts by estimating the following set of equations:

$$V_{it} = \varphi_1 \text{NDPR}_{i,t-4 \text{ to } t} + \varphi_2 \text{NDA}_{i,t-4 \text{ to } t} + \varphi_3 \text{PV}_i + \varphi_4 E_{i,t-4 \text{ to } t} + \varphi_5 Z_i + \varphi_6 S + \varepsilon_i \quad (2);$$

$$\text{NDPR}_{i,t-4 \text{ to } t} = \theta_1 \text{INST}_i + \theta_2 V_i + \theta_3 Z_i + \theta_4 S + v_i \quad (3);$$

$$NDA_{i,t-4,t} = \gamma_1 INST_i + \gamma_2 V_i + \gamma_3 Z_i + \gamma_4 S + \xi_i \quad (4),$$

where $V_{i,t}$ is the percent of the two-party vote for Roosevelt in each county i year t (either 1936 or 1940), $NDPR_{i,t-4,t}$ is real per capita New Deal public works and relief grants during the four year period leading up to the election (specifically, March 1933 through December 1936 and January 1937 to December 1939), and $NDA_{i,t-4,t}$ is real per capita New Deal AAA grants over the same period. PV_i is a vector of variables measuring prior voting behavior in county i . Specifically, we include Roosevelt's vote share in the election four years prior, which effectively makes our estimation equation a quasi-first difference estimation. $E_{i,t-4,t}$ is a vector of variables measuring economic factors at the time of the election or that occurred since the last election that might have influenced voters' decisions in county i , such as changes in retail spending (a proxy for changes in income), unusual bouts of wetness, drought, temperature, or whether the county experienced Dust Bowl conditions. Z_i is a vector of structural correlates that might have determined how various interest groups aligned politically; S is a vector of state dummy variables; and $INST_i$ is a vector of instrumental variables that were selected because they are correlated with the New Deal grants but uncorrelated with the error term, ϵ_i , of the vote equation. The error terms in the equations, ϵ_i , v_i , and ξ_i , are assumed to be independent and identically distributed and uncorrelated with each other.

We include a set of state dummy variables to capture unmeasured factors that were common to the counties in the states but varied across states. The state dummy variables might capture state policies and changes in state policies over the decade, differences in the cost of living across states, policies related to state taxation and spending, or differences in state political organization, strategy, or effort. One example of a major policy change during the 1930s for which the state dummies would control is the introduction of income taxes and sales taxes in certain states.

Because New Deal funds were not distributed randomly, but in response to economic crises across the country, there is the possibility that OLS coefficients of the New Deal's effect

will be biased if such crises, especially if we were not able to measure them adequately, were correlated with voters' decisions to blame Roosevelt. Moreover, Democrats may have targeted spending in certain areas where the party faced greater political challenges, which would also impart a negative bias to an OLS coefficient of New Deal spending. New Deal administrators stated that their objectives in distributing relief funds and, to some extent, the public works funds were to provide jobs for the unemployed, to offset economic distress, and to promote economic recovery. The explicit goal of the AAA program was to raise farmers' incomes, although landowners in particular tended to be the disproportionate beneficiaries. The empirical literature on the geographic distribution of programmatic New Deal spending at the county level suggests that relief spending was distributed to areas where there was relatively more economic distress, while the public works programs responded to higher unemployment.¹⁰

The instrumental variables procedure requires that we find variables that were correlated with New Deal spending but uncorrelated with the error term of the vote equation. We use four criteria in choosing appropriate instruments. First, the instrumental variables have to be important determinants of New Deal spending and not themselves influenced by the New Deal. The instruments we choose are from a time period prior to the New Deal or are geographic characteristics of the county so the New Deal could not have influenced the variables, nor could voting in the 1930s have affected the instruments. Second, the instruments had to provide statistical explanatory power to at least one of the first-stage New Deal regressions. The statistical relevance of a variable was determined using a t-test of its coefficient, and F-tests to determine the joint statistical significance of the group of variables. Third, the instrument's coefficient had to have the expected sign in at least one of the first-stage regressions. We expect the instruments to make economic sense in the first-stage regression so that the second-stage results do not rely on spurious relationships from the first-stage estimation. Fourth, the instruments themselves should not be included in the vote equation.

A number of scholars have used natural resource endowments or physical characteristics as instruments in cross-sectional analyses in part because these factors were established long before the decisions under consideration in the research were made (see, e.g., Frankel and Romer 1999; Hoxby 2000). The presence of a major river in a county, for example, likely influenced public works and relief spending because the potential for flooding and the requirements for dredging and docks and other public services along the river provided local officials with ready-made projects that they could propose to federal New Deal administrators.¹¹ More major rivers in a county meant more public works opportunities. In the case of agriculture, rivers were likely to influence the types of crops chosen and, hence, the pattern of AAA spending.

To create a useful instrument, we had to look beyond the mere presence of a river because every county in the United States has at least one river, and often many more, within its boundaries. Therefore, we developed three variables describing each county's access to "major" rivers because the size of dredging and port projects was likely to increase as the rivers increase in size. Our first definition of a major river is one that passes through 50 or more counties, which includes only the Ohio, Mississippi, and Missouri Rivers. For this category, the variable records the number of these three major rivers that passed through the county. The second variable measures the number of rivers in the county that pass through 21 to 50 total counties and the third variable measures the number of rivers in the county that pass through 11 to 20 total counties. The three groupings captured nearly all of the major rivers in the U.S.¹² These variables have proven effective in other research, yet the parameterization that proved most powerful in this context was a single variable measuring access to rivers that ran through 21 or more counties. Adding the separate variables did not change the second-stage results appreciably, but reduced the power of the first-stage instruments, so we have chosen to use only the 21-or-more-county measure.¹³

Could the rivers, however, have influenced voting decisions? Certainly, rivers influence the location of cities, farming decisions, and economic activity, which, in turn, may have

influenced how people voted. However, many of the avenues by which the presence of rivers would have influenced such voting – economic activity, urbanization, farm structure, state fixed effects, home ownership, etc – are controlled in the second-stage vote equation. Thus, for the river variables to be unsuitable instruments, they would have to have an additional influence on the voting equation error term above and beyond these other control factors.

In their analysis of the determinants of 18 New Deal programs, Fishback, Kantor, and Wallis (2003) found that the elasticity of per capita AAA spending with respect to average farm size in 1929 was larger than nearly every other elasticity among all the programs. Voting in 1936 or 1940 obviously could not have influenced average farm size in 1929, but we need to consider whether average farm size belongs in the voting equation or whether it might be correlated with unobservables in the equation. At first blush it would seem that farm scale could have influenced the course of agricultural development during the 1930s and, thus, could have influenced how people voted. However, the likely mechanism through which farm size would have influenced voting is through income opportunities. But income opportunities have largely been controlled in the regression with the inclusion of retail sales per capita, farm ownership, the share of the county's land devoted to agriculture, and a dummy variable measuring whether the county experienced the Dust Bowl during the 1930s (see Hanson and Libecap 2004).

V. Empirical Results

The estimated coefficients from the long-difference equation describing Democratic support from the pre- to post-New Deal era (equation 1) are presented in Table 3. Column (1) includes on the New Deal variables and state fixed effects; column (2) also includes structural socioeconomic variables describing counties in 1930. We find no evidence that New Deal spending on public works and relief or on the AAA had any material part to play in solidifying voters' support for the Democratic party after the 1932 Realignment. The coefficients of both New Deal variables in the equations with and without structural control are statistically

insignificant and economically trivial. For example, based on the coefficient in column (2), increasing a county's per capita relief and public works spending from \$0 to the sample mean level of \$296 would have caused the Democrats to have increased their support in that county by 0.3 percentage point. A similarly small estimate was found for the AAA.

There were clear structural changes that took place, however, after the 1932 critical election. Table 3 shows the clear socioeconomic shift that favored the Democrats. Urban voters, manufacturing workers, the foreign born, counties with a greater share of tenant farmers all shifted statistically significantly toward Democrats. Meanwhile, counties better off in 1930 tended to shift Republican. Specifically, counties with a greater share of tax returns filed, greater homeownership, and greater radio ownership in 1930 shifted away from Democrats. We also see agricultural counties shifting away from Democrats. More of a county's land that was devoted to agriculture meant less support for Democrats during the 1932 Realignment. The one variable that seems puzzling is the negative shift in the black population, which seems counter to conventional wisdom. A potential explanation is that the variable proxies voter turnout and to the extent that black voters were disfranchised to a greater degree throughout the country would translate into diminished support for the dominant party.

We next take up the more contemporaneous question of how Roosevelt's marginal electoral support was influenced by New Deal activity that was likely most apparent to voters – that is, public works and relief; and AAA. Table 4 shows the results from OLS and 2SLS estimations including and excluding various economic and socioeconomic controls. All of the equations are run as quasi-first differences in the sense that Roosevelt's 1932 vote share is included as a control variable so the coefficients represent the marginal impact of the relevant variables in 1936, relative to the 1932 outcome in each respective county. All of the equations include state fixed effects and standard errors are clustered at the state level.

The first two columns of Table 4 exclude all of the economic and socioeconomic controls and clearly show importance of the IV approach as the 2SLS coefficient is larger than the

expectedly biased OLS estimate. Once we add the structural socioeconomic variables in the OLS equation in column (3), interestingly, the AAA coefficient increases in magnitude and is statistically significant. The relief and public works coefficient is still small and statistically insignificant. Moving to the 2SLS with the socioeconomic controls increases the magnitude of the relief and public works coefficient and it becomes statistically significant, while the AAA coefficient is largely unaffected. Thus, it seems that the endogeneity bias associated with the idea that Roosevelt targeted New Deal funds to counties where support might have been depressed seems especially relevant in the case of the public works and relief programs. The final set of results in columns (5) and (6) add contemporaneous economic controls to the OLS and 2SLS estimations, respectively. The same patterns seem to play out in that the AAA is unaffected by the IV approach, while the relief and public works becomes larger in magnitude and statistically significant when we control for the endogeneity of the variable. Considering the results in column (6), we find that increasing the relief and public works spending in a county by an amount equal to the sample mean of \$153 would have increased Roosevelt's share of the vote by a fairly impressive 7 percentage points relative to his 1932 performance. An increase in AAA spending equivalent to the sample mean (\$101) would have increased the Roosevelt vote share by a modest 0.75 percentage point.

The results from the first-stage equations (not reported) indicate the strength of our indentifying instruments for the public works and relief regression and the AAA regression. The first-stage public works and relief regression shows that the presence of large rivers contributed statistically significantly higher New Deal spending, as expected. Average farm size had no impact on relief and public works spending, also expected. In the first-stage AAA regression, larger average farm size was strongly associated with more AAA spending in a county. Access to larger rivers did not seem to be an important determinant of the AAA distribution. F-tests strongly reject the hypothesis that the coefficients of the two instruments were simultaneously equal to zero in the two first-stage regressions at the better than 1 percent level. The F-statistic

was 5.56 for the public works and relief regression and 23.7 for the AAA. The instruments perform less well in the public works and relief equation as we add more economic and socioeconomic controls. The F-statistic from the relief and public works first-stage is 8.46 with no control and reduces to the aforementioned 5.56 as we add controls. The F-statistic from the AAA first-stage ranges from 13.6 to 23.7

Table 4 also shows the impact of the other correlates on Roosevelt's electoral success in 1936. The discussion here focuses on the 2SLS results in column (6). There was very strong persistence in the Democratic vote over time. A one percentage point increase in Roosevelt's vote in 1932 translated into a .78 percentage point increase in 1936. In other words, those who voted with the Democrats in 1932 were strongly likely to remain loyal in 1936. The economic variables perform as we might have expected. Counties that saw relatively greater per capita retail sales growth from 1933 to 1935 were more likely to side with Roosevelt in 1936, again holding support in 1932 constant. Moreover, counties that experienced negative climate shocks and, hence, negative economic shocks, were more likely to punish the president. Counties that experienced longer bouts of drought or extreme wetness in the inter-election period were less likely to support the Democrats in 1936. In addition, counties that experienced dustbowl conditions, despite the fact that they received disproportionately more AAA and relief spending (from first-stage estimates, not reported), were more likely to punish the president in 1936. It is important to note that none of these contemporaneous economic variables is statistically significant at the 5 percent level.

The variables measuring the structural socioeconomic characteristics of the counties showed that Roosevelt picked up support in 1936, relative to 1932, from counties with relatively larger black populations, that were urban, and that had greater foreign-born populations. Support declined in counties with greater homeownership. Other variables that we found were important explaining the long-term shift in Democratic support (see Table 3), such as the fraction of land in

farms, the importance of tenant farming, the ownership of radios, or filing of tax returns, did not help to explain the 1936 electoral results.

The strong relationship between the introduction of the New Deal programs in the first part of the 1930s and Roosevelt's electoral successes in 1936 was not sustained into the 1940 election cycle. Table 5 presents the results for the 1940 election and the columns report both OLS and 2SLS results with various sets of control variables. The first two columns present OLS and 2SLS estimates of Roosevelt's vote share in 1940 using New Deal spending from 1937 to 1939 (the last year for which we have county-level data). The only other control is Roosevelt's vote share in 1936, which effectively makes the estimation a quasi-first-difference, and state fixed effects. Column (3) shows OLS estimates using the New Deal spending patterns from the previous election cycle, 1933 to 1936. Columns (4) and (5) add structural socioeconomic variables, and columns (6) and (7) add contemporaneous economic variables to them. One finding that emerges across the columns is that the 2SLS coefficient is less than the OLS estimate, which is counter to our expectations if the OLS estimate were biased downward. The F-statistics from the first-stage regressions indicate that weak instruments may be a problem, or perhaps the endogeneity that we detected in the 1936 elections returns is not so much a problem in 1940.

Nonetheless, across the spectrum of results in Table 5 we see that greater AAA spending led to diminished support for Roosevelt in 1940, relative to his 1936 performance. The effect is economically modest, however. Even if we were to take the largest coefficient in absolute value (-0.0186 in column (2)), increasing per capita AAA spending in the late New Deal period by the sample mean amount (\$55) would have only diminished Roosevelt's support by 1 percentage point. But the coefficient from the OLS are much smaller in magnitude and indicate that while the AAA may have had a statistical impact, the size of such an impact was trivial. The relief and public works coefficients are fickle across the various estimations and in most cases statistically insignificant. Finally, we estimated how Roosevelt's 1940 returns were impacted by spending

that occurred in the previous election cycle (1933 to 1936). We find the same pattern of results: AAA spending in the county diminished Roosevelt's 1940 support, but greater relief and public works spending early on had no impact later.

Table 5 also shows the impact of the other correlates on Roosevelt's electoral success in 1936. The discussion here focuses on the OLS results in column (6), but notes important differences from the 2SLS in column (7) when necessary. Again, there was strong persistence in the Democratic vote over time. A one percentage point increase in Roosevelt's vote in 1936 would have translated into a .94 percentage point increase in his 1940 returns. Counties that saw relatively greater per capita retail sales growth from 1935 to 1939 were more likely to side with Roosevelt in 1940, though only the OLS estimate is statistically significant. Interestingly, more robust retail sales activity in 1939 caused diminished support for Roosevelt in 1940, which could indicate that wealthier areas were more likely to turn against the interventionist approach that the New Deal represented. Negative climate shocks did not seem to play a role in the 1940 election and dustbowl conditions negatively and statistically significantly impacted Roosevelt's fortunes in 1940. The 2SLS coefficient, however, is positive but statistically insignificant.

The variables measuring the structural socioeconomic characteristics of the counties showed that strong Democratic support came from urban and manufacturing counties, which is consistent with the 1936 results and with the long-term results reported in Table 3. In contrast to the earlier election, the percent black coefficient is negative and statistically significant, which corresponds to the long-term negative decline in black population support shown in Table 3. It seems that agricultural areas moved decisively against Roosevelt in 1940, something that we detected in the long-term analysis. Not only did greater AAA spending cause support to wane, but more acreage in the county devoted to agriculture in general implied less Democratic support in 1940. Increasing the percentage of the county's land in agricultural production by 27 percentage points (an OSD increase) would have lowered Roosevelt's vote share by a modest 0.9 percentage point. The only other variables measuring wealth, other than per capita retail sales,

that seemed to have a measurable effect on the vote was home ownership. An OSD increase in the rate of homeownership in a county (12 percent) would have lowered the president's vote share by only 0.7 percentage point.

VI. Conclusion

Recent studies have suggested that various New Deal programs slowed the recovery either by adding inflexibility to the economy or by raising the level of political uncertainty. The same concerns are expressed in today's presidential election. The New Deal programs that most directly affected the lives of unemployed Americans during the Great Depression were the emergency spending and public works programs, such as the FERA, CWA, WPA, and PWA, and the farm programs. The New Deal distributed large sums of money to state and local governments to provide employment and relief and to build a wide array of public works. The New Deal paid farmers to change their production patterns in an attempt to raise commodity prices. Nearly all of these grants represented a substantial and novel change in the federal government's role in the economy, especially local economies.

The conventional Keynesian thinking during the New Deal (though still held dear today) was that federal spending to employ millions of workers and to purchase materiel for public works would lead to economic growth. Of course, the federal projects might have simply crowded-out private spending or in the case of the AAA there were explicit provisions that required farmers to reduce their production. Prior research on the work relief programs' impact on retail sales has shown that a per capita dollar of spending during the 1930s was associated with a 44 cent increase in per capita retail sales in 1939. Or, put another way, an added per capita dollar of relief spending raised income by roughly 83 cents. In contrast, the AAA program had little or no positive effect on retail sales and, in fact, might have had a substantial negative effect. Historical analyses of the AAA suggest that non-landowners at the lower end of the agricultural

income distribution suffered declines in income as a result of the AAA. The redistribution of income that the AAA initiated may have actually retarded the recovery of the local retail sector.

Other work has shown that these New Deal programs induced migration. In places where there was relatively more relief and public works spending, people migrated there, potentially exacerbating the very problems that policymakers were trying to rectify. Moreover, greater AAA spending caused significant out-migration from rural areas. This result is fully consistent with prior research on the labor-market effects of the AAA and our retail sales analysis. On the more positive side, our research that has looked primarily at urban areas has found that relief spending in cities had a profound effect in lowering infant mortality and in reducing crime. With upwards of one quarter of the labor force unemployed at the depths of the Depression, providing income relief to the most needy seems to have produced salient economic and social benefits. For both infant mortality and property crime, both measures would have been approximately 30 percent higher in the absence of the New Deal.

The results presented in this paper suggest that voters rewarded Roosevelt for his early New Deal strategies to revive the economy from the Great Depression. Controlling for the potential endogeneity of New Deal spending, we found that voters were much more likely to enhance their support for the president when their counties received relatively more relief and public works funding. From 1933 to 1936, more AAA spending was likely to enhance Roosevelt's vote share, but the impact was much more modest than the relief programs' effects. This voter approval of the New Deal and the president, however, seems to have waned as the Depression lingered on throughout the decade. By the 1940 election, both contemporaneous and past AAA spending caused voters to reverse their support for Roosevelt. Moreover, by the latter election relief and public works spending did not lead to the strong voter support for Roosevelt that we saw in the 1936 election. And when we analyzed the long-term influence of New Deal activity, we found little evidence that Roosevelt's unprecedented policy interventions had a

material influence in building solid electoral support for the Democrats after the 1932 critical election.

Why did voters seem to have a change of heart after 1936? Roosevelt was elected in 1932 with the hope and promise of providing “relief, recovery, and reform” to an ailing economy. People were out of work, losing homes, struggling to subsist, Roosevelt brought solutions and his administration’s performance in its first 100 days is legendary. The economy was clearly improving from 1933 through 1937, though a double-dip recession in 1938 set the economy back and no doubt caused concern for citizens expecting an end to their economic frustration. Table 6 shows the unemployment figures throughout the 1930s. While unemployment had fallen to 9.1 percent by 1937 (emergency federal workers counted as employed), by 1938 it had jumped to 12.5 percent and only dropped significantly once the nation was set on a wartime buildup. Farmers also had reason to be concerned as prices that they received for their products languished in the latter part of the 1930s (see Table 6), something that the AAA was expected to reverse. Therefore, the New Deal offers cautionary lessons for politicians who offer high-profile policies, for which they expect admiration (see opening Obama quotation), designed to target specific economic problems. Voters are willing to reward policymakers when their efforts bear fruit, but when economic distress lingers, these same programs serve as a glaring reminder to voters that the incumbent has failed to bring the solutions that s/he promised. Yet, as the Democrats’ electoral success in the post-1932 Realignment period shows, voters have the capacity to eagerly look beyond arguably unproductive policy interventions.

ENDNOTES

¹ See series T81 deflated by series E135 and series F4 in U.S. Bureau of the Census, Historical Statistics, pp. 210-11, 224, and 843. See also Romer, “What Ended.”

² U.S. Bureau of Economic Analysis, GNP, p. 11.

³ Our measure of New Deal spending does not encompass all federal spending, so our analysis does not address the impact of all forms of federal expenditures. It should be noted, however, that much of the New Deal represented an entirely new role for the federal government. For example, agricultural spending, relief spending, many forms of lending to state and local governments, and insurance of mortgage loans broke new ground for the federal government. In addition, there were major increases in federal spending from the early 1930s on roads, public buildings, public works, and conservation. The New Deal programs caused federal intergovernmental and direct outlays on education to rise from 26 million in 1932 to 235 million in 1934, on highways from 217 million to 599 million, on public welfare and employment security from 2 million to 585 million, on housing and urban renewal from 0 in 1932 to 3 million in 1934 to 71 in 1936. Spending on the primary tasks of the federal government prior to the 1930s generally did not display the same marked jumps. See Wallis, “Why 1933?”; and U.S. Bureau of Census, Historical Statistics, pp. 1124-26.

⁴ Wallis, “The Birth,” pp. 141-42.

⁵ Much of the debate over the determinants of the state-level distribution of New Deal spending relied on information from the Office of Government Reports. Recently, scholars have expanded the debate to use the county-level information. See Fishback, Kantor, and Wallis, “Can the Three R’s,” for a table that summarizes the various studies of the distribution of federal New Deal expenditures. Couch, Atkinson, and Wells, “New Deal,” and Couch and Williams, “New Deal,” have used county-level data from Alabama to examine the distribution of New Deal agricultural and total funds. Using another data source, Fleck, “The Marginal Effect,” and “Inter-party

Competition,” has used county-level data to examine the distribution of relief and its impact on unemployment.

⁶ The U. S. Office of Government Reports, “County Reports,” also provided information on \$10.4 billion in repayable loans under a variety of programs as well as data on the Federal Housing Administration’s insurance of \$2.7 billion in mortgage loans. We do not focus attention on these programs for several reasons. First, the nature of the loans and insurance were substantially different from the nonrepayable grants and it is hard to determine the true dollar size of the benefits that the counties received. Second, in the analysis we seek to reduce problems of endogeneity by using instrumental variables. We face difficulties in finding enough effective instruments that will allow us to simultaneously identify more than two or three New Deal variables in a system of equations. Third, by omitting the loans and FHA insurance we reduce measurement error at the risk of increasing omitted variables bias in our estimates of the impact of New Deal grants. We do not believe that the bias will be large from omitting the loans and FHA insured loans because these variables are largely orthogonal to the grants variables.

⁷ See Clarke, Roosevelt’s Warrior, pp. 62-68; and Schlesinger, The Age, pp. 263-96.

⁸ See Whatley, “Labor”; Biles, The South, pp. 39-43; and Saloutos, “New Deal.”

⁹ See Alston, “Tenure Choice.”

¹⁰ See Fishback, Kantor, and Wallis, “Can the Three Rs.”

¹¹ As one example, Caroline Hoxby (2000) used the number of streams in an area as an instrument for the number of school districts on the grounds that they were natural boundaries that would have influenced the location of school district boundaries. As seen in the text, we use major rivers for different reasons.

¹² In 1,763 counties the value for each major river variable was zero. The maximum number of major rivers within a county was two for the rivers passing through 11 to 20 total counties, three for the rivers passing through 21 to 50 total counties, and 2 for the largest rivers. Summing the

total major rivers across all three categories, the maximum in any one county was 4. We control for the possibility that bigger counties would have had more rivers by including county land area in the analysis. We also experimented with a variable measuring the number of rivers in a county passing through 5 to 10 total counties, but the coefficients in the first-stage regressions were always small and statistically insignificant

¹³ We have experimented with other geography variables, in addition to access to major rivers, but they proved rather weak in this setting. We tried such instruments as the range in elevation within the county, the maximum elevation, access to coastlines along the Atlantic Ocean, Pacific Ocean, Gulf Coast, and the Great Lakes, the presence of bays, lakes, swamps, and beaches, and various measures of soil quality. In all of these experiments river access and average farm size in 1929 (discussed below) provided the most power in the first-stage estimation.

Table 1

Ratios of Per Capita Retail Sales in 1933 and 1939 to 1929 and Distributional Information for Counties Within Each State

STATE	Ratio 1939 to 1929						
	Aggregate State Ratios to 1929 Value		Distributional Information for Counties within State				
	1933	1939	Mean	Std. Dev.	Min	Max.	# of Counties
NEW ENGLAND							
Connecticut	0.722	1.082	1.091	0.061	1.017	1.197	8
Maine	0.773	1.061	1.081	0.124	0.883	1.314	16
Massachusetts	0.764	1.027	1.064	0.087	0.924	1.268	14
New Hampshire	0.784	1.160	1.180	0.075	1.093	1.277	10
Rhode Island	0.685	1.028	1.120	0.157	0.909	1.300	5
Vermont	0.683	1.001	1.008	0.085	0.892	1.149	14
MID-ATLANTIC							
Delaware	0.706	1.171	1.284	0.169	1.102	1.435	3
New Jersey	0.721	1.027	1.043	0.108	0.831	1.227	21
New York	0.680	0.908	0.985	0.099	0.795	1.291	58
Pennsylvania	0.644	0.988	1.054	0.119	0.834	1.384	67
EAST NORTH CENTRAL							
Illinois	0.607	0.917	0.981	0.133	0.624	1.398	102
Indiana	0.602	1.016	1.042	0.146	0.755	1.592	92
Michigan	0.545	0.928	1.019	0.135	0.676	1.513	83
Ohio	0.655	1.011	1.043	0.108	0.743	1.386	88
Wisconsin	0.649	0.994	1.024	0.094	0.842	1.277	71
WEST NORTH CENTRAL							
Iowa	0.645	1.016	1.021	0.130	0.663	1.374	99
Kansas	0.595	0.819	0.747	0.150	0.373	1.118	105
Minnesota	0.710	1.094	1.132	0.159	0.899	1.911	87
Missouri	0.681	0.900	0.909	0.178	0.565	1.426	114
Nebraska	0.657	0.911	0.928	0.731	0.501	7.636	93
North Dakota	0.623	0.870	0.805	0.144	0.543	1.151	53
South Dakota	0.566	0.882	0.828	0.185	0.476	1.431	68
SOUTH							
Virginia	0.756	1.165	1.213	0.285	0.649	2.610	100
Alabama	0.611	0.952	0.953	0.214	0.529	1.669	67
Arkansas	0.565	0.848	0.773	0.156	0.459	1.202	75
Florida	0.675	1.154	1.131	0.300	0.547	2.525	67
Georgia	0.713	1.128	1.142	0.258	0.567	2.107	159

Louisiana	0.697	1.117	1.170	0.687	0.530	5.979	64
Mississippi	0.435	0.774	0.733	0.151	0.389	1.095	82
North Carolina	0.699	1.059	1.041	0.210	0.505	1.733	100
South Carolina	0.791	1.248	1.219	0.215	0.689	1.755	46
Texas	0.600	0.988	0.993	0.464	0.349	6.048	252
Kentucky	0.662	1.003	1.005	0.192	0.527	1.786	120
Maryland	0.783	1.103	1.214	0.192	0.767	1.537	24
Oklahoma	0.574	0.816	0.810	0.158	0.461	1.295	77
Tennessee	0.648	1.041	1.086	0.204	0.486	1.591	95
West Virginia	0.693	1.010	0.999	0.169	0.686	1.380	55
MOUNTAIN							
Arizona	0.479	0.876	0.921	0.218	0.628	1.496	14
Colorado	0.638	0.996	1.011	0.230	0.557	2.198	63
Idaho	0.637	1.085	1.078	0.162	0.692	1.434	44
Montana	0.600	1.079	1.104	0.328	0.654	3.152	56
Nevada	0.693	1.245	1.275	0.355	0.969	2.222	17
New Mexico	0.539	1.025	1.014	0.292	0.523	2.319	31
Utah	0.598	0.988	1.091	0.205	0.767	1.603	27
Wyoming	0.685	1.065	1.187	0.269	0.814	1.874	23
PACIFIC							
California	0.640	1.002	1.125	0.223	0.805	1.938	58
Oregon	0.615	1.045	1.121	0.195	0.873	1.638	36
Washington	0.612	0.974	1.007	0.159	0.663	1.349	39
Mean	0.653	1.012					
Std. Dev.	0.076	0.107					

Source: See the Data Appendix. The retail sales were adjusted for inflation using the CPI with 1967=100. The ratios of per capita retail sales in the states are based on aggregated information for the state. For example, retail sales per capita in 1929 was calculated as total retail sales in 1929 divided by an estimate of total population in the state in 1929. Thus, the ratio reported here will differ from the average of the ratios for the counties within the state. The standard deviation, minimum, and maximum information are drawn from per capita retail sales for the counties within the state.

Table 2

**Per Capita New Deal Grants, March 1933 to June 1939:
State Values and Distributional Information for Counties within States (nominal dollars)**

	Public Works and Relief Grants				AAA Grants				N
	State Value	Std. Dev.	Max.	Min.	State Value	Std. Dev.	Max.	Min.	
NEW ENGLAND									
Connecticut	91.6	36.3	181.2	70.3	2.1	3.2	8.7	0.2	8
Maine	102.4	120.0	518.1	55.9	1.5	2.0	8.3	0.2	16
Massachusetts	130.3	111.3	532.3	98.0	0.5	3.2	9.1	0.0	14
New									
Hampshire	86.0	18.6	112.5	59.1	0.8	0.3	1.3	0.4	10
Rhode Island	104.9	78.6	279.1	88.6	0.1	0.1	0.3	0.0	5
Vermont	76.1	38.1	203.5	50.8	2.4	1.4	6.2	1.1	14
MID-ATLANTIC									
Delaware	111.1	28.3	122.7	69.3	5.6	5.5	13.6	2.8	3
New Jersey	125.0	57.8	299.8	58.3	0.5	1.3	4.5	0.0	21
New York	150.5	37.7	257.5	49.5	0.6	2.1	8.3	0.0	58
Pennsylvania	134.6	34.5	215.2	55.6	1.1	2.7	16.1	0.0	67
EAST NORTH CENTRAL									
Illinois	133.3	45.0	248.8	32.6	12.7	25.6	122.9	0.1	102
Indiana	115.8	50.7	270.4	29.3	18.7	21.1	106.4	1.0	92
Michigan	116.2	82.4	412.5	51.7	5.0	8.6	32.2	0.1	83
Ohio	140.2	44.6	278.1	47.0	7.5	17.8	68.5	0.0	88
Wisconsin	126.8	71.0	454.9	43.1	11.5	12.7	56.6	0.1	71
WEST NORTH CENTRAL									
Iowa	72.3	26.9	147.8	21.4	64.7	31.5	150.5	9.6	99
Kansas	100.8	35.6	276.9	39.2	81.8	183.3	936.1	0.6	105
Minnesota	129.5	53.5	274.5	22.9	27.8	34.6	159.3	0.0	87
Missouri	103.7	32.6	241.7	44.1	20.8	25.1	142.5	0.3	114
Nebraska	102.4	41.4	267.2	12.3	74.2	87.2	584.9	2.9	93
North Dakota	134.5	46.6	325.5	60.3	127.7	40.3	235.7	59.9	53
South Dakota	159.4	51.8	408.8	67.9	100.3	48.9	267.3	12.1	68
SOUTH									
Virginia	81.4	86.5	762.2	16.2	6.3	6.1	26.8	0.1	100
Alabama	68.9	24.5	136.7	23.6	19.5	10.4	51.8	0.4	67
Arkansas	78.4	26.1	189.8	37.7	31.1	17.4	85.5	2.2	75
Florida	108.1	73.6	410.6	38.0	4.1	20.7	126.2	0.0	67
Georgia	64.8	70.0	871.1	19.2	18.0	12.9	47.1	0.0	159
Louisiana	84.8	49.8	350.5	22.1	21.9	19.4	82.8	0.0	64
Mississippi	62.0	27.7	152.4	24.7	28.0	15.4	64.2	0.1	82
North Carolina	53.7	32.3	206.7	21.0	17.5	13.5	63.7	0.1	100

South Carolina	90.9	49.6	308.5	44.2	21.0	10.2	45.8	0.6	46
Texas	78.9	93.3	1189.7	9.3	37.5	106.3	852.1	0.0	252
Kentucky	74.1	41.2	405.9	23.5	17.6	19.1	87.5	0.0	120
Maryland	98.2	65.8	246.3	25.3	4.2	10.7	41.4	0.0	24
Oklahoma	101.3	69.5	590.1	44.4	38.5	79.2	440.8	1.7	77
Tennessee	63.0	28.4	214.1	18.6	14.4	15.9	103.4	0.5	95
West Virginia	108.7	44.7	291.3	44.5	1.6	3.1	19.7	0.1	55
MOUNTAIN									
Arizona	249.2	998.0	3948.2	122.3	10.6	13.6	40.3	0.1	14
Colorado	172.5	123.7	740.2	65.5	28.6	53.4	242.4	0.0	63
Idaho	145.0	62.0	316.8	77.2	46.8	58.3	249.1	0.0	44
Montana	215.0	90.0	493.1	79.3	72.8	86.4	380.1	0.0	56
Nevada	587.9	583.1	2721.3	187.0	5.3	8.2	25.6	1.1	17
New Mexico	176.7	138.7	789.5	86.8	23.9	37.3	135.3	0.8	31
Utah	163.3	103.7	594.7	94.8	13.6	19.6	100.1	2.1	27
Wyoming	213.9	86.6	421.2	127.3	31.2	39.1	153.7	1.1	23
PACIFIC									
California	140.8	171.6	1087.5	39.5	4.8	23.2	96.1	0.0	58
Oregon	122.3	121.0	734.8	39.8	16.0	102.5	489.6	0.1	36
Washington	157.2	87.7	499.0	48.8	16.5	91.3	350.1	0.0	39
United States									
Average	115.5	16.2							

Notes: The state value is computed as total grants in the state from 1933 to 1939 divided by the population in 1930. The standard deviation, minimum, and maximum are drawn from per capita grants for the counties within the state. The mean per capita grant for the counties within each state will differ from the state value. AAA includes payments to farmers under the Agricultural Adjustment Act, including rental and benefit payments in 1934 and 1935 and Conservation payments in 1936 and 1937. Relief and Public Works includes spending under the Federal Emergency Relief Administration, the Civil Works Administration, the Works Projects Administration, the Social Security programs for Old-Age Assistance, Aid to the Blind, and Aid to Dependent Children, the Public Works Administration, the Public Buildings Administration, and the Public Roads Administration.

Sources: See the Data Appendix.

Table 3**OLS Estimates of Long-Difference Change in Democratic Support, 1896-1960**

Variables	(1)	(2)
Constant	-5.515 (-9.74)	8.795 (1.83)
Per capita AAA spending, 1933-1939	-0.0017 (-0.78)	0.0003 (0.17)
Per capita public works and relief spending, 1933-1939	0.0023 (1.43)	0.0011 (1.28)
Pct. of population black, 1930		-0.274 (-3.07)
Pct. of population living in urban area, 1930		0.055 (3.20)
Pct. of population manufacturing workers, 1929		0.006 (5.47)
Pct. of population foreign born, 1930		0.873 (6.60)
Pct. of population illiterate, 1930		0.091 (0.45)
Pct. of population belonging to religious organizations, 1926		0.028 (1.17)
Pct. of county's land in farms, 1929		-0.0495 (-2.71)
Percentage of farm operated by tenants, 1929		0.141 (2.86)
Percentage of households owning homes, 1930		-0.104 (-1.64)
Percentage of households owning radios, 1930		-0.254 (-2.82)
Tax returns filed per capita		-63.20 (-2.47)
State fixed effects	Included	Included
R ²	0.72	0.77
Adjusted R ²	0.72	0.77
N	3,041	3,035

Notes & sources: The dependent variable is the difference in the average vote for the Democratic presidential candidate in 1952 to 1960, inclusive, and the average vote for the Democratic presidential candidate from 1896 to 1928, inclusive. Standard errors are clustered at the state level. See the Data Appendix for sources.

Table 4

OLS and 2SLS Estimates of Roosevelt Two-Party Percentage of the Vote, 1936

Variables	(1)		(2)		(3)		(4)		(5)		(6)	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
Constant	7.383 (2.55)	-8.066 (-1.39)	14.18 (3.56)	-8.199 (-1.31)	14.18 (3.56)	-8.199 (-1.31)	14.18 (3.56)	-8.199 (-1.31)	-10.48 (-0.42)	-80.5 (-1.61)	-10.48 (-0.42)	-80.5 (-1.61)
Per capita AAA spending, 1933-1936	0.0011 (0.56)	0.0049 (1.76)	0.0060 (6.80)	0.0069 (3.99)	0.0060 (6.80)	0.0069 (3.99)	0.0060 (6.80)	0.0069 (3.99)	0.0058 (5.92)	0.0074 (2.44)	0.0058 (5.92)	0.0074 (2.44)
Per capita public works and relief spending, 1933-1936	0.0018 (1.14)	0.0710 (2.74)	0.0011 (0.97)	0.036 (2.28)	0.0011 (0.97)	0.036 (2.28)	0.0011 (0.97)	0.036 (2.28)	0.0013 (0.97)	0.0458 (2.31)	0.0013 (0.97)	0.0458 (2.31)
Roosevelt's share of the vote in 1932	0.859 (20.31)	0.846 (17.25)	0.817 (22.63)	0.790 (20.20)	0.817 (22.63)	0.790 (20.20)	0.817 (22.63)	0.790 (20.20)	0.817 (22.36)	0.784 (18.2)	0.817 (22.36)	0.784 (18.2)
<i>Contemporaneous Economic Variables:</i>												
Percentage change in real per capita retail sales 1933 to 1935									2.235 (2.93)	1.968 (1.71)	2.235 (2.93)	1.968 (1.71)
Real per capita retail sales, 1935									0.003 (2.55)	0.003 (0.82)	0.003 (2.55)	0.003 (0.82)
Months of excess or severe drought, 1933-1936									-0.024 (-0.80)	-0.058 (-1.65)	-0.024 (-0.80)	-0.058 (-1.65)
Months of excess or severe wetness, 1933-1936									-0.079 (-1.16)	-0.399 (1.59)	-0.079 (-1.16)	-0.399 (1.59)
Average monthly temperature, 1933-1936 relative to 1920s average									22.45 (0.92)	67.5 (1.43)	22.45 (0.92)	67.5 (1.43)
"Dustbowl" County									-0.598 (-0.58)	-4.478 (-1.71)	-0.598 (-0.58)	-4.478 (-1.71)
<i>Structural Socioeconomic Variables:</i>												
Pct. of population black, 1930			0.111 (4.92)	0.130 (5.50)	0.111 (4.92)	0.130 (5.50)	0.111 (4.92)	0.130 (5.50)	0.110 (4.48)	0.126 (4.89)	0.110 (4.48)	0.126 (4.89)
Pct. of population living in urban area, 1930			0.0785 (8.76)	0.097 (6.40)	0.0785 (8.76)	0.097 (6.40)	0.0785 (8.76)	0.097 (6.40)	0.068 (6.81)	0.091 (3.85)	0.068 (6.81)	0.091 (3.85)
Pct. of population manufacturing workers, 1929			0.005	0.007	0.005	0.007	0.005	0.007	0.006	0.008	0.006	0.008

Pct. of population belonging to religious organizations, 1926	(-0.30)	(0.11)	(-0.14)	(1.19)
Pct. of county's land in farms, 1929	-0.019	-0.005	-0.018	-0.004
Percentage of farm operated by tenants, 1929	(-1.59)	(-0.34)	(-1.43)	(-0.24)
Percentage of households owning homes, 1930	-0.038	-0.002	-0.035	0.126
Percentage of households owning radios, 1930	(-3.42)	(-0.11)	(-3.02)	(0.51)
Tax returns filed per capita	-0.020	0.012	-0.021	0.009
	(-0.92)	(0.40)	(-1.02)	(0.33)
	-0.120	-0.100	-0.113	-0.087
	(-3.92)	(-2.92)	(-3.52)	(-2.14)
	0.056	0.058	0.041	0.036
	(1.63)	(1.35)	(1.23)	(0.82)
	-20.6	-64.7	-32.2	-85.8
	(-1.21)	(-1.33)	(-1.41)	(-1.32)
F-statistic: Excluded instruments in AAA equation	17.1	13.6		23.7
(p-value)	(0.000)	(0.000)		(0.000)
F-statistic: Excluded instruments in relief & public works equation (p-value)	8.46	7.06		5.56
R ²	(0.001)	(0.002)		(0.007)
Adjusted R ²	0.885	0.579	0.842	0.919
N	0.883	0.916	0.917	0.803
	3044	3043	3038	3035
				3035

Notes & sources: The instrumental variables that are used are the number of rivers in county flowing through 21 or more counties and average farm size in 1929. State fixed effects are included in all models. t-statistics are in parentheses. Standard errors are clustered at the state level. See the Data Appendix for sources.

Table 5

OLS and 2SLS Estimates of Roosevelt Two-Party Percentage of the Vote, 1940

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS	2SLS	OLS	OLS	2SLS	OLS	2SLS
Constant	-1.941 (-1.36)	5.414 (2.54)	-1.698 (-1.20)	5.963 (2.30)	15.63 (4.17)	3.308 (0.16)	11.01 (0.40)
Per capita AAA spending, 1937-1939	-0.0039 (-2.20)	-0.0186 (-1.86)		-0.0046 (-2.97)	-0.013 (-3.10)	-0.0025 (-1.38)	-0.017 (-2.18)
Per capita public works and relief spending, 1937-1939	0.0031 (2.04)	-0.028 (-1.38)		0.0006 (0.56)	-0.020 (-1.25)	0.0013 (1.30)	-0.028 (-1.64)
Per capita AAA spending, 1933-1936			-0.0054 (-5.80)				
Per capita public works and relief spending, 1933-1936			0.0006 (0.81)				
Roosevelt's share of the vote in 1936	0.934 (43.4)	0.956 (35.4)	0.940 (44.0)	0.943 (38.7)	0.967 (30.8)	0.940 (38.4)	0.972 (30.0)
<i>Contemporaneous Economic Variables</i>							
Percentage change in real per capita retail sales 1935 to 1939						1.596 (2.08)	1.227 (1.51)
Real per capita retail sales, 1939						-0.003 (-2.04)	-0.003 (-2.97)
Months of excess or severe drought, 1937-1940						-0.037 (-0.94)	-0.038 (-0.97)
Months of excess or severe wetness, 1937-1940						-0.032 (-0.89)	0.080 (0.69)
Average monthly temperature, 1937-1940 relative to 1920s average						3.433 (0.17)	5.236 (0.20)
"Dustbowl" County						-2.049 (-2.46)	3.753 (1.30)
<i>Structural Socioeconomic Variables:</i>							
Pct. of population black, 1930				-0.031 (-2.36)	-0.044 (-2.45)	-0.038 (-2.58)	-0.053 (-2.68)
Pct. of population living in urban area, 1930				0.026 (2.57)	0.029 (2.20)	0.032 (3.20)	0.034 (2.57)
Pct. of population manufacturing workers, 1929				0.002 (6.28)	0.003 (7.17)	0.002 (5.92)	0.002 (7.42)
Pct. of population foreign born, 1930				-0.051	-0.045	-0.080	-0.063

Pct. of population illiterate, 1930	(-0.51)	(-0.41)	(-0.79)	(-0.55)
Pct. of population belonging to religious organizations, 1926	-0.094	-0.113	-0.039	-0.073
Pct. of county's land in farms, 1929	(-2.35)	(-3.53)	(-1.30)	(-1.74)
Percentage of farm operated by tenants, 1929	-0.015	-0.019	-0.016	-0.018
Percentage of households owning homes, 1930	(-1.80)	(-1.97)	(-1.78)	(-1.77)
Percentage of households owning radios, 1930	-0.034	-0.045	-0.033	-0.047
Tax returns filed per capita	(-3.70)	(-3.34)	(-4.09)	(-3.81)
F-statistic: Excluded instruments in AAA equation (p-value)	-0.011	-0.035	-0.020	-0.050
F-statistic: Excluded instruments in relief & public works equation (p-value)	(-0.75)	(-1.41)	(-1.13)	(-1.71)
R ²	-0.040	-0.052	-0.056	-0.069
Adjusted R ²	(-1.92)	(-2.27)	(-2.09)	(-2.48)
N	-0.033	-0.022	-0.011	0.003
	(-1.18)	(-0.57)	(-0.33)	(0.006)
	-35.8	-58.7	-17.0	-39.5
	(-2.94)	(-3.06)	(-0.96)	(-1.66)
		7.84		5.90
		(0.001)		(0.005)
		7.38		6.51
		(0.002)		(0.003)
	0.947	0.948	0.951	0.936
	0.946	0.747	0.950	
	3043	3042	3034	3034

Notes & sources: The instrumental variables that are used are the number of rivers in county flowing through 21 or more counties and average farm size in 1929. State fixed effects are included in all models. t-statistics are in parentheses. Standard errors are clustered at the state level. See the Data Appendix for sources.

Table 6

Unemployment and Agricultural Prices

Year	Unemployment	Prices received by farmers (191-1914=100)
1930	8.7	125
1931	15.3	87
1932	22.5	65
1933	20.6	70
1934	16.0	90
1935	14.2	109
1936	9.9	114
1937	9.1	123
1938	12.5	97
1939	11.3	95
1940	9.5	100

Sources: Unemployment is from Darby (1976, 8) and reports his corrected BLS series. This figure includes emergency federal relief works as employed. Prices received by farmers are from the *Historical Statistics of the United States*, series Da1337.