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The Effect of Per Capita Relief Spending on County Level Joblessness in the United States in 1937 & 1940

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By

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Contents

Abstract

This paper uses the 1937 and 1940 county level census data to estimate what effect did additional per capita relief spending have on joblessness in the United States in 1937 and 1940. To account for endogeneity in relief spending and its unequal/non-random distribution, an instrumental variables approach is used. The results show that additional per capita relief spending lowered joblessness in the United States in both years: 1937 and 1940.

1 Introduction

The Great Depression was the most severe economic downturn to ever face an industrialized Western country. Almost all major world economies from Japan to the United States were affected by the Great Depression. The United States bore much of the brunt of the Great Depression in comparison to other industrialized countries. As a result of this gruesome period of economic downturn which lasted nearly ten years, a range of macroeconomic and social policy initiatives were launched by the federal government in the United States to combat the then prevailing economic conditions in the 1930s. Between 1929 and 1933, prices throughout the country fell drastically, the industrial production declined by almost half, the real gross domestic product fell by 30%, and unemployment had risen by 17 percentage points.

To deal with this worsening economic crisis, Americans elected Franklin D. Roosevelt as President in 1932 and gave the Democratic Party an overwhelming majority in both houses of the Congress. The FDR administration sprang into action immediately to tackle the crisis by launching multiple new government programs and spending packages aimed at kickstarting the economic activity throughout the country, as well as, providing relief to the unemployed through relief jobs. Total spending by the federal government, excluding the foreign affairs and defense portfolios, increased by four to six times during the 1930s. The New Deal established a social safety net for Americans, provided grants to states and cities to start public works that would provide employment to the people laid off, farmers were provided incentives such as cash payments in return for altering their farm production. The federal government established the Federal Deposit Insurance Corporation to insure bank deposits to depositors in US commercial and savings banks and the Federal Housing Administration to provide steam to the housing market.

Historians have mostly written about the New Deal in favorable terms. Since the scale of the entire program was so large, many times government initiatives worked at cross purposes. Several macroeconomic studies have concluded that the New Deal programs had a limited impact on the economy recovery, especially when it came to reducing unemployment. In their research, Harold Cole and Lee Ohanian (2004) concluded that the National Industrial Recovery Act, which was enacted to raise prices and wages, likely contributed in raising unemployment and crippled the economy's long-term growth rate. The Agricultural Adjustment Act (AAA), which was designed to raise prices of certain farm products by offering monetary incentives to farmers for cutting parts of their farm production, is said to have also likely contributed to unemployment of farm labor. The New Deal programs are also set to have been greatly affected by political concerns. A growing literature has successfully used political instruments, such as voting patterns, in empirical research on the New Deal programs. Lowering the prevailing unemployment levels in the early 1930s was one of the primary reasons why the federal government started the New Deal program in 1933.

Never in the history of the United States had the federal government intervened in the national economy on such a large scale to lower unemployment levels and kick start economic activity. Consequently, the New Deal program provides researchers a unique opportunity to study the outcome of significant government intervention into the economy. There was substantial difference in how the New Deal grants were distributed across various counties and the subsequent effect they had on lowering employment.

The purpose of this paper is to understand what effect, if any, did the New Deal relief spending have on joblessness in the United States on a per capita basis at the county level. I examine the available New Deal Data made available from past research and the 1930 & 1940 federal censuses in my research. As mentioned earlier, the relief spending throughout the counties was greatly

influenced by political and other factors. Therefore, following the methods in previous New Deal research, I use an instrumental variables approach to capture the political and economic factors that likely influenced New Deal relief spending. To my knowledge, my study is the first which looks at how per capita relief spending impacted county level joblessness in the United States in 1937 and 1940. My study uses two political and one economic variable in the model.

In the sections that follow, I explain in detail the various components of the relief spending and describe the variables I used in my model to understand the relationship between relief spending and unemployment during the 1930s.

1.2 Overview of the New Deal Relief Agencies and Spending

There were at least five major relief agencies that operated at different intervals during the 1930s, namely, Federal Emergency Relief Administration (FERA), Civil Works Administration (CWA), Works Progress Administration (WPA), Civilian Conservation Corps (CCC), and the National Youth Administration (NYA). The first relief agency, the Federal Emergency Relief Administration (FERA), was established in 1933. Its primary objective according to the Federal Works Agency's final report was to 'aid in meeting the costs of furnishing relief and work relief and in relieving the hardship and suffering caused by unemployment.' The Civil Works Administration (CWA) operated during 1933-34 alongside FERA and was a major contributor of relief work. By 1935, the primary federal relief works agency was the Works Progress Administration (WPA), which was established in 1935. FERA was consequently dissolved after WPA's establishment. The Civilian Conservation Corps (CCC) operated throughout the New Deal and provided relief jobs to unemployed and unmarried men between the ages of 17-28. The CCC primarily focused on relief projects that conserved and/or developed natural resources on federal,

state, and local lands. Approximately 3 million young men were employed by the CCC during its existence. Lastly, the National Youth Administration (NYA) focused on providing relief work and vocational guidance to unemployed out of school youth between the ages of 16 and 25. The NYA operated as part of the WPA from 1935 to 1939. An important note to mention here; because the federal government collected data on relief jobs in 1937 and then in 1940, the empirical results in this paper may have been different had the data been collected earlier in the 1930s. This is also because different relief agencies hired different kinds of workers, as mentioned earlier. When the federal government collected its data, most of the relief work was provided by three agencies: WPA, CCC, and NYA.

The federal government spent about $16.5 billion over a six-year period in relief work grants. Some of the grant money was handed down to the states and cities, while the rest was spent by the federal government itself. As the federal government's intervention into the economy increased, its percentage share in the total GDP simultaneously increased from 4 to 8 percent. Spending increased from $26 million in 1932 to $235 million in 1934 on education, from $217 million to $599 on highways, from $2 million to $585 million on public welfare, and from none in 1932 to $71 million in 1936 in housing. The overall federal spending increased from 30 percent in 1930 to 46 percent in the next ten years. Relief grants were primarily distributed through FERA, CWA, WPA, and the Social Security Aid to the Blind. The primary goal of these grants was to provide relief to the unemployed and low-income people through relief jobs. Therefore, 85% of the grant money was used to hire the unemployed. The relief jobs included make-work and maintenance activities such as building local roads, post offices, sidewalks, etc. The WPA expenditures were part of these federal grants. The WPA projects focused on large-scale construction works such as highways, dams, sanitation facilities, etc. Most of these projects required skilled labor force which

was not always available on relief rolls. The federal government made efforts to offer a certain level of minimum benefits to the people on relief rolls, but ultimately concluded to pay more attention to the prevailing wage levels. It also had to find a balance between providing enough benefits and hiring as many people as possible to lower extraordinarily high unemployment levels.

2 Literature Review

In the 1937 and 1940 censuses, the Census Bureau counted the workers on relief jobs as 'unemployed'. This meant that people who were completely jobless and those who were on relief jobs were both counted as unemployed in the official census, and that as relief hiring increased, the official unemployment levels also increased. Michael Darby's paper has attracted significant attention on this matter. Darby (1976) argued that classifying relief workers as unemployed had produced an incorrect measure of unemployment statistics in the United States during the 1930s. He argued that people on relief jobs should be excluded from unemployment statistics.

Robert Fleck (1999) is an important paper to understand the relationship between relief jobs and unemployment. He also used Darby's approach and separated relief jobs from the unemployment data. Fleck used an instrumental variables approach in his research. He used three different political variables which likely affected relief spending in the counties and found that 'hiring additional relief workers in a county would not have produced a substantial reduction in the number of individuals counted by the Census as jobless' using 1937 and 1940 census data sets. This was a striking conclusion given that Fleck had used Darby's approach in classifying unemployment statistics.

Cole and Ohanian (2004) argued that the economic growth in the United States was still subpar even after the massive spending by the federal government through the New Deal programs. They

wrote that despite some favorable shocks to the economy that were geared toward the money supply, productivity, and the banking system, the real GDP per adult was still 27% below trend in 1939. The authors also mentioned that the anti-trust laws introduced by Congress allowed firms to cooperate to keep prices high in many industries and allowed them collective bargaining which resulted in unemployment by raising wages above market levels. Cole and Ohanian used a standard macroeconomic model and discovered that, had the federal government moderated its interference into the economy, the latter would have had returned to normalcy by the late 1930s.

John Wallis and Daniel Benjamin (1981) used city-level data from the 1930s and concluded that the relief programs did not reduce private employment. In another paper, these authors used state level data and concluded that the relief programs had caused substantial displacement in private employment. This was an interesting discovery. It indicated that the relief programs had created a 'hardcore' unemployed group of people in the population for whom getting a job in the private sector was unlikely even in a better economy. Robert Margo (1988) using microeconomic data from the 1940 also observed that people employed on relief work tended to have different characteristics than those who were not (such as less skilled, human capital, etc.).

3 Data

I used data from two different sources. Firstly, I used the 1930, 1937 (partial census) and 1940 Census datasets from ICPSR File 003 titled 'Historical, Demographic, Economic, and Social Data: The United States, 1790-1970'. This ICPSR file provided me with most of the variables which I describe in the next section. The 1937 partial census was conducted by the federal government to understand the effects of the New Deal programs and whether they had helped lower chronic unemployment in the country. However, this census was not conducted in the traditional manner.

The Census Bureau obtained data for 1937 from voluntary 'Employment Report Cards' which were mailed to the government by the people. Consequently, there could have been situations where some people chose not to mail the report cards back to the government or that the report cards were lost in the mail. For this reason, I expected to see substantial measurement error in the 1937 sample. The second data source I used for this paper was made available online by Price V. Fishback on his website and used in his paper Fishback (2005).

4 Model

The purpose of this paper is to find out what effect, if any, did relief spending have on the percentage of joblessness in a county on a per capita basis. Given the unequal and non-random distribution of the New Deal relief grants due to their documented political nature, it is likely that the relief spending variables suffered from endogeneity. It a well-known fact that relief spending during the 1930s was influenced by political considerations. Many past research papers, in their attempt to understand the effects of relief spending, considered the use of electoral variables as instruments and successfully used them. Several New Deal researchers, such as Price Fishback and Robert Fleck, also made use of electoral instruments. The electoral variables might have been uncorrelated with the growth in economic activity during the 1930s but still affected relief spending. Therefore, it is reasonable to use them in an instrumental variables regression to correct for endogeneity. To solve the problem of endogeneity, where the distribution of relief funds was likely influenced by political and economic considerations, I use an instrumental variables regression. The two-stage IV model is described as following:

$$RSPC3340 = \alpha_0 + \alpha_1 INST + \alpha_2 X + e_{RSPC} \qquad (1)$$

$$JOBLESS1940 = b_0 + b_1 RSPC3340 + b_2 X + e_{JOBLESS1940} \qquad (2)$$

Where, *RSPC3340* is relief spending per capita from 1933 to 1939; *INST* is the variable representing the instrumental variables used; *X* represents all the other observable economic variables that affected *JOBLESS1940;* e_{RSPC} represents the error term; *JOBLESS1940* represents the per capita number of jobless people in a county excluding relief workers; and $e_{JOBLESS1940}$ represents the error term in the second stage of the regression.

I use three instrumental variables in the model to account for endogeneity in relief spending. In order to use instrumental variables, one must make sure that the instruments are correlated with relief spending but uncorrelated with the error term of the model. One also must make sure that the instruments were important determinants of the relief spending and were not influenced by the latter themselves. In order to accomplish this requirement, the instruments must be from prior to the start of relief spending. The instruments must also have statistical explanatory power in the first stage of the regression. The first electoral instrument I use is voter turnout (*Turnout28*) from the presidential elections in 1928. Voter turnout is an important instrument because it tells us how many people voted in the 1928 presidential elections at the county level. Note that I have not used the voter turnout from the 1932 presidential election because it may have been correlated with changes in joblessness during the early 1930s. Fleck also found evidence that voter turnout was an important determinant in the distribution of FERA funds to the counties. The second electoral instrument I use is standard deviation of the percentage of people voting for the Democratic party during 1896 to 1928 (*STD9628*). This instrument will provide information on the volatility in the Democratic vote bank from 1896 to 1928. The assumption is that Democrats would have likely spent more relief funds in those counties where the voters could swing in the direction of either party depending on the ruling party's policies towards them – in this case: relief spending. The last instrument I use in the model is church membership in 1926 as a share of population at the county

level (*Church1930*). Church organizations were a major source of charity and relief prior to the New Deal. Therefore, the assumption here is that church organizations had the means to support those individuals who were under difficult economic conditions during the Great Depression. The New Deal relief administrators could have chosen to spend fewer funds in those counties where church organizations were active.

This paper uses relief spending data from the data source made available by Price Fishback (2004). The data file was made publicly available on Fishback's website to download for research work on the New Deal. The original data is from the United States Office of Government Reports, which compiled information on relief spending from 1933-1939 in 1941. This paper also uses data from Robert Fleck (1999). *RSPC3340* is the per capita public works and relief spending from 1933 to 1939 in 1967 dollars. *RSPC3337* is the relief spending from 1933 to 1937 in 1967 dollars. The relief spending in the counties was divided by the counties' populations in the 1940 and 1937. The per capita figures from the counties were further divided by 100 to understand the effect of relief spending on joblessness as the federal government spent an additional $100 per capita in relief work in a county. *PctJobless1940* is the percentage of people who were actively seeking work in the year 1940, and *PctJobless1937* is the percentage of people who were actively seeking work in the year 1937.

I also add a range of control variables in the model that capture the economic hardship during the 1930s in order to avoid a specification error. Firstly, I take into consideration the unemployment variables prior to the New Deal that could be linked with the voting patterns and economic hardship in 1940. The 1930 Census provided me unemployment data based on gender. I have included five unemployment variables from the 1930 census. *UnempMale1930* is the per capita number of unemployed males who were actively seeking work; *UnemplFemale1930* is the

per capita number of unemployed females who were actively seeking work; *LayoffMale1930* is the per capita number of males having jobs, but on layoff, without pay. *LayoffFemale1930* is the per capita number of females having jobs, but on layoff, without pay; and *GainfulWorkers1930* is the per capita number of gainful workers. I have added the per capita gainful workers because, depending on the unemployment statistics, the more workers there are in a county, the less need there would be for relief spending. Please note that this study uses Darby's classification and excludes relief workers from those who were completely unemployed.

A few more controls have been added to capture the composition of the labor force in 1940. *ManufWorkers1940* is the per capita number of manufacturing worker, and *FarmPop* is the fraction of the population that was living on farms. I have added these variables because they may be correlated with economic hardship that might not be captured by the unemployment variables from 1930. I have added a few more controls that I thought were related to the voting patterns and economic hardship and not captured by other variables. *Black* is the fraction of the population that was black in 1940. *Native* is the fraction of the population that was native in 1940. Urban is the faction of the population that was urban in 1940. *Over14* is the fraction of the population that was over 14 years of age in 1940. *PctFarmArea1930* is the percentage of farm area in a county in 1930. *PopulationM1940* is the 1940 population in millions, while *PopulationM1937* is the 1937 population in millions calculated through the linear interpolation method. *Dustbowa* is a dummy variable which represents 1 is a county was a Dust Bowl county and 0 if it was not. Dust Bowl variable has been added because it was a period of severe dust storms during the 1930s that greatly damaged American agriculture in the Mid-West region of the country resulting in droughts. Counties that suffered from the Dust Bowl may have required additional relief spending from the government due to the joblessness resulting there from the decline in agricultural output. *Riv1120,*

Riv2150, and *Riv51up* are dummy variables and represent the number of rivers in a county that pass through 11 to 20 counties, 21 to 50 counties, and 51 or more counties. The reason I have added the information on rivers is because access to rivers may have facilitated trade in the counties. *Rrtsap29* is the retail sales per capita in 1929 in 1967 dollars. This variable gives us a picture of economic activity right before the start of the Great Depression and should not, therefore, be correlated with the New Deal. *LandArea* is the county area in square miles. Lastly, I add state effects (*Div1 to Div9*) by grouping nine Census divisions together in order to avoid multicollinearity. The use of state effects is very important because I want to prevent inter-divisional differences in relief spending, politics and unemployment.

5 Results

Table 4 shows the results for the year 1940. The sample includes a total of 2,650 counties. In the first stage of the IV regression, all three instruments have the expected signs, but *Turnout28* is not significantly associated with relief spending though it does have the expected sign. I found that both *Church1930* and *STD9628* are significant at the 5% level. In the second stage of the IV regression, there is a negative relationship between *PctJobless1940* and *RSPC3340*. I found that an additional $100 per capita spent in relief work by the federal government would lower the percentage of jobless in 1940 by 0.37 percentage points. The mean county unemployment in 1940 was 2.70%. It should be noted that the joblessness percentage was estimated from entire county populations, and not just the labor force within a county. Calculating the percentage jobless from a county's labor force would likely give us much larger mean jobless figures. The estimate on the coefficient means that with an additional $100 per capita spent in a county, the mean joblessness would decrease from 2.70% to 2.33%. The coefficient is significant at the 10% level with a z-score

of 1.79. This regression included the census divisions that factor in the inter-divisional differences. As mentioned earlier, adding each state dummy separately to factor in within state effects caused too much multicollinearity in the sample and many states were highly collinear with each other. The Variance Inflation Factor (VIF) for the state dummies was also quite high. Therefore, an alternative way was used to deal with the problem of multicollinearity by grouping the states into census divisions and that appeared to have solved the problem to the great extent. The test of overidentifying restrictions gave a chi2 value of 1.56 and a p-value of 0.45, thereby rejecting the null hypothesis that the instruments were overidentified. Though *Church1930,* one of the instruments, came out as insignificant in the first stage of the regression, the joint significance of all the instruments was significant at the 1% level with a F-statistic of 3.78. Usually, however, it is better to get a F-statistic of above 10 to remove all doubt about the joint significance of the instruments. Testing for endogeneity of *RSPC3340,* I found that Chi2 score and the F-statistic are significant at the 10%. Therefore, *RSPC3340* was found to be endogenous. In Table 5, when the state effects were removed from the IV regression, out of the three instruments, *Church1930* became insignificant with a z-score of 1.55 but with the expected negative sign on the coefficient. The *RSPC3340* coefficient is significant at the 1% level with a z-score of 2.39. The coefficient says that as relief spending per capita increases by $100 dollars, joblessness in the county would decrease by 0.23 percentage points. With a F-statistic of 12.79, the instruments are jointly significant. Lastly, *RSPC3340* is endogenous with a chi2 score of 5.56 and significant at the 5% level. As I had mentioned earlier, one should pay more attention to the regression results that includes the inter-divisional state effects.

For the 1937 data sample (Table 6), I also found significant results. The coefficient on *RSPC3337* says that for every $100 (1967 value) per capita spent by the federal government in a

county in 1937, the percentage of jobless in that county decreases by .60 percentage points from a mean of 3.69% to 3.09%. The coefficient is significant at the 5% level with a z-score of 2.11. All the instruments in the first stage of the regression are individually significant at the 5% level, except for *Turnout28*, which came out as insignificant. The instruments are jointly significant at the 1% level with a F-statistic of 4.97. The 1937 regression failed the test of overidentifying restrictions with a chi2 score of 24.80. However, tests of endogeneity show that *RSPC3337* is endogenous. A similar story was observed with the 1937 data without inter-divisional state effects in Table 7. With a coefficient of -1.34, the z-score is a little higher with a value of 2.71 and significant at the 1% level. Since the 1937 data was collected differently than the government would during a full census, one should expect to find significant measurement error in the data. Therefore, even though the regression results were significant for the 1937 sample, the regression still failed the overidentification test and the reader should still be cautious about measurement error when interpreting the results.

6 Conclusion

In this paper, I study the effects of per capita relief spending on joblessness in 1940 and in 1937 at the county level. Departing from the government's official unemployment definition which counted relief workers as part of the unemployed labor force, I counted relief workers as part of the employed for reasons mentioned in the paper. The results show that additional relief spending at the county level did help in lowering unemployment in 1940 as well as 1937. On average, an additional $100 (1967 value) spent created almost four (4) jobs in a county. This means that the government, on average, was spending at least $25 to create a relief job in a county in 1940. Previous research on the effects of relief work on unemployment has been mixed. Some

researchers have found that relief work had a positive impact on unemployment, while others not so much. Robert Fleck, who's research on this topic comes closest to mine, did not find any significant relationship between relief work and unemployment. I used a slightly different approach by expanding the IV model and adding a few more variables and instruments that I found relevant and had not been used in the previous research on the New Deal unemployment and found that there was a negative relationship between relief spending and unemployment: as the government spent more on relief work, unemployment declined.

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8 Tables

Table 1: Total Labor Force and the % of Unemployed in the United States from 1929 to 1940.

Year	Total labor force	Armed Forces	Civilian labor force					
			Total	Employed			Unemployed	% Unemployed out of total civilian labor force
				Total	Agricultural	Non-Agricultural		
1929	49,440	260	49,180	47,630	10,450	37,180	1,550	3.25
1930	50,080	260	49,820	45,480	10,340	35,140	4,340	9.54
1931	50,680	260	50,420	42,400	10,290	32,110	8,020	18.92
1932	51,250	250	51,000	38,940	10,170	28,770	12,060	30.97
1933	51,840	250	51,590	38,760	10,090	28,670	12,830	33.10
1934	52,490	260	52,230	40,890	9,900	30,990	11,340	27.73
1935	53,140	270	52,870	42,260	10,110	32,150	10,610	25.11
1936	53,740	300	53,440	44,410	10,000	34,410	9,030	20.33
1937	54,320	320	54,000	46,300	9,820	36,480	7,700	16.63
1938	54,950	340	54,610	44,220	9,690	34,530	10,390	23.50
1939	55,600	370	55,230	45,750	9,610	36,140	9,480	20.72
1940	56,180	540	55,640	47,520	9,540	37,980	8,120	17.09

Table 2. Per capita New Deal Grants from 1933 to 1939: State level average per capita New Deal grants and distributional information for counties in nominal dollars.

	Public Relief Grants			
	Mean	Std. Dev	Max.	Min.
New England (Division 1)				
Connecticut	230.9	82.9	161.9	417.8
Maine	268.4	259.5	130.2	1113.0
Massachusetts	352.9	226.7	231.7	1119.2
New Hampshire	180.9	41.9	132.6	264.1
Rhode Island	323.0	164.0	211.1	604.5
Vermont	194.8	96.2	122.3	512.5
Mid-Atlantic (Division 2)				
New Jersey	289.3	139.3	133.0	717.8
New York	229.3	80.5	120.6	586.4
Pennsylvania	300.5	82.2	126.9	492.0
East North Central (Division 3)				
Indiana	226.4	122.1	64.7	699.9
Illinois	262.4	106.8	78.7	632.7
Michigan	325.8	194.5	120.7	1269.2
Ohio	264.2	103.1	106.2	599.9
Wisconsin	281.3	161.6	100.0	1051.9
West North Central (Division 4)				
Iowa	158.0	65.0	54.3	337.6
Kansas	268.9	106.9	79.8	634.3
Minnesota	253.8	114.3	52.1	619.5
Missouri	205.1	76.1	87.5	558.9
Nebraska	221.8	106.1	38.3	680.4
North Dakota	369.1	132.2	152.9	837.9
South Dakota	461.5	161.0	0.5	1033.9
South Atlantic (Division 5)				
Delaware	221.6	66.0	145.9	267.1
Florida	247.1	144.2	87.1	834.2
Georgia	120.6	102.9	41.7	1242.3
Maryland	192.0	125.9	59.3	482.4
North Carolina	126.2	70.7	48.9	432.0
South Carolina	181.8	101.4	93.2	626.2
Virginia	114.4	87.1	40.1	649.7
West Virginia	262.9	97.3	103.5	585.4
East South Central (Division 6)				
Alabama	123.2	51.7	53.4	307.1
Kentucky	164.4	76.2	50.6	707.8
Mississippi	140.3	61.5	55.9	328.9
Tennessee	121.0	54.7	43.0	381.3
West South Central (Division 7)				
Arkansas	181.4	59.5	75.4	426.5
Louisiana	153.4	108.3	52.0	733.8
Oklahoma	278.0	140.2	114.9	1182.0
Texas	202.0	211.6	34.4	2667.0

Mountain Division 8)				
Arizona	902.5	1535.0	257.7	6215.4
Colorado	410.2	218.0	159.9	1179.3
Idaho	333.4	126.0	159.5	740.7
New Mexico	425.4	257.6	97.7	1426.9
Montana	537.0	241.0	199.6	1372.3
Utah	440.6	217.3	208.2	1264.2
Nevada	1082.5	724.8	443.7	3433.3
Wyoming	482.9	168.0	246.6	842.2
Pacific (Division 9)				
California	309.7	305.2	95.2	1969.5
Oregon	270.9	206.6	104.0	1016.8
Washington	295.7	145.2	116.2	839.8

Table 3. Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
PctJobless1940	3,000	2.702	1.423	0.085	12.386
RSPC3340	3,033	2.45	2.167	0.005	62.154
RSPC3337	3,033	1.792	2.173	0	78.374
Turnout28	3,033	0.276	0.143	0.011	0.684
Church1930	3,033	0.483	0.242	0	4.251
STD9628	3,032	10.244	5.004	1.136	44.738
Jobless1937	3,033	0.037	0.017	0.001	0.136
ManufWorkers1940	2,678	0.031	0.039	0	0.444
Black	3,033	0.106	0.178	0	0.855
FarmPop	3,032	0.464	0.216	0	1
Over14	3,000	0.733	0.047	0.569	1.062
Native	3,033	0.963	0.046	0.742	1.257
Urban	3,033	0.225	0.244	0	1
PopulationM1940	3,033	0.04	0.127	0	4.063
PopulationM1937	3,033	0.039	0.125	0	4.039
PctFarmArea1930	3,033	64.543	27.406	0	146.596
Dustbowa	3,033	0.016	0.126	0	1
Riv1120	3,033	0.24	0.452	0	2
Riv2150	3,033	0.139	0.375	0	3
Riv51up	3,033	0.092	0.293	0	2
UnempMale1930	3,033	0.009	0.008	0	0.085
UnempFemale1930	3,033	0.001	0.002	0	0.033
LayoffMale1930	3,033	0.003	0.004	0	0.065
layoffFemale1930	3,033	0.001	0.001	0	0.041
GainfulWorkers1930	3,033	0.365	0.044	0.25	0.707
Rrtsap29	3,029	539.95	270.154	0	1842.493
LandArea	3,033	972.974	1319.396	25	20131
Div1	3,033	0.022	0.147	0	1
Div2	3,033	0.048	0.213	0	1
Div3	3,033	0.143	0.35	0	1
Div4	3,033	0.203	0.403	0	1
Div5	3,033	0.175	0.38	0	1
Div6	3,033	0.12	0.325	0	1
Div7	3,033	0.154	0.361	0	1
Div8	3,033	0.091	0.288	0	1
Div9	3,033	0.044	0.204	0	1

Table 4. 1940 Two Staged Least Squares Regression Results with Inter-Divisional State Effects

1940 RESULTS WITH TWO-STAGE LEAST SQUARES				
FIRST STAGE			**SECOND-STAGE**	
Number of Observations	2, 650		2,650	
R-Squared	0.33		0.44	
Dependent Variable: RSPC3340	**Coefficients**	**t-value**	**Coefficients (PctJobless1940)**	**z-score**
RSPC3340			-0.372	-1.79
Jobless1937	25.34	11.68	26.94	4.71
ManufWorkers1940	-7.18	-7.26	-5.739	-3.33
Black	-0.50	-1.44	-1.129	-5.3
FarmPop	-1.76	-3.75	-2.751	-6.23
Over14	5.08	3.26	3.167	2.22
Native	-3.92	-3.06	-4.012	-3.48
Urban	-1.19	-2.94	-1.097	-3.39
PopulationM1940	-0.41	-2.38	-0.094	-0.6
PctFarmArea1930	0.00	-0.76	-0.004	-3.39
Dustbowa	0.58	2.11	-0.06	-0.28
Riv1120	0.14	1.65	0.056	1.08
Riv2150	-0.01	-0.15	0.044	0.83
Riv51up	0.27	3.01	0.485	6.1
UnempMale1930	48.12	2.92	73.378	6.25
UnempFemale1930	-129.98	-3.76	-60.33	-1.51
LayoffMale1930	-0.60	-0.06	26.39	2.65
LayoffFemale1930	60.09	1.53	63.524	1.86
GainfulWorkers1930	2.66	1.66	-0.053	-0.05
Rrtsap29	0.00	-0.75	-0.0001	-0.85
LandArea	0.00	2.09	0.0001	1.24
Div1	0.87	1.81	0.2	0.78
Div2	1.09	2.65	0.75	2.82
Div3	1.55	3.69	-0.041	-0.12
Div4	1.40	3.27	0.043	0.14
Div5	1.39	3.03	0.064	0.2
Div6	1.05	2.18	0.144	0.52
Div7	1.03	2.53	0.216	0.81
Div8	2.11	6.08	0.743	1.64
Turnout28	0.18	0.30		
Church1930	-0.38	-2.19		
STD9628	0.02	2.25		

Table 5. 1940 Two Stage Least Squares Regression Results without Inter-Divisional State Effects

1940 RESULTS WITH TWO-STAGE LEAST SQUARES				
FIRST STAGE			**SECOND-STAGE**	
Number of Observations	2, 650		2,650	
R-Squared	0.30		0.54	
Dependent Variable: RSPC3340	**Coefficients**	**t-value**	**Coefficients (PctJobless1940)**	**z-score**
RSPC3340			-0.230	-2.39
Jobless1937	22.659	10.54	24.612	9.55
ManufWorkers1940	-8.088	-7.83	-4.859	-4.56
Black	-0.345	-0.09	-1.154	-6.78
FarmPop	-2.037	-4.10	-2.630	-8.56
Over14	0.749	0.53	1.973	1.94
Native	-2.894	-2.34	-3.650	-4.98
Urban	-0.871	-2.33	-0.923	-4.48
PopulationM1940	-0.438	-1.96	-0.010	-0.07
PctFarmArea1930	-0.001	-0.30	-0.006	-5.55
Dustbowa	0.750	2.78	-0.043	-0.26
Riv1120	0.154	1.77	0.076	1.72
Riv2150	-0.091	-1.10	0.110	2.26
Riv51up	0.313	3.66	-0.406	6.05
UnempMale1930	50.620	3.23	64.516	8.14
UnempFemale1930	-124.900	-3.77	-51.247	-1.71
LayoffMale1930	-1.246	-0.13	27.875	2.83
LayoffFemale1930	54.880	1.45	66.159	2.33
GainfulWorkers1930	1.949	1.14	-0.215	-0.28
Rrtsap29	0.000	-1.20	0.000	-0.11
LandArea	0.000	2.42	0.000	1.50
Turnout28	2.152	5.10		
Church1930	-0.230	-1.55		
STD9628	0.032	3.56		

Table 6. 1937 Two-Stage Least Squares Regression Results with Inter-Divisional State Effects

1937 RESULTS WITH TWO-STAGE LEAST SQUARES				
FIRST STAGE			**SECOND-STAGE**	
Number of Observations	2, 650		2,650	
R-Squared	0.24		-	
Dependent Variable: RSPC3337	**Coefficients**	**t-value**	**Coefficients (PctJobless1937)**	**z-score**
RSPC3337			-0.601	-2.11
ManufWorkers1940	-4.965	-4.18	-0.656	-0.38
Black	-1.005	-1.83	-1.648	-3.9
FarmPop	-1.329	-2.34	0.099	0.18
Over14	4.107	2.19	-1.299	-0.74
Native	-4.108	-3.31	-1.347	-0.79
Urban	-1.403	-2.76	0.335	0.64
PopulationM1937	-0.206	-1.45	0.467	1.81
PctFarmArea1930	-0.006	-3.01	-0.028	-9.11
Dustbowa	0.516	1.98	-0.101	-0.28
Riv1120	0.062	0.66	0.089	1.08
Riv2150	0.145	1.73	0.429	3.96
Riv51up	0.237	2.23	0.458	3.3
UnempMale1930	40.670	2.42	58.393	3.56
UnempFemale1930	-113.800	-3.14	-43.297	-0.95
LayoffMale1930	-4.587	-0.49	37.482	2.98
LayoffFemale1930	21.106	0.80	-19.514	-0.56
GainfulWorkers1930	6.357	2.30	3.532	1.52
Rrtsap29	0.000	-0.82	-0.001	-3.82
LandArea	0.000	1.98	0.000	0.77
Div1	1.236	2.33	0.571	1.33
Div2	1.549	3.09	0.864	1.92
Div3	1.941	3.62	0.512	0.93
Div4	1.815	3.42	1.044	1.93
Div5	2.097	3.57	0.477	0.74
Div6	1.947	3.26	1.445	2.35
Div7	1.524	3.05	0.893	1.72
Div8	1.889	4.68	0.608	1.1
Turnout28	-0.461	-0.71		
Church1930	-0.447	-2.40		
STD9628	0.023	2.42		

Table 7. 1937 Two-Staged Least Squares Regression Results without Inter-Divisional State Effects

1937 RESULTS WITH TWO-STAGE LEAST SQUARES				
FIRST STAGE			**SECOND-STAGE**	
Number of Observations	2, 650		2,650	
R-Squared	0.22		-	
Dependent Variable: RSPC3337	**Coefficients**	**t-value**	**Coefficients (PctJobless1937)**	**z-score**
RSPC3337			-1.342	-2.71
ManufWorkers1940	-5.573	-4.61	-6.679	-2.03
Black	-0.301	-0.56	-2.231	-3.93
FarmPop	-1.748	-2.75	-0.940	-0.7
Over14	0.053	0.03	-2.483	-1.15
Native	-2.583	-2.1	-3.005	-1.4
Urban	-1.122	-2.43	-0.253	-0.25
PopulationM1937	-0.156	-0.78	0.404	1.14
PctFarmArea1930	-0.004	-1.16	-0.029	-6.97
Dustbowa	0.609	2.33	0.342	0.63
Riv1120	0.067	0.7	0.110	0.7
Riv2150	-0.031	-0.41	0.406	2.84
Riv51up	0.255	2.57	0.777	3.62
UnempMale1930	39.932	2.45	82.070	2.43
UnempFemale1930	-103.512	-3.01	-130.531	-1.73
LayoffMale1930	-6.897	-0.73	31.180	1.71
LayoffFemale1930	14.110	0.52	-13.670	-0.28
GainfulWorkers1930	5.243	1.87	8.087	2.01
Rrtsap29	-0.001	-1.38	-0.002	-2.23
LandArea	0.000	2.02	0.000	1.04
Turnout28	0.682	1.63	10.109	3.31
Church1930	-0.271	-1.77		
STD9628	0.024	2.26		