

NEW DEAL: DISTRIBUTION AND IMPACT OF FUNDS IN THE STATES

by

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## TABLE OF CONTENTS

LIST OF TABLES.....	6
LIST OF FIGURES.....	8
ABSTRACT.....	9
I. INTRODUCTION.....	12
II. CHAPTER 1: LEGISLATIVE SHIFT IN NEW DEAL STATUTES.....	15
1. Introduction.....	15
2. Methodology and sources.....	16
3. Historical Statutes.....	18
4. Conclusions.....	40
III. CHAPTER 2: LEARNING TO SWING WITH ROOSEVELT.....	42
1. Introduction.....	42
2. Literature Review.....	43
3. Composition of government spending in 1920s and 1930s.....	47
4. Model and Data.....	57
5. Results and analysis.....	61
6. Conclusions.....	78
Appendix A: Tables.....	80
IV. CHAPTER 3: THE MULTIPLIER FOR FEDERAL SPENDING IN THE STATES DURING THE GREAT DEPRESSION.....	94
1. Introduction and Literature Review.....	94
2. Federal Spending and Prior Estimates of Its Impact in the 1930s.....	97
3. The State Multiplier.....	100
4. Data.....	104
5. Federal Tax Policy in the 1930s.....	110
6. Estimation Procedure.....	111
7. Estimates of Income Multipliers.....	118
8. The Impact of Federal Grants on Automobile Registrations and Employment.....	123
9. Conclusion.....	125
Appendix A: Construction of Instruments.....	128
Appendix B: Data Sources.....	134
Appendix C: Tables.....	137
Appendix D: Figures.....	145
IV. CONCLUSION.....	147

BIBLIOGRAPHY ..... 148

## LIST OF TABLES

Table III.1 Summary statistics of aggregate data, 1932-1933 .....	80
Table III.2 Summary statistics of aggregate data, 1934-1939 .....	81
Table III.3 Cross-section OLS estimates using aggregate data for each time period. ....	82
Table III.4 Summary statistics of annual data, 1921-1933 .....	84
Table III.5 Summary statistics of annual data, 1934-1939 .....	85
Table III.6 Estimation Results: Total Grants per capita, annual data .....	86
Table III.7 Estimation Results: Bureau of Reclamation Spending per capita, annual data .....	87
Table III.8 Estimation Results: Road Spending per capita, annual data.....	88
Table III.9 Estimation Results: New Deal Relief Spending per capita, annual data .....	89
Table III.10 Estimation Results: Total Loans per capita, annual data .....	90
Table III.11 Estimation Results: Farm Loans per capita, annual data .....	91
Table III.12 Estimation Results: New Deal Agricultural Adjustment Administration Spending per capita, annual data .....	92
Table III.13 Estimation Results: Rivers and Harbors Spending per capita, annual data ..	93
Table IV.1 Total and Per Capita Federal Funds Distributed to the States for Major Program in Millions of Contemporary Dollars for the Period July 1, 1932 through June 30, 1939.....	137
Table IV.2 Estimates Of Dollar-For-Dollar Effect Of Per Capita Grants On State Per Capita Income, 1930-1940.....	139
Table IV.3 IV Estimates Of Dollar-For-Dollar Effect Of Per Capita Government Funding On State Per Capita Income, 1930-1940.....	141

Table IV.4 IV Estimates Of Elasticity Of Variable With Respect To Nontransfer

Government Grants ..... 143

## LIST OF FIGURES

Figure 1 Federal Government Spending, Receipts, and Deficit/Surplus in Billions of 1996 Dollars, Fiscal Years 1920 to 1939..... 145

Figure 2 Annual Changes in per capita New Deal Grants Plotted against Changes in per capita Personal Income for the Years 1930 through 1940 by State in 1967 dollars..... 146

## ABSTRACT

In response to the worst ever economic crisis in the U.S., the New Deal was created by the President Franklin Roosevelt. It was not just an expansion of the existing programs but a qualitatively different way to distribute federal funds to people in need.

In the first chapter of my dissertation I analyze the appropriation acts for the major federal spending programs. This is the first detailed study of such nature. The first veterans' aid federal programs were started before the Civil War and were specific in how federal funds could be allocated. The Bureau of Reclamation, highways, and rivers and harbors improvements programs that followed were equally tightly regulated by the Congress, with the congressional oversight written into the law. The change in the appropriations acts did not come until 1933 when the newly inaugurated President Franklin D. Roosevelt introduced his New Deal legislature. The new federal spending programs were aimed at alleviating unemployment and providing relief during the Great Depression. Due to the economic emergency and the need for swift relief measures, the New Deal acts gave wide powers to distribute federal funds to the President and the agencies he would create. There was no Congressional oversight, no project approval process. The Congress appropriated money to general relief programs (agriculture, conservation, national industrial recovery, etc.) to use "at President's discretion." Lack of tight regulations made it possible to direct the money where it was most needed in a timely fashion. At the same time, as I show in Chapter 2, it enabled the President to allocate more funds to the swing voting states and gather political capital for the reelection. Most of the New Deal acts were labeled as emergency and had a termination date. Even though the termination date was sometimes

extended, the laws were later changed making the Executive branch directed distribution of federal funds a New Deal phenomena.

The New Deal funds were not evenly distributed among the states. Neither were they proportional to the population. In chapter two I analyze the sources of the variation in the amount of per capita federal spending the states received through the New Deal. Previous studies suggest that both economic and political characteristics of a state led to it receiving more New Deal money. To see if it was a new pattern or a continuation of the old approach, I look at the distribution of federal funds in the 1920s as well. I use the new detailed program-by-program annual data on federal spending that I collected over the years with Price Fishback. Using an instrumental variables approach, I find that federal funds were distributed differently in the 1920s and 1930s. Before the New Deal started in 1933, the political characteristics of the state (swing voting and faithfulness to one party – or how far to one side it is, and how far does it swing) had no effect on the distribution process. The amounts were determined by geographical features of the state; western arid states received more money for the irrigation projects, while eastern states obtained more funds for improving the harbors. Starting with the President Roosevelt and his New Deal, the swing voting states started receiving more federal funds in almost all categories, everything else held equal. The legislative freedom in the New Deal legislature that I discovered in Chapter 1 made it possible for Roosevelt to gather political capital in the swing voting states. This is the first study that determines the onset of the swing-voting heavy patterns for distribution of the federal funds.

The emergency relief and recovery spending of the New Deal had to have an economic effect on the wellbeing of the states. In chapter 3 I analyze how large that effect

was. To be consistent with the previous studies, I estimate state level government spending income multipliers for different types of New Deal spending. I use the unique dataset that Price Fishback and I collected from direct archival sources and an instrumental variable approach to counteract the endogeneity of state personal income and federal funding a state received. I find that one additional dollar of per capita New Deal spending increase personal per capita state income by 40 to 96 cents depending on the type of spending. New Deal programs varied greatly in their design and method of operation, so it is no surprise that the economic response to those programs was different as well. I roughly divide the programs into grants and loans, keeping in mind that many loan programs turned into grants over time when the repayment was forgiven. A dollar of per capita New Deal grants increased per capita income in states by 86 cents. Once I added loans to the grants the personal income multiplier went down, as one would expect, since loans by their nature are supposed to be repaid. Agricultural Adjustment Administration spending stand out from the rest of the government spending. That program was developed to improve farmers' wellbeing by increasing the agricultural commodity prices. In order to do so, the farmers were paid to take land out of production to decrease supply and drive prices up. AAA spending had an expectedly different effect on the states' incomes. The estimated government spending income multiplier is very small unlike the rest of my estimates. I also find that the New Deal spending had a positive effect on the consumption of durable goods, specifically automobiles, and a negligible and sometimes negative effect on employment.

## I. INTRODUCTION

The Great Depression that started in 1929 was the worst economic crisis in U.S. history. By 1931 the unemployment level rose to 16%; by 1933 it was above 20%. For those workers who maintained their jobs, salaries fell by a quarter on average.<sup>1</sup> During the Great Crash of October of 1929 approximate 75\$ million dollars were lost in the market collapse. Prices fell by 26% in four years as production output decreased. Due to dramatic deflation that led to rising value of the dollar, loans and mortgages could not be repaid on time, and many families lost their homes and farms to foreclosures. Once rural banks stopped receiving payments, they failed and closed down. Investors rushed to sell stocks but could not find buyers. By the early 1930s the country was at a standstill.

In the face of country-wide economic disaster the government stepped up with relief efforts. Republican President Hoover took substantive steps to help out the economy by first starting the Reconstruction Finance Corporation that loaned money to various relief programs already in place. The country, however, was on downward spiral and the measures did not help right away. In the darkest days of the crisis a popular former New York Senator, the current Governor of New York that just won his re-election in 1930 and the rising star of the Democratic Party Franklin Delano Roosevelt declared his candidacy for the presidency of the United States in the 1932 elections. During his campaign Roosevelt hinted at the economic programs to come by egging Americans to work together for the greater goal and forego the American Individualism that Hoover advocated.<sup>2</sup>

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<sup>1</sup> Fishback, P. (2014). "Cliometrics and Great Depression," *Cliometrics Handbook*, p. 1.

<sup>2</sup> Miller Center of Public Affairs, University of Virginia. "Franklin D. Roosevelt: Campaigns and Elections." Accessed May 2, 2016. <http://millercenter.org/president/biography/fdroosevelt-campaigns-and-elections>.

President Hoover was so unpopular that Franklin Roosevelt, with the promises of better life and swift economic recovery, won by a landslide.

As President Roosevelt promised during his campaign, his emergency New Deal programs were rolled out during the first 100 days in office with overwhelming support of the Democrats dominated Congress. The New Deal included work relief programs, farm subsidies, mortgage repayment aid, and much more. The scope, the speed and the rippling effect of the New Deal reverberated through decades. Out of dozens of programs started many continue to the present day. The Social Security Administration established as a part of the New Deal is still functioning; the farm subsidies program we have now is a logical continuation of the Agricultural Adjustment Administration.

The distribution process for the New Deal funds as well as its effects have been studied in the past, but never to such degree of detail as in this work. Over the years Price Fishback and I manually gathered detailed annual program-by-program data of the New Deal spending. I use this data here to first analyze what factors determine the level of government spending in a state during the New Deal, since some states received more money per capita than others. Then I study the effect of the federal spending in the states on the economic factors in the state, such as personal income, unemployment, and consumption of durable goods. To understand the source of the new programs it is important to look at institutional and legislative changes that happened in 1933 as the New Deal was written into the law. I analyze and document the drastic shift in control over the power to distribute federal money from the Legislative to Executive branch of the government.

The lessons we learn from economic history are valuable today. Politics oriented distribution patterns continue. Learning about their start gives us a framework for further studies. As new economic downturns occur, knowing how expansive fiscal policy influenced the economy in the 1930s, can help us make relevant and necessary policy changes.

## II. CHAPTER 1: LEGISLATIVE SHIFT IN NEW DEAL STATUTES

### 1. Introduction

The United States was in the middle of the Great Depression when Franklin Delano Roosevelt ran for the Presidency. He promised the country swift and drastic relief measures, and a path to economic recovery.

Unfortunately there was nothing swift about the existing process of the distribution of the federal funds: most of the projects had to be individually approved by the Congress and the agencies that administered the projects were tightly monitored. In order to receive federal funding, a state had to go through a lengthy application process, followed by lengthy discussions of the merits of the project in various Congressional committees. Then a Congressional vote was required before the President signed the new appropriations into law. After the appropriations were approved, the agencies administering the project, be it Bureau of Reclamation or Army Corps of Engineers could start the work. If a project required additional funds, the process had to be repeated all over.

In 1933 new laws passed by a New Deal Congress heavily dominated by Democrats and signed by the President Roosevelt were different. Instead of establishing particular agencies with clearly defined mandates to administer various relief efforts, in many cases the power was given to the President to establish agencies, appoint commissions, approve projects, and fund them out of the total appropriations provided for in the original act. This sped up the relief and recovery efforts considerably, but largely eliminated Congressional oversight of the funds distribution process. One might argue that the concentration of power over distribution in the hands of the executive branch of the government made it

possible for the Roosevelt administration to pursue political goals in addition to the economic ones. In the second chapter of the dissertation I examine the extent to which the distribution across states was influenced by these goals.

To see how the balance of distributary power changed between 1920s and 1930s I research the statutes that governed the process of the distribution of the federal funds for all major spending programs. I start with the laws on expenditures on veterans' wellbeing which were typically written in the late nineteenth century, go on to study the Bureau of Reclamation legislation of the early twentieth century, look at pre-Great Depression programs of the 1920s as well as the first responses of the President Hoover to the Depression. That gives me a basis for comparison with the Roosevelt legislation. The first New Deal "emergency" laws were passed in early 1933 as soon as Franklin Roosevelt was sworn into the office. All of the New Deal legislation had the word "emergency" in the title, whether to rush it through the Congress or to be able to pass it with wider executive powers. In order to keep in line with the emergency nature of the Acts, most of the emergency New Deal acts had a termination date written into them, since an emergency cannot last forever.

I look at the New Deal acts from the Federal Emergency Relief Act of 1933 all the way to the Civilian Conservation Corps Act of 1937 and find that with each act the power of the Executive branch in federal money distribution only increased.

## 2. Methodology and sources

To see how the statutes changed over the years I examine at the original text of the acts that governed the process of distribution of the federal funds. The statutes analyzed in this chapter have been gathered through a variety of online sources. I started with the Westlaw online resource, which provides the full text of statutes, current and former codification, as well as legislative history. Another useful source was Lexis Nexis Congressional, which holds scanned copies of the original acts. The Hathi Trust also came handy. *The American Presidency Project* archives the full text of all executive orders issued since 1826. I used this online source to obtain Franklin Roosevelt executive orders. There were 39 in 1933 alone. Since all of the statutes in this chapter are available for perusal and download in several sources (including paper congressional records available at archives and libraries), I cite codified statutes directly, without an internet source.<sup>3</sup>

Codification is not straightforward in our case. Some of the original acts were incorporated into existing legislation from the beginning and had their codified place in the statutes at large. Others were written as individual laws that were incorporated into statutes at large at a later date. In that case their codification (or location within the U.S. legal system) has changed. Some of the acts that were re-codified at a later date were also amended. I found the original text of the acts and statutes before those amendments took place to be able to analyze the content and the wording of the acts in question. Studying legislative history of the acts gave me an idea of how a statute developed over time, how its interpretation changed, and what case law was developed based on it.

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<sup>3</sup> That is the standard practice for common statutes in the legal field, as outlined by the *The Blue Book, A Uniform System of Citation* by the Columbia Law Review Association, the Harvard Law Review Association, The University of Pennsylvania Law Review, and the Yale Law Review.

### 3. Historical Statutes

#### 3.1. Before the Great Depression

Pre-New Deal legislation typically followed an established format, where the Congress approved creation of a particular agency, clearly defined its authority, and required congressional approval of individual projects.

##### 3.1.1. Rivers and Harbors

The process of project approval and funding for rivers and harbors improvements was codified in 1899 by an act of Congress<sup>4</sup> and was very explicit: “It shall not be lawful to construct or commence the construction of any bridge, causeway, dam, or dike over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States until the consent of Congress.”<sup>5</sup> For the waterways that lie entirely within the borders of one state the plans for construction had to be approved by the Secretary of Transportation, the Chief of Engineers, and the Secretary of the Army. For the waterways that are located in more than one state, the Congress had to approve the project before the executive branch officers. Once the plan was approved by all parties, it was binding and could not be changed without separately approved modifications. No single office had the ability to unilaterally determine the location and the scope of projects constructed. The legislation did not mean that any work associated with rivers and harbors had to be approved by the Congress. Regular maintenance of all navigable waters, specifically

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<sup>4</sup> “Construction of bridges, causeways, dams or dikes generally; exemptions,” 33 U.S.C.A. § 401 (1899).

<sup>5</sup> Ibid

removal of obstructions such as sunken vessels could be done at the orders of the Secretary of the Army, without any regard to the original owners of the obstructing water craft.<sup>6</sup>

In order to recommend necessary projects to be constructed, the Board of Engineers for Rivers and Harbors was created in 1902 inside the Office of the Chief of Engineers.<sup>7</sup> The duties of the Board were to consider and recommend projects or changes to the projects based on surveys and examinations done by Congress. The Board was, upon request of the Committee on Public Works and Transportation of the House of Representatives, or the Committee on Environment and Public Works of the Senate, to review potential benefits of the improvements, costs of construction, examine locations and determine viability of projects.<sup>8</sup> If upon a preliminary examination a project was not considered necessary or advisable, the project could not go forward without a directive from Congress.<sup>9</sup>

Chapter 15 of Title 33 is entirely dedicated to flood control legislation. Even though it changed over the years and started to involve more and more cabinet members as well as Congressional committees, flood control legislation in the 1920s gave a bit more leeway to the Secretary of the Army and the Chief of Engineers. After every major flood season special appropriations were made to repair levees, channels and other flood-control measures. “Appropriation for emergency fund” of May 15, 1928<sup>10</sup> allotted five million dollars to an emergency fund to be used by the Secretary of the Army on the recommendation of the Chief of Engineers to maintain flood-control projects on the

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<sup>6</sup> “Removal by Secretary of the Army of sunken water craft generally; liability of owner, lessee, or operator,” 33 U.S.C.A. § 414 (1899).

<sup>7</sup> “Board of Engineers for Rivers and Harbors; establishment; duties and powers,” 33 U.S.C.A. § 541 (1902)

<sup>8</sup> Ibid

<sup>9</sup> “Preliminary examinations and reports; surveys; contents of report to Congress,” c. 144, § 3, 37 Stat. 825 (1913), codified as 33 U.S.C.A. § 545.

<sup>10</sup> “Appropriation for emergency fund,” c. 569, § 7, 45 Stat. 537 (1928), codified as 33 U.S.C.A. § 702g.

Mississippi River after the flood of 1927. In case the Chief of Engineers decided that the flood-control measures would be more beneficial in a different locations, the “Appropriations for emergency fund” statute allowed him to unilaterally move the location of the flood-control measure in question.

### 3.1.2. Bureau of Reclamation

The Reclamation Act of 1902<sup>11</sup> defined the scope of work of the Bureau of Reclamation and sources of its funding. The Bureau was created to improve arid and semi-arid lands in the West by constructing irrigation projects that stored and diverted water in the number of states and territories. The projects were paid by the Reclamation Fund, set up in the Treasury, that held “all the moneys [except for 5 per cent] received from the sale and disposal of public lands in Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming.”<sup>12</sup>

The approval and appropriation process first called for the Secretary of Interior to survey the lands to determine the location and the nature of necessary projects (be it water diversion or construction of artesian wells), created maps, estimated costs, and determined whether construction of the said project was advisable. In 1926 the position of the Commissioner of Reclamation was created<sup>13</sup> and he took over some of those duties. In the beginning of each Congressional session the Secretary of Interior reported the findings and

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<sup>11</sup> *Reclamation Act*, 32 Stat. 388 (1902).

<sup>12</sup> *Ibid*, Section 1.

<sup>13</sup> “Under the supervision and direction of the Secretary of the Interior, the reclamation of arid lands, under the Act of June 17, 1902, and Acts amendatory thereof and supplementary thereto, shall be administered by a Commissioner of Reclamation who shall be appointed by the President by and with the advice and consent of the Senate.” 43 U.S.C.A. 373a (1926).

suggested projects to be constructed by relaying all relevant facts, construction and operation costs and practicability of each new project. If Congress approved the suggested project, then the Secretary of Interior went ahead with the removal of the required lands from the public domain and proceeded with the construction using the reclamation funds. In the beginning of each Congressional session the Secretary of Interior reported not only on prospective projects but also on the progress of current projects, requested additional funds from the Reclamation Fund or returned excess moneys back to the Treasury.<sup>14</sup> Section 6 provided that the Secretary of Interior was authorized to use the reclamation fund for costs of operation and maintenance of all reservoirs and irrigation worked constructed under the Reclamation Act. The right to purchase and to condemn lands required for the projects was given to the Secretary of Interior by Section 7. Additional privileges of the Secretary included the right to make rules and regulations necessary for carrying out the Act and are mentioned in Section 10. In sum, the authority of the Secretary of Interior (the executive branch representative in this case) was tightly defined in the statutes, without much space for interpretation. Even though he was authorized to survey lands and propose projects, leaving the locations of the projects somewhat to his discretion, the final say was with Congress, which either approved or denied each and every project.

Several large projects had their own codified statutes. In 1928 Statute 43 USCA 617a created the “Colorado River Dam Fund” under the control of the Secretary of Interior to be used only for that project. The \$25 million specifically allocated for flood control by the Secretary of Treasury was to be repaid to the United States Treasury. The total amount of the money appropriated for the project was not declared in the initial act since it could

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<sup>14</sup> Ibid, Sections 2-4.

change with the progress of the construction. The main limitation on the spending was outlined in subsection (c) of the Act: “Moneys in the fund advanced under subsection (b) shall be available only for expenditures for construction and the payment of interest, during construction, upon the amounts so advanced. No expenditures out of the fund shall be made for operation and maintenance except from appropriations therefor.”<sup>15</sup> The power of the Secretary of Interior was further limited by the fact that the Colorado River Project required cooperation and coordination of seven states as well as all the rules and regulations that governed the production and distribution of electricity (the Federal Power Act, 16 U.S.C.A. § 791).<sup>16</sup> The terms of the agreement among the states were subject to approval by Congress.<sup>17</sup> The resulting Boulder Dam (or Hoover Dam) project was heatedly debated in Congress and approved by it in parts.

### 3.1.3. Roads and Highways

The 1916 Federal Aid Road Act<sup>18</sup> provided for the construction of postal and rural roads by the Secretary of Agriculture in cooperation with the individual states. In order to obtain federal road funds, the local legislature or the Governor of the state had to have agreed to the provisions of this act. After that, the Secretary of Agriculture and the State highway department had to agree on what toll-free roads were to be constructed. The money appropriated for a state for any particular year were available until the end of the following fiscal year, unless a state had no highway department. In that case the moneys

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<sup>15</sup> “Colorado River Fund,” c. 42, § 2, 45 Stat. 1057 (1928), codified 43 U.S.C.A. § 617a.

<sup>16</sup> 43 U.S.C.A. § 617e, “Uses to be made of dam and reservoir; title in whom; leases, regulations; limitation on authority” (1928).

<sup>17</sup> “Colorado River compact as controlling authority in construction and maintenance of dam, reservoir, canals, and other works,” c. 42, § 8, 45 Stat. 1062 (1928), codified as 43 U.S.C.A. § 617g

<sup>18</sup> Federal Aid Road Act, 39 Stat. 355 (1916).

were available for three fiscal years. Any unspent funds were to be returned to the Department of Treasury.<sup>19</sup> The total highway funds were allocated among the states according to a formula defined within the Act that depended on the ratio of the area of the state to the total area of the United States, the ratio of the population of the state to the total population of the United States, and the ratio of the mileage of the rural delivery routes and star routes within a state to the mileage of such roads in the country, “at the close of the next preceding fiscal year, as shown by the certificate of the Postmaster General, which he is directed to make and furnish annually to the Secretary of Agriculture.”<sup>20</sup> There were no obvious projects to approve separately by Congress. Neither were there large sums of money to distribute according to the wishes of a Commission, a Secretary, or the President. The moneys mostly went to the states according to a predetermined formula. In special cases the State Highway Departments could submit project proposals to the Secretary of the Agriculture along with surveys, plans, and construction estimates. If the Secretary of Agriculture approved a project, the State Highway Department was to submit a money request to the Department of Treasury. Then the Secretary of Treasury would set aside a portion of money necessary for the project from all the money appropriated under the Federal Aid Road Act (not exceeding \$10,000 per mile, barring construction of bridges).<sup>21</sup> Maintenance of already constructed roads was completely up to the States’ Highway Departments. Moreover, if the Secretary of Agriculture deemed the condition of the roads unsatisfactory, he could bar the state from getting any money for future road projects. The amounts of money that the Secretary of Agriculture had at his disposal for the road

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<sup>19</sup> Ibid, Sections 3-4.

<sup>20</sup> Ibid, Section 4.

<sup>21</sup> Ibid, Section 6.

construction projects all over the United States was rather small. Section 8 of the Act provided only for up to one million dollars per year, not exceeding ten million dollars.

The 1921 Amendment to the Federal Highway Act of 1916 directs the Secretary of War to transfer all war materials, equipment, and supplies to the Secretary of Agriculture to be distributed among Highway Departments of several states.<sup>22</sup> In addition, the Secretary of Agriculture now had the authority to reserve up to ten per cent of the transferred supplies to use at his discretion for construction and repairs of roads in national forests.<sup>23</sup> Section 6 of the Amendment gives funding and construction priority to projects that join existing roads into a connected system. Secretary of Agriculture had authority to approve or deny proposed road systems, suggest modifications, and approve spending for construction.<sup>24</sup> Proposed new roads to join existing one into a system could be no longer than seven per cent of the total mileage of roads in a state, which installed a limit on the distributary power of the Secretary of Agriculture. In addition to supervision of the newly created road systems, the Secretary of Agriculture received authority to contract with outside parties,<sup>25</sup> to determine what public lands and reservations is reasonably necessary for right of way,<sup>26</sup> as well as spend 2 ½ per cent of total appropriations as he deems necessary.<sup>27</sup> The amendment expanded Secretary of Agriculture's power to survey, examine, and approve projects. The changes were neither dramatic in nature nor large in number.

#### 3.1.4. Veterans' Spending

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<sup>22</sup> "An Act to amend the Act entitled 'An Act to provide that the United States shall aid the States in the construction of rural postal roads, and for other purposes,' (1921), 42 Stat. 212, Section 5.

<sup>23</sup> Ibid

<sup>24</sup> Ibid, Section 6.

<sup>25</sup> Ibid, Section 14.

<sup>26</sup> Ibid, Section 17.

<sup>27</sup> Ibid, Section 21.

The federal funds for the Bureau of Pensions, founded in 1832, were tightly regulated. The budget was approved and appropriated for by an Act of Congress every year. It was not a blanket allocation of funds to an agency to be distributed at the discretion of the agency; instead, the appropriations acts specified what moneys were to be spent on. Any and every increase or decrease in pensions and payments to widows had to be approved by a separate Act through the Congress. Internal fees were controlled as well. In 1922 an act was passed to fix the fees that the surgeons could charge veterans for an examination.<sup>28</sup> Even though there have been proposals to move the Bureau of Pensions from the Department of Interior to the Department of War<sup>29</sup> to consolidate all war-related agencies under one Department, such move never happened.

Founded in 1865, the National Asylum (later Home) for Disabled Volunteer Soldiers had close Congressional oversight. Due to the administrative complications that resulted from the original Bill, the 100-member administering corporation was changed to a 12-member board by an Act of Congress. The Proceedings of the Board recorded the decision making process of the new projects at each of the three originally planned locations.<sup>30</sup> Each new construction project had to be individually approved by the Congress, even those in 1930, right before the agency was incorporated into Veterans' Administration.<sup>31</sup>

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<sup>28</sup> "An Act Fixing the fees of the examining surgeons in the Bureau of Pensions," (1922). 42 Stat. 1030.

<sup>29</sup> Noble, J. (1904). "Transfer of Bureau of Pensions to War Department," House and Senate Documents, 2750 H. exdoc. 296.

<sup>30</sup> "Board of Managers of the National Asylum for Disabled Volunteer Soldiers", Proceedings, May 16, 1866

<sup>31</sup> "An Act To establish a branch home of the National Home for Disabled Volunteer Soldiers in one of the Northwest Pacific States" (1930, 46 Stat. 852) is an example of the multitude of similar acts that start in 1865.

In 1930 the existing veterans programs were consolidated into the newly created Veterans' Administration<sup>32</sup> that not only put the Bureau of Pensions, the States Veterans' Bureau, and the National Home for Disabled Volunteer Soldiers under the power of the President and the Administrator of the VA, appointed by the President, but also gave them power "to consolidate, eliminate, or redistribute the functions of the bureaus, agencies, officers, or activities in the Veterans' Administration and to create new ones therein."<sup>33</sup> The powers of individual agencies were transferred to the Secretary of the Interior and the Secretary of War, and the Administrator reviewed all final decisions.<sup>34</sup> Section 6(a) of the Act provided that all unexpended appropriations of the previously existing agencies would be transferred to the VA; all new appropriations for the projects of the previous agencies would be made to VA instead. At the end of each fiscal year the Administrator was to make a written report on how they money have been spent and to make suggestions on how VA should operate.

Even though the administrative control of the Veterans' Administration was exclusively by the executive branch of the government, all appropriations went through the Congress, whose authority was not just confined to the annual budget; each and every project had to be approved by the Congress. If the agency required funds in excess of the allotted amount, the additional appropriations had to go through Congress. After being approved by the Congress, the Director of the Bureau of the Budget submitted the proposal with all supporting facts to the President for a signature. Appropriated amounts could be

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<sup>32</sup> "An Act to authorize the President to consolidate and coordinate governmental activities affecting war veterans," 46 Stat. 1016 (1930).

<sup>33</sup> Ibid, Section 1(b).

<sup>34</sup> Ibid

large (in 1937 the supplemental appropriations were \$1,000,000 for adjusted-service and dependent pay)<sup>35</sup> or quite small (as little as \$240 for a repeat amputation for a World War I veteran). All appropriations large or small had to be reviewed independently. In case some moneys were not spent during a fiscal year, they had to be returned to the Treasury through the same process – congressional approval and presidential order.

The VA funds were distributed according to the needs of the veterans and followed strict regulations. The pensions and payments to the families were set, the number of veterans in a particular locality was stable. We can go as far as saying that the payments were exogenous and not easily influenced. The same goes for construction of VA hospitals and veterans-specific housing projects.

### 3.2. The Hoover Era

#### 3.2.1. Reconstruction Finance Corporation

The *Reconstruction Finance Corporation Act of January 22, 1932* defined the location, the principal stock, and the mode of functioning of the newly minted organization. Some funds were appropriated for specific purposes. For instance, \$50,000,000 were allocated to the Secretary of the Agriculture to make loans to farmers with liens on crops. The management of the corporation included of the Under Secretary of the Treasury, the governor of the Federal Reserve Bank, and the Farm Loan Commissioner – all appointed and not elected positions. Since the budget of the corporation was large and the recipients

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<sup>35</sup> “Supplemental estimate of appropriations for the Veterans’ Administration,” (January 13, 1937), 75<sup>th</sup> Congress, 1<sup>st</sup> Session, Document No. 125.

of the loans were determined outside of congressional control, the discretionary power of the RFC was large.

*The Emergency Relief and Construction Act of 1932* was created to broaden the lending powers of the Reconstruction Finance Corporation as well as to expedite a public-works program. Expedite is the critical word here, since in order to expedite loan approval, the executive board made the decision. Title I of the Act was designed to relieve destitution. Section 1 authorized the RFC to allocate \$300,000,000 within two years to states and territories that suffer from unemployment as long as no more than 15% of the total amount was allocated to any particular state or territory. All allocations bore interest of 3 per cent annually and, with the exception of Alaska and Puerto Rico, were to have been reimbursed to the RFC from the funds allocated for state highways and postal roads, up to five per cent of the said funds. The moneys were allocated to the Governor of the state or territory by his or her request and could be distributed under the Governor's direction.<sup>36</sup> Most of the loans went to private corporations with the intent to aid poor families with housing. Title II defined what loans were permissible and to whom they could be made. Section 201 (a) (1) specifies that RFC could "contract with States, municipalities, and political subdivisions of States, public agencies of States, of municipalities, and of political subdivisions of States, public corporations, boards and commissions, and public municipal instrumentalities of one or more States."<sup>37</sup>

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<sup>36</sup> *Emergency Relief and Construction Act* (1932), ch. 520, 47 Stat. 709.

<sup>37</sup> *Ibid*, Section 201(a).

The borrowing power of the Reconstruction Finance Corporation was decreased by 400 million dollars by the National Industrial Recovery Act to free up money in the Treasury.<sup>38</sup>

### 3.3. New Deal

The introduction of the New Deal drastically increased the volume of the federal funds distributed. The Relief, Recovery, and Reform did not come cheap. In order for the economic recovery measures to be effective, Roosevelt argued they had to be swift. To bypass a lengthy approval process in the Congress most of the New Deal legislation defines agencies and gives wide range of powers to the executive branch of the government.

#### 3.3.1. FERA and CWA

On May 12, 1933 the *Federal Emergency Relief Act* came into effect. It authorized the RFC to borrow \$500,000,000 to make “grants to the States, Territories, and the District of Columbia for the relief of distress arising out of unemployment.”<sup>39</sup> The act established the Federal Emergency Relief Administration<sup>40</sup>; it was not only a successor of the Emergency Relief Administration created by President Hoover, it also divested the Reconstruction Finance Corporation of its authority to approve applications for relief. The unused balance of the relief funds of the RFC was given to the FERA.<sup>41</sup>

The 500 million dollars fund was to be managed by the Administrator, appointed by the President and approved by the Senate. There were some limitations on how the

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<sup>38</sup> *National Industrial Recovery Act*, Title III, Section 302 (1933)

<sup>39</sup> Wagner (1933), “*Federal Emergency Relief Act of 1933 Report*”, Committee on Banking and Currency, 9769 S.rp.11.

<sup>40</sup> *Federal Emergency Relief Act*, (1933), 48 Stat. 55, Section 3(a).

<sup>41</sup> *Ibid*, Section 3(b)

moneys were to be spent. Grants to the States could be made in two different ways. First, the states could apply and receive funds equal to one third of the public funding they have spent on unemployment relief efforts. These kind of grants were to be made quarterly, depended on the amount of money spent the previous quarter, and could not exceed \$250,000,000 in total. The remaining money (that were not less than \$250,000,000) were to be allocated by the Administrator to relieve unemployment in the states where the existing combined efforts were not deemed sufficient. The application process for that kind of grants was straightforward. The administrator would make a unilateral decision based on the state's governor's application for the said funds. In some cases in order to determine the need for the relief, the administrator, at the request of the President, can conduct an investigation.<sup>42</sup> Once the decision to award a grant has been made, the RFC would be informed and the immediate payment would be made. To follow up, the Governor was expected to file monthly reports with the Administrator on how the moneys were distributed.<sup>43</sup> Similar to other federal funding acts, no one state can receive more than 15 percent of the total.<sup>44</sup>

*The Relief Act of February 15, 1934* (An Act making an additional appropriations to carry out the purposes of the Federal Emergency Relief Act of 1933, for continuation of the Civil-Works program, and for other purposes) appropriates an additional \$950,000,000 for continuing the Civil-Works program that were to be dispersed at the President's discretion. The 1934 act not only appropriated additional funds, but made sure that there were no legal barriers to the dispersement of the funds ("nothing contained in the Federal

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<sup>42</sup> Ibid, Section 3(c).

<sup>43</sup> Ibid, Section 6.

<sup>44</sup> Ibid, Section 4(f).

Emergency Act of 1933 shall be construed as precluding the Federal Emergency Relief Administrator from making grants for relief within a State directly to such public agency as he may designate”).<sup>45</sup> Such adjustments to already existing acts broadened the power of the executive branch of the government in the process of distribution of the federal funds. Each year and each Act gave more and more discretionary spending power to the President.

The Federal Civil Works Administration was created by an executive order of Franklin D. Roosevelt on November 9, 1933.<sup>46</sup> President Roosevelt was looking for swift relief of unemployment that created jobs and paid workers minimal wage (unlike other relief programs that were slow in the making and paid workers very little). To speed up the initial bureaucratic set up, the CWA was managed by an existing agency – the Federal Emergency Administration of Public Works - and was funded by already appropriated funds. The Federal Emergency Relief Administrator, as the head of the CWA had the power to authorize and finance any CWA project, acquire property, appoint employees as necessary without regard to existing civil service laws.<sup>47</sup> The \$400 million dollars appropriated for the Civil Works Administration came from the \$3.3 billion dollars appropriated by the National Industrial Recovery Act.

### 3.3.2. National Recovery Act

*The National Industrial Recovery Act* of June 16, 1933 was intended to do exactly what its title suggested: “to encourage national industrial recovery, to foster fair competition, and to provide for the construction of certain useful public works.” It was left

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<sup>45</sup> “Relief Act of February 15, 1934,” (1934), 48 Stat. 351.

<sup>46</sup> Roosevelt, F. (November 9, 1933). "Executive Order No. 6420B."

<sup>47</sup> Ibid

to the President's discretion to set up appropriate agencies "without regard to the provisions of the civil service laws,"<sup>48</sup> utilize existing agencies, prescribe authorities including setting up wages "without regard to the Classification Act of 1923."<sup>49</sup> \$3,300,000,000 were appropriated to carry out the provisions of the Act and provide for all the public works projects it starts and continues.

The Codes of Fair Competition written into the Title I of the National Industrial Recovery Act gave the President authority to create fair trade regulations and put it into effect, powers usually associated with the executive branch of the government. Entering trade agreements was not unusual for a sitting president, but giving the President authority to approve trade agreements<sup>50</sup> (that authority usually lies with Congress) was allowed only in special circumstances. In addition to the fair trade regulations (that include unionized workers, compensation, mergers, etc.), the NIRA gave the President authority to write rules and regulations for the oil industry, conduct investigations of colluding and unfair practices. Furthermore, the Interstate Commerce Commission had to give preference to those hearings over all other. Given that oil extraction industry accounts for a sizeable portion of the U.S. economy and affects other industries, the power given to the Executive branch is not negligible.

Title II of the NIRA sets up the Federal Emergency Administration of Public Works under control of the Executive branch of the government. Specifically, the President could create agencies, appoint administrators, set monetary compensation for all employees, and most importantly to the purpose of this study, give out loans and grants for public works

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<sup>48</sup> *National Industrial Recovery Act*, Title I, Section 2(a) (1933)

<sup>49</sup> *Ibid*

<sup>50</sup> *National Industrial Recovery Act*, Title I, Section 4(a) (1933)

projects.<sup>51</sup> The types of projects that fell under the President’s jurisdiction are listed in Section 202 of the Act and include highway repair and construction, construction of public buildings, conservation projects, rivers and harbors improvements (after approval by the Congress and recommendation of the Chief of Engineers), hydroelectric power facilities, low cost and slum housing, and any project under section 201 of the Emergency Relief and Construction Act of 1932, including construction of vessels and aircrafts.<sup>52</sup> The powers to set up projects and allocate funds given to the executive branch by the National Industrial Recovery Act of 1933 are seemingly all encompassing. The President (appropriate agencies set up by the President and states and municipalities that the powers have been delegated to<sup>53</sup>) could fund projects in locations of interest without Congressional oversight. Whether it was done purely to support the three Rs of the New Deal – Recovery, Reform, Relief – or whether political interests of the President Roosevelt was a major factor in the decision making process is still a hot topic of discussion. Chapter 2 shows that after controlling for the national shocks and state-specific trends, the swing voting states received marginally more funds from the federal government starting with the Roosevelt administration in 1932. This was not the case in the 1920s.<sup>54</sup> Under the NIRA individual construction projects did not need to be individually approved by the Congress and were not overseen by it. Even though the agencies founded by the President under the NIRA had to act within the powers declared by the Act, the power given to the potential agencies and

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<sup>51</sup> *National Industrial Recovery Act*, Title II, Section 201(a)-(d) (1933)

<sup>52</sup> *National Industrial Recovery Act*, Title II, Sections 202-203 (1933)

<sup>53</sup> “The President, in his discretion, and under such terms as he may prescribe, may extend any of the benefits of this title to any State, county, or municipality notwithstanding any constitutional or legal restriction or limitation on the right or power of such State, county, or municipality to borrow money or incur indebtedness.” *National Industrial Recovery Act*, Title II, Section 203(d) (1933).

<sup>54</sup> Fishback, P., Kachanovskaya, V. (2016). “Learning to Swing with Roosevelt,” Chapter 2 of this dissertation, University of Arizona.

the President were so widely defined that it essentially reads like the President received carte blanche for all and any federal projects done in the name of the economic recovery. For instance, Section 204 of the Title II allows the President to make grants of no less than \$400,000,000 to the highway departments of several states in accordance with the provisions of the Federal Highway Act of 1921 that determine the distribution formula,<sup>55</sup> with the exception of construction and reconstruction of highways and bridges.<sup>56</sup> The NIRA did not only apply rules and regulations of the old Acts to the new projects of the Recovery Act, but also amended existing Acts, such as changing the Revenue Act of 1932 by raising existing taxes and introducing corporate excise tax of 5 per cent.<sup>57</sup>

### 3.3.3. Conservation and Forest Services

*An Act for the relief of unemployment through the performance of useful public work, and for other purposes*, on March 31, 1933 authorized the President to provide employment in the “construction, maintenance and carrying on of the works of a public nature in connection with forestation,” especially in the prevention of forest fires, pests and tree diseases, construction and maintenance of paths, etc.<sup>58</sup> This act was the predecessor of the Civilian Conservation Corps Act. The President was allowed to extend the provisions of the Act to municipal and county property, to provide for housing and basic needs for the

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<sup>55</sup> “Any amount allocated by the President for grants under subsection (a) of this section shall be apportioned among the several States seven-eighths in accordance with the provisions of section 21 of the Federal Highway Act, approved November 9, 1921, as amended and supplemented (which Act is hereby further amended for the purposes of this title to include the District of Columbia), and one-eighth in the ratio which the population of each State bears to the total population of the United States, according to the latest decennial census and shall be available on July 1, 1933% and shall remain available until expended.” *National Industrial Recovery Act*, Title II, Section 204(b) (1933)

<sup>56</sup> *National Industrial Recovery Act*, Title II, Section 204(d) (1933)

<sup>57</sup> *Ibid*, Sections 213-215

<sup>58</sup> “An Act for the relief of unemployment through the performance of useful public work, and for other purposes,” (1933), 48 Stat. 22.

employees, and to allocate funds to the Forest Products Laboratory for forest research. All the rules pertaining to the Act to Relieve Destitution still apply, especially that no more than 15% of the whole budget could go to any particular state or municipality. Just as under the Act to Relieve Destitution (Emergency Finance and Construction Act), the President was given virtually free rule on how moneys were to be distributed among individual projects.

The executive order 6101 of April 5, 1933 appointed the Director of Emergency Conservation Work and an Advisory Council to the Director that consisted of representatives from the Departments of Agriculture, Interior, and Labor.<sup>59</sup>

#### 3.3.4. Agricultural Adjustment Administration

The Agricultural Adjustment Act of 1933 was designed to help farmers by artificially raising prices of agricultural commodities to the 1909-1914 levels with exception of tobacco the price of which was set to 1919-1929 level.<sup>60</sup> In order to do so, the Act prescribed the Federal Farm Board and other Government agencies to sell all the cotton to the Secretary of Agriculture.<sup>61</sup> The money to purchase commodities was loaned by the government,<sup>62</sup> specifically the Reconstruction Finance Corporation with warehouse storage receipts as collateral.<sup>63</sup> In instances where cotton was held as collateral in loans, the Secretary of Agriculture was given authority to settle loans and issue bonds.<sup>64</sup> Once cotton was in the possession of the Secretary of Agriculture he could use it as collateral in

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<sup>59</sup> Roosevelt, F. (April 5, 1933). "Executive Order 6101."

<sup>60</sup> *Agricultural Adjustment Act*, Title I, Part 1, Section 2(1) (1933)

<sup>61</sup> *Ibid*, Title I, Part 1, Section 3(a)

<sup>62</sup> *Ibid*, Title I, Part 1, Section 3(b)(1)

<sup>63</sup> *Ibid*, Title I, Part 1, Section 5

<sup>64</sup> *Ibid*, Title I, Part 1, Section 3(b)(2)

loans that were later used to pay farmers to reduce agricultural output,<sup>65</sup> given that all accumulated cotton was sold by March 1, 1936.<sup>66</sup> Section 11 confirmed that the rules for acquiring other agricultural commodities were the same as for the cotton.<sup>67</sup>

The explicit powers of the Secretary of Agriculture, prescribed by Part 2 of Title I, included authority to choose storage facilities, pay for inspections of the facilities, enter into marketing agreements with associations of producers, to issue licenses to associations of producers to engage in interstate commerce, and to suspend such licenses.<sup>68</sup> As seen here, the powers of the Secretary of Agriculture were clearly defined in the Act and limited to administrative tasks, such as appointing officers and employees, establishing administrative force, and with the approval of the President, create new regulations that would help out to carry out the Agricultural Adjustment Act.<sup>69</sup>

In addition to the loans made by the RFC, a total of \$100 million dollars was appropriated for the administration of the AAA. Additional funds a processing tax was established.<sup>70</sup> In case the value of the crop was too low to assess a processing tax on it, the Secretary of Agriculture, in consult with the Secretary of Treasury, could abate or refund the tax.<sup>71</sup>

Even though large amounts of federal money in the form of RFC loans, collected taxes, and administrative appropriations went through the Department of Agriculture under the provisions of the Agricultural Adjustment Act, the funds were closely monitored and

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<sup>65</sup> Ibid, Title I, Part 1, Section 6.

<sup>66</sup> Ibid, Title I, Part 1, Section 7.

<sup>67</sup> Ibid, Title I, Part 2, Section 11.

<sup>68</sup> Ibid, Title I, Part 2, Section 8.

<sup>69</sup> Ibid, Title I, Part 2, Section 10.

<sup>70</sup> Ibid, Title I, Part 2, Section 9.

<sup>71</sup> Ibid, Title I, Part 2, Section 15(a).

could only be expended on specific needs, defined by the Act. The locations of where the moneys went were determined by the crops that were grown, and were not up to discretion of the President or the Secretary of Agriculture.

### 3.3.5. Emergency Relief Appropriation Act

*Emergency Relief Appropriation Act of 1935* (Public Resolution April 8, 1935, c.48, 49 Stat. 115), that gave rise to the Works Progress Administration, states that “in order to provide relief, work relief, and to increase employment by providing for useful projects” \$4,000,000,000 are appropriated from the Treasury to be used “in the discretion and under direction of the President.” Additional funds for the Agricultural Adjustment Act, “\$3,300,000,000 for national industrial recovery [...] \$950,000,000 for emergency relief and civil works [...] \$899,675,000 for emergency relief and public works, [...] \$525,000,000 to meet the emergency and necessity for relief in stricken agricultural areas, contained in the Emergency Appropriation Act.” With the exception of the specified needs, the President may continue relief efforts as authorized under the FERA of 1933. Up to 20% of the allocated funds may be used by the President “to increase any one or more of the foregoing limitations if he finds necessary to do so to effectuate the purpose of this joint resolution.” The Act clearly states that the funds were to be distributed according to the discretion of the President, through agencies created by the President, similar to that of the FERA.

Section 3 of the ERAA specified that the President could authorize expenditures for operational costs, such as stenographic services, law books, travel expenses, and car rentals. Compared to the cost of the construction projects and overall relief efforts the amounts spent for operational costs were not that large. Nevertheless, they followed the

same principle than the rest of the funds were to be distributed according to the President's discretion.

The powers of the President were greatly expanded by Section 4 of the Act that provided that "the President is authorized to establish and prescribe the duties and functions of necessary agencies within the Government," essentially to set up the executive offices that would divvy up the federal funds among the projects and the States. Furthermore, all the Act's sections that follow grant more powers to the President, from prescribing rules and regulations to fixing wages.

### 3.3.6. Civilian Conservation Corps

The Civilian Conservation Corps (CCC) was established by the Act of June 28, 1937. According to the Act the President, with the approval of the Senate, could appoint the Director of the CCC who had exclusive discretionary power over the functioning of the CCC. These powers included allotments to other Federal departments and agencies.<sup>72</sup> The required approval of the Director of the CCC was a rare example of Congressional oversight in the overall functioning of the agency.

Unlike his authority under the Bureau of Reclamation, Rivers and Harbors funds, highway funds and other pre-New Deal programs, the President had full power to authorize projects under counties', municipalities', and on lands with private ownership. The Director provided for employment for all parts of the operation of the CCC. If the Director had no jurisdiction or power in a particular case, the President could approve those projects and provide employment under the Act. This way even if the approved by the Congress

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<sup>72</sup> Civilian Conservation Corps Act, ch. 383, 50 Stat. 319 (1937).

Director had no authority over a particular matter, the President who appointed him did, making the power of the executive branch in the work of the CCC absolute.

The Civilian Conservation Corps was a work program for the young men. Since employment lay at heart of the program, the Act addressed the matters of employment in detail. Section 5 of the Act gave the Director the authority to hire any and all civilian personnel without any regard for the existing rules, regulations, and law suits. In addition to that Section 6 allowed the President to appoint any and all reserve armed forces personnel to work for and with the Civilian Conservation Corps. While employed for the CCC the young men could take a personal leave for educational purposes. In those cases the Director of the CCC was authorized to issue certificates of proficiency and other educational achievement documents.<sup>73</sup>

In addition to the regularly appropriated funds, the CCC took over all Emergency Conservation Work personnel, property, funds, paperwork, etc.<sup>74</sup> The Chief of Finance for the War Department acted as the fiscal agent for the CCC. Once the funds were appropriated, the President could utilize resources of any other federal agency as he sees fit.<sup>75</sup> Section 14 provided that the Director could authorize the expenditure of the amounts that he saw fit for supplies, materials, and equipment for enrollees to be used for their work. According to the Section 17 of the Act, the moneys were appropriated from the Treasury, as long as the appropriations were not used to pay expenses in connection with “conduct, operation, or management of any camp exchange, save and except such camp exchanges as are established and operated.” Section 4 of the Act provided that the corporation could

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<sup>73</sup> Ibid, Section 8.

<sup>74</sup> Ibid, Section 4.

<sup>75</sup> Ibid, Section 12.

make contracts, lease real estate, sue and be sued, to select employees without considerations for provisions in other laws, and to amend and repeal rules as well as change its own board of directors.

In sum, the CCC Act gave President Roosevelt carte blanche in distributing a large amount of the federal funds, even if the overall budget of the CCC was not that large.

#### 4. Conclusions

I find that the power to decide where federal project funding went shifted from Congress to the President in all new programs. The old funding programs either continued in their original way or sometimes were incorporated into the newly created agencies; hence, changing the way the money was appropriated and approved. Concentrating all the power over distribution in the Executive hands made the process of project funding and all of the relief and recovery efforts swift. At the same time it gave the President the ability to spend money in the states that would give him the most political capital, not just in the states that needed it most. The only New Deal program that was closely monitored and clearly defined was the Agricultural Adjustment Administration due to the nature of the program.

The powers of Congress to give executive powers to the President were eventually decided by the courts. In future work I plan to look at the Judiciary branch of the federal government to see which New Deal laws were litigated, how the process proceeded, and how the discussion went in the Supreme Court once the cases made it there. During his term as the President, Franklin Roosevelt tried to expand the number of the Supreme Court justices to stack the Court in his favor. In 1937 he proposed to increase the court by one

justice every time a justice reaches the age of 70. Given the usual advanced age of the Supreme Court justices and Congress that supported him almost in everything, has his initiative become a law, the odds in the Supreme Court would have been in his favor.

### III. CHAPTER 2: LEARNING TO SWING WITH ROOSEVELT

#### 1. Introduction

Since the late 1960s economists and economic historians have written a wide range of papers on the factors that determined the cross-sectional distribution of New Deal funds across geographical areas during the Great Depression. The debate has centered about how much of a role politics played in the distribution and how much declines during the Great Contraction influenced the decisions. After Arrington (1969) and Reading (1973) pointed out the wide range in the distribution, Gavin Wright (1974) developed a political model and found that swing voting in particular played a major role. Anderson and Tollison (1991) studied how Congressional committees influenced the allocation of funds, while Wallis studied the state responses. Most recently, Fleck (2008) argues that the variation can be explained largely by geographical characteristics, which are highly correlated with political variables. All of this work has focused on the distribution of federal funds during the New Deal without comparing it the distribution of federal funds by the Republican Presidents and Congresses in the 1920s and early 1930s. So the question I address here is whether the factors that influenced the distribution of funds across states changed when Roosevelt and a strongly Democratic Congress were voted into office in 1932.

Price Fishback and I developed new estimates of New Deal spending and for the first time constructed estimates of federal spending in the states from 1924 to 1932. Following the literature, I estimated cross-section regressions for the entire periods of the New Deal (1933-1939) and for the Republican Era (1924-1932, 1924-1929, 1930-1933).

Starting with the Franklin Roosevelt's ascent to presidency in March 1933, swing voting states started to receive more federal spending, everything else held equal. That was not the case the decade before when the political makeup of the states did not factor in the decision of how to divide federal grants and loans among the states. The estimated coefficients of the swing voting measure are both statistically and economically significant between 1934 and 1939 for the majority of spending categories. That wasn't the case the decade before when the political makeup of the states did not factor in the decision of how to divide federal grants and loans among the states.

To come to my conclusion I used annual program-by-program data on the federal spending programs in the US between 1921 and 1939 and a fixed effects regression, with and without instrumenting for the states' incomes, while controlling for the time trends and national shocks. My shift-share instrument for the income variable uses the 1919 industry structure and annual manufacturing outputs for various sectors of the economy. As a result, it is closely correlated with the income but is independent from the right hand variables in our regressions. The IV results are consistent with those from the fixed effects regression and confirm that the political makeup of the states started to be taken into consideration while allocating government funds with the New Deal and Franklin Roosevelt.

## 2. Literature Review

The early studies of the distribution of the New Deal spending by Reading (1973) and the in-depth follow up work by Wright (1974) both conclude that the allocation of funds to states cannot be explained alone by the "relief, recovery, and reform" goals of the

government programs. Reading concluded that even though there is evidence that the New Deal programs promoted development of natural resources (relief) and allocated more grants in the states that suffered during the early years of the Great Depression (recovery), there was no evidence that the New Deal promoted reform.

Wright's theoretical model is based on the premise that the President (who had "considerable discretionary allocative authority" at the time) allotted the federal money among the states with the intent of maximizing the number of votes during the following election year based on the existing political situation in the state. Wright sets up the framework that would be followed for decades to come by regressing state federal spending from 1933 to 1940 on a "political productivity" index VL32 (the ability of spending to sway votes), the standard deviation of the presidential election outcomes starting with 1896 (his measure of swing voting in the state), the proportion of the state's population that lived on farms (to capture the different effect spending has in rural economies) and a few other political and economic variables. His regression results showing that the bulk of variation among states' spending can be explained by the political and not economic variables. Wright concludes that the driving force behind the New Deal was not recovery from the Great Depression but rather the securing of necessary votes for the upcoming presidential election, or as Wallis (1998) puts it "Roosevelt and the Democrats were motivated by narrow political concerns [and not] by broad social objectives that the Democrats projected in the 1930s."<sup>76</sup>

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<sup>76</sup> Wallis (1998), p. 144.

Wallis (1987) uses Wright's aggregated as well as annual state level data for 1937-1940 and his own specifications to answer the same questions. His pooled estimates are very similar to those of Wright, but once he includes a state level employment index and annual real per capita income he obtains a statistically significant positive estimate on the latter that indicates a potential endogeneity between grants and income. To mitigate the problem of potential missing variables Wallis includes a lagged dependent variable that eliminates the statistical significance of the income variable. To counteract the problem of simultaneity of the national spending inside a state and the state's employment level, Wallis chose the instrumental variable approach and finds that both economic and political factors are important determinants of the federal spending.

John Wallis (1998) went further and compiled all the data used by the above mentioned authors, as well as Anderson and Tollison (1991), checked it against other sources and reproduced the previous analysis to get a baseline for his further study. Wallis agrees with Anderson and Tollison that congressional variables are just as the important as the presidential ones in describing the political situation, since congressional leaders were able to secure more funding for their states. The case that he looks closely at is that of Nevada and the president pro tempore of the Senate Key Pittman. The low population of the state coupled with the abundance of Federal Land led Nevada to have the highest per capita federal grants during the New Deal. How much of that was due to the influence of the Nevada's Senator Key Pittman is unclear, but once Wallis removed Nevada from the data set, the influence of the political variables dropped and that of the congressional ones – disappeared.

In his 2008 paper Robert Fleck goes a step further and attempts to explain how the economics and politics aligned just right to give way to the sweeping reforms of the New Deal. Fleck draws his analysis on the apparent similarities of the swing voting states and their distinctions from the rest of the country. He notes that since the swing vote states at the time had large land area, suffered more than other states during the early years of the Great Depression, and possessed a large African American population, their demand for social, political and economic policies were higher than those of other states. Fleck postulates that the demand for the policy change all over the US (as indicated by the landslide victory of the Democratic Party in the 1932 election) and especially in the swing voting states, combined with the opportunity to gain political capital through the allocation of the government spending as well as passing other legislation, led to the dramatic policy changes in the 1930s. Using a cross-section of aggregate data that includes political, economic and geographical variables, Fleck, like the authors before him, found a strong correlation between government spending levels and the proxies for the political variables. After switching from the political to the “Relief, Recovery, Reform” variables Fleck finds that most of the variation in the New Deal spending can be explained using the land and income variables and concludes that these variables were the driving force behind the new programs and policies. The greater electoral weight carried by the states that showed heightened demand for the three R’s of the New Deal was not the driving force behind the New Deal design but rather acted as a booster to its scope.

The commonality of the aforementioned studies is that they use aggregate spending (Reading, Wright, Fleck) or limited annual (Wallis) data that encompasses only the 1930s time period. In contrast to that Price Fishback and I not only gathered program by program

and year by year data for the 1930s but we also obtained the same type of data for the 1920s. Some of the spending categories can be found in both decades and some get introduced as a part of the New Deal. This enables me to compare the spending distribution patterns among the programs (one would expect the Agricultural Adjustment Administration grants to be allocated differently than Relief programs funds and Home Owners' Loans Corporation loans). Furthermore, we can now compare federal funds allocations during the New Deal to that of the 1920s and early 1930s and try to answer the question that has been haunting Economic historians and Political scientists alike for many decades of whether Roosevelt was the first president to use economy in order to directly influence political outcomes of elections.

### 3. Composition of government spending in 1920s and 1930s

For the purposes of this study we are dividing federal spending in two broad categories, ones that exist throughout the whole time period and ones that are introduced by Roosevelt as part of the New Deal. The first category includes highway spending, Bureau of Reclamation projects, and spending for improvement and maintenance of rivers and harbors. The latter consists of the Agricultural Adjustment Administration spending, and the New Deal relief programs, such as Civil Works Administration, Federal Emergency Relief Administration, Social Security Administration and Works Progress Administration, as well as farm, Home Owners' Loans Corporation and Reconstruction Finance Corporation loans.

### 3.1 Spending before the New Deal

#### 3.1.1 *Road spending*

Developments in automobile construction and greater availability of cars in early 20<sup>th</sup> century led the government to invest in construction and maintenance of highways. Moneys were distributed through the Bureau of Public Roads<sup>77</sup> under the Department of Agriculture, although the new office was originally created not to oversee roads, but to investigate the science of road construction. The Federal Aid Road Act of 1916 authorized \$25 million for the improvement of rural post and star roads. The distribution of monies was based on a three part system, one third on the ratio of population to the other states, one third on the ratio of rural delivery and star routes at the close of the preceding fiscal year, and one third on the ratio of total area to the other states. The bill had the allotment amount of \$75 million dollars through 1921 to be distributed by the Office of Public Roads. The system was based on a fifty percent matching program of federal and state funds. The Act not only allocated money, but also regulated how states could spend it. The states were limited to a \$10,000 per mile cap on federal dollars.<sup>78</sup> Non-construction items were limited to 10% of the cost of the roads and none of the federal funds could be used for anything other than construction. Cost overruns and excessive administrative costs were the sole burden of the states. The funds were also prohibited from being used in cities and population centers.<sup>79</sup> This prohibition would remain until the Depression, when concerns

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<sup>77</sup> The office was previously known as the Office of Road Inquiry, started in 1893, which became the Office of Public Road Inquiries in 1899, the Office of Public Roads in 1905, the Office of Public Roads and Rural Engineering in 1915, and finally in 1919 was renamed the Bureau of Public Roads.

<sup>78</sup> The 1921 Federal-aid Highway Act slightly changed the allocation formula and raised the per mile cap to \$15,000.

<sup>79</sup> "The Federal Aid Road Act", Washington D.C., Government Printing Office, 1916

about providing urban work relief would necessitate its removal. Additional money was spent on maintenance of the existing roads, bridge construction, and creation of standardized system of signs and mileage markers. In 1930s fighting unemployment became an additional rationale while distributing road funds.<sup>80</sup>

### 3.1.2 *Bureau of Reclamation*

The programs of the Bureau of Reclamation (renamed as such in 1923 and transferred from the USGS to the Department of the Interior) were based on the idea that the federal money spent on the improvement of water resources would be repaid by future water users as well as revenues from the hydroelectric power. The original repayment period was 10 years, but then expanded to 20 and then 40 years. The Fact Finder's Act of 1924 introduced major changes to the Reclamation program that came into effect in 1928 when the Congress authorized the construction of the Boulder Canyon Project, which included the Hoover dam and the All-American Canal. For the first time the money came not from the Bureau of Reclamation Fund, but from the United States Treasury. In the 1930s the Bureau of Reclamation sponsored over 40 large projects that developed the infrastructure and provide necessary jobs, including the Central Valley Project in California and the Columbia Basin Project in Washington. Even though the main focus of the projects were generation of hydroelectric power and interstate water diversion,

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<sup>80</sup> “A large part of the total highway employment provided during the last winter was on maintenance work administered by the States. The increase in the amount of such employment, shown by comparison with the statistics for the previous year, is evidence of the special effort made to aid the unemployed.” (*Report of the Chief of the Bureau of Public Roads*, Washington, DC, 1932)

recreational use of projects was recognized in 1937 when the Bureau of Reclamation gave Lake Mead next to the Hoover Dam to the National Park Service.<sup>81</sup>

### 3.1.3. *Rivers and harbors*

Starting with 1824 U.S. Senate appropriated annual funds to improve the navigability of the major rivers. The funds were distributed according to the various Rivers and Harbors Acts under the supervision of the United States Army Corps of Engineers (USACE). To correctly assess the necessity of projects, the USACE conducted surveys to determine which rivers and harbors needed improvement. Starting with 1884, the Acts not only allocated moneys for widening of the rivers, deepening of the harbors, and for flood control, but also prohibited unauthorized construction of dams and other obstacles to navigation. All sites for dam construction had to be approved by the Secretary of War and the Army Corps of Engineers. The rivers and harbors maintenance and improvement programs under the USACE was not influenced much by the New Deal programs and are still in existence.

### 3.1.4 *Farm mortgage loans*

In the early 20<sup>th</sup> century farmers lobbied for long-term agricultural loans at reasonable interest rates. While commercial bank loans for business and industry were abundant and cheap, the only loans available to farmers were short term, expensive, and hard to come by. The Federal Farm Loan Act of 1916 established the Federal Land Bank system that farmers owned stock in as well National Farm Loans Associations. The wide spread farm foreclosures and failing Farm Loan Associations due to Great Depression gave

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<sup>81</sup> *A Brief History of the Bureau of Reclamation*, U.S. Department of the Interior, Bureau of Reclamation, 2011.

rise to two pieces of legislation in 1933: The Emergency Farm Mortgage Act and the Farm Credit Act, which were incorporated into the New Deal.

### 3.2 New Deal programs

#### 3.2.1 *Public Works Administration*

The Public Works Administration (or PWA) was created by the National Industrial Recovery Act on June 16, 1933 and was designed as a large construction projects agency meant to provide jobs and to revive U.S. industries. Between 1933 and 1939 it funded more than 30,000 projects, including airports, schools, hospitals, and electricity dams. Streets and highways were the most popular PWA projects, followed by schools. The PWA spent over \$6 billion dollars but has not managed to return the production levels to the pre-depression ones. Once the construction was directed towards the war effort in early 1940s, the Public Works Administration was abolished.

#### 3.2.2 *Relief Programs*

The objective of the New Deal relief programs was to provide jobs to the unemployed. Federal Emergency Relief Administration gave direct relief payments to individuals as well as created a large number of low-skill government jobs that paid about half of the hourly salary that the PWA jobs had. FERA worked in combination with the state governments, who in order to apply for FERA grants had to provide information on how much funds are needed, how they were going to be spent and what supervisory measures were to be taken by the states themselves. Some of the FERA jobs were in construction and production, while a small share were in arts, music, and education.

Concerned by the high levels of unemployment, in the fall of 1933 President Roosevelt created the Civil Works Administration by an executive order, as a short-term program that would get people to work during the winter of 1933-1934. The CWA operated from November of 1933 until March 1934 and provided work relief to an estimated 4 million people. Most of the CWA jobs were in construction and paid wages comparable to those of PWA. Both the PWA and the CWA payments came out of the same FERA budget.

The existence of the FERA was terminated in 1935 and its projects were taken over by the Works Progress Administration (WPA) and the Social Security Administration (SSA). The WPA was the largest of the New Deal agencies. During its years of existence between 1935 and 1943 it employed mostly unskilled men for construction projects. To serve the most people in need, WPA set limits on the number of hours one could work in a month and paid significantly lower hourly wages than the PWA. Furthermore, only one member of each household was eligible for the WPA job and wage. To qualify for WPA employment, a person had to be an able, unemployed US citizen over the age of 18 who's already certified to be in need by the local WPA-approved agency.

The Social Security Administration Public Assistance programs worked quite differently from the rest of the relief programs. Instead of providing jobs, it issued matching grants to the states that were meant to help fund public assistance payments to dependent children, elderly and disabled (aid to the blind). The Social Security Act was passed by the Congress in August of 1935 and the first payments to the states were based on when the states passed the appropriate legislation.

The Civilian Conservation Corps was another large-scale public work relief program that operated throughout all the New Deal years. Started in 1933 the CCC

provided low paying construction jobs for three millions unmarried men between the ages of 17 and 28. The wages were only \$30 a month, \$25 of which were expected to be sent back to the family, but the young men received clothes, food and shelter while employed.

### *3.2.3 Reconstruction Finance Corporation*

Started under the Hoover administration in February of 1932, the Reconstruction Finance Corporation (RFC) was unlike any other relief agency of the time. The RFC made loans to banks, local governments, corporations, and later federal aid programs. All of the assistance decisions were made on the regional level. RFC received its \$500 million capital stock directly from the Treasury Department and additional obligations of up to \$1.5 billion. The RFC board of directors included the Secretary of the Treasury, the Governor of the Federal Reserve Board and the Farm Loan Commissioner along with four other members. Once established, the RFC was quite independent from the Legislative branch; it neither needed annual renewal of the funding from the Congress, nor was accountable to it. Due to its nature, RFC is argued not to have been influenced by the election politics, unlike the rest of the relief programs.<sup>82</sup>

The three main divisions of the RFC gave birth to the major New Deal programs. The Self-Liquidation Division loaned money to large infrastructure projects. Those loans were meant to be repaid from the revenues generated by the projects it sponsored. In 1933 the work of the Self-Liquidation Division was taken over by the Public Works Administration. The Emergency Relief Division gave loans to the states for public works projects. The application and the approval processes were quite cumbersome. Soon the

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<sup>82</sup> Mason (2003), p. 103.

division was replaced by the Federal Emergency Relief Administration. To help farmers refinance their loans and sustain their agricultural activities the Agricultural Credit Division was formed. The scope of its work was limited by existing lending policies and infrastructure, as well as by a high interest rate of seven percent. Under the Roosevelt administration the Agricultural Credit Division became the Commodity Credit Corporation.

### *3.2.4 Home Owners' Loans Corporation*

By 1933 the country's mortgage crisis was in full swing. The 1920s' construction boom let many Americans become homeowners, but with high unemployment during the Great Depression many were unable to make their mortgage payments "through no fault of their own." The Federal Home Loan Bank system, created by Hoover in 1931 gave short-term help to those with troubled loans, but the solution was not all encompassing. Neither were the moratoria on foreclosures instituted by some states to help people stay in their houses. To help them out and to keep the value of the real estate up until the economy picked up again, the Home Owners' Loans Corporation (HOLC) was created by the Roosevelt administration within his first hundred days in office. The HOLC was created as a federally funded corporation that would buy toxic mortgage loans from non-farm owners and refinance them using government issued bonds. This approach not only kept the people in their homes, but also kept the real estate market afloat. Furthermore, the original mortgage loans were paid out to the banks and lending companies almost in full. There was no blanket coverage, rather it was necessary to apply for an HOLC loan. All applications were reviewed based on the merit and about the half were granted aid in the form of refinancing the loan. In general, the new monthly payments were lower and the payment

on the principal was delayed until 1936. HOLC managed to improve the conditions of the loans mostly due to the short-term nature of the original loans. By extending the duration of the loan it was possible to drastically lower the monthly payments and make them more affordable. Fishback, Rose and Snowden (2013) found that in most small communities HOLC managed to keep 11 percent more homeowners in their homes as well as prevent a 16 percent decline in home value.

### 3.2.5 *Farm Programs*

#### *Farm Credit Administration*

The Farm Credit Administration (FCA) was established by the Farm Credit Act of 1933 in response to the failings of the previously existing Federal Land Bank system. The new program kept the twelve Federal Land Banks (FLB) that provided long-term agricultural real estate loans, created twelve Federal Intermediate Credit Banks (FICB) that provided short-term and intermediate-term credit to local Production Credit Associations and other lending institutions, twelve Banks for Cooperatives to provide farmers' cooperatives with credit, and a Central Bank for Cooperatives to help the district Banks for Cooperatives in the situations where they did not have enough lending capacities. FCA was an independent organization until 1939 when it became a part of the U.S. Department of Agriculture.

#### *Farm Security Administration.*

The Farm Security Administration (FSA), created in 1937, along with its predecessor, the Resettlement Administration (RA), created in 1935, was designed to assist farmers hurt by the Dust Bowl and the Great Depression. The goal of the RA was to move

urban and rural families mainly from the Dust Bowl area to work camps in California and the Southwest. 95 camps that were built accommodated 75,000 people; nevertheless, the program faced sharp criticisms for mismanagement and was transferred to the FSA and the USDA in 1937. The FSA focused on helping sharecroppers, tenant farmers (some of whom were displaced by the AAA programs). The FSA purchased submarginal land and resettled it as government-owned collective farms. The program came to a natural end due to the desire of the farmers to own land and the newly available jobs in the cities due to the World War II.

#### *Rural Electrification Administration*

In the early 1930s most urban houses had electricity. Farms that were close to cities had an option of receiving electric service but at rather unfavorable rates. Farmers were expected to pay the utility company all the construction costs as well as a higher price per unit than the urban customers. The Rural Electrification Administration (REA) was created in 1935 as part of the New Deal with a self-evident purpose of providing electricity to rural areas. Prospective consumers organized into local co-ops and bought electricity at wholesale prices. Since the consumers were responsible for the transmission and distribution of electricity, the REA provided them with loans to build the infrastructure. The REA supplied not only funds, but also crews of electricians who would travel through the countryside and install 230 volts fuse panels in houses. The Rural Electrification Act of 1936 transformed the REA into a permanent agency that ceased to exist only in 1994.

Between 1934 and 1939 the REA provided electricity to 288,000 households. By that time 25% of rural households had electricity, compared to 10% in early 1930s.

## *Agricultural Adjustment Administration*

The Agricultural Adjustment Act of 1933 was aimed to decrease surpluses of several farm products, including flax, rye, wheat, cotton, rice, and tobacco, in order to stabilize the falling prices of these products and improve the livelihood of farmers. In order to raise the prices of these commodities to the pre-WWI levels, farmers received payments to reduce farmed acreage, while the food processors were obliged to be licensed to make sure that they engage in fair trade practices. As the result, the commodity prices did increase within the first two years of the program. AAA was widely criticized for encouraging farmers and ranchers to destroy their crops and livestock, while people in many parts of the country starved.

## 4. Model and Data

### 4.1 Model

For the purpose of this study, I consider two approaches to deciphering the patterns of the distribution of the federal funds. In the first one, similarly to previous studies, I look at the cross-sectional data for the New Deal spending and explain the differences in the levels of spending between 1934 and 1939 with a variety of economic and political variables.

$$g_i = \beta_0 + \beta_1 \Delta y_i + \sum_{k=1}^K \beta_{k+1} p_i^k + \sum_{l=1}^L \gamma_l e_i^l + \varepsilon_i \quad (1)$$

where  $g_i$  is per capita government spending in state  $i$  between 1934 and 1939,  $\Delta y_i$  is the income drop in state  $i$  between 1929 and 1932,  $p_i^k$  are political variables and  $e_i^l$  are

economic variables. This approach is comparable to that used by Fleck (2008). Using the data I compiled with Price Fishback I can compare our results to his. Our data advantage lets us not only look at the distribution of federal funds under Roosevelt, but to do similar analysis for the Hoover administration. In that case we explain the federal spending between 1932 and 1934 by the economic and political variables in 1929-1931 (equation 2 is similar to equation 1).

Price and I have also collected annual data and are now able to use annual data instead of aggregate cross-sectional observations to perform the analysis. This gives us the following estimation equation:

$$g_{i,t} = \beta_0 + \beta_1 y_{i,t} + \sum_{k=1}^K \beta_{k+1} p_{i,t}^k + S_i + T_t + \varepsilon_{i,t} \quad (3)$$

where  $g_{i,t}$  is real per capita federal spending in state  $i$  at time  $t$ ,  $y_{i,t}$  is real per capita state income in state  $i$  at time  $t$ ,  $p_{i,t}^k$  are variables that describe the political situation in state  $i$  at time  $t$ ,  $S_i$  and  $T_t$  are state and time effects, respectively. The parameter identification comes from the changes across time within states, taking into account nationwide shocks.

To counter the possible issue of endogeneity between the state's income per capita and the federal funding it receives we employ an instrumental variable strategy in all three of our estimation equations. A state with low incomes would attract more government spending to mitigate their problems, assuming that the government's objective is to aid the economy. In this case we would expect a negative sign on  $\beta_1$ . At the same time, an influx of federal funds would lead to an increase in the state's income, putting positive pressure on our estimates of  $\beta_1$ . To solve the issue of the positive omitted variable bias I create a

shift-share instrument for the income variable that is closely correlated with income but is not affected by the independent variables in our regression equations. For each state-year observation the instrument  $\varphi_{i,t}$  for the state's  $i$  real income per capita in year  $t$  is a prediction for the sum of real manufacturing value added and the value of crops based on the state's share of national output in 21 manufacturing sectors  $k$  and for 18 crops in 1919 and the national values for those industries and crops in the  $t$ :

$$\varphi_{i,t} = \sum_{k=1,21} \frac{MVA_{k,1919,i}}{MVA_{US,1919}} * MVA_{US,t}$$

All of the industry sectors included in the instrumental variable are either manufacturing or agriculture related. Since neither one of those changed much between 1919 and 1939 the 1919 industry structure is a good approximation of the manufacturing and agriculture sectors throughout the 1920s and 1930s. To avoid the problem of one industry driving the total, we can use the U.S. total outside of the state. Even though the service and construction sectors are not included in the construction of the instrument, the results will show that the chosen instrument performs very strongly.

## 4.2 Data

The models require annual state-level observations of all variables: economic and political. I obtain the income data from the 1939 *Conference Board: Division of Industrial Economics* published by the National Industrial Conference Board and interpolate it with the income data by the Bureau of Economic Analysis. For the overlapping years of 1929 until 1938 I ran a regression without intercept and used each state's coefficient estimate to interpolate the values for 1919-1928. The BEA data were used for all the years after 1929.

For the income instrument, the manufacturing data comes from Rosenbloom and Sundstrom (1999). They have collected the value added in manufacturing data from the odd years between 1919 and 1937. I had to correct one of the value added calculation using the Thirteenth Census of the U.S., since in the Rosenbloom's and Sundstrom's original source, the cost of materials was nearly eight times larger than the value of product in the confectionary industry in Maryland in 1919. Since the data are available only for odd years up to 1937, I interpolate the values between years using national estimates of employees on manufacturing payrolls and by using national income in manufacturing (series D-130 and F-230 in U.S. Bureau of Census (1975, pp. 137, 239)) by multiplying the previous year observation by the national growth rate.

#### *4.2.1 Pre New Deal Data*

There are two main sources for the Bureau of Reclamation spending: the Office of Government Reports (OGR) and reports from the individual Bureau of Reclamation projects.<sup>83</sup> Even though the Bureau of Reclamation spending were technically long-term interest-free loans, the repayments were generally delayed and in some cases forgiven, especially in the 1930s. Therefore, I treat them as grants, not as loans, just as the Office of Government Reports does.

The data for the Rivers and Harbors spending come from the annual reports by the Army Corps of Engineers from 1919 through 1941, in which the spending is divided by the project and by the year. Some projects span more than one state (like the Mississippi and Ohio River projects) and needed to be divided up according to the locations of the

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<sup>83</sup> See Fishback (2015), pp.21-22 for details.

projects. Spending for examinations and reports had to be divided up as well since they are not reported by the location.

The road spending data come directly from the *Highway Statistics Summary to 1945* published by the Public Roads Administration. It breaks down the spending by the state and the year.

#### 4.2.2 *New Deal Data*

For the New Deal programs, the basis of the data set is Report No. 9 from the Office of Government Reports (1939) that gives loans and expenditures by the federal government to the states for the 1933 through 1939. This is the data that has been used by Wallis (1987). Then the data was extended back to 1930 and up to 1941 from the *Annual Reports* by the U.S. Department of Treasury. To check for consistency, the Office of Government Reports' data was compared to that provided by the U.S. Treasury for the years when the data overlaps. For most years and most programs the differences in data were minor. The federal farm loans from the 1920s are reported in the *Annual Reports* of the Federal Farm Loan Board starting in 1923 and can be compared to those from the OGR.<sup>84</sup> Price Fishback (2014) describes in detail how the comparisons were done and what differences were found.

## 5. Results and analysis

### 5.1 Cross-section estimations

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<sup>84</sup> Fishback (2015), pp.28-35

First, consider the results of the Fleck-style estimations to get a good baseline for further results and discussions. Similar to Fleck's (2008) cross-section estimation (results are presented in Table 4, p. 19), I regress total real per capita grants between 1934 and 1939 on the vector of political and economic variables that Fleck used in his paper (equation 1). The results are presented in Table III.2. Overall, the estimation results for the 1934-1939 time period are essentially the same as those presented by Fleck. The coefficients on the swing voting, house seats per capita, federal and non-federal land variables are large and statistically significant, even though the specific numbers vary. In particular, the estimated coefficients for the swing voting measure are 17.71 and 11.92 depending on the specification used. These results are not only statistically significant, they are also economically significant. A one standard deviation increase in the swing voting measure is associated with a rise in per capita federal grant spending of \$75.13, which is 0.75 standard deviations. In his 2008 paper Fleck states that the statistical significance of the swing voting measure is due not to its inherent importance in the process of the distribution of the federal funds, but do to its correlation with the land variables, making it possible to achieve the same level of explanatory power of the regression equation by simply replacing the swing voting measure (along with majority of the political variables) with the land and farm variables.

To test this theory and to see whether the response to the Great Depression by a Republican administration of Hoover was any different from the response by Roosevelt during the New Deal, consider the same specification in equation 2 with the grants for the fiscal years 1932 and 1933. Fiscal year 1933 was dominated by Hoover's decisions because Roosevelt did not take office until March 1933 and the majority of the New Deal programs

did not get started before late June. The income drop used is for the years 1929 to 1931. Those years were chosen to be able to mimic as closely as possible the specification used by Fleck (2008). If we consider the years 1929 to 1933, we cannot use the fall in Income during the Great Depression variable as well as Unemployment in 1930 due to simultaneity bias that Fleck also sought to avoid by choosing the income drop for 1929 to 1932.<sup>85</sup>

In comparisons of the estimated coefficients for the Republican and Democratic periods most of the coefficients have the same signs during both time periods. Specifically, the Federal Land coefficient is still large, positive, and statistically significant. The coefficient on House Seats per capita is large, negative, and statistically significant, as is the coefficient for Senate Seats per capita. The coefficients on Farm Population and Farm Value are positive but not statistically significant in the regressions for both time periods.

The only coefficient that varies drastically between the period when the Republicans were in power and the period when the Democrats were in power is the one for the Swing Voting measure. For the 1932-1933 regression, using either specification, the estimated coefficients for the swing voting measure are negative and not statistically different from zero. In contrast, the estimated coefficients on the swing voting measure for the 1934-1939 time period are positive and statistically significant. It is tempting to say that the swing voting did not matter to Hoover when he was allocating federal funds to state because there was not much to allocate before Roosevelt came out with his New Deal program, but the real federal spending increased by 88% between 1929 and 1932, which is a rate of growth greater than during any three consecutive years of the New Deal. It is clear

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<sup>85</sup> The results for the 1929-1933 specification without the variables mentioned above are very close to the ones we obtain and discuss for the 1932-1933 specification.

that the Republicans did not pay much attention to the swing voting of the state as a determinant of how much federal spending a state should receive. The Roosevelt administration changed the behavior of the federal government in distributing funds geographically by taking into account political makeup of the states while making the spending allocation decisions.

## 5.2 Annual Data

In the next step of the analysis annual data are used to see how the annual adjustments to grant spending are related to the political and economic correlates of the period and see whether the results we obtain for the cross-sectional regressions still hold. The sample is split into two time periods, the Republican Era from 1922 to 1933 and the New Deal Era from 1934 to 1939. For each category of spending I run three regressions: 1) an Ordinary Least Squares (OLS) that estimates pooled effects of political and economic variables on the distribution of federal funding among states; 2) a fixed effects (FE) regression that includes state fixed effects to control for state factors that did not change over time but varied across states, and year fixed effects to control for nationwide shocks; and 3) a fixed effects instrumental variable regression designed to take care of the endogeneity of the state's income and the federal funding it received.<sup>86</sup> In the fixed effects regressions the identification of the relationships comes from changes in independent variables across time within states while controlling for nation-wide shocks.

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<sup>86</sup> We both included and excluded the mean percent vote for the candidate Democrat in the presidential elections starting from 1896 until the most recent presidential election preceding our time period. The OLS and FE results are consistent with and without it, while the IV results vary. Since excluding the faithfulness to the Democratic Party variable from our regression weakens the instrumental variable we decided to keep it in, even though it does not appear in the list of the variables that Fleck (2008) uses.

Since the focus of the analysis is on the political variables, particularly the impact of swing voting, the discussion will start with an analysis of the political variables with later discussions devoted to the response of federal grant distribution to changes in per capita income.

## 5.2.1 Political Variables

### 5.2.1.1 *Total Grants*

The first political variable is the measure of the swing voting in the state. The sign and the magnitude of the estimated coefficients vary immensely between time periods. In the Republican period, all of the estimated coefficients for the swing voting measure are small, negative, and not statistically significant, implying that the Republican administration did not allocate marginally more funds to the swing states in efforts to sway them in its favor in the next election cycle. On the other hand, the effects of the swing voting measure are large, positive, and statistically significant during the New Deal. The fixed effects estimated coefficient is 13.097, which implies that a one standard deviation increase in the swing voting variable in the 1930s leads to a \$54.62 (or a 0.77 standard deviations) increase in the per capita federal grants to the state. Once I instrument for the state per capita income our estimated coefficient increases to 14.816, which corresponds to a \$61.78 (or 0.87 standard deviation) increase in total per capita grants in response to a one standard deviation increase in the swing voting.

Another political variable that is often claimed to influence economic decisions is the faithfulness of the state electorate to the Democratic Party, measured as the mean vote for the Democratic president from the 1896 election to the latest presidential election

preceding the year in question. Similarly to the results for swing voting, the estimated coefficients for the 1922-1933 time period are not statistically significant. As far as the distribution of the total grants went, the Republican administration did not allocate marginally fewer funds to the states that consistently voted for Democrats. The situation changed in 1930s. According to the estimates, the Democratic administration paid close attention to how states had been voting in the presidential elections. The 1934-1939 equation with fixed effects shows a statistically significant coefficient of -12.4 for the loyalty measure. A one standard deviation increase in the mean vote for a president Democrat is associated with a 2.52 standard deviations decrease in total federal grants per capita. In dollar terms, a one standard deviation increase in the mean vote resulted in a \$179.8 decrease in total per capita grants. The second estimate is even larger, both in dollar terms and in terms of the standard deviations. The 2SLS coefficient for the mean percent vote for a president Democrat is -21.32, which translates to a \$309.14 (or 4.34 standard deviations) decrease in total real per capita grants spending in response to a one standard deviation increase in the mean vote. It seems clear that the Democrats were not rewarding loyal voters. It is important to note, however, that the Mean Democratic Vote variable changes only once within the 1934-1939 period, in 1936 when Roosevelt got reelected. Therefore, what we are looking at is the effect of the state voting more Democrat than they did in the previous elections. The results show that the states that voted for Roosevelt by a larger margin than the long run norm for the state received substantially fewer federal grant dollars. In some ways this results can be construed as almost like a swing voting measure that shows that the New Deal administrators rewarded areas that shifted away from the Democratic fold in an attempt to get them to vote more Democratic in the future

The last two indicators of political preferences in the state that I consider are whether the state has a Democrat for a governor and whether the state has Democrats in all of its legislative branches. When all grants are considered together, it does not seem to make a marginal difference whether there are Democrats in the government at the state level or not.

#### 5.2.1.2 Individual Grant Programs

The Grant programs were not uniform in their goals, so the impact of political factors and economic factors might differ across programs. Therefore, I analyze the specific grant programs that were present both during the New Deal and prior to the New Deal, as well as the new programs introduced after 1932 as part of the New Deal.

##### *Bureau of Reclamation Zero-Interest Loans*

The pattern for the loans/grants for irrigation dams distributed by the Bureau of Reclamation is similar to that of the total grants. The estimated coefficient on the swing voting measure goes from being small and negative under Republican Presidents to large and positive under Roosevelt. During the Republican period the -1.156 and -1.745 coefficients on the swing voting measure, for the FE and IV equations respectively, translate into a \$5.35 (or 0.48 standard deviations for FE) or \$8.08 (or 0.72 standard deviations for IV) decrease in response to a one standard deviation increase in the swing voting variable. The Republican leadership does not give swing voting states marginally more Bureau of Reclamation funds in the 1920s, if anything, it gives them a little bit less. Under the Democratic administration of FDR, the situation changes drastically. The estimated coefficients on the swing voting variable are 7.288 for the fixed effects

regression and 9.071 for the instrumental variables regression. The estimates are not only statistically significant, but also have economic significance. A one standard deviation increase in the swing voting measure leads to a \$30.40 (or 1.1 standard deviations) increase in the Bureau of Reclamation real per capita spending in the state using our fixed effects estimation. Once we instrument for the state per capita income, the one standard deviation effect increases to \$37.84, which corresponds to a 1.37 standard deviations increase. Just like with the total grants, for the Bureau of Reclamation spending the swing voting is positive and significant during the 1930s.

Similarly to the total grants, the estimated coefficients on the mean democratic vote for the president (our measure of faithfulness to the Democratic Party) are not statistically significant during the Republican period but are negative and statistically significant during the Democratic period. The estimated coefficient for the mean vote using the instrumental variables approach for the 1934-1939 time period is -12.043; a one standard deviation increase in the mean vote for the president Democrat leads to a 6.33 standard deviations decrease in the real per capita Bureau of Reclamation spending in the state. In dollar amount it's even more impressive. A one standard deviation increase in the mean vote brings about jarring \$174.62 of additional real per capita spending by the Bureau of Reclamation.

A distinct and curious result with the Bureau of Reclamation spending is that in both time periods the states that had a Democrat for the governor received marginally less funding from the agency (\$5-\$7 dollars less in per capita spending).

### *Road and highway grants*

The pattern of the estimated coefficients for the political variables for the road spending regressions is quite similar to those of the total grant. In general, the only two political variables that had statistically significant coefficients are again the swing voting measure and the faithfulness to the Democratic Party variable. Not only do these two variables have the only statistically significant coefficients, they are only economically significant during the Roosevelt administration.

The swing voting measure proves to be statistically significant during both time periods. In the 1920s under Republican administrations, a one standard deviation increase in the swing voting variable led to a \$2.77 (or 0.43 standard deviations) decrease in the per capita road spending in the state (our fixed effects estimated coefficient is -0.599). On the other hand, during the Roosevelt administration swing voting states received marginally more road and highway construction funds from the federal government. The fixed effects and two stage least squares estimates are close and positive at 5.297 and 5.601. In dollar terms, these coefficients translate into \$22.09 and \$23.36 increases in per real per capita road spending in response to a one standard deviation increase in the swing voting variable (or 1.82 and 1.93 standard deviations, respectively).

Just as in the cases above, the mean democratic vote variable for the road and highway federal spending has statistically significant estimated coefficients only during the 1930s time period. It seems that the Republican administration did not pay too much attention to the political makeup of the states when deciding how to allocate federal funding for roads construction and maintenance. The Democratic administration on the other hand was highly aware of the patterns in voting in the previous presidential elections. The states

that voted for Democrats consistently since 1896 received less money. The estimated coefficients on the faithfulness to the Democratic Party variable for the fixed effects and the two stage least squares regressions are -5.806 and -7.381. They do not seem large until you turn them into dollar amounts. A one standard deviation increase in the mean vote for the Democrat in presidential elections lead to a \$84.16 (or 6.94 standard deviations) decrease in real per capita road spending for the fixed effects estimation, and to a \$107.00 (or 8.83 standard deviations) decrease for the two stage least squares estimation. That's a significant number, especially considering that the average annual per capita road spending between 1934 and 1939 was \$8.63.

#### *Relief spending under the New Deal*

The relief programs began with the New Deal and thus did not span the whole time period from 1923 to 1940. Nevertheless, the pattern of the estimated coefficients for this category of government spending closely resembles the one for the Total Grants, along with its components. The coefficients on the swing voting measure are positive, statistically significant, and relatively large; both for the fixed effects and the two stage least squares estimations. In the fixed effects model, the swing vote estimated coefficient is 5.982. A one standard deviation increase in the swing voting variable results in a \$24.95 increase in the real per capita relief spending inside the state. This translates to a 1.67 standard deviations increase. Once I instrument for the state income, the estimated coefficient increases to 7.657, which corresponds to a \$31.90 (or 2.13 standard deviations) marginal increase in the real per capita relief spending as a response to a one standard deviation increase in the swing voting measure. While deciding on the level of state specific relief

spending the Roosevelt administration seems to have taken into account the political makeup of the state and marginally tried to influence it.

The Democrats in power between 1934 and 1939 also kept a close eye on how faithful to the Party the constituents were. The estimated coefficient on the mean vote for a democrat in a presidential election for the fixed effects regression is -5.094. This means that for each standard deviation increase in the mean democratic vote for a president, the real per capita relief spending that a state received fell by \$73.84 (or 4.94 standard deviations). Once an instrumental variable is used for the state's income, the estimate rises in absolute value to 13.733. Now a one standard deviation increase in the faithfulness variable brings about an almost two hundred dollars drop in the per capita relief spending (\$199.07). In standard deviations this result is equally large, at 13.30 standard deviations. Once again, the states that consistently voted for the same party in every presidential election since 1896 received marginally less government relief funds during the New Deal era.

### *Loans*

Since the nature of the grants and loans is so different, it would be no surprise if our estimated coefficients for the total loans were quite distinct from those of the grants. The first thing to notice is that none of the coefficients on the swing voting measure are statistically significant for either estimation method and either time period. Nevertheless, the estimates are larger in magnitude (if not significance) for the 1934-1939 time period.

The same pattern as for grants are present for the coefficients of the mean vote for a democratic candidate in presidential elections starting from 1896 (our measure of the

state's faithfulness to the Democratic Party). For the 1922-1933 period when Republicans were in power, the estimated coefficients are positive and statistically significant implying that the states that consistently voted for Democrats in the presidential races received marginally more federal loans. The estimates for the fixed effects and instrumental variable regressions are rather similar (2.165 and 2.304 respectively). Translated into the standard deviation measure they tell us that one standard deviation increase in the mean vote for a democratic candidate in presidential elections led to \$10.02 (for the fixed effects) and \$10.67 (for the instrumental variables) increases in total per capita loans to the state. These results are not large in either dollar terms or standard deviations, since those are only 0.68 and 0.73 standard deviations, respectively.

The situation changes under the Democratic administration of the President Roosevelt. The estimated coefficient of the faithfulness variable for the fixed effects regression is -14.602. Each standard deviation increase in the mean vote brings about a \$60.91 (or 1.43 standard deviations) decrease in the real per capita loans to the state. This means that the states that voted in higher percentages for Democrats in the presidential election of 1936 compared to the previous elections starting with 1896 received marginally fewer loans than those who did not.

As for other political variables, it always hurts to have a Democrat for a governor, no matter what party is in power, but it does help in obtaining marginally more federal loans if all state legislatures consist of Democrats.

Farm loans spanned both the 1920s and the 1930s and are composed of several programs combined (FSA, FCA and REA). As with other kinds of federal spending, the estimated coefficients for the swing-voting variable are positive and statistically

significant. Again, they are larger during the second time period than during the first, indicating that the Democrats are spending marginally more money in the swing voting states. During the Republican time period the coefficients are rather small at 0.748 and 0.629 for the fixed effects and the two-stage least squares regressions respectively. A one standard deviation increase in the swing voting variable in the 1920s brings about a 2.82 (for FE regression) and 2.32 (for IV regression) standard deviation increase in the real per capita farm loans to the state. The results look rather large in standard deviations, but in dollar terms are not as impressive. A one standard deviation increase in swing voting is associated only with a \$3.46 and \$2.91 increases in per capita farm loans. The estimates are significantly larger for the later time period and are still statistically significant. The coefficients of 14.639 (for the fixed effects) and of 14.303 (for the IV) translate to standard deviation measures similar to those of the earlier time period. A standard deviation increase in the swing voting variable leads to a 2.11 and 2.06 standard deviations increases in the per capita federal farm loans. In dollar terms though these estimates are much larger. A standard deviation increase in swing voting brings about a \$60.06 increase in per capita farm loans if we use the fixed effects approach, and a \$59.66 increase if we instrument for the income variable.

Just as the Roosevelt administration paid a great deal of attention to the swing voting states and rewarded them, it kept in mind which states voted consistently for the Democratic candidate during the Presidential elections, especially in the 1936 one. The sign and the magnitude of the faithfulness to the Democratic Party variable changes drastically between the two time periods we consider for this analysis. During the 1922-1933 time period the estimated coefficients for the mean vote for the democratic candidate

are 1.238 and 1.209 for the fixed effects and the instrumental variable regressions respectively. Since the farm loans did not vary much among the states and between years during the 1920s, the standard deviation estimates are large. A standard deviation increase in the mean vote for the Democrat in presidential elections brings about 15.03 (for FE) and 14.79 (for IV) standard deviations increase in the real per capita farm loans. In dollar terms these results are \$18.63 and \$18.19 for the fixed effects and the two stage least squares regressions respectively. From this we can conclude that the Republican administration allocated marginally more funds to the states that consistently voted for Democrats.

The situation changes under Roosevelt. The estimated coefficients for the faithfulness to the Democratic Party variable are large and negative (-18.956 for the fixed effects regression and -17.212 for the instrumental variables regression). In standard deviations, these estimates are lower than the ones for the 1920s, since there was large variation in the level of farm funds during the 1930s. One standard deviation increase in the mean democratic vote for president leads to 9.51 (for fixed effects regression) and 8.63 (for the instrumental variables regression) standard deviations decrease in the real per capita farm loans to the state. The result becomes much more significant economically once we look at it in dollar terms. A standard deviation increase in mean vote for a Democratic candidate in presidential election gives rise to a \$274.79 decrease in the real per capita farm loans if we are using the fixed effects approach and a \$249.51 decrease if we are looking at our two stage least squares results. It is very clear that the Democratic administration was not interested in spending marginally more money in the states that are very likely to vote for Democrats in the next elections. In fact, they allocated significantly less funding to those states. This result is consistent with everything we have seen so far.

As for other political variables that we include in our regressions, states that have a Democrat for a Governor received marginally less money in farm loans than the ones that do not, both during the Republican and Democratic time periods. The same is not true for states that have Democrats in all parts of legislature; during the 1934-1939 period they obtained marginally more money in federal farm loans.

#### *Agricultural Adjustment Administration*

The Agricultural Adjustment Act was a unique New Deal program. Unlike other New Deal programs it aimed not to produce new goods and infrastructure, but to curb production by subsidies. Therefore, it is not surprising that the estimation results are quite different from all the ones discussed above.

The first thing to notice is that the political variables do not have much explanatory power in the case of the AAA. Both the swing voting measure of the state and the faithfulness to the Democratic Party variables are not statistically significant when we use either the fixed effects or the two stage least squares approach. Even though they are not statistically significant, our results tell us that, as before, the states with a Democrat for a Governor received marginally less AAA funding. At the same time, the states that had Democrats in all branches of the legislature obtained marginally more federal funding (the estimated coefficients on that variable are positive and statistically significant for both the fixed effects and the two stage least squares approaches).

#### *Rivers and Harbors*

Federal spending on maintenance of rivers and harbors by the Army Corps of Engineers is another part of the total grants that did not follow the distribution patterns

established by most of the other grant programs. The main political coefficients are statistically significant but do not have the expected signs. Contrary to our previous results the estimated coefficients on the swing voting variable are negative not only during the Republican time period (-0.183 for the fixed effects estimation), but also during the Democratic one (-2.22 for the fixed effects regression and -2.43 for the two stage least squares estimation). Moreover, the coefficient is larger in absolute value during the 1930s. A one standard deviation increase in the swing voting measure between 1922 and 1933 brings about only an 84-cent decrease in the real per capita rivers and harbors spending in the state, which corresponds to 0.38 standard deviations. It is safe to say that whether a state was swing voting or not was not that important for the Republicans in the White House while distributing the funds for the maintenance for the rivers and harbors. During the Roosevelt time, a standard deviation increase in the swing voting leads to a \$9.26 (or 0.76 standard deviations) and \$10.14 (or 0.83 standard deviations) marginal decreases in the per capita rivers and harbors funds if we use the fixed effect and the two stage least squares approaches respectively.

The faithfulness to the Democratic Party variable is once again statistically significant during the second time period, but in contrast to the results for the other programs, the coefficients are positive (4.052 for the fixed effects regression and 5.136 for the instrumental variables regression) during the New Deal. Unlike the other federal programs, the states that voted consistently for Democrats in the presidential elections starting from the 1896 election received marginally more funding for the maintenance of the rivers and harbors. The states that had Democrats in all legislative branches also

obtained marginally more funding between 1934 and 1939; the estimated coefficients on the Democrats in All Branches variable are positive and statistically significant.

### 5.2.2 The Income Effect

Most of the previous literature about the New Deal suggests that the Roosevelt's Administration was responding to the sharp drop in income that happened during the Great Depression and that the New Deal programs were aimed to aid the recovery. Using cross-sectional data these studies find that the states that experienced the largest decline in income between 1929 and 1932 obtained marginally more funding between 1933 and 1939. Using the Fleck-style cross-sectional specification we obtain negative, but not statistically significant coefficients on the Income Fall between 1929 and 1932 variable.

In examining the annual data, our income variable is not a drop in income that preceded a six-year period, but instead it is the lagged income level. In the pooled estimation without fixed effects, the estimated coefficient on our income variable shows whether the states that had more income during the previous year received marginally more or marginally less federal funding during the year that followed. In the fixed-effects estimation the change in income within the state over time after controlling for national shocks is the source of identification.

There is no consistent pattern to the estimated coefficients of the income variable, for either time period and either estimation strategy. Most of the fixed effects estimates without using instruments are negative as would be expected if the states with lower incomes received more government aid.

Since state income and government spending are endogenous in situations where government spending increases income, I expect a positive omitted variable bias that will be corrected by instrumenting for the income. The instrumental variable approach did not drastically change the estimates for the coefficients on the political variables, but it turned some of the previously negative income coefficients positive. It appears that even though the initial income drop was a strong determinant of the level of spending in a state when the whole New Deal is considered, annual income does not have the same predictive power. The administrations may have taken a long-range view of the problems in the state rather than focusing specifically on the year-to-year changes in income.

## 6. Conclusions

The expansion of the federal programs did not start with the New Deal. A variety of large-scale federal programs existed before the Great Depression, such as support for Public Roads construction, Rivers and Harbors construction and maintenance, and the Bureau of Reclamation dam projects. There were transfers to veterans, and farm loans that were meant to improve the wellbeing of the agricultural sector. Our findings confirm that the Roosevelt Administration not only expanded the existing programs and created new ones, but also changed the manner in which the funds were distributed among the states. An analysis of several long-term federal spending programs throughout 1920s and 1930s shows that after Franklin Roosevelt ascended to power in 1933 some types of political variables became strong determinants of whether a state was more likely to obtain more funds from the federal government. Starting in the fiscal year July 1933 to June 1934 the swing voting states consistently obtained marginally more funding from the federal

government, everything else held constant. The increase in the amount of money received by the swing voting states in the 1930s cannot be explained away by economic or geographical characteristics of the states. The United States did indeed learn how important swinging is from the New Deal President.

## Appendix A: Tables

Table III.1 Summary statistics of aggregate data, 1932-1933

	Mean	Standard Deviation	Minimum	Maximum
Real Per Capita Grants between 1932 and 1933	64.85	79.28	27.81	570.92
Mean Percent Vote for a Democrat	10.1270	4.2367	3.6993	18.0435
Senate Seats Per Capita *1000	0.0023	0.0035	0.0002	0.0220
House Seats Per Capita *1000	0.0037	0.0012	0.0023	0.0110
Real Per Capita Income in 1929	1193.71	434.66	521.33	2244.48
Income Fall between 1929-1932	1181.41	425.17	519.54	2160.00
Federal Land Per Capita	0.0394	0.1477	0.0000	0.9977
NonFederal Land Per Capita	0.0427	0.0558	0.0015	0.2463
Percent Federal Land	13.4548	20.6331	0.1000	82.6700
Unemployment in 1930	5.7458	2.2472	1.8000	12.2000
Farm Population Per Capita	0.2916	0.1608	0.0236	0.6603
Farm Value Per Capita	0.6353	0.5496	0.0598	2.2788

*Source: ORG, BEA*

Table III.2 *Summary statistics of aggregate data, 1934-1939*

	Mean	Standard Deviation	Minimum	Maximum
Real Per Capita Grants between 1932 and 1933	750.34	426.48	385.88	2706.57
Mean Percent Vote for a Democrat	10.1270	4.2367	3.6993	18.0435
Senate Seats Per Capita *1000	0.0023	0.0035	0.0002	0.0220
House Seats Per Capita *1000	0.0037	0.0012	0.0023	0.0110
Real Per Capita Income in 1929	347.95	145.57	122.99	676.99
Income Fall between 1929-1932	-342.96	118.09	-661.86	-139.20
Federal Land Per Capita	0.0394	0.1477	0.0000	0.9977
NonFederal Land Per Capita	0.0427	0.0558	0.0015	0.2463
Percent Federal Land	13.4548	20.6331	0.1000	82.6700
Unemployment in 1930	5.7458	2.2472	1.8000	12.2000
Unemployment in 1937	4.2208	0.8925	2.4000	6.4000
Farm Population Per Capita	0.2916	0.1608	0.0236	0.6603
Farm Value Per Capita	0.6353	0.5496	0.0598	2.2788

Table III.3 *Cross-section OLS estimates using aggregate data for each time period.*

		1932-1933		1934-1939	
Swing voting	Coeff.	-0.29	-0.71	17.71	11.92
	<i>t-stat.</i>	(-0.48)	(-0.79)	(3.74)	(1.86)
Senate seats/ Pop	Coeff.	3292.11	2661.18	5706.5	4894.46
	<i>t-stat.</i>	(2.09)	(1.67)	(0.49)	(0.42)
House seats/ Pop	Coeff.	-9112.03	-11026.55	-103100.06	-95491.89
	<i>t-stat.</i>	(-2.00)	(-2.18)	(-2.94)	(-2.67)
Income level before	Coeff.	0.059	0.22	-0.04	0.25
	<i>t-stat.</i>	(0.36)	(0.49)	(-0.24)	(0.80)
Income Fall	Coeff.	-0.6	0.15	-0.13	-0.17
	<i>t-stat.</i>	(-0.36)	(0.88)	(-0.75)	(-0.94)
Land Federal	Coeff.	548.03	579.2	2009.27	1920.43
	<i>t-stat.</i>	(11.69)	(10.73)	(5.57)	(4.97)
Land Nonfederal	Coeff.	-104.88	-126.53	3300.08	2788.45
	<i>t-stat.</i>	(-1.44)	(-1.66)	(6.10)	(4.95)
% Federal Land	Coeff.		0.01		2.76
	<i>t-stat.</i>		(0.04)		(1.89)
Unemployment in 1930	Coeff.		-0.16		-16.23
	<i>t-stat.</i>		(-0.07)		(-0.95)
Unemployment in 1937	Coeff.				48.15
	<i>t-stat.</i>				(2.11)
Farm population	Coeff.		29.54		184.14
	<i>t-stat.</i>		(0.60)		(0.53)
Farm Value	Coeff.		7.48		47.28
	<i>t-stat.</i>		(1.12)		(0.94)

Constant	Coeff.	77.55	63.57	686.54	402.91
	<i>t-stat.</i>	(4.28)	(1.73)	(5.03)	(1.58)

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Table III.4 *Summary statistics of annual data, 1921-1933*

	Mean	Standard Deviation	Minimum	Maximum
Total Grants, Annual Per Capita	18.61	19.10	3.31	278.73
Road Spending, Annual Per Capita	3.88	6.45	0.10	71.21
Bureau of Reclamation Spending, Annual Per Capita	1.48	11.23	0	188.60
Rivers and Harbors Spending, Annual Per Capita	1.66	3.14	0	25.20
New Deal Relief Spending, Annual Per Capita	-	-	-	-
Public Works Administration Spending, Annual Per Capita	-	-	-	-
Agricultural Adjustment Administration Spending, Annual Per Capita	-	-	-	-
Loans, Annual Per Capita	8.06	14.66	0.06	215.62
Farm Loans, Annual Per Capita	2.83	3.76	0	30.23
Lagged Real Income, Annual Per Capita	1057.68	392.80	322.41	2207.22
Swing voting, Standard Deviation of the Vote for the Democrat Candidate in Presidential Elections since 1896	8.3375	4.6302	1.1004	19.2604
Mean Vote for the Democrat Candidate in Presidential Elections since 1896	46.2918	15.0499	22.3451	94.2132
Governor Democrat	0.4872	0.5002	0	1
All Democrats: Governor, House Representatives, Senate Representatives	0.3109	0.4632	0	1

Table III.5 Summary statistics of annual data, 1934-1939

	Mean	Standard Deviation	Minimum	Maximum
Total Grants, Annual Per Capita	116.17	71.22	43.23	553.67
Road Spending, Annual Per Capita	8.63	12.12	1.12	120.83
Bureau of Reclamation Spending, Annual Per Capita	6.28	27.61	0	280.57
Rivers and Harbors Spending, Annual Per Capita	3.40	6.67	0	56.22
New Deal Relief Spending, Annual Per Capita	34.95	14.96	7.59	100.42
Public Works Administration Spending, Annual Per Capita	3.05	4.79	0	29.02
Agricultural Adjustment Administration Spending, Annual Per Capita	13.99	17.38	0.01	120.34
Loans, Annual Per Capita	36.21	42.69	-33.34	267.46
Farm Loans, Annual Per Capita	19.53	28.91	0	257.18
Lagged Real Income, Annual Per Capita	1089.15	404.45	340.96	2438.98
Swing voting, Standard Deviation of the Vote for the Democrat Candidate in Presidential Elections since 1896	10.7142	4.1711	3.5854	18.6070
Mean Vote for the Democrat Candidate in Presidential Elections since 1896	48.4580	14.4963	25.2709	94.6947
Governor Democrat	0.8056	0.3965	0	1
All Democrats: Governor, House Representatives, Senate Representatives	0.4531	0.4984	0	1

Table III.6 *Estimation Results: Total Grants per capita, annual data*

		1921-1933			1934-1939		
		OLS	FE	IV	OLS	FE	IV
Lagged Real	Coeff.	-0.0008	-0.0263	0.0196	0.0041	-0.0625	0.0464
Income, Annual	<i>t-stat.</i>	(-0.32)	(-4.83)	(0.85)	(0.35)	(-2.34)	(0.69)
Per Capita	Coeff.	1.1209	-0.1088	-0.2376	9.8501	13.0967	14.8151
Swing voting	<i>t-stat.</i>	(5.45)	(-0.2)	(-0.42)	(10.34)	(2.41)	(2.89)
Mean Vote for the	Coeff.	0.0004	0.3236	0.4462	0.2215	-12.4007	-21.3205
Democrat	<i>t-stat.</i>	(0.00)	(0.52)	(0.70)	(0.63)	(-1.94)	(-2.73)
Candidate	Coeff.	-1.9662	0.1717	0.0486	-10.5805	-3.3312	-4.2884
Governor	<i>t-stat.</i>	(-0.84)	(0.10)	(0.03)	(-0.89)	(-0.56)	(-0.78)
Democrat	Coeff.	-1.5959	-2.0175	0.5573	18.3006	5.1991	1.7046
All Democrats:	<i>t-stat.</i>	(-0.49)	(-0.76)	(0.19)	(1.71)	(0.78)	(0.26)
Governor, House							
Reps, Senate Reps							

Table III.7 *Estimation Results: Bureau of Reclamation Spending per capita, annual data*

		1921-1933			1934-1939		
		OLS	FE	IV	OLS	FE	IV
Lagged Real	Coeff.	0.0021	-0.0162	0.0868	0.0173	-0.1051	0.0079
Income, Annual	<i>t-stat.</i>	(1.38)	(-3.03)	(2.33)	(3.43)	(-6.68)	(0.19)
Per Capita							
Swing voting	Coeff.	0.5908	-1.1561	-1.7445	2.5001	7.2878	9.0707
	<i>t-stat.</i>	(5.25)	(-2.14)	(-2.49)	(6.00)	(2.28)	(2.82)
Mean Vote for the	Coeff.	0.0958	-0.7375	-0.4644	0.2863	-2.7888	-12.0429
Democrat	<i>t-stat.</i>	(1.91)	(-1.24)	(-0.63)	(1.86)	(-0.74)	(-2.45)
Candidate							
Governor	Coeff.	-2.3568	-4.3657	-5.0436	-8.6268	-6.0801	-7.0732
Democrat	<i>t-stat.</i>	(-1.77)	(-2.81)	(-2.60)	(-1.66)	(-1.74)	(-2.04)
All Democrats:	Coeff.	1.0173	-1.1411	4.6382	12.3635	8.7452	5.1197
Governor, House	<i>t-stat.</i>	(0.55)	(-0.43)	(1.20)	(2.63)	(2.22)	(1.25)
Reps, Senate Reps							

Table III.8 Estimation Results: Road Spending per capita, annual data

		1921-1933			1934-1939		
		OLS	FE	IV	OLS	FE	IV
Lagged Real Income, Annual Per Capita	Coeff.	-0.0001	-0.0032	0.1011	0.0015	-0.0192	0.0000
	<i>t-stat.</i>	(-0.08)	(-1.49)	(1.69)	(0.69)	(-4.34)	(0.00)
Swing voting	Coeff.	0.5677	-0.5987	-0.8000	1.3199	5.2971	5.6006
	<i>t-stat.</i>	(8.42)	(-2.92)	(-1.57)	(7.45)	(5.89)	(6.57)
Mean Vote for the Democrat Candidate	Coeff.	0.0539	0.0834	-0.5330	0.0863	-5.8062	-7.3814
	<i>t-stat.</i>	(1.84)	(0.34)	(-0.78)	(1.32)	(-5.48)	(-5.68)
Governor Democrat	Coeff.	0.4580	-0.0337	-1.3244	-2.6584	-1.2073	-1.3763
	<i>t-stat.</i>	(0.58)	(-0.06)	(-0.81)	(-1.20)	(-1.23)	(-1.50)
All Democrats: Governor, House Reps, Senate Reps	Coeff.	-1.3135	-0.5543	6.1849	2.3359	-1.2329	-1.8500
	<i>t-stat.</i>	(-1.20)	(-0.55)	(1.36)	(1.17)	(-1.11)	(-1.71)

Table III.9 Estimation Results: New Deal Relief Spending per capita, annual data

		1934-1939		
		OLS	FE	IV
Lagged Real Income, Annual Per Capita	Coeff.	0.0043	-0.0025	0.1030
	<i>t-stat.</i>	(1.74)	(-0.22)	(3.28)
Swing voting	Coeff.	1.7190	5.9822	7.6467
	<i>t-stat.</i>	(8.43)	(2.69)	(3.19)
Mean Vote for the Democrat Candidate in Presidential Elections	Coeff.	-0.1525	-5.0935	-13.7331
	<i>t-stat.</i>	(-2.03)	(-1.95)	(-3.75)
Governor Democrat	Coeff.	-2.0533	-2.0056	-2.9327
	<i>t-stat.</i>	(-0.81)	(-0.83)	(-1.13)
All Democrats: Governor, House Representatives, Senate Representatives	Coeff.	3.3940	1.5566	-1.8281
	<i>t-stat.</i>	(1.48)	(0.57)	(-0.60)

Table III.10 Estimation Results: Total Loans per capita, annual data

		1921-1933			1934-1939		
		OLS	FE	IV	OLS	FE	IV
Lagged Real Income Annual Per Capita	Coeff.	0.0093	0.0123	0.0402	0.0379	0.0074	-0.2354
	<i>t-stat.</i>	(-4.96)	(-2.31)	(1.31)	(-5.44)	(0.30)	(-3.29)
Swing voting	Coeff.	0.9761	0.4570	0.1572	3.0437	7.6717	3.8390
	<i>t-stat.</i>	(6.97)	(0.85)	(0.27)	(5.29)	(1.52)	(0.70)
Mean Vote for the Democrat Candidate	Coeff.	0.1600	2.1650	2.3042	0.8195	14.6017	5.2928
	<i>t-stat.</i>	(-2.57)	(3.67)	(3.76)	(-3.87)	(-2.46)	(0.63)
Governor Democrat	Coeff.	0.8778	3.3561	3.7015	3.8419	-6.1110	-3.9762
	<i>t-stat.</i>	(0.53)	(-2.17)	(-2.31)	(-0.54)	(-1.11)	(-0.67)
All Democrats: Governor, House Reps, Senate Reps	Coeff.	3.9575	2.2736	0.6713	2.7487	20.2188	28.0128
	<i>t-stat.</i>	(1.72)	(-0.86)	(0.21)	(0.42)	(3.25)	(4.03)

Table III.11 Estimation Results: Farm Loans per capita, annual data

		1921-1933			1934-1939		
		OLS	FE	IV	OLS	FE	IV
Lagged Real Income, Annual Per Capita	Coeff.	-0.0036	0.0047	0.0183	-0.0269	0.0632	0.0419
	<i>t-stat.</i>	(-7.62)	(3.63)	(3.04)	(-6.04)	(3.12)	(0.85)
Swing voting	Coeff.	0.3056	0.7479	0.6286	3.5478	14.6385	14.3027
	<i>t-stat.</i>	(8.59)	(4.61)	(3.55)	(9.64)	(3.56)	(3.81)
Mean Vote for the Democrat Candidate	Coeff.	0.0381	1.2379	1.2089	-0.3236	-18.9557	-17.2124
	<i>t-stat.</i>	(2.32)	(7.44)	(6.94)	(-2.39)	(-3.92)	(-3.01)
Governor Democrat	Coeff.	-0.8230	-0.9473	-1.1051	-4.7598	-11.8530	-11.6659
	<i>t-stat.</i>	(-1.98)	(-2.48)	(-2.73)	(-1.04)	(-2.64)	(-2.88)
All Democrats: Governor, House Reps, Senate Reps	Coeff.	-1.6912	0.3929	1.0718	2.7556	17.2094	17.8924
	<i>t-stat.</i>	(-2.74)	(0.47)	(1.16)	(0.66)	(3.39)	(3.75)

Table III.12 Estimation Results: New Deal Agricultural Adjustment Administration  
 Spending per capita, annual data

		1934-1939		
		OLS	FE	IV
Lagged Real Income, Annual Per Capita	Coeff.	-0.0203	0.0138	-0.0110
	<i>t-stat.</i>	(-8.76)	(1.82)	(-0.58)
Swing voting	Coeff.	1.4869	-0.4299	-0.8210
	<i>t-stat.</i>	(7.78)	(-0.28)	(-0.57)
Mean Vote for the Democrat Candidate in Presidential Elections	Coeff.	0.0239	-0.3051	1.7252
	<i>t-stat.</i>	(0.34)	(-0.17)	(0.79)
Governor Democrat	Coeff.	-1.8811	-2.6984	-2.4805
	<i>t-stat.</i>	(-0.79)	(-1.60)	(-1.60)
All Democrats: Governor, House Representatives, Senate Representatives	Coeff.	-3.4560	4.3846	5.1800
	<i>t-stat.</i>	(-1.60)	(2.31)	(2.84)

Table III.13 Estimation Results: Rivers and Harbors Spending per capita, annual data

		1921-1933			1934-1939		
		OLS	FE	IV	OLS	FE	IV
Lagged Real Income, Annual Per Capita	Coeff.	0.0013	-0.0006	-0.0067	0.0024	-0.0006	-0.0138
	<i>t-stat.</i>	(3.10)	(-0.69)	(-1.97)	1.92	-0.11	-1.08
Swing voting	Coeff.	-0.1451	-0.1834	-0.1556	0.0607	-2.2223	-2.4310
	<i>t-stat.</i>	(-4.33)	(-2.08)	(-1.76)	0.59	-2.11	-2.5
Mean Vote for the Democrat Candidate	Coeff.	0.0752	-0.0280	-0.0510	0.0954	4.0524	5.1359
	<i>t-stat.</i>	(5.40)	(-0.28)	(-0.51)	2.53	3.26	3.46
Governor Democrat	Coeff.	-0.7693	-0.1693	-0.1604	1.0723	-0.7769	-0.6606
	<i>t-stat.</i>	(-2.01)	(-0.62)	(-0.6)	0.84	-0.67	-0.63
All Democrats: Governor, House Reps, Senate Reps	Coeff.	-0.2977	0.0838	-0.2575	-0.4493	5.0928	5.5173
	<i>t-stat.</i>	(-0.56)	(0.20)	(-0.56)	-0.39	3.91	4.45

#### IV. CHAPTER 3: THE MULTIPLIER FOR FEDERAL SPENDING IN THE STATES DURING THE GREAT DEPRESSION<sup>87</sup>

##### 1. Introduction and Literature Review

The Great Recession of 2007 to 2009 has been described as the worst downturn since the Great Depression of the 1930s. In both periods the federal government sought to combat the downturns with sharp increases in federal spending. The recent federal stimulus package has led to a surge of interest in government spending multipliers at both the national and state and local levels in both the modern era and during the Great Depression. Generally multiplier estimates focus on the impact of a dollar of new spending in an area. The multiplier has a value of one in settings where a dollar increase in government spending leads to a dollar increase in income. A value of two implies that the dollar increase in government spending adds not only the dollar spent but also stimulates enough additional economic activity to add a second dollar to income. A multiplier value of 0.5 suggests that the dollar of government spending was offset by 50 cents in leakages or reduced economic activity.

From the point of view of spending multipliers, the Great Depression was similar to the Great Recession in two important ways: short term interest rates were near zero and there was significant slack in the economy.<sup>88</sup> In the great Recession, the unemployment rate rose above 9 percent for nearly two years. The unemployment challenge was greater

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<sup>88</sup>Although it seems reasonable that the multiplier would be larger during periods of higher unemployment, Owyang, Ramey, and Zubairy (2013) and Barro and Redlick (2011) do not find variation in the size of national multipliers during periods of high unemployment.

in the 1930s because real GDP dropped by 30 percent between 1929 and 1933 and unemployment rates exceeded 20 percent for four years and stayed above 14 percent for most of the decade. In contrast to our recent experience, the Hoover and Roosevelt administrations financed most of the increase in federal spending in the 1930s with taxes and thus ran relatively small federal deficits. More importantly, then and now, there was substantial variation in the distribution of federal funds per capita across states that can be used to examine *state level* multipliers for federal spending on state incomes.

In this paper we focus on estimating these state level multipliers for the 1930s. The state multipliers cannot be easily translated into a national multiplier because of spillover effects outside each state's boundaries and because the same state multiplier can lead to a broad range of estimates of the national multiplier under a reasonable range of assumptions in a macroeconomic model that pays attention to regional variation in spending.<sup>89</sup> The state multiplier measures the impact of federal monies that were delivered to a state after leakages in the spending from that state are taken into account. A state multiplier of one implies that a state like Arizona could expect that an additional dollar of per capita federal spending in Arizona would raise per capita income in Arizona by a dollar. Thus, it provides an indication of the benefits that the Arizona governments could anticipate obtaining for its residents by lobbying for an additional per capita dollar of spending. The decision

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<sup>89</sup> Nakamura and Steinsson (2014) suggest that state multipliers for federal spending might be useful as estimates of the multiplier in a small open economy in a currency union with free movement across borders. However, a national multiplier for federal spending addresses a situation where all of the taxation and debt obligations are centered within the economy where the money is spent (Barro 1981). In contrast, a state can receive federal funds but might bear less than (or more than) its full share of the tax and debt obligation associated with funds. Further, distribution of federal funds to one state will likely lead to spillovers for other states when the funds purchase inputs from other states and workers consume goods and services from outside their state. Nakamura and Steinsson (2014, 777-787) find that the relationship between state multipliers and the overall national multiplier can vary a great deal depending on a variety of assumptions about monetary policy but do not address the spillover issue

about how much federal funding to seek was a significant decision for every state and local government at the time. Some governors and state legislatures aggressively sought federal grants, while others were passive and some were even hostile.<sup>90</sup> Further, there were opportunities to still gain from federal largesse even without much lobbying activity. John Wallis (1998) argues that the President and Congress had incentives to provide some grants to every jurisdiction to avoid charges of favoritism, while states that did not actively lobby for grants still benefitted from any spillovers from federal spending in other states.

To estimate the state multipliers, we construct annual measures of federal government spending in each state from 1930 to 1940 and then estimate the impact of federal government spending in the state on the state's per capita incomes, employment, and automobile registrations. In estimating the multipliers, we use several different measures of federal spending: grants, grants and loans, grants excluding transfers, nonfarm grants, and Agricultural Adjustment Administration (AAA) payments to farmers to take land out of production.

We estimate the state multipliers using controls for time-varying weather patterns in the states, state fixed effects, year effects, and state-specific time trends, as well as instrumental variable techniques. OLS estimates of the multipliers with no controls are substantially higher than one, but the addition of state and year fixed effects to control for time in-variant features of the states and changes in national monetary and economic

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<sup>90</sup>Wallis (1987, 1998) notes that state attitudes toward grants were a key determinant of the number of grants they received. In a study of the distribution of federal monies across counties, Fishback, Kantor, and Wallis (2002, Appendix Table 5) estimated state fixed effects for the aggregate federal funds per capita and found that the top five states receiving the most money per capita after controlling for a large range of political and economic correlates were Nevada, Arizona, South Carolina, New Mexico, and South Dakota, while the bottom ten included Minnesota, Oregon, New York, New Hampshire, and Illinois. The narrative literature on states and the New Deal documents quite different attitudes as well. For some of many examples, see (Patterson 1967, Braeman, Bremner and Brody 1975, Abrams 1992, Collins 1992).

policies reduce the multiplier well below one. IV estimation increases the point estimates of the multipliers, to a range from 0.4 to 0.96 for different measures of federal funds. However, the estimates are statistically significantly different from zero in levels estimation with fixed effects and but generally not in difference estimation. When federal grants are split between nonfarm and AAA farm grants, the multiplier for the nonfarm grants is as high as 1.1. In nearly every case for overall grants and nonfarm grants, we cannot reject the hypothesis that the multiplier is one. On the other hand, the AAA grant multiplier is much lower and sometimes negative. The increased income associated with higher federal grants was used in part to purchase automobiles. Federal grants did not lead to increases in private employment.

## 2. Federal Spending and Prior Estimates of Its Impact in the 1930s

In the aftermath of World War I, Republican Presidents and Congresses ran surpluses to pay down the war debt. After the 1922 Recession, real tax revenues and expenditures in Figure 1 held steady through fiscal year 1929 at roughly \$30 billion and 23.5 billion 1996 dollars, respectively. Although President Hoover and the Republican Congresses actively proselytized for balanced budgets and voluntarism, they raised real federal expenditures by 88 percent between fiscal years 1929 and 1932 within the context of existing programs. They tripled road spending and Bureau of Reclamation irrigation loans and nearly doubled the Army Corps of Engineers spending on Rivers and Harbors. Program reports indicate the spending was intended to stimulate the economy. For example, the U.S. Department of Agriculture (1932, pp. 49-50) described the impact of increase in highway spending in 1932 as follows: “Emergency employment was directly

provided for varying periods for nearly 200,000 men and indirectly for a much larger number in industries that supply necessary materials and services.” In February 1932 the Hoover administration and Republican Congress established the Reconstruction Finance Corporation, which offered loans to support the banking system, industry, and local relief programs. Nevertheless, the same politicians are more famous for holding federal spending roughly constant in fiscal 1933, as unemployment rates soared above 20 percent. In attempts to balance the budget and increase tax revenue, they also raised income and excise tax rates. As a result, total revenues in Figure 1 held steady as receipts from the excise tax increases offset a sharp drop in income tax receipts (Fishback 2010).

The Roosevelt administration started from this elevated level of spending and proceeded to raise real federal expenditures by 76.5 percent through 1939 (see Figure 1).

The deficit in real terms remained roughly constant relative to 1932 because Democrats largely sought to honor the balanced budget pledges Roosevelt made in his 1932 election campaign. Thus, Figure 1 shows that federal revenues rose at roughly the same speed as federal spending. E. Cary Brown (1956) and Larry Peppers (1973) found that the federal deficits during this period fell well short of being Keynesian policies designed to stimulate the economy.<sup>91</sup> Even though these were not Keynesian deficits, the deficits were large enough that the expansions in spending under the Hoover and Roosevelt administration led to an increase in the federal debt as a percentage of GDP from 16 percent in 1929 to 44

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<sup>91</sup> After July 1931, it appears that monetary policy was relatively uniform across the 12 regional federal reserve banks. Gary Richardson and William Van Troost (2009) document differences in attitudes toward providing reserves to banks in the St. Louis and Atlanta districts in 1930 and the first half of 1931, but St. Louis began following similar policies to Atlanta’s in July of that year. Meltzer (2003) notes that there were differences of opinion about how to proceed with open market operations but that nearly all open market sales and purchases were made by the New York Federal Reserve Bank.

percent in 1939 (Fishback 2010, 410). The lion's share of the new outlays came in the form of new programs, as seen by the long list of programs in Table IV.1 that started in fiscal year 1934, the first year when Roosevelt and the Democratic Congress had full control of the budget.

The rapid rise in New Deal spending has not gone unnoticed and economic historians have tried to estimate the impact of New Deal spending on national economic activity. Christina Romer (1992) calculates a fiscal multiplier of only 0.23 in a difference-in-difference estimate that examined the change in federal funds distributed after the Veterans' Bonus was passed out in 1936. Joshua Hausmann (2013) finds that the Veterans' Bonus in 1936 (adjusted service certificate payments in Table 1) stimulated income, as well as automobile sales and building permits. In studies focused on local areas, Price Fishback, William Horrowice, and Shawn Kantor (2005, 2006) showed a strong positive influence of public works and relief spending on county-level retail sales and net-migration. Tom Garrett and David Wheelock (2006) found similar positive effects of overall New Deal spending in a cross-sectional analysis of the growth rate in state personal income per capita for the entire period 1933 to 1939 and New Deal spending during that period. However, neither article uses annual information and thus produces no annual multiplier.

In studies of panel data for cities between 1929 and 1940 Fishback, Michael Haines and Kantor (2007) and Ryan Johnson, Fishback and Kantor (2010) show that relief spending contributed to reductions in mortality and crime rates and increases in birth rates. Studies of labor markets using panel data from 1930s have focused on the impact of relief spending on labor markets. Todd Neumann, Fishback, and Kantor (2010) examine monthly

data from 1933 through 1940 for over 40 cities and find that relief spending raised private employment through 1935 but reduced it afterward. Dan Benjamin and Kent Mathews (1992) find small crowding out effects of private employment from relief jobs through 1935 and much larger crowding out effects in the second half of the New Deal. In cross-sectional estimation, Robert Fleck (1999) and Benjamin and Wallis (1981) also find no positive effects of relief spending on private employment.

The New Deal studies also show the importance of considering different types of federal funds. For example, Agricultural Adjustment Administration (AAA) grants to pay farmers to take land out of production had slightly negative effects on retail sales growth and net migration (Fishback, Horrace, and Kantor 2005, 2006). Part of the negative effects came from sharp drops in the number of share tenants and share croppers (Depew, Fishback, and Rhode 2013).

### 3. The State Multiplier

In studying recent federal spending, Emi Nakamura and John Steinsson (2014) develop a regional model in the context of growth models in small open economies. Regional scientists have developed a broad range of theoretical models that lead to multipliers for income coming into a state. The models range from the early Keynesian regional models to input-output models to economic base models to neo-classical models.<sup>92</sup> The empirical work on regional multipliers has produced a broad range of estimates of

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<sup>92</sup> Richardson (1985) surveys all but the neoclassical models. See Merrifield (1987 and 1990) and McGregor, McVittie, Swales, and Yin (2000) for examples of neoclassical multipliers for the economic base.

multipliers of between 0.5 and 2 depending on the technique used.<sup>93</sup> Some relied on simulations that derive multipliers using input-output models and surveys that describe the degree to which different industries rely on local labor and external inputs and capital. Others relied on Ordinary Least Squares regression estimates (Mulligan (2005, 1987).

The coefficient on federal spending in a regional model will be determined by a series of factors.<sup>94</sup> Spending has positive effects if it puts to work unemployed resources; if it is more productive than the private spending it replaces, and if it produces social overhead capital (like roads, sanitation, public health programs) that make the inputs in the state economy more productive. The Keynesian multiplier arises from the logic that each income recipient purchases goods and services from others in the state. They, in turn, spend their receipts on goods and services produced by others in the state. The regional neoclassical multiplier arises from a different logic: labor demand is pushed out along an upward sloping labor supply curve.

The positive benefits of the multiplier are reduced by a variety of “leakages” when the money spent in the process is spent on goods and services outside the state economy. Much of the federal grant spending on work relief programs, like the Federal Emergency Relief Administration (FERA), Works Progress Administration (WPA), and the Civil Works Administration (CWA), had small initial leakages because over 80 percent was spent on wages for people in the state. Grants from the Public Works Administration

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<sup>93</sup> There is a large literature on the impact of public infrastructure spending at the state level. For examples, see Hulten and Schwab (1991), Munnell (1992), Garcia-Mila and McGuire (1992), Costa, Ellison, and Martin (1987), Blanchard and Katz (1992), Duffy-Deno and Eberts (1991), Fernald (1999), and Aschauer (1989).

<sup>94</sup>The intuitive discussion of the multiplier is based on a Keynesian discussion of consumption and imports. See the online appendix for Cullen and Fishback (2013) for how this works in a simple model. Nakamura and Steinsson (2014) have a neo-Keynesian model that leads to the same implications.

(PWA) and Public Roads Administration (PRA) had larger initial leakages because more than 50 percent of the monies were spent on materials and equipment imported from other states. More leakages arise because workers on federal projects spent some of their wages on goods and services produced outside the state.

Federal spending's boost to the economy would be small if it replaced local production of goods and services. An influx of federal spending might have bid up local wages in ways that raised the costs of hiring labor to private producers. It may have also bid up the prices for non-labor inputs with the same effect. The most obvious crowding out effect came from the AAA payments to farmers to take land out of production. The stated purpose of the act was to reduce output in hopes of raising prices enough to see an increase in income. In other cases, the federal spending may have replaced state and local resources in projects that would have been built even without Washington's support. The impact of the reduction in state and local spending was likely to be small because states were generally required to run balanced budgets.

The 2009 federal stimulus package has led to renewed empirical interest in multipliers mostly on national macroeconomic multipliers. Most empirical estimates imply that a dollar increase in government spending is associated with an increase in income that ranges from about 50 cents to \$1.30, or multipliers of 0.5 to 1.3. Some estimates range as high as 1.8. The variation comes in part from differences in strategies for resolving endogeneity problems that arise when policy makers use fiscal policy to try to counteract downturns. The methods range from use of Vector Autoregressive (VAR) models to using changes in military spending and tax policy that might be plausibly considered to be unrelated to the macroeconomy. Recent efforts examine the impact of

unexpected differences between announced defense spending and actual spending. The results also vary due to the period studied, as the multiplier is predicted to be larger in times of high unemployment and in periods when interest rates are fixed or near the zero bound.<sup>95</sup> We do not try to estimate a national multiplier during the 1930s because it is hard to argue that federal spending was not rising in response to the downturn, changes in military spending accounted for a small share of the rise in federal spending during the decade and any increases were likely a response to the downturns, and finding an instrument for federal spending in a national regression with 11 observations is difficult.

Several studies of the modern economy study the impact of federal spending on state economies.<sup>96</sup> Nakamura and Steinsson (2014) estimate state level multipliers based on variations in military procurement spending during periods of military buildups between 1966 and 2006. To control for endogeneity, they estimate state shares of military spending in a baseline period and construct their instrument as the product of the baseline shares and national military spending in each year. Their results suggest a multiplier of 1.5. Juan Carlos Suarez Serrato and Phillippe Wingender (2010) develop estimates for the modern era in the U.S. using changes in the distribution of federal spending across districts driven by updated local population estimates from the decennial Census. Using a first-difference

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<sup>95</sup> See Valerie Ramey's (2011) survey of multipliers. In estimates of the impact of fiscal and monetary policy for the 1920s and 1930s from a panel of countries, Almunia, et. al. (2010) find a multiplier for military spending above two. Ethan Ilzetski, Enrique Mendoza, and Carlos Vegh (2010) find smaller multipliers for government consumption using panel SVAR methods on a modern panel of countries, although the multipliers vary across conditions.

<sup>96</sup> Another set of studies seek to estimate the impact of state government spending within the same state. See Shoag (2012) and Clemens and Miran (2012).

approach on panels at the county, state, and MSA level after 1983, they report an income multiplier estimate of 1.88 and an estimated cost per job created of \$30,000 per year.

Daniel Wilson (2012) estimates jobs multipliers for the federal distribution of funds across states under the American Recovery and Reinvestment Act (ARRA) of 2009. He relied on the exogenous formulas for allocating federal funds as the source of identification and finds that the ARRA saved roughly one job per \$125,000 spent and had its strongest impact on construction employment. On the other hand, Lauren Cohen, Joshua Coval, and Christopher Malloy (2010) use changes in federal spending related to changes in key Congressional committee assignments to show that increases in federal spending are associated with reductions in private investment and employment in the states. In a study of low income countries Aart Kraay (2012) finds a multiplier of less than one for World Bank lending using fluctuations in approval of projects as a source of variation in later spending that is uncorrelated with current output.

#### 4. Data

The multipliers are estimated using two definitions of state income per capita and multiple definitions of government spending. Many modern studies of multipliers focus on measures of income and government spending that excluded transfers on the grounds they are not related to production. Yet, the New Deal and the Obama stimulus package of 2009 both contained a significant share of transfer payments and there is also a great deal of interest in the impact of transfer payments. Further, the state income measures reported by the Bureau of Economic Analysis are personal income measures that include transfers to

capture purchasing power output-based measures of income or government spending. Since we have to make additions and subtractions from other sources to come up with a nontransfer measure of income, there is less measurement error in the dependent variable when we include the transfers. We therefore estimate the models in multiple ways: with transfer payments included in income and in government spending, with transfer payments excluded from both, and with transfers included in one but not the other.

We use the state personal income measures reported by Daniel Creamer and Charles Merwin (1941) for the measure including transfers.<sup>97</sup> We then construct a state income measure that better fits a “national income” concept that excludes transfers and adds back employee contributions to social insurance and pension programs to obtain a measure of income like the ones used in other multiplier studies.<sup>98</sup> To examine the impact of federal grants on private employment and durable goods, we use John Wallis’ (1989) broad-based employment index for nonfarm employment built up from BLS employer surveys for 1929 through 1939, and per capita auto registrations (U.S. Public Roads Administration 1947).<sup>99</sup>

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<sup>97</sup>The Bureau of Economic Analysis began calculating state personal income in the 1930s and still reports it back to 1929 at [www.bea.gov](http://www.bea.gov) after numerous revisions to match up to current data. We use Creamer and Merwin’s (1941) estimates so that the income measures better match the goods and services of the 1930s and because we know more about what transfers they included in personal income so that we can more accurately adjust the income when we remove transfers. The correlation between per capita versions of 2008 BEA estimates and the Creamer and Merwin estimates across time and place is 0.99. The correlations across states for each year are all above 0.983 and the correlations across time within states are all above 0.90 with most above 0.98.

<sup>98</sup>The logic behind adding back the tax payments for social insurance is that the taxes finance the social insurance payments, which are transfers. See Creamer and Merwyn (1942) and Cone (1940, pp. 3, 10, 13, 39).

<sup>99</sup> The broad-based employment index includes manufacturing; mining; street railways; telephone and telegraph; electric light, power, and gas; insurance; brokerage; wholesale and retail trade; year-round hotels; and laundry and dry-cleaning establishments.

The New Deal featured a great diversity of programs designed to assist in the economic recovery so that a multiplier estimate for only one definition carries only limited information. Therefore, we estimate multipliers for several definitions of federal spending. The New Deal funding programs were divided into two major classifications: nonrepayable grants and repayable loans.<sup>100</sup> The Office of Government Reports (OGR) (1940) reported the total amount spent by each program in each state in each year from July 1, 1932 through June 30, 1939. To double check the OGR data and extend the series for programs back to 1930 and forward to 1940, we went through reports from various agencies and the Treasury department. In addition, we added information that the OGR did not report on the construction and maintenance spending on Hoover (Boulder) Dam and the Tennessee Valley Authority (TVA).

About 69 percent of the grants were associated with relief programs including the Works Progress Administration (WPA), Civilian Conservation Corps (CCCG), and Civil Works Administration (CWA) grants shown in Table 1. Moreover roughly half of the Federal Emergency Relief Administration (FERA) were spent on poverty relief projects with work requirements and could be considered federal expenditures because they produced a good or service. Pure transfer payments, which are not included in nontransfer grants, included the other half of the FERA, the Social Security Act Programs (SSA), the Veterans' Administration (VA) and Soldiers' and Sailors' Homes (SOLD) pensions, disability payments, living support to military veterans, the Veterans' Bonus associated with World War I Adjusted Service Certificates.

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<sup>100</sup>The Office of Government Reports offered information on the value of housing loans *insured* by the Federal Housing Administration. Since these loans were private loans, we do not incorporate these into the analysis of net federal spending.

The second major grant category involves public works programs; these accounted for about 19 percent of the grants. The Public Works Administration Federal (PWAF) and Nonfederal (PWANF) programs, Public Roads Administration (PRA), Public Buildings Administration (PBA), Rivers and Harbors Grant (RH) and other smaller programs listed as public works in the table were not poverty programs. As seen in Table 1, all but the Public Works Administration Federal and Nonfederal public works programs were long run federal programs established before the New Deal. Unlike the work relief poverty programs, the public works programs actively hired from outside the pool of people eligible for relief and faced fewer restrictions on hours worked. They also paid average hourly wages that were roughly double those on the work relief programs.

Approximately 10 percent of the grants were devoted to agriculture from programs run by the Agricultural Adjustment Administration (AAA), Soil and Conservation Service (SCS), Farm Security Administration (FSA), and Agricultural Experiment Stations (AES). The AAA was the largest New Deal farm program and was devoted to payments to farmers to take land out of production.

It is not always clear how to treat the federal loans in terms of developing a multiplier. They are not the same as government grants because at the time the loans were made they all required repayment. However, loan distributions are often listed in the budget deficit figures. As one example, the OGR treated the loans for construction of irrigation projects through the Bureau of Reclamation as grants. The loans were interest-free and the repayments were often delayed for a long time period, and in a number of cases the loans were forgiven. Following the OGR practice, we treated the Bureau of Reclamation funds as grants in this analysis.

Nearly all of the rest of the loans were repaid, and thus were treated separately as a loan category.<sup>101</sup> There was a grant feature to the loans because Washington's help meant lower interest rates and better lending terms. The Home Owners' Loan Corporation (HOLC), for example, bought over 1 million mortgages that were on the verge of foreclosure at close to the full book values of the loans and then refinanced them for the original borrower at interest rates that were below market interest rates on good loans (Fishback, Rose, and Snowden 2013). The Farm Credit Administration (FCA) loans provided good terms for farm mortgages and short-term loans for crops, seed, and tools.<sup>102</sup> The subsidies in Reconstruction Finance Corporation (RFC) loans likely varied by type of loan. Given the measurement issues with loans, we include multiplier estimates where we add to the grants 10 percent of the value of the loans as a measure of the interest subsidy. We also run estimates where we add the full value of the loans to the grants.

The adjusted service benefits associated with the Veterans' Bonus deserve special attention because of the variety of loans, cash payouts, and repayments of loans that occurred in the 1930s.<sup>103</sup> In 1924 Congress enacted an adjusted-service certificate program for men and women who served in World War I that offered insurance certificates based on war service that could be redeemed at face value twenty years after receipt. Certificates valued at less than \$50 were paid in cash immediately and the cash value of the certificate

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<sup>101</sup> There were some cases of loan forgiveness. For example, the RFC loans offered to cities for poverty relief under the Hoover administration in fiscal year 1933 were eventually forgiven by the Roosevelt administration. The HOLC likely experienced the highest loan default rate because it foreclosed on 20 percent of the mortgages that it supported. The reports of the various agencies imply that they actively sought repayment or recovery of assets to be sold when there was a default.

<sup>102</sup>The Commodity Credit Corporation loan program provided nonrecourse loans that established a price floor for the commodities produced. The CCC loan information has been eliminated from the analysis because the loans were not reported across states in fiscal 1934 and major portions of the loans were not reported across states in other years.

<sup>103</sup>For an analysis of the impact of the Veterans' Bonus see Hausman (2013).

was paid out to heirs at the time of the veterans' death. These payments are treated as grants throughout.

Living veterans could also borrow from the Veterans' Bureau against the certificates by accepting a lien on the value of the certificate. They could pay back the loan and receive the full certificate value in 1945 or not repay and accept the amount left after interest was deducted in 1945. After Congress lowered the maximum interest on the loans to 4.5 percent (and soon after to 3.5) and increased the amount that could be borrowed to half of the value of the adjusted service certificate on February 27, 1931, World War I veterans took out 2 million loans valued at \$795 million within the next few months. The BEA treated these loans as part of personal income (Cone 1940, pp. 3, 10, 13, 39) because they enhanced purchasing power. On the federal funds side we treat them as loans.

In January 1936 the Veterans' Bonus Bill allowed veterans to convert the adjusted-service certificates to cash at the full face value. If veterans held them for more than one year they could receive the face value plus 3 percent interest per year until maturity on June 15, 1945. The VA received 3.3 million applications with a face value of \$3.2 billion for settlement by June 30, 1936. After deducting outstanding liens from loans, the VA paid out \$1.7 billion in cash. Since the payment of liens released veterans from making future payments on loans, we treat the entire \$3.2 billion as transfer grants (Administrator of Veterans' Affairs 1931, pp. 10, 42-44; 1936, pp. 1, 22-24). In the analysis that combines loans and grants, however, the \$3.2 billion in grants was offset by the repayment of \$1.5 billion in loans, so the combined value of grants and loans for the adjusted service certificates in 1936 is \$1.7 billion.

Figure 2 shows the large variation in the annual changes in per capita nontransfer federal grants plotted against per capita nontransfer income across states for the years 1930 through 1940, all measured in 1967 dollars. The changes over time within states after controlling for national shocks in each year are the source of variation used to identify the multipliers.

## 5. Federal Tax Policy in the 1930s

In the 1930s Federal tax rates were the same across all states for each activity in each year. However, the tax structure during the 1930s was quite different from the post-War economy, in which the vast majority of internal tax revenues come from taxes on income in the form of corporate, personal, and employment (social security and unemployment insurance) taxes. Between 1930 and 1940 the sources of federal revenue shifted dramatically away from income taxes toward excise taxes. Less than 10 percent of households earned enough to pay personal income taxes before 1940. In 1930 personal income taxes accounted for 38% of total internal revenue and corporate income taxes composed 42%. The Tax Revenue Act of 1932 led to several major changes. Even though income tax rates were increased, the share of revenue from personal income taxes fell markedly to 16% in 1934 and 18% in 1940, while the share from corporate income taxes fell to 15% in 1934 before rising to 21% in 1940. The big revenue sources that arose from the 1932 tax changes was an expansion in excise taxes to cover manufactures of autos, tires, gasoline, lubricants and taxes on pipelines, telephones, telegraphs, and electricity. The share of internal revenue from excise taxes rose from 19% in 1930 to 28% in 1933. In 1933 the Roosevelt administration added in processing taxes on agricultural goods, a

capital stock tax and eliminated Prohibition. The excise tax share jumped to 48% in 1934. Over the rest of the decade the excise tax share fell back to 35%, although the share of the new revenues from alcohol taxes that were collected after Prohibition ended remained steady around 12% (Fishback 2010).<sup>104</sup>

We deal with federal taxation in two ways. Since national tax rates were the same across all states, the simplest way is to incorporate year fixed effects that control for tax rate changes in a model of state per capita income as a function of national government spending per capita in the state. Essentially, the model shows the multiplier of federal spending for income after controlling for the fiscal drag created by the tax rate system. We also estimate the model with a dependent variable of per capita state income as a function of real per capita national government spending minus real per capita national taxes. This is the multiplier for income from federal government spending net of taxes.

## 6. Estimation Procedure

Despite the variety of theoretical models that generate income multipliers of government spending, their empirical estimation tends to be similar: reduced form models with a sparse set of correlates. To estimate the multiplier ( $\beta_1$ ), we use panel data methods with a measure of real per capita state income ( $y_{it}$ ) in state  $i$  and year  $t$  in 1967 dollars as

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<sup>104</sup>Shares calculated from Carter, et. al. (2006, p. 5-86).

the dependent variable as a function of a measure of real per capita federal spending in state  $i$  and year  $t$  ( $g_{it}$ ),

$$y_{it} = \beta_0 + \beta_1 g_{it} + \beta_2 W + S + Y + S^* t + \varepsilon_{it}.$$

To control for exogenous omitted variables that might have influenced federal policy and state income, we include several vectors. A vector of extreme weather ( $W$ ) variables—days with temperatures over 90, days with temperatures below 0, months of extreme or severe drought, and months of extreme or severe wetness, and precipitation—controls for the influence of these factors on crop production and prices in the farm sector, construction activity, and other activities where weather was a factor.<sup>105</sup> A vector of state fixed effects ( $S$ ) controls for factors like geography, state constitutions, and the basic economic, cultural, and demographic structure of each state that did not change over time but varied across states. When the state fixed effects are added to the model, the variation that identifies the multiplier for federal funding ( $\beta_1$ ) is changes across time within the same state. A vector of year fixed effects ( $Y$ ) controls for national changes in the economy that affected all states in each year, including monetary policy changes, changes in federal tax rates, the

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<sup>105</sup> There are a variety of other factors that may have changed over time in non-trend ways that may have influenced both net fiscal federal spending and per capita income in the state. There are two problems that arise in trying to control for these other factors. First, many that might be included as controls in a productivity model, such as wages, employment, and interest rates, are themselves components of income. By controlling for them we would be restricting the measure of the impact of net federal expenditures to the parts of state income for which we have not controlled. Second, controls for age, race, ethnicity, population, and the structure of the economy are all available typically only during the census years and thus measures would have to be interpolated between census years to provide values. Interpolated measures of the census-year structural variables between 1930 and 1940 would be linear combinations of the state-specific time trends and/or the state effects.

introduction and elimination of the National Recovery Administration and other changes in national regulation. The addition of the year fixed effects to the state fixed effects specifications means that the multiplier is identified by variations within the same state over time after controlling for national shocks to the economy. The addition of a vector of state specific time trends ( $S*t$ ) controls for differences in the trend paths of economic activity in each state, including much of the shift away from state budget deficits in the early 1930s to budget surpluses in the late 1930s.<sup>106</sup> Under the complete model specification the identification of the multiplier comes from deviation from trend across time within the states after controlling for nation-wide shocks.

As an alternative way to control for state fixed effects, the model can also be estimated in year-to-year first differences. The year effects in the first difference model still serve the same purpose of controlling for nationwide shocks in each year. In the difference model state time trends are controlled with the addition of state fixed effects. Both methods lead to unbiased and consistent estimates of the multiplier in large samples, but the standard errors are more efficiently estimated by the difference estimation if there is serial correlation (Wooldridge 2006, pp. 491-492). Since the sample is relatively small with 48 states for 11 years each, we report both sets of estimates.<sup>107</sup>

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<sup>106</sup>State and local government spending and taxation are currently controlled for with the combination of the state fixed effects and state-specific time trends. Thus deviations from trend in state fiscal activity are not being controlled. The multiplier estimate therefore may incorporate influences on income that arise from correlations between deviations from trend in state and local fiscal activity and federal spending. As it stands now, comparable annual estimates of revenues and government payments in the states are available only up through 1931 and after 1936 for all states.

<sup>107</sup>Following Barro and Redlick (2011), Kraay (2010) and Nakamura and Steinsson (2014), we have also estimated the model as the growth rate in income from the previous year as a function of the change in government spending divided by lagged income. The results are essentially the same as in the difference specification, so we do not report these separately.

There still remains the possibility of biases from simultaneity and endogeneity. An ample literature on the geographic distribution of New Deal spending shows that the Roosevelt Administration tended to distribute more New Deal grants to areas where income was declining (see Wallis 1998, Fleck 2008, Fishback, Kantor, and Wallis, 2002; Neumann, Fishback, and Kantor 2010). This tendency imparts a negative bias to the multiplier coefficient. To eliminate the biases arising from the issues described above, we follow an instrumental variable strategy. To be effective, the instrument must vary annually both across time and across space and be strongly correlated with the measures of federal government funds but not with the error term in the final-stage equation.

The instrument logic starts with the shift-share logic used by Wallis and Benjamin (1981), Nakamura and Steinsson (2014) and many others. Establish a baseline structure for the types of federal spending from an earlier period in each state. Then use changes in national spending for each type of federal spending multiplied by the earlier state shares to develop an estimate of state spending in each year that is driven purely by national changes.

One key question that arises is whether the national totals in each category are correlated with the error in each specific state after controlling for weather fluctuations and state and year fixed effects. There are two reasons to believe that there is a lack of correlation. First, each state was a small share of the national economy. New York received the largest share of federal grants at 9.6 percent. Second, the federal government since 1789 had treated employment and labor policies and poverty as exclusively a state and local issue. The stated reason for the federal government getting involved with these programs is that the Great Depression was a national problem. The new programs of the 1930s were the federal relief programs, the additional public works programs, and the AAA

farm program, and these accounted for the lion's share of federal spending in the 1930s. When reading through the appropriations for these programs, the national totals for appropriations were typically very large round numbers. There is no doubt that the President and members of Congress tried to influence the distribution of the spending across states once the total was set. However, the process of setting the total required majority votes in the house and senate and avoiding Presidential vetoes. This process would have muted the impact of any one state's representatives' attempts to increase the national total to benefit his state. Such a move would have likely involved extensive horse-trading among enough Congressmen that it is the collection of a large number of states that was determining the national total.

To avoid further correlation of the error in state  $i$  and year  $t$  with the national total, we took another step with the instrument in which we construct a "moat" around each state that includes the state's own regions and neighboring regions. We then use the national totals from *outside* that moat for the shift-share calculations of the instrument. The moat is constructed to put substantial distance between the observation state and the area being used for the national total. For New England, for example, the moat includes any states in New England, the Mid-Atlantic, the East North Central, or the states of Virginia, Maryland, Kentucky, or West Virginia. The moat areas are large enough that they could come close to becoming self-contained economies.<sup>108</sup>

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<sup>108</sup> If the federal government had established a hard budget constraint nationwide, there might have been a negative relationship between spending in the rest of the regions and spending in the state in question. There did not appear to be a hard spending constraint at the national level because Roosevelt and the Congress often approved additional funds throughout the years and ran budget deficits in most years.

Another question is whether the state shares for 1925-1928 are correlated with fluctuations in income in the specific state in the 1930s. That seems unlikely even when we do not include state fixed effects in the analysis. We have run regressions on the distributions of state funds across states and time in separate panels for 1923-1929, 1930-1933 and 1934-1939 based on presidential administrations. A number of factors that drove the distribution across states and time in the 1930s did not drive the distribution in the 1920s. Once we include state fixed effects in the analysis for the 1930s, it reduces even further the likelihood that the state shares in the 1920s were correlated with the errors in the final stage regression in the 1930s because it would require the deviation from the state average for a specific year in the 1930s to be correlated with a state share of federal funds in the mid-1920s.

For the instrument to be correlated with the error term in state  $i$  in year  $t$ , the error would have to be correlated with either the distribution across states in 1928 after controlling for time-invariant features of the state and/or correlated with the total federal spending in other parts of the country that are well outside a large multi-region and roughly self-contained economic area surrounding the state after controlling for national shocks and for weather shocks within the state.

### *Agricultural Instrument*

We also estimate separate multipliers for AAA farm grants that paid farmers to take land out of production and the nonAAA grants. We construct the instrument for the nonAAA grants in the way we describe above. We used a different method to construct

the AAA instrument because an instrument based on the share of federal land bank mortgage loans in the 1920s was weak when used alone. In constructing the AAA instrument we combined the AAA's practices of distributing the grants using output from earlier years with an artificial measure of output that would be uncorrelated with the state's observation in year  $t$ .

The national AAA handed out money to states for each crop based on their average output over the previous five years in the state. Higher 5-year averages led to a higher amount of AAA funds. The AAA instrument uses the shift-share concept to construct an artificial measure of output in the state in year  $t$  based on state shares of each crop in 1924 and the national output from year  $t$ . To eliminate serial correlation, we lag the artificial output measure by 5 and 6 years and use the average of those two lags as the instrument divided by state population in 1930 as the instrument. The specifics of the calculations are in Appendix I.

The instrument is likely to be strong because it is based on AAA rules of using lagged output levels, although it is based on an artificially constructed output based on state shares in 1924. To insure the validity of the instrument, we worked to avoid correlation between the error term in the final income equation in year  $t$ , which would include errors related to agricultural income. We cut any ties to the observation error in year  $t$  that might arise due to serial correlation in the crop output errors by using the national output totals for each crop and the share of crop output from 1924 to develop an estimate of quantity in year  $t$  in the 1930s for each crop. The use of the national output might be problematic here if the output of other states followed the same serially correlated pattern from year to year. However, the use of year fixed effects as controls actually helps reduce this problem

because it would control for a situation where the errors across time were correlated exactly in the same way across time for each state. The use of the 1924 output shares and prices to construct the index are 10 years distant from the first year of the AAA and unlikely to be correlated with year  $t$ 's error term, particularly after controlling for state fixed effects. Finally, we reduced the potential for serial correlation with the error further by using the output estimates from 5 and 6 years before the observation year  $t$ .

## 7. Estimates of Income Multipliers

The state personal incomes are reported on a calendar year basis, while the federal spending is reported on a fiscal year basis, covering the period from July 1 in year  $t-1$  to June 30 in year  $t$ . This automatically imparts a half-year lag into the model.<sup>109</sup> Table IV.2 shows coefficients and standard errors from a series of estimations with per capita state personal income in 1967 dollars as a function of per capita estimates of federal government fiscal activity in the state. Estimates using the level and first difference specifications are reported when per capita incomes and grants include transfers (the first two columns) and when they exclude transfers (third and fourth columns). They show the coefficients and standard errors for per capita federal grants in the level specification as correlates are added cumulatively, and the second column shows the results for the differenced model. Each row matches logical equivalents for controls, such that the second row shows the results

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<sup>109</sup> We investigated interpolating the federal spending in each state to a calendar-year basis by using state level information on monthly employment in programs, but we could not do this for enough programs to make it feasible.

from a level equation controlling for state fixed effects on the same line as the differenced equation without fixed effects.

The least squares estimate of the multiplier without controls is 1.25 including when transfers are included in both personal income and government grants and 1.52 without them. Adding controls for time-invariant features of the States increases the multipliers, while adding controls for weather leads to only minor adjustments. The addition of year fixed effects controls for the national shocks related to the major changes in monetary policy during the 1930s as well as changes like the National Recovery Administration and federal policies toward unions that altered the structure of many product and labor markets. Once the year fixed effects control for these factors, the multiplier is cut below 0.5. When we add controls for state time trends, the variation identifying the multiplier is deviations from trend over time within the states after controlling for national shocks, and the multiplier falls below 0.3.

#### *IV Estimates in Levels with Fixed Effects*

The estimation procedures that lead to the most positive estimates for the New Deal are the IV estimates when the data is set up in levels and state and year fixed effects are included. The instruments are strong, as the Kleibergen-Paap F-statistics in Tables IV.2 through IV.4 are generally much larger than 10, the rule-of-thumb value used in most papers. When state-specific time trends are incorporated, the F-statistics are much lower, and the estimates likely have more weak instrument bias. As a result, we focus on models with only controls for state and year fixed effects in our discussion.

The multiplier estimate is 0.83 when transfers are included and 0.96 when transfers are excluded and both are statistically significantly different from zero.<sup>110</sup> The estimates are substantially below the recent estimate of 1.5 by Nakamura and Steinsson (2014) for military spending and somewhat above the estimates for government spending found across countries by Kraay (2012). One reason may be differences in the type of spending. Nakamura and Steinsson focus on military expenditures while the New Deal spending ranges across a wide range of programs, including the AAA farm program, which has a natural crowding out feature. Meanwhile, Kraay's estimates also cover a wide range of public works spending.

The point estimates of multipliers for different federal funding measures during the 1930s are shown in Table IV.3. All but the estimate for AAA grants are statistically significantly different from zero. Whether we add in loans, or subtract taxes, or mix and match the exclusion of transfers from income or from the federal funds at the bottom of the table, the multiplier estimates in the level specifications are all in between 0.61 and 1.05 and we cannot reject the hypothesis that the multiplier is one.

Given that the AAA farm grants were designed to take land out of production, we expected that the nonAAA grants would have stronger positive effects than all grants and that the AAA potentially had negative effects on income. The multiplier for the nonAAA grants is somewhat larger than for all grants, 0.89 versus 0.83 when transfers are included

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<sup>110</sup> We have also tried estimating a nonlinear relationship by including the square of government spending. The estimates of effects at the mean of the sample are very similar and the squared terms are statistically insignificant.

and 1.10 versus 0.96 when they are excluded. However, the multiplier estimates for AAA grants are both below 0.13 and neither is statistically significant.

The findings of the positive effect of nonAAA grants and weak effects of AAA grants are similar to Fishback, Horrace, and Kantor's (2005, 2006) findings using county level data. Using a different instrument strategy, they find that public works and relief were associated with higher retail sales and net in-migration and that AAA grants were associated with slightly lower retail sales and net out-migration. The payments would have benefited farm owners and those tenants who received a share of the AAA payments. On the other hand, the reduction in the demand for farm labor would have reduced wages and employment for farm workers and share croppers.<sup>111</sup> In fact, Briggs Depew, Fishback, and Paul Rhode (2013) find that AAA grants led to sharp decline in the number of share tenants and croppers between 1930 and 1935.

Even though the results in Table IV.3 show variations in the multiplier for different forms of spending, it is important to note that the standard errors of the estimates for total spending and nonAAA spending are large enough that we cannot reject a multiplier of *one* for nearly every estimate.

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<sup>111</sup>The policy was designed to raise prices for farmers. The negative effect on real personal income from the price rise was likely to have been felt nationwide for crops with national markets. This change would have led to a rise in the CPI and a reduction in real income nationwide that would show up in the coefficients of the year dummies. In that sense, the multiplier estimate will be overstated. There may have been differential effects within states due to differences in the consumer prices based on distance between farmgate and final market. Much of this effect would be controlled for by the state fixed effects. For some crops that sold in local markets, like corn and hay, the local prices might have risen more than at the national level with the reduction in output as long as they stayed within a price range set by transportation costs to other markets (Fox, Fishback, Rhode, 2011). This localized rise would show up in the measure of state income but the effect of the rise in limiting purchasing power would not because we have not adjusted for localized differences in the cost of living. Here again the multiplier effect will be slightly overstated.

#### *IV Estimates with First Differences and Year Fixed Effects*

A less positive picture of the multiplier is painted by the estimates when we estimate the model in first differences with year fixed effects. The point estimates in Tables IV.2 and IV.3 for the differenced model with year fixed effects are similar to the ones for the levels model with state and year fixed effects. However, the standard errors for the estimates are larger, such that only three of the coefficients from the differenced models are statistically significantly different from zero at the 10 percent level, and one of those is the negative coefficient of income with respect to AAA grants in Table IV.4.

There are several potential reasons for why the standard errors using the differenced model would be larger. One possibility is that the instruments are weaker in the differenced model. Even though the Kliebergen-Paap F-statistics in Tables IV.2 through IV.4 are smaller for the differenced estimates, we do not believe that this is the primary source of the problem because most still exceed the ten rule-of-thumb value.

Michael Baker, Dwayne Benjamin, and Shuchita Stanger (1999) suggest that the first-difference models tend to be more sensitive to specifying the lag structure correctly. When we tried using a model with second-differences, the results were similar to the first-differenced results. We have also explored incorporating lagged spending in the levels model, but the coefficient of lagged spending was very small and not statistically significant.

Another potential reason is problems with measurement error and errors in variables. The measurement error is smaller when transfers are included in the per capita income measure from Creamer and Merwin (1941) than in the measure without transfers

because we could only make imperfect adjustments to obtain the nontransfer estimates. As a result, the estimates including transfers tend to have smaller standard errors for the estimates than the estimates without transfers. Zvi Griliches and Jerry Hausman (1986) suggest that the first-differenced models may lead to more problems with errors in variables than the use of level estimates. This seems to fit the pattern here, because the differenced specifications have much larger standard errors than their matching level specifications. Whatever the reason for the difference in the size of the estimated standard errors, we felt it important to follow Jeffrey Wooldridge's (2006, pp. 491-492) suggestion to report estimates from both the level and differenced model when they differ.

## 8. The Impact of Federal Grants on Automobile Registrations and Employment

Discussions of federal spending have often focused on consumption and on private employment. We can measure the impact on consumption of a major durable good using data on per capita automobile registrations with the states. We can also measure the impact on private employment per capita using indices of nonfarm employment per capita, which were compiled by the Bureau of Labor Statistics and adjusted for benchmarks by John Wallis (1989). These measures are not in dollar terms; therefore, Table IV.4 shows the elasticities of each measure with respect to federal grants without transfers. For comparisons, Table IV.4 also shows the elasticities calculated at the sample means for per capita state income. The multiplier estimates ranging from 0.67 to 0.96 in Table IV.3 translate into elasticities of per capita income with respect to per capita grants that range from 0.039 to 0.067.

The distribution of government funds had strong effects on automobile registrations per capita. The level and difference analyses controlling for state and year fixed effects estimate elasticities of 0.05 and 0.06, which are comparable to the elasticities for per capita income. To gain a rough idea of how the elasticity of per capita auto registrations can be translated into dollars of consumption, value each car at the price of a new Ford in 1934, which was about \$500 then and \$1,247 when adjusted to the 1967 Consumer Price Index values used to control for the price level. An additional dollar of federal spending raised the value of car registrations by between 14 and 16 cents.

As was the case for per capita income, the nonAAA grant spending had a much stronger effect on auto registrations than the AAA grants did. The per capita auto registration elasticity for nonAAA grants per capita in the level analyses were statistically significant values near 0.055, while the AAA elasticity was negative and much smaller at around -0.002 or -0.001. In the difference analysis the nonAAA elasticity is around 0.045, while the AAA elasticity ranges between 0.001 and -0.001.

In both the 1930s and the 2000s it was hoped that more federal grants would lead to spillover increases in private employment. The various studies of this issue cited in the literature review find little or no positive effect of relief programs. The results here are similar. The estimates for elasticities of nonfarm employment per capita with respect to all grants are negative in three of the specifications and the small positive estimate of 0.016 is not statistically significant. These all imply some crowding out of private employment,

despite the high levels of unemployment.<sup>112 113</sup> When the effects of nonAAA and AAA grants are estimate separately, the coefficients for the nonAAA grants are similar to the ones for all grants. On the other hand, the coefficients on the AAA grants are positive and two are statistically significant. This positive effect may have been driven by a surge in labor supply that was caused when the AAA led to the reduction of opportunities for share tenants, croppers, and farm workers (Depew, Fishback, and Rhode 2013).

## 9. Conclusion

If there was any time to expect a large peace-time state multiplier from federal spending in the states, it might well have been during the period from 1930 through 1940. Interest rates were at or near the zero bound for nearly the entire decade and unemployment of labor and capital was rampant throughout the decade. The state multiplier captures the direct gain to a state from increased federal spending in the state. Without using instruments state multiplier estimates controlling for weather shocks, state and year fixed effects, and in some cases state-specific time trend imply that the state personal income multipliers were in the 0.1 to 0.5 range. These estimates are likely biased downward due

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<sup>112</sup>We put all measures on a per capita basis for consistency. We have also estimated the models for the payrolls and employment without putting them on a per capita basis and the magnitudes of the results are only slightly larger.

<sup>113</sup> It is possible that the statistically insignificant effect of government spending on nonfarm employment might reflect the fact that most manufacturing and mining was selling to national and international markets. If so, a rise in federal spending within a state would only stimulate the demand in that state, which might be a small share of the demand for the product. We can partially check this hypothesis by looking at estimates for manufacturing and nonfarm nonmanufacturing employment separately from the Wallis (1989) data. The nonfarm nonmanufacturing employment was largely localized, although it did include mining. The elasticity for per capita nonmanufacturing nonfarm employment was 0.001 with a t-statistics of 0.08, while the elasticity for per capita manufacturing employment was -0.09 with a t-statistic of -0.05. The difference suggests that some but not all of the nonpositive employment effect was due to the limited share of local demand in the overall demand for manufacturing products in the states.

to endogeneity arising from the Roosevelt administration's attempts to distribute federal funds in response to drops in economic activity.

We estimated a series of per capita income multipliers using different definitions of government spending. The IV income multiplier estimates ranged from 0.4 to 0.96 in level and first-difference analyses that control for state and year fixed effects. We can reject the hypothesis of a zero multiplier in the level analysis with state and year fixed effects. However, the estimated standard errors in the differenced analysis with year fixed effects are large enough in most cases we cannot reject a zero multiplier. Generally, we cannot reject the hypothesis that the state multiplier for federal spending in the 1930s was one. When the grants are split into two major categories--1) AAA farm grants and 2) public works and relief and other nonAAA grants, the AAA grants had much smaller effect than the remaining grants. The difference likely came about because the AAA grants paid farmers to take land out of production, which led to negative consequences for farm workers, croppers, and tenants, while benefiting farm owners (see also Fishback, Horrace, and Kantor 2006, 2007 and Depew, Fishback, and Rhode 2013).

In the modern era it is often claimed that tax rebates and stimulus spending may lead to increased net income but not stimulate consumption. In the 1930s at least some of the increased income from federal grant spending translated into higher consumption, as grants and nonAAA grants had strong positive effects on automobile registrations.

On the other hand, nonAAA grants had no positive effect on *private* employment in the states. This finding is consistent with findings of other studies on the effect of New

Deal relief programs on *private* employment.<sup>114</sup> All of these studies are consistent with the fact that unemployment rates remained high throughout the 1930s even during periods when real GDP was growing rapidly from its trough. To the extent that findings for the 1930s are relevant to the modern era, the lack of positive effects of public works and relief spending raise some questions about how successful such expanded spending will be at the state level in the modern era. In fact, the literature on the modern employment effects of federal stimulus at the subnational level contains examples of both negative and positive effects of fiscal spending on local employment (Wingender and Suarez Serrato 2010, Wilson 2012, Cohen, Coval, and Malloy 2010).

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<sup>114</sup>We do not know the impact of the funds on total employment in the states because we do not have annual state level measures of all types of employment. Measuring total employment is complicated by the question of whether to treat work relief workers as employed or not. See Michael Darby (1976) and Neumann, Fishback and Kantor (2010) for more discussion of the issues.

## Appendix A: Construction of Instruments

The shift share instrument for all federal funds and federal funds without the AAA is constructed based on national spending in broad categories across time interacted with the share of spending in these broad categories in the states during the period 1925 to 1928 before the time period started. The eight categories include spending on roads, education, reclamation and irrigation (including Hoover Dam), rivers and harbors (including the TVA), farm programs, work relief and other public works, and the national guard.

Total federal government spending in category  $j$  ( $S_{usjt}$ ) was calculated for each year  $t$  between 1930 and 1940. The federal government distributed funds across states in all but the relief and other public works categories during the 1920s. Using the amounts distributed, we calculated the average percentage received between 1925 and 1928 in state  $i$  ( $p_{ij25-29}$ ) for each category  $j$  from a new dataset that we have put together from the U.S. Census Bureau's *State Financial Statistics (SFS)* and various reports from federal agencies during the 1920s. The instrument for state  $i$  in year  $t$  ( $Inst_{it}$ ) was constructed using the following equation:

$$Inst_{it} = \sum_{j=1-8} p_{ij25-28} S_{usjt}.$$

The 1930s roads programs were the Public Roads Administration and spending by the forest service and we matched that with the 1925-1928 state shares for federal highway funds distributed to state governments reported in the SFS. The 1930s education programs included spending by the Office of Education, State marine schools, long-term programs

in Arizona and New Mexico, and books for the blind and this was matched with federal funds distributed to states reported in the SFS. Reclamation Bureau projects for dams and irrigation (including Hoover Dam) were matched with the distribution of interest free loans between 1925 and 1928 reported in the Reclamation Bureau section of the Department of Interior Annual Report. Rivers and harbors spending (including the TVA) was matched with the shares of spending in the states constructed from U.S. Army Corps of Engineers Reports from 1925 through 1928. National Guard spending in the 1930s was matched up with state shares based on reports on the number of guardsmen from the Statistical Abstracts of the United States. The 1930s farm grant programs included the Agricultural Adjustment Act grants and Farm Security Administration grants and we matched these to the state shares in the distribution of Federal Land Bank Mortgage loans. When we constructed the nonAAA instrument, we left the farm category out.

The relief and other public works category in the 1930s include the WPA, CWA, FERA, CCC, SSA, Indian Bureau, health spending, U.S. Employment Bureau, Public Buildings Administration, Public Works Administration Federal and Nonfederal and public housing programs, the public health service and spending on wildlife restoration. These programs did not have a federal equivalent in the 1920s because the federal government was not involved in relief efforts at the state or local level until after June of 1933. We matched the total spending from the 1930s with shares based on Fishback and Kantor's measure of expected benefits for state workers' compensation from 1929. To get a rough estimate of total workers' compensation spent in each state we multiplied the expected benefit by the population in each state to get a rough estimate of the total payouts of workers' compensation in the state. We chose workers' compensation because it was a

relief program and the generosity levels varied across states but federal relief was not directly targeted at workers' compensation.

*Moat Areas for Instrument Using Spending Outside Region*

When constructing instrumental variables for total federal funds and for public works and relief grants, we used a measure of federal grant spending in the area *outside* an geographic “moat” around the state of interest. The moat includes the state’s census region (of 9) and nearby census regions to avoid spatial correlation with the error term from potential spillovers. For New England, for example, the moat includes any states in New England, the Mid-Atlantic, the East North Central, or the states of Virginia, Maryland, Kentucky, or West Virginia; therefore, the component of federal spending for the instrument for that state is based on federal spending *outside* that moat. For the Mid-Atlantic states the area used for the instrument does not include any states from New England, the Mid-Atlantic, the East North Central, the South Atlantic, or the states of Alabama, Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. The area used for the instrument for the East North Central states does not include any states from the Mid-Atlantic, the East North Central, the West North Central, or the states of Alabama, Arkansas, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, or West Virginia. The area used for the instrument for the West North Central states does not include any states from the East North Central, the West North Central, the East South Central, the West South Central, and the Mountain States. The area used for the instrument for the South Atlantic states does not include any states from the Mid-Atlantic, the South Atlantic, the East North Central, the East South Central, or the West South Central. The area used

for the instrument for the East South Central does not include any states from the Mid-Atlantic, the South Atlantic, the East North Central, the East South Central, the West South Central, or the states of Iowa, Kansas, Missouri, or Nebraska. The area used for the instrument for the West South Central states does not include any states from the East North Central, the West North Central, the East South Central, the West South Central, or Mountain regions. The area used for the instrument for the Mountain states does not include any states from the West North Central, the West South Central, the Mountain, or the Pacific regions. The area used for the instrument for the Pacific states does not include any states from the Mountain and Pacific regions or the states of Oklahoma, Texas, Kansas, North and South Dakota, and Nebraska.

#### *AAA Instrument*

In constructing the AAA instrument we combined the AAA's practices of distributing the grants using output from earlier years with an artificial measure of output that would be uncorrelated with the state's observation in year  $t$ . The national AAA handed out money to states for each crop based on their average output over the previous five years in the state. Higher 5-year averages led to a higher amount of AAA funds.

To develop a measure of lagged output that is not correlated with the error term for income in the state in year  $t$  in the final stage equation, we constructed an output index for each year for the crops that were eventually a part of the AAA at some time in the 1930s. The crops included cotton, tobacco, wheat, corn, sugar beets, sugar cane, rice, and flaxseed. For each state  $i$  we constructed the state's share ( $S_{ci24}$ ) of output for each crop  $c$  in 1924, a

decade before the first AAA payments were made in fiscal year 1934. The year 1924 was the first year when data on quantity and prices were available for all of the eventual AAA crops. Before performing the lags, for each year  $t$  we then estimated output for state  $i$  in year  $t$  for each crop  $c$  ( $QE_{cit}$ ) by multiplying the state share from 1924 by the U.S. total output for the crop in year  $t$  ( $Q_{US t}$ ). Thus, after we lag the estimates, the state crop output for prior years would be less likely to be correlated with state output for the crop in year  $t$  through serial correlation because it is based on the state's share of the crop in 1924 and the national total for the earlier year  $t$ -lag.

$$QE_{cit} = S_{c 124} * Q_{US t}$$

We then combined all of the crop output estimates into one overall output index ( $QI_{it}$ ) using the U.S. crop prices in 1924 ( $p_{c US 24}$ ).

$$(QEI_{it}) = \sum_{\text{over } c} (QE_{cit} * p_{c US 24}).$$

Again the 1924 prices were used to avoid correlation with prices in year  $t$  in the 1930s.

To match up to the AAA's practice of paying attention to output over the previous five years, we used the output index to calculate an estimated average output from earlier years. To avoid the potential for serial correlation, we used the average artificial output estimate from 5 and 6 years before the year of the observation. For example, the AAA

payments were on a July – June fiscal year basis; therefore, the first AAA payment in the data appears in fiscal year 1934, which includes part of 1933. To avoid 1933, 1932, 1931, 1930, we used the estimated values from 1929 and 1928, 5 and 6 years before 1934 to construct the instrument. We followed the same procedure for the later years, so that the instrument  $INSTAG_{it}$  for state  $i$  in year  $t$  is

$$INSTAG_{it} = (QEI_{it-5} + QEI_{it-6})/2.$$

To convert to a per capita basis, we then divided the output index by population in 1930 for the state. Since the program did not begin until 1934, the instrument has a zero value for all years before 1934.

## Appendix B: Data Sources

When we calculate the non-transfer concept of income we started with estimates of state personal income for 1929 through 1941 reported by Daniel Creamer and Charles Merwyn (1942) and subtracted “other labor income,” which was composed of pension payments, compensation for injuries, direct and work relief, and social insurance benefits. We then added back work relief payments from the Federal Emergency Relief Administration, the Civil Works Administration, the Civilian Conservation Corps, and the Works Progress Administration because work relief payments were transfer payments that resulted in the building of many public works and thus resembled government expenditures. We also added back federal pension deductions and payroll taxes for social security and the railroad pension program. The one feature we could not add back was business savings.

Population came from Bureau of Economic Analysis estimates by state downloaded from [www.bea.gov](http://www.bea.gov) in 2008. The index for nonfarm nonmanufacturing employment was constructed by John Wallis (1989). Automobile registrations for each state were collected from U.S. Public Roads Administration (1947).

We constructed the state grants and loans from a list of over 40 programs for which information was collected from a wide variety of sources. The starting point was reports by state for over 30 programs from Office of Government Reports (1939) for the fiscal years 1933 through 1939. We rechecked this data and extended it back to 1928 and forward to 1940 for each of the programs using a wide range of reports from federal agencies over

various years. We added information on construction expenditures for the Tennessee Valley Authority from their annual reports and the final report for the Boulder Canyon Project (Hoover Dam) (Bureau of Reclamation 1948). We collected data from annual reports for various years from the Administrator of Veterans' Affairs, the Chief Engineer of the Army, Department of Labor, Director of the Veterans' Bureau, Farm Credit Administration, Federal Farm Loan Board, Federal Home Loan Bank Board, Federal Works Agency, Reconstruction Finance Corporation, Secretary of Interior, Social Security Board, Tennessee Valley Authority, Treasury Department, U.S. Bureau of Public Roads, U.S. Bureau of Reclamation, U.S. Commissioner of Pensions, the U.S. Department of Agriculture, U.S. Secretary of the Interior, U.S. Secretary of the Treasury, the Works Progress Administration, the U.S. Census Bureau's annual *Financial Statistics of the States*, and the Treasury Department's Annual Reports. We supplemented these with the annual reports on *Financial Statistics of the States* and the annual *Statistical Abstracts of the United States*. Additional sources include the final report for the Federal Emergency Relief Administration (Works Progress Administration 1942) and the Civil Works Administration (Works Progress Administration 1939). More detail on the sources for each program and the construction of the grants and loans variables is available in Fishback (forthcoming 2015).

The data on rainfall and the share of days with temperatures above 90 and below zero is constructed from populated weighted averages of weather station data from the United States Historical Climatology Network from 362 weather stations that were operational by 1930 and reported consistently throughout the 1930s. The data were downloaded in 2011 from <http://cdiac.ornl.gov/epubs/ndp/ushcn/ushcn.html>. The number

of months of extreme and severe wetness and dryness are based on the Palmer Hydrological Index from the National Climatic Data Center. The text files of the data were accessed from <ftp://ftp.ncdc.noaa.gov/pub/data/cirs/> (August 2003).

## Appendix C: Tables

Table IV.1 Total and Per Capita Federal Funds Distributed to the States for Major Program in Millions of Contemporary Dollars for the Period July 1, 1932 through June 30, 1939

	Amounts From 7/1/29 - 6/30/39  (Millions \$)	Category	First Fiscal Year with Significant Spending	Ended Before 1939
<hr/>				
NONREPAYABLE GRANTS	\$27,180			
Works Progress Administration (WPA)	6,844	Work Relief	1936	
Veterans' Administration (VA)	3,955	Relief	Pre 1933	
Federal Emergency Relief Adm. (FERA)	3,059	Relief and Work Relief	1934	1937
Agricultural Adjustment Admin (AAA) <sup>1</sup>	2,863	Agriculture	1934	
Civilian Conservation Corps (CCC)	2,130	Work Relief	1934	
Public Roads Administration (PRA)	1,613	Public Works	Pre 1933	
Rivers, Harbors & Flood Control (ACE)	1,316	Public Works	Pre 1933	
Public Works Admin—Nonfederal (PWANF)	1,032	Public Works	1934	
Civil Works Administration (CWA)	807	Relief/Public Works	1934	1934
Social Security Act (SSA)	759	Relief	1936	
Public Works Admin—Federal (PWAF)	632	Public Works	1934	
Balance from Relief Acts (BRA)	376	Relief	1936	
Public Buildings Administration (PBA)	324	Public Works	Pre 1933	
Bureau of Reclamation (BR)	290	Public Works	1934	
Adjusted Service Certificate Cash Payouts	1,764	Relief	1936	

Adjusted Service Certificate Loan Repayments	1,422	Relief	1936	
REPAYABLE LOANS CLOSED	14,549			
Reconstruction Finance Corp. (RFC)	4,782	All	1932	
Farm Credit Administration (FCA)	3,957	Agriculture	Pre 1933	
Home Owners' Loan Corp. (HOLC)	3,158	Home Finance	1934	1936
Commodity Credit Corporation (CCC)	1,186	Agriculture	1934	
Public Works Administration (PWA)	508	Public Works	1934	
Farm Security Administration (FSA)	337	Agriculture	1934	
Adjusted Service Certificate Loans	1,520	Relief	Pre 1933	1937

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*Source:* Data compiled from Office of Government Reports (1939).

Table IV.2 Estimates Of Dollar-For-Dollar Effect Of Per Capita Grants On State Per Capita Income, 1930-1940

		Level		Difference	
		Including Transfers	Excluding Transfers	Including Transfers	Excluding Transfers
<b>LEAST SQUARES</b>					
No controls	Coeff.	<b>1.25</b>	<b>1.52</b>		
	<i>t-stat.</i>	3.77	3.95		
Controls state effects	Coeff.	<b>1.54</b>	<b>2.06</b>	<b>0.98</b>	<b>1.37</b>
	<i>t-stat.</i>	7.54	5.43	5.96	3.2
Controls state effects and weather	Coeff.	<b>1.63</b>	<b>2.15</b>	<b>0.94</b>	<b>1.39</b>
	<i>t-stat.</i>	7.17	5.35	5.25	3.12
Controls year effects, state effects, and weather	Coeff.	<b>0.43</b>	<b>0.45</b>	<b>0.26</b>	<b>0.26</b>
	<i>t-stat.</i>	2.28	1.95	2.20	1.6
Controls state time trends, year effects, state effects, and weather	Coeff.	<b>0.21</b>	<b>0.16</b>	<b>0.26</b>	<b>0.27</b>
	<i>t-stat.</i>	1.15	0.88	1.82	1.42
<b>TWO-STAGE LEAST SQUARES</b>					
Controls year effects, state effects and weather	Coeff.	<b>0.83</b>	<b>0.96</b>	<b>0.81</b>	<b>0.67</b>
	<i>t-stat.</i>	3.10	2.43	1.58	0.39
	Instrument F-stat.	47.18	63.89	12.25	10.92
Controls state time trends, year effects, state effects, and weather	Coeff.	<b>0.26</b>	<b>-0.18</b>	<b>0.87</b>	<b>0.84</b>
	<i>t-stat.</i>	1.19	-0.25	1.63	0.35
	Instrument F-stat.	8.19	4.59	9.33	4.58

*Notes:* For sources see Data Appendix. Including transfers means that both income and grants included transfers, excluding transfers means that neither included transfers. This is a balanced panel with information for 48 states for each year from 1930 through 1940. For the calculations

of t-statistics, standard errors are based on White corrections using the robust command with standard errors clustered at the state level. The instrument F-statistic is the Kleibergen-Paap rank Wald (KP) F statistic.

Table IV.3 IV Estimates Of Dollar-For-Dollar Effect Of Per Capita Government Funding On State Per Capita Income, 1930-1940

		Level		Difference	
		Transfers Included	Transfers Excluded	Transfers Included	Transfers Excluded
Controls year effects, state effects and weather	Coeff.	<b>0.83</b>	<b>0.96</b>	<b>0.81</b>	<b>0.67</b>
	<i>t-stat.</i>	3.10	2.43	1.58	0.39
	Instrument F- stat.	47.18	63.89	12.25	10.92
Grants plus all loans	Coeff.	<b>0.73</b>	<b>0.65</b>	<b>1.26</b>	<b>0.82</b>
	<i>t-stat.</i>	3.97	3.35	1.57	0.5
	Instrument F- stat.	43.83	53.87	11.52	1.55
Grants Plus 10 % of Loans	Coeff.	<b>0.84</b>	<b>0.74</b>	<b>0.83</b>	<b>0.62</b>
	<i>t-stat.</i>	3.88	3.23	1.68	0.52
	Instrument F- stat.	43.75	64.09	14.35	14.34
Grants Minus Taxes	Coeff.	<b>0.71</b>	<b>0.76</b>	<b>0.69</b>	<b>0.43</b>
	<i>t-stat.</i>	2.71	2	1.56	0.38
	Instrument F- stat.	40.55	36.98	13.34	17.58
EQUATION With both per capita nonAAA Grants and per capita AAA Grants					
Grants minus AAA	Coeff.	<b>0.89</b>	<b>1.10</b>	<b>0.88</b>	<b>0.25</b>
	<i>t-stat.</i>	3.86	3.77	1.98	0.15
	Instrument F- stat.	12.62	10.70	5.57	5.75
AAA	Coeff.	<b>0.12</b>	<b>0.09</b>	<b>-2.68</b>	<b>-2.81</b>
	<i>t-stat.</i>	0.23	0.18	-2.49	-2.16
	Instrument F- stat.	84.04	86.79	19.81	17.49
	combined F-stat.	12.23	10.60	5.57	6.04

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COMBINATIONS WITH DIFFERENCES IN EXCLUSION OF TRANSFERS FOR INCOME AND GRANTS

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	Coeff.	<b>1.05</b>	<b>1.33</b>
Grants Excluding Transfers, Income	<i>t-stat.</i>	3.35	1.76
Including Transfers	Instrument F-stat.	38.43	8.11
	Coeff.	<b>0.61</b>	<b>0.29</b>
Grants Including Transfers, Income	<i>t-stat.</i>	2.07	0.48
Excluding Transfers	Instrument F-stat.	47.18	12.25

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*Notes.* All analyses are from individual regressions except for the nonAAA and AAA results, which are estimated in the same regression. All equations include state and year fixed effects and weather measures. The instrument F-statistic is the Kleibergen-Paap rank Wald (KP) F statistic. When loans are included, missing data leads to the loss of 1940 observations from the panel. In the top two-thirds of the table, including transfers means that both income and government funds include transfers, excluding transfers means both exclude transfers.

Table IV.4 IV Estimates Of Elasticity Of Variable With Respect To Nontransfer Government Grants

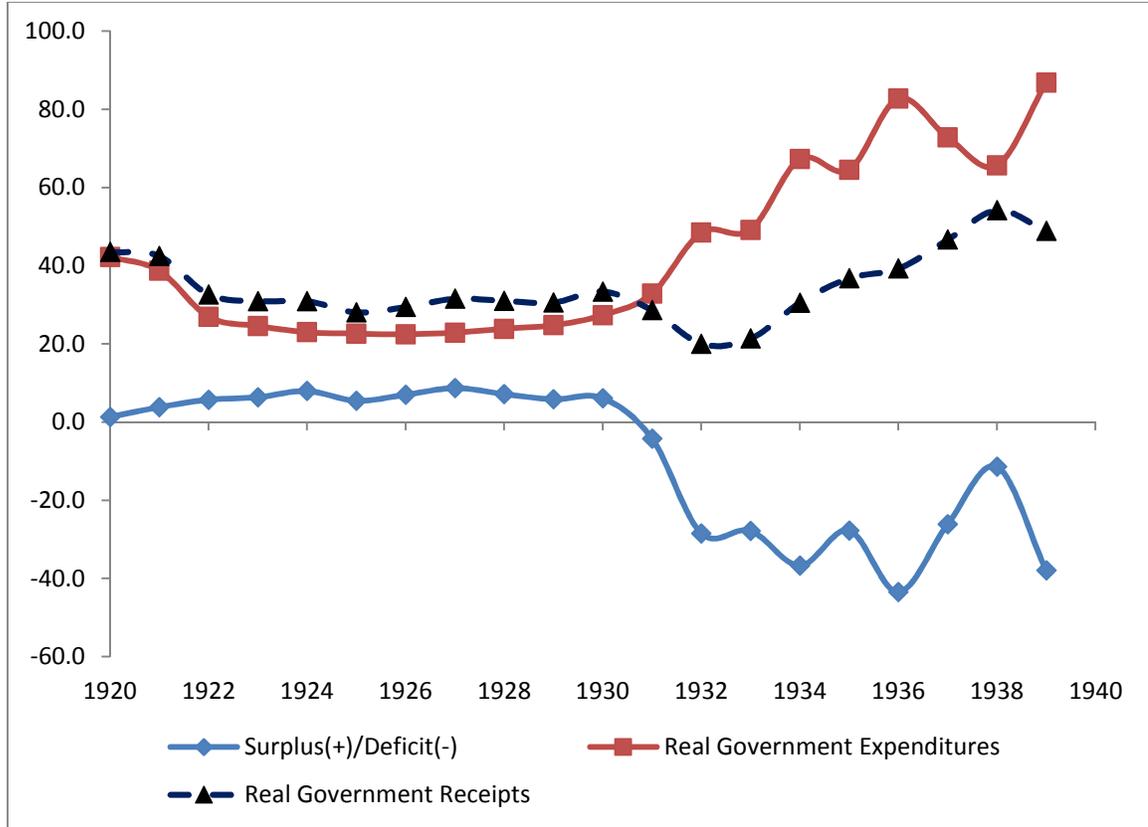
		Level		Difference		
			Including Transfers	Excluding Transfers	Including Transfers	Including Transfers
Per Capita State Income	Grants per Capita	Elasticity	<b>0.067</b>	<b>0.055</b>	<b>0.065</b>	<b>0.039</b>
		<i>t-stat.</i>	3.10	2.43	1.58	0.39
Nonfarm Employment per Capita	Grants per Capita	Elasticity	<b>-0.026</b>	<b>-0.033</b>	<b>0.016</b>	<b>-0.041</b>
		<i>t-stat.</i>	-1.62	-2.06	0.72	-0.76
Auto Registrations Per Capita	Grants per Capita	Elasticity	<b>0.056</b>	<b>0.053</b>	<b>0.053</b>	<b>0.065</b>
		<i>t-stat.</i>	2.46	2.62	1.75	1.66
Instrument F-statistic			47.18	63.88	12.25	10.92
EQUATIONS with Non AAA Grants and AAA grants						
Per Capita State Income	NonAAA Grants per Capita	Elasticity	<b>0.064</b>	<b>0.054</b>	<b>0.064</b>	<b>0.012</b>
		<i>t-stat.</i>	3.86	3.77	1.98	0.15
	AAA Grants per Capita	Elasticity	<b>0.001</b>	<b>0.001</b>	<b>-0.02</b>	<b>-0.03</b>
		<i>t-stat.</i>	0.23	0.18	-2.49	-2.16
Nonfarm Employment per Capita	NonAAA Grants per Capita	Elasticity	<b>-0.034</b>	<b>-0.041</b>	<b>0.016</b>	<b>-0.046</b>
		<i>t-stat.</i>	-1.66	-1.88	0.69	-0.87
	AAA Grants per Capita	Elasticity	<b>0.011</b>	<b>0.010</b>	<b>0.039</b>	<b>0.004</b>
		<i>t-stat.</i>	2.37	1.95	0.71	0.51
Auto Registrations Per Capita	NonAAA Grants per Capita	Elasticity	<b>0.057</b>	<b>0.053</b>	<b>0.045</b>	<b>0.046</b>
		<i>t-stat.</i>	2.72	3.11	1.47	1.07
		Elasticity	<b>-0.002</b>	<b>-0.001</b>	<b>-0.001</b>	<b>0.001</b>

	AAA Grants per Capita	<i>t-stat.</i>	-0.50	-0.25	-0.10	0.20
	NonAAA Equation		12.62	10.70	6.26	5.75
Instrument F- statistic in First- Stage	AAA Equation		84.04	86.79	19.81	17.49
	Overall		12.23	10.60	5.57	6.04

*Notes.* See notes and Sources in Tables 2 and 3.

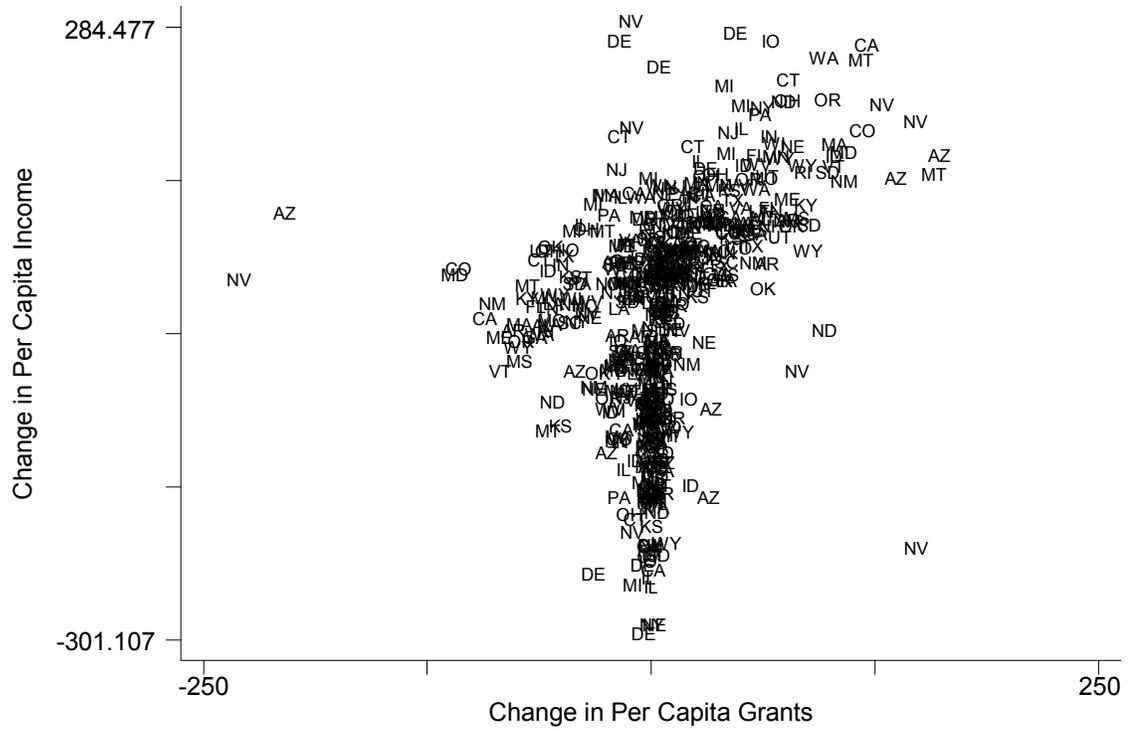
## Appendix D: Figures

Figure 1 Federal Government Spending, Receipts, and Deficit/Surplus in Billions of 1996 Dollars, Fiscal Years 1920 to 1939



Sources: The nominal government values are from series EA584, EA585, and EA586 and they were deflated by the GDP deflator with 1996=100 from series C-18 from Carter, et.al. 2006, pp. 3-25, 5-80 and 5-81).

Figure 2 Annual Changes in per capita New Deal Grants Plotted against Changes in per capita Personal Income for the Years 1930 through 1940 by State in 1967 dollars



#### IV. CONCLUSION

The New Deal provided us with several valuable lessons. We know that pieces of legislation deemed “emergency” can be made into law with minimal opposition, making it possible to introduce swift policy changes. Concentrating the power to distribute money in the hands of the Executive branch ensures efficiency if not accountability that Congressional control of the distribution process provides. In some cases, where there is a true emergency, that could be a good temporary measure. On the other hand, concentrating the spending power in the hands of administrative committees that are accountable only to the President can motivate the Executive branch to allocate the funds where they are most politically useful for the current administration as it started to happen in 1933 with President Roosevelt. Even though the Congressional oversight once again became mandatory for federal funds to be spent, gaining political capital during the distribution process continued in the form of earmarks.

It is also important to consider the effect of large increases in government spending over such short time period as it happened during the Great Depression. It is evident from my work that government spending had a positive effect on the economy of the states: the personal incomes increased proportionally to the spending as well as the consumption of durable goods, which is a good indicator for overall wellbeing of a family. With government spending income multiplier being close to one, we can argue that in the time of economic need, large expansionary government programs would be similarly successful.

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