

# Effects of New Deal Spending and the Downturns of the 1930s on Private Labor Markets in 1939/1940

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## Abstract

Gross Domestic Product recovered much more quickly than labor markets did during the 1930s. We provide new analysis of this issue by estimating a cross-sectional model for individuals in 1939-1940 as a function of the measures of the Great Contraction of 1929-1933, the recovery, and the Second Dip Recession and average information for three types of New Deal spending. The results show that the Great Contraction of 1929-1933 and the Second-Dip Recession still had powerful negative effects on county labor markets in 1939/1940 and these were only partially offset by public works grants. Relief grants had somewhat negative effects although this might have arisen because of a large layoff of workers by the WPA in 1939. The AAA payments to farmers to take land out of production were associated with lower earnings and private employment, but had mixed effects on skill mobility.

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## **Effects of New Deal Spending and the Downturns of the 1930s on Private Labor Markets in 1939/1940**

A major puzzle about the Great Depression of the 1930s is the much faster recovery in Real Gross Domestic Product (GDP) relative to the labor market. By 1940 real GDP had recovered to a level 19 percent higher than in 1929, yet 9 percent of the labor force was still fully unemployed and another 4.8 percent was still on work relief. Some recent studies provide clues about how the New Deal may have influenced this issue. The state multiplier estimates in Fishback and Kachanovskaya (2015) show that public works and relief grants, combined, led to a dollar-for-dollar rise in income but had no positive effect on private employment. Short-run studies of employment and work relief also found, at best, weak positive effects of work relief on private employment, but most found a crowding out effect.<sup>1</sup> The combination of these results suggest that public works and relief spending had no positive spillover effects on the private economy.<sup>2</sup> The analysis to date is incomplete, however, because these studies measured short run relationships and had incomplete coverage of labor market outcomes.

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<sup>1</sup> Cross sectional analysis conducted by Wallis and Benjamin (1981) using data from 52 cities and Fleck (1999) using county level data nationwide found no effects of relief spending on private employment or private monthly wages. Benjamin and Matthews (1992) use a state level panel data and find employment crowd-out effects during both the First and Second New Deal. Neumann, Fishback, and Kantor (2010) investigate the short-run dynamics between relief spending and private employment using a panel of 44 major cities. They find a demand stimulus effect during the First New Deal and an employment crowd-out effect during the Second New Deal. Fishback and Kachanovskaya (2015) examine the multiplier effects of New Deal programs using a panel of 48 states and shows that these programs had no positive effects on private employment.

<sup>2</sup> Macroeconomists from Keynes to the present have modelled how wage rigidity influenced the impact of monetary and fiscal policy. For recent examples, see Cole and Ohanian (2004), Eggertsson (2012), Temin and Wigmore (1990), Chari, Kehoe, and McGrattan (2002), and Bordo, Erceg, and Evans (2000). Some other studies have discussed the relationship between the President's Reemployment Agreements and National Recovery Administration Codes and wages and hours. These regulations were typically national in scope by industry and were short-lived. For examples, see Taylor and Neumann (2016) and Neumann, Taylor, and Fishback (2013). Taylor (2011 and forthcoming) used industry-specific information on the NRA and also the President's Reemployment Agreements for up to 75 industries in a monthly panel. Bernanke (2000, chapter 6) mentions the NRA in a study of 8 industries in a monthly panel but the NRA measure is not industry-specific, while Weinstein (1980) compared the NRA period with the early 1920s for manufacturing as a whole.

In this study, we address this puzzle by matching individual data on labor market outcomes from male household heads in 1939/40 with county and SEA information on New Deal grant programs and measures of the Great Contraction between 1929 and 1933, the ensuing recovery, and the Second-Dip Recession.<sup>3</sup> The prior decade started with a tremendous contraction in the economy followed by a major surge in federal government spending on poverty relief, the building of public works, and payments to farmers to take land out of production. The recovery after 1933 was then temporarily reversed by a second short recession in 1937-38. We examine the impacts of the New Deal programs and the earlier contractions and recoveries in a comprehensive study of local labor markets in 1939/40.

Our analysis adds to the literature in multiple ways. It is the first to estimate separate effects for relief and public works programs, which employed workers in substantially different ways. It is much broader than prior studies of 1930s labor markets because we investigate the impact of the contractions and the New Deal programs for three dimensions of labor markets that are strongly intertwined. We use a multinomial logit analysis to examine the sorting of male household heads across all categories related to labor force activity: private employment, work relief, unemployment, out of the labor force, self-employment, and regular government employment. For those who were privately employed, we analyze annual earnings, weekly earnings, and weeks worked in 1939 as well as average weekly hours worked in March 1940.

One significant worry expressed by government officials during the 1930s was the erosion of skill levels due to unemployment. Hence, one of the goals of the New Deal programs

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<sup>3</sup>Other studies that use individual data to examine aspects of the labor market in 1940 do not address these issues. Robert Margo (1991, 1992) described the participants in emergency work relief in 1940. Leah Boustan, Fishback, and Shawn Kantor (2010) examined the impact of migration on labor markets in 1940, but did not focus on the impact of the Depression and the New Deal programs. Jeremy Moulton (2016) looked at incomes in 1940 for youths who entered the labor market before and after the start of the Depression, but only focused on youths and did not examine the impact of the New Deal programs. Joshua Hausmann's (2015) studies the impact of the Veteran's Bonus on consumption in 1935.

was to provide work opportunities that at least maintained general skills and in some cases offered the opportunity to learn new skills (Bakke 1969, 412-425; Howard 1943, 228-43; Williams 1968, 99). Those skills, in turn, influenced the distribution of workers across labor force categories, as well as the wages they could earn within the same occupation or as they switched occupations. Although relief officials collected various surveys, there has been no modern quantitative analysis of their impact. We therefore examine changes between 1930 and 1940 in skill levels using a longitudinal sample that matches information for men from the 5-percent 1930 Census sample with their information from the 1940 census universal sample.<sup>4</sup>

One issue that arises is the potential endogeneity of New Deal programs and the contractions in the form of correlations between unmeasured factors in each county in 1939 and 1940 and these variables. Much of this problem is addressed by including a broad range of correlates in the analysis. The major form of endogeneity of New Deal variables relates to the delivery of more New Deal funds to areas where the Great Contraction and the recession of 1937-38 were worse. Our baseline analysis addresses these issues directly because measures of the size of the Great Contraction and unemployment in 1937 are controlled in the analysis. The impact of the New Deal we measure is therefore the effect of New Deal spending on the situation in 1940, holding constant the size of the Great Contraction and unemployment rates in 1937 in each county.

Part of the impact of the New Deal on labor markets in 1939 and March 1940 occurs through its impact on net-migration into the county and on general economic activity in 1938 and 1939. In the baseline analysis we seek to measure the full impact of the New Deal and earlier

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<sup>4</sup> We owe special thanks to Christopher Boone who generously shared the matched relationships, that he used in Boone and Wilse-Samson (2018). We describe the features of the matching in Appendix 1.

contractions through all pathways. To avoid potential omitted variable bias related to net migration, we re-estimate the model while including net-migration during the 1930s as a correlate. In addition, we estimate specifications to raise the level of aggregation to the State Economic Area (SEA) to reduce the impact of short-distance migrations. After controlling for net migration, the impacts of the earlier contractions and the New Deal are muted somewhat but still remain. In addition, we estimate a series of models in which we include the growth in retail sales per capita through 1939 to examine the New Deal effects that influence the labor market through pathways independent of simultaneous general economic activity. The qualitative results reported in Appendix Tables 2-1 through 2-5 are similar after adding this control.

The results show that the Great Contraction from 1929 to 1933 and the second-dip recession continued to have powerful negative effects on private labor market opportunities in 1939 and 1940. These effects were only partially offset by public works spending, were not offset by relief spending, and were made worse by the AAA grants.

### **1. The Great Contraction, the Second-Dip Recession, and New Deal Grants**

The Great Depression is considered the longest and the most widespread Depression in the 20<sup>th</sup> century. By 1932, the unemployment rate had risen to more than 20 percent and stayed there through 1935, real GDP was 30 percent below 1929 levels in 1932 and 1933, and U.S. manufacturing output had fallen to 54 percent of its 1929 level by 1933. At the county level the employment-weighted mean drop in real retail sales per capita between 1929 and 1933 in our sample was -35 percent with a range from -6 to -64 percent, and a standard deviation of 11 (Appendix Table 2-1). The vast majority of counties experienced relatively rapid growth between 1933 and 1937 and then were struck by a second sharp but short recession in 1937-1938. In the

second-dip recession there was substantial variation across counties with a range of 12 and standard deviation of 2.16 in the unemployment rate in the sample (Appendix Table 2-1). Fishback, Horrace, and Kantor (2005, 2006) also document the large variation in the per capita New Deal grants described next. It is this type of cross-sectional variation that is the basis for the identification of the relationships in the analysis.

President Roosevelt and Congress responded to the stresses with a series of New Deal programs. The lion's share of federal spending went into three major types of non-repayable grants: relief, public works, and farm grants (Fishback 2017). The relief grants came through a series of programs. Between 1933 and 1935 the Federal Emergency Relief Administration (FERA) provided both direct relief and work relief grants. From November 1933 to March 1934, the Civil Works Administration (CWA) provided jobs for up to four million people, both skilled and unskilled, with half of the workers taken from the FERA rolls. Most went back to FERA when the CWA closed. In 1935 the Works Program Administration (WPA) essentially replaced the FERA. One goal of the WPA was to make sure that these projects would not compete with private industry activities. To that end, the WPA encouraged workers to take private sector jobs and assured workers that they could come back on work relief if they lose their private jobs. Even so, large numbers of workers still continued to stay on the relief rolls to avoid the high risk of job loss in private sectors (Margo 1993, Neumann, Fishback, and Kantor 2010; Howard 1943). In this study, our measure of relief spending, which is aggregated to the county level from July 1933 through June 1939, contains the FERA grants, CWA grants, WPA grants, and the Social Security Administration's Aid to the Blind, Aid to Dependent Children, and Old Age Assistance grants.<sup>5</sup>

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<sup>5</sup> The Social Security Act was created by the Roosevelt administration during the Second New Deal and became the permanent component that is still in use today. The Social Security Administration aid grants for blind, dependent children, and old age were financed through close end matching grants.

The public works grants of the New Deal aimed to provide federal support to the building of federal, state, and local public works projects, including highway construction and flood control. They included expenditures by the Public Works Administration (PWA), Public Buildings Administration (PBA), and the Public Roads Administration (PRA). Projects funded by the public works grants mostly focused on larger and longer-term projects.

The job opportunities in public works programs were generally like regular jobs, while the relief programs were more anti-poverty programs with a work requirement. The relief programs were required to hire from the rolls of unemployed and the terms of employment were not as good. Average hourly earnings on FERA projects were about half to two thirds of the earnings paid by the Public Works Administration (PWA) and Public Roads Administration (PRA) jobs and the relief work typically limited the number of hours worked each month.<sup>6</sup>

During the Great Depression, farmers faced the most severe economic conditions and lowest agricultural prices since the 1890s (Hurt, 2002). The Agricultural Adjustment Act (AAA) of May 1933 sought to raise farm prices by paying farmers to take land out of production. The original program was largely financed through a tax on the processors and was declared unconstitutional in 1936. A new version of the AAA was passed without the tax through a new Soil and Domestic Allotment Act of 1936. Based on narratives and earlier work by Depew, Fishback, and Rhode (2013), we expect that the reduction of land usage in producing farm commodities resulted in a reduction in the demand for tenants and sharecroppers, forcing them to participate in less skilled farm jobs and other non-farm jobs and migrate to urban regions. In this

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<sup>6</sup> The CWA employed workers to work on a wide range of public construction and maintenance projects while paying the wage rates prevailing on PWA and PRA projects. Weekly earnings on CWA projects were lower, however, because the CWA imposed limits on hours worked per week.

study, our measure of AAA farm grants comprises the AAA Rental and Benefit payments from 1933 to 1935 and the soil conservation payments in 1936 and 1937.<sup>7</sup>

## **2. Predictions of the Effects of the Contractions and New Deal Grants**

In the analysis we explore the lagged impact of the Great Contraction of 1929-1933 and the Second-Dip Recession of 1937/1938 on labor markets in 1939 and 1940. These contractions would have led to a concurrent drop in the demand for labor that reduced time worked and earnings followed by reverberating effects of uncertain length. Blanchard and Katz (1992) in their panel study of states in the post-war period up to 1990 incorporated lags in their analysis and found that the negative effects of contractions on wages and employment lasted for up to a decade and some times more. The contractions in the 1930s were much harsher than those studied by Blanchard and Katz and the effects potentially lasted longer.<sup>8</sup>

In the analysis of the New Deal grants we examine the combination of concurrent and lagged effects because the New Deal data for public works and relief grants are reported as aggregates for a six year period from July 1933 to June 1939 and thus overlap the information on annual earnings and weeks worked in 1939 for a six month period. This means that we are measuring the combined impact of concurrent and past grants. In this discussion we will emphasize the concurrent effects. We believe the lagged effects likely have the same sign although there could be offsetting responses. Our estimates are reduced-form coefficients that summarize

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<sup>7</sup> The county level AAA spending was obtained from mimeographed unpublished documents found in various archives. We have not been able to find county level AAA spending after 1937. We believe that the 1937 figures give a reasonable picture of the 1938 and 1939 figures because the cross-state correlations between the values in 1937 and 1938 and 1937 and 1939 are 0.96 and 0.86, respectively.

<sup>8</sup> Neumann, Fishback, and Kantor (2010) used monthly data for cities to examine short run responses of employment and earnings to employment and relief shocks. But the data set starts in January 1933 and thus misses the drop from 1929 to through 1932.

the net effects of the multiple channels. The New Deal grants likely affected labor markets through multiple channels that influenced both labor demand and labor supply.

Work relief and public works spending might have stimulated the derived demand for labor by increasing the incomes of consumers. The demand increase is expected to have led to an increase in hourly earnings and total hours. There might have been differences in this demand stimulus for public works and relief spending. Relief spending potentially had more powerful positive effects because it went to people in poverty who were likely to spend a higher share of their earnings. Given the drops in income for most workers, the difference in the marginal propensity to consume between low and high income workers might have been small. If true, public works spending might have had more powerful derived demand effects through the composition of spending because their earnings were high enough to purchase more consumer durables and high end goods that the relief workers would not have been able to purchase.

The demand stimulus effect might have been offset by crowding out of private sector and local government labor demand to the extent that the New Deal projects replaced their activities. As an example, the WPA funds were used to build infrastructure such as roads, bridges, golf courses, and schools, which had been built before by local governments and/or private construction contractors. Similarly, the distribution of federal highway funds no longer required state matching funds after 1934 and the rest of the programs either did not have explicit state matches or were lax in enforcing them (Kachanovskaya 2016). Thus, the federal funds potentially were replacing state funds and construction activity that might have happened otherwise with consequent negative effects on time worked and earnings.

Increases in worker productivity associated with the New Deal public works and relief spending would have raised labor demand and thus hourly earnings and time worked. National

estimates of both labor productivity and total productivity rose relatively rapidly between 1929 and 1939, and part of the rise in productivity has been attributed to the public works built by the public works and relief projects. These projects had spillover benefits to the private sector because new roads and bridges enhanced local distribution networks; expanded sanitation works led to healthier workers, and better school buildings enhanced the quality of schooling (Field 2011). In addition, employment on public works provided on-the-job training for skilled positions and allowed a significant percentage of workers to maintain employment skills.

The impact of relief spending on worker productivity and thus labor demand were more mixed because a large share of relief workers were employed in unskilled laborer positions for limited numbers of hours. The positive effects on worker productivity and labor demand would have come from young people who had not had jobs before learning the basic general skills associated with work. A relatively small share of relief workers would have gained skills from positions as skilled or white collar workers. On the downside, there was potential for skill depreciation to the extent that workers who originally were skilled, semi-skilled, bosses, or farm operators (owners or tenants or croppers) were placed in unskilled positions on relief projects. Table 1 shows the distribution of workers' usual occupations<sup>9</sup> in 1935 and relief occupations in 1939.<sup>10</sup> It is clear that almost 60 percent of jobs provided by work relief spending were unskilled laborer positions and relatively few white-collar and skilled relief positions were created. In a study conducted in 13 cities Shepherd and Bancroft (1937) found that a certain amount of occupational "degrading" occurred. Professional workers and office workers were given work of their usual kind in about half of their assignments. Most skilled and semiskilled workers were

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<sup>9</sup> In this context, usual occupation is the worker's occupation before receiving a relief job. The distribution of workers' usual occupation is obtained from Workers on Relief in the United States in March 1935 (Hauser, 1938).

<sup>10</sup> This is obtained by tabulation of the occupational distribution using 1940 Census 100 percent sample.

assigned to laboring jobs. Some employment was better than no employment for these groups, so their skills would not have depreciated as much as those who remained unemployed for long periods. Thus, we expect that relief spending per capita in the counties would have been associated with less skill depreciation than were the contraction measures. In the last section of the paper we run a direct analysis of this issue by looking at how the New Deal programs and the contractions influenced the transitions between skill levels of individuals between 1930 and 1940.

On the supply side of the market, relief and public works spending may have led to higher wages and less time worked to the extent that they provided workers with a relevant alternative that led them to say no to private employment opportunities. Margo (1991, 1993) and Howard (1943) found that workers stayed on relief jobs for extended periods. They valued the certainty of a relief job, despite lower pay, over private sector jobs that paid higher wages but with more uncertainty that the job might not last. To overcome this, private employers had to pay higher wage rates in order to attract people to participate in regular jobs (Neuman, Fishback, and Kantor, 2010). Studies of short run labor market responses consistent with this type of labor supply effect include Wallis and Benjamin (1989), Benjamin and Matthews (1992), Fleck (1999), and Neumann, Fishback, and Kantor (2010).<sup>11</sup>

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<sup>11</sup> Modeling the effects of New Deal programs on labor markets is made more difficult because of the very high unemployment rates during the 1930s, which suggest a disequilibrium model. A number of scholars have modeled the 1930s economy with implicit wage minimums that contributed to unemployment. Fishback ((2018b) shows the impact of these minimums in a simple labor supply and demand model. If the wage minimums remain fixed over time, labor demand increases can lead to increases in total hours worked but will not increase wages unless demand rises enough to make the wage minimum nonbinding. Labor supply increases would have no effect, and labor supply decreases would have no effect unless the reduction is large enough to push wages above the minimum. Then there is the question as to how the New Deal programs might change the implicit wage minimums. If the New Deal increased labor demand and the wage minimum simultaneously, the effect on total hours becomes uncertain. If the program reduced labor supply and raised the wage minimum together, then wages would rise, and the total hours would fall.

Finally, there was a powerful short run change in WPA policy in the middle of 1939 that led to the release of large number of WPA workers who had been on relief for 18 or more months and prohibited their reinstatement for 60 days. The policy was a response to the Byrnes Committee investigation that found that of 2.7 million WPA workers found eligible for continuing WPA employment in early 1939, 51.6 percent had been continuously employed for one year or more; 25.8 percent had been employed continuously for two years or more; and 16.7 percent had been continuously employed three years or more (Howard, 1943). When this new policy took effect, 171,000 workers were dismissed in July 1939. The dismissed number rose to 611,733 in August and was down to 86,000 in September 1939. Since the dismissals were nationwide, it is likely that the numbers dismissed in each area were highly correlated with relief spending per capita between June 1933 and June 1939. The discharge of so many relief workers would have increased the labor supply substantially and led to lower hourly earnings and total hours worked, although the mix between hours per week, weeks worked, and employment might have been more complex.

These discharges may also have had a direct negative effect on the measured earnings and weeks worked in 1939 for workers who reported that they were employed in the private sector in 1940. In the analysis of earnings and working time that follows, we restrict the sample to private workers who reported no continuous span of unemployment (which would also mean emergency work relief) as of that date. There are an unknown number in that group who might have been unemployed, been on work relief, or been fired from work relief at some point in 1939 who had been continuously employed in the private sector as of the 1940 census date. For this group the annual earnings and weeks worked in 1939 would have been lower and also related to the number

of relief workers in 1939. As a result, the coefficient of work relief in the 1939 earnings and weeks worked in regressions may be biased in a negative direction by measurement error.<sup>12</sup>

### 3. Data

To perform the analysis we combined information from several sources. Individual information on hours, earnings, and the other factors comes from the 1940 Census 1 percent sample from the Integrated Public Use Microdata Samples (IPUMS), Ruggles, et. al. 2016). We combined the individual data with county-level information compiled by Fishback, Horrace, and Kantor (2005, 2006) from the Office of Government Reports (1939), age information from Gardner and Cohen (1992, ICPSR study 0020), and various census and city and county databooks compiled in Michael Haines' ICPSR 2896 compilation. For the study of changes in occupational status, we used Chris Boone's and Laurence Wilse Samson's (2018) matches of individuals from the 5 percent IPUMS Census sample of 1930 with the 1940 Complete Census data located at the National Bureau of Economic Research. All dollar values are real values after adjusting for inflation using the Consumer Price Index with 1967 as the base year (U.S. Bureau of Census, 1975, series E-135, pp. 210-11).

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<sup>12</sup> Total hours worked in the year are calculated as the product of the number employed times average weeks worked times time average hours per week. A rise in total hours worked did not always mean that each component of total hours rose. Even in the best of times, contracts, inertia in the internal market, and the relative productivity of incumbent and new workers would have influenced the impact on the three components. Given the high unemployment of the 1930s, employers seeking to raise total hours worked likely raised hours per week and weeks per year before increasing employment because employed workers typically had higher productivity than new workers, and they were often working "short time," less than a full work year or less than the normal workweek. A number of employers had followed such policies to ensure that they could keep an adequate force of productive workers in case of recovery. Such policies were reinforced by Hoover's jawboning and Roosevelt's President's Reemployment Agreements and the codes established under the National Recovery Administration. The policies had all the hallmarks of labor sharing policies designed to maintain employment by reducing weekly hours, while also keeping hourly earnings from falling because weekly wages were already being cut sharply by the drop in weekly hours (Neumann, Taylor, and Fishback 2013).

We focus on male household heads whose age ranged from 16 to 64. In early April 1940, the men reported the information on occupation, employment status, and hours worked during the week of March 24-30; they reported information on annual earnings and weeks worked for the year 1939. Because the hours data are reported for a later period, we do not report regression estimates with hourly earnings as the dependent variable to avoid potential measurement error from the mistiming of earnings and hours information. When estimating the earnings and hours worked regressions for workers, the sample is limited to men who earned more than \$100 over the year, \$2 per week, and 10 cents per hour to avoid problems with misreporting.<sup>13</sup> The qualitative results when the sample sets an annual minimum of \$1, weekly earnings of 2 cents and hourly earnings close to zero are similar.

#### **4. The Estimation Procedures**

There are three basic types of analyses that we perform. When estimating earnings and working time, we estimate Ordinary Least Squares (OLS) with various specifications. When examining the probability of employment in various sectors, unemployment, or on emergency work relief, we estimate a multinomial analysis. A multinomial procedure is also used to estimate the transitions between 1930 and 1940 for workers at different skill levels. The empirical model is designed to take advantage of the best individual information on wages and employment that we have available in combination with the most disaggregated information that is available on

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<sup>13</sup> About 5 to 6 percent of people reported that they were working and earned less than \$100 in annual earnings. The number reported working with less than \$2 in weekly earnings was about 2 percent and the number with less than 10 cents per hour was around 4 percent. To get the hourly earnings we divided annual earnings by weeks worked in 1939 and then by the hours worked in the last week of March in 1940. We considered setting the minimums based on the minimum wage of 25 cents per hour from the Fair Labor Standards Act of 1938, but agricultural workers were not covered by the minimum wage law and Seltzer (1997) documents that manufacturing firms in the South found ways around the minimum. Further, we wanted to include information on people working only partial years and partial weeks.

New Deal spending and contractions. Information during the New Deal at the individual level for earnings, working time, labor force status and occupation that can also be combined with county or SEA level data is only available from the 1940 census. County level data at the annual level on New Deal grants are not available, so we are forced to use data aggregated across multiple years. Similarly, county unemployment rates are only available for 1930 and 1937 and information on general economic activity is only available on retail sales per capita for the years 1929, 1933, 1935, and 1939. One reason we seek to use information at the county or the SEA level is that it allows us to use state fixed effects to control for a broad array of state policies with respect to labor laws, matching fund for New Deal grants, and state policies toward expenditures and taxation (Fishback, 2018a; Fishback, Holmes, and Allen 2009; Howard 1943, 601-698).<sup>14</sup>

#### *4.1. The Empirical Model*

The use of individual data requires that we estimate a cross-sectional model on individual data that allows us to control for individual characteristics. We then use the county measures of the contractions and averages for the New Deal variables to make the best use of the available county data.<sup>15</sup> Thus, we estimate an equation with the following correlates.

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<sup>14</sup> In online Appendix 3 we show how omitted variable bias influences the results, when these state controls, as well as other controls, are not included. When state fixed effects are removed, the relief coefficient becomes positive in both the annual earnings and weekly earnings regressions, and the 1930 unemployment coefficient turns positive when the county demographics are removed. In both cases the econometric diagnostics suggest that omitted variables bias and not multicollinearity is the reason for the change because the coefficients change markedly while the standard errors do not when the variable groups are excluded.

<sup>15</sup> Most studies of lagged economic activity do not include interaction terms between government spending and the lagged measures of economic activity. Given the averaged nature of the New Deal variables, we investigated potential interactions with the contraction measures by splitting the samples at the median for each of the contraction measures and each of the New Deal measures and measuring the difference in the coefficients between the high and low samples. In only 32 of 196 comparisons of coefficients from log annual earnings, log weekly earnings, log weeks worked, and log hours worked were the differences statistically significant. Only of 12 of those 32 involved a sign change but in none of those cases was the sign different from the coefficient for the full sample and also statistically significant. We could see no consistent patterns in coefficient comparisons that were statistically significant. When we ignored statistical significance of the differences in coefficients between the high and low samples, the only consistent pattern we found was that public works spending had more positive effects on log annual earnings in areas with greater contractions and the AAA had more negative effects on log annual earnings in areas with smaller contractions. See online Appendix 5 for the tables and comparisons.

$$\ln(E_{ic39}) = f((-\Delta RS_{c29-33}), U_{c30}, (-\Delta RS_{c33-35}), U_{c37}, Rel_{c33-39}, Pub_{c33-39}, AAA_{c33-39}, X_{ic40}, RE_{c29}, EC_{c30}, S, \varepsilon_{ic40}) \quad 1)$$

$E_{ic39}$  represents annual earnings received by individual  $i$  in county  $c$  during the calendar year 1939.

We also estimate equations for weekly earnings and weeks worked in 1939 and weekly hours in March 1940 to see how workers and employers adjusted various parts of the employment package.

When measuring the contractions, we do not have annual county data but we can use year groupings that capture the key periods of downturn and recovery. The measures of the Great Contraction of 1929 to 1933 are the unemployed as a share of the population in 1930 ( $U_{c30}$ ), and the magnitude of the drop in county retail sales per capita between 1929 and 1933, which is measured as minus the percentage change ( $-\Delta RS_{c29-33}$ ). This construction causes a deeper contraction to lead to a rise in the retail sales drop measure, just as deeper contractions lead to higher unemployment, which makes it easier to see if the coefficients of all of the contraction measures have the same sign. We use the negative of the growth rate in retail sales per capita during the expansion phase from 1933 to 1935, and in some robustness specifications for we used the negative of the growth rate from 1935 to 1939, so that slower growth leads to a positive coefficient.<sup>16</sup> The measure of the Second-Dip Recession is the number unemployed in 1937 as a share of population in the county in 1930 ( $U_{c37}$ ). All dollar figures in the analysis are adjusted for inflation using the Consumer Price Index with 1967 as a base year (U.S. Bureau of the Census 1975, series E-135, 210-11).

$Rel_{c33-39}$ ,  $Pub_{c33-39}$ , and  $AAA_{c33-39}$  are per capita annual average measures of New Deal county level relief spending, public works spending, and AAA funds.  $X_{ic40}$  is a vector representing

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<sup>16</sup> We are using retail sales per capita growth for the 1930s because it is the only measure available for all counties. It is only available for 1929, 1933, 1935, and 1939, so we cannot measure the full expansion phase.

individual characteristics that are likely to affect earnings and working time, including age, race, schooling, farm status, home ownership, occupation, and industry categories. In the multinomial analysis of sorting across unemployment, work relief, private employment, out of the labor force, government employment, and self employment, we add information on marital status, number of children under 5, and variables that describe the economic contributions of other family members in the household  $X_{ic40}$  vector.<sup>17</sup>

In estimating the equations for earnings and working time, we restrict the sample to workers in private employment to measure how the various government expenditures spilled over into the private sector. The mechanisms for how government programs influenced earnings and employment differed across private employment, work relief, regular government work, and public works spending; therefore, the restriction to private employment keeps the coefficients from conflating mechanisms in the private and public sectors. In our baseline estimates for earnings, weeks worked, and hours per week, we estimate the model while controlling for individual occupation and industry categories to determine the effects of the contractions and New Deal programs within occupations and industries.<sup>18</sup>

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<sup>17</sup> These variables include total wage from other family members, number of other family members who received more than \$50 non-wage income, number of other family members who were non-paid family workers, number of other family members who were regular workers (not in public emergency projects), number of other family members who were on public emergency projects. In estimating Heckman (1979)-style wage equations that control for selection into employment, these household measures are commonly left out of the earnings regressions, so we followed that practice. A case can be made that these variables could be included in the wage and working time OLS regressions. The inclusion or exclusion of these variables had little impact on the coefficients of the New Deal and earlier contraction variables in the earnings, weeks, worked, and weekly hour regressions. We have also estimated Heckman-style two-stage models with selection into private employment in the first stage and a wage equation like in Appendix Table 2-1 with inverse mills ratios. The coefficients from that model are similar to the coefficients in Appendix Table 2-1.

<sup>18</sup>We have also estimated the earnings and time worked equations without the occupation and industry dummies to measure adjustments that across occupation and industry. Two sets of results do not differ much between the two specifications. Most of the impact of the contractions and the New Deal programs took place within industry and occupation.

The 1930 Census did not ask individuals about their earnings, so we included average annual earnings for retail workers in 1929 ( $RE_{c29}$ ) to control for typical earnings in the labor market before the Depression started.<sup>19</sup> To the extent that this county measures effectively controls for prior earnings, the equation becomes a quasi-first difference model. We include a vector of county local economic conditions in 1929-1930,  $EC_{c30}$ , to control for demographic and structural features at the county level that likely influenced labor markets. These included population, land area, race and age profiles, and retail sales per capita in 1929. We chose the 1929-30 information rather than the 1940 information to avoid simultaneity bias. State labor laws, matches for New Deal programs, tax policies, contributions to welfare and public works, and costs of living influenced labor markets, New Deal spending, and contractions; therefore, we included state fixed effects in the vector *State* to guard against potential omitted variable bias. Finally,  $\varepsilon_{ic40}$  is a zero-mean disturbance term, containing unmeasured factors that influence earnings.

In the first multinomial logit analysis, household heads can end up in private employment, on work relief, unemployed, self-employed, out of the workforce or in regular government employment. We included the self-employed to capture the effects of the AAA on tenants, who were considered self-employed. Regular government employment was included separately because workers on public works projects like the PWA, PRA, and PBA were considered regular government employees. In the multinomial logit analysis of transitions in activity between 1930 and 1940, household heads can end up in one of five options in 1940, unskilled private employment, semi-skilled private employment, skilled private employment, on emergency work relief, or unemployed.

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<sup>19</sup> We use retail annual earnings rather than manufacturing annual earnings because retail earnings were available for all counties, the Census did not report manufacturing earnings separately for roughly 600 counties to preserve confidentiality. The correlation between the two is 0.69.

The coefficient estimates for the contractions and the New Deal programs can be given a causal interpretation if we have fully controlled for endogeneity, essentially correlation between these measures and the error term. The primary form of endogeneity that scholars have worried about with the New Deal programs relates to the interaction between the contractions in the local economies and the distribution of New Deal funds. The New Deal political economy literature shows cross-sectional evidence that more New Deal spending was delivered to areas where the initial contraction was worse (Fishback, Kantor and Wallis 2003, Wallis 1998, Fleck 2008). When estimating the New Deal coefficients, we are controlling for the size of the Great Contraction and the Second-Dip Recession, as well as all of the other economic factors identified in the political economy literature. When examining the effects of the contractions, we are measuring the combined effects of the direct influence of the slumps on the private labor market in 1939/40 and the indirect influence of the slumps through their impact on economic conditions in 1939/40, while holding constant the New Deal spending activity. The correlations between New Deal spending and the contraction measures might lead to some multi-collinearity in the estimates for both, but the correlations are not high enough for the multi-collinearity to be severe.

There are two likely challenges to our claim that the controls have adequately blocked correlation between the New Deal grants and the error term: migration flows and economic activity in 1938 and 1939. Both are channels through which the New Deal grants would have influenced local labor markets, but they also have been correlated with New Deal grants and the dependent variables. We have added additional specifications in which we add controls for each.

#### *4.2 Issues Related to Migration*

Since labor markets across the United States were integrated to some degree, changes in one area might have led to net migration flows that influenced labor markets. Fishback, Horrace, and Kantor (2006) calculated measures of net migration rates at the county level for the period 1930 to 1940 and showed that the New Deal programs had statistically significant impacts on net migration. In counties with a combination of public works and relief grants per capita that was one standard deviation (OSD) higher net migration was about half of a standard deviation higher. Counties with OSD more AAA per capita grants experienced about 0.13 standard deviations less net migration. In turn, Boustan, Fishback, and Kantor (2010) show that internal migration flows affected labor markets in 1939 and 1940. In-migration contributed to reductions in weeks worked in 1939, reduced the probability that males obtained emergency work relief positions, and contributed to out-migration. It had weak and statistically insignificant effects on hourly and weekly earnings and the probability of obtaining regular employment.

In our baseline results we control whether the individual changed counties between 1935 and 1940. We do not try to control for net migration at the county level because we seek a summary measure of the influence of the grants and contractions that can come through all channels, including net migration. To measure the impact of the grants and contractions holding fixed the extent of migration at the county level, we also present two more sets of results. One method is to add Fishback, Horrace, and Kantor's (2006) measure of net migration at the county level. In a second method we take into account the fact that most migration occurs over short distances by increasing the level of aggregation for the grants, contracts, and net migration measures to the Standard Economic Area (SEA), while also including net migration at the county level. Donald Bogue (1951, see also Bogue and Hagood 1953) assigned counties to around 460 areas in which

the counties had similar socioeconomic characteristics.<sup>20</sup> By using the SEAs the coefficients are less subject to the impact of the most common short migrations across counties within SEAs.<sup>21</sup>

#### *4.3 Controlling for Economic Activity in 1938 and 1939*

There remains the possibility that the New Deal grants in 1938 and 1939 were distributed in response to changes in local economic activity in those years. As with net migration, we did not control for this in the baseline analysis because one of the pathways for the impact of the New Deal would have come through changes in county-level economic activity. We also estimate the model including minus retail sales growth from 1935 to 1939 as a correlate to control for economic activity through 1939. In this specification, the effect of the New Deal grants is restricted to independent effects on labor markets outside the channel of economic activity.<sup>22</sup> It turns out that the inclusion of the new measure leads to similar results to those reported in the main body of the paper. For comparisons, see the series of tables in online Appendix 2.

### **5. Results of Estimation for Earnings, Working Time, and Labor Force Decisions**

The effects on earnings and working time of one standard deviation (OSD) changes in the contraction measures and the New Deal programs appear in Table 2. It shows calculations from

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<sup>20</sup> We considered aggregating to the state level but that would prevent the use of state fixed effects to control for a variety of features of the states, like state laws, that might lead to omitted variable bias on those dimensions.

<sup>21</sup> We investigated using information for the men who moved between 1935 and 1940 to see if there were differences in impact of the county variables for their location in 1935 and their location in 1940. The goal was to see if the effects of the New Deal and the contractions followed the worker or were primarily aggregate effects for the county where they were in 1940. Online Appendix 4 reports the results of the investigation, which were mixed. The AAA effects were primarily associated with the residence in 1935 but there was no clear pattern for the other New Deal and contraction measures.

<sup>22</sup> We explored using instrumental variables with a broad range of instruments used in the literature on the New Deal described in Fishback (2017). The strongest instruments were the presidential swing voting, Presidential Democratic loyalty, and Congressional Agricultural Committee variables described in Fishback, Kantor, and Wallis (2003). F-statistics show that these variables showed strength for each of the three grant types. However, they are not strong in the sense that they can separate the differences between the three grant types because swing voting had strong positive effects for each New Deal grant type.

three regression specifications for each column. For example, the OSD effects in the rows for “County without” in the Annual Earnings column come from a single regression using county data on the New Deal and Contraction measures without controlling for net migration. The results for annual earnings on the “County with” rows come from a single regression controlling for net migration. The results for the “SEA with” rows use SEA-level data on the contraction measures and New Deal grants while controlling for SEA level net migration. We ordered the table this way to make it easier to compare the coefficients from the three specifications. The coefficients and t-statistics from the “County with” regression can be found in Appendix Table 2-1, along with results for all correlates except the state fixed effects. The OSD effect for Relief of -0.37 in the “County with row” in Table 2 comes from multiplying the coefficient of -0.00347 in Appendix Table 2-1 by the standard deviation for relief of 1.0695 in the same table. Given the multiplicative nature of the natural logs of the dependent variables and the OLS estimations, in any row the OSD effect in the 1939 annual earnings column is equal to the sum of the OSD effects in the columns for 1939 weekly earnings and 1939 weeks worked.<sup>23</sup> If weekly hours in March 1940 are assumed to be the same as the average in 1939, the effect on hourly earnings of the variable can be calculated as the weekly earnings OSD effect in column 2 minus the weekly hours OSD effect in column 4.

Table 3 shows the OSD effects from three multinomial analyses for the six categories of employment status. As in Table 2, these are the estimates for county measures of contractions and New Deal grants with and without controlling for net migration and estimates for the SEA aggregates of those variables. The OSD effects are calculated using the marginal effects from the multinomial estimation, which involves calculating the marginal effect for each individual in the sample and then calculating the mean of the marginal for the entire sample. For the “county

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<sup>23</sup> In the cases where they do not sum to zero, it is because of rounding error.

without” specifications in Table 3, the OSD effect is calculated by multiplying the marginal effect from Appendix Table 2-2 times the standard deviation from Appendix Table 2-1. On any row, the nature of the multinomial estimation requires that the OSD effects sum to zero. The asterisks denoting statistical significance in both tables are based on the coefficients and standard errors that are robust and clustered at the county level in order to capture potential correlation across individuals within each county.<sup>24</sup>

In the discussions throughout we will focus on the “county without” results that show the full effect of the contractions and the New Deal. We will also mention changes associated with controlling for net migration, which is one of the channels through which the contractions and the New Deal would have influenced the outcomes. Throughout the discussion we will also focus on the larger effects, which are based on statistically significant coefficients most of the time. Most of the effects that are not statistically significant have small economic magnitude.

The annual earnings results for many of the individual characteristics, reported in Appendix Table 2-1, are consistent with findings in other studies. For example, average annual earnings of blacks, American Indians, and other races were roughly 30 percent, 27 percent, and 15 percent lower than for whites. Annual earnings rose with more schooling and age. Men who were located in the same place in 1935 and 1940 earned 1.6 percent less and urban dwellers earned about 5.3 percent more. Migrants between 1935 and 1940 tended to earn higher earnings and farm workers lower earnings. The earnings rankings in occupations matched typical patterns.

### *5.1 Contraction Effects*

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<sup>24</sup> We eliminate extreme values for weekly earning and hourly earning measures. We keep individuals whose weekly earnings were less than or equal to \$200 and individuals whose hourly earnings were less or equal to \$10.

The effects of the Great Contraction, the recovery in the mid-1930s, and the Second-Dip Recession were still reverberating in 1939 and 1940.<sup>25</sup> In the earnings and time worked estimations in Table 2, annual earnings were statistically significantly lower in areas where all four of the contraction measures were worse. In the multinomial analysis in Table 3 the negative coefficients in the private employment column and the positive and statistically significant coefficients in the emergency workers and unemployed column show that the earlier contractions were associated with reductions in employment and increases in the likelihood of being unemployed or on emergency work relief in 1940.

As would be expected because it was more recent, the 1937 recession had the most negative impact on the situation in 1939-40 of any of the contraction measures. The results in Table 2 show that private workers in a county with an OSD higher unemployment rate in 1937 had annual earnings that were 1.9 percent lower. Continue along that row and that 1.9 percent reduction was split between a reduction in weeks worked of 1.33 percent and a reduction of 0.58 percent in weekly earnings. Further, hours per week in 1940 in that county were -1.04 percent lower.

Unemployment rates in 1937 had powerful effects on employment status in Table 3 on the “County without” line. A man in a county with OSD higher unemployment in 1937 was 2.36 percentage points less likely to be employed in the private sector in 1940. The rest of that line shows the interrelated effects. In that same county he was 0.59 percentage points less likely to be self-employed. He was 0.97 and 0.91 percentage points more likely to be on work relief or to be fully unemployed, and he was 0.4 percentage points more likely to be out of the labor force. The one positive feature here was that he was 0.68 percentage points more likely to be in regular

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<sup>25</sup>We have estimated an alternative model where we control for selection into employment by employing a Generalized Selectivity Model (GSM) introduced by Lee (1983). The coefficients for the contraction variables and the New Deal variables were very close to those reported in Appendix Table 2-1.

government employment. When net migration is added to the specification in Table 3, the row for “County with” in Table 3 shows differences of similar magnitude. Switching to the SEA aggregates with net migration, the effects are somewhat smaller in magnitude.

The drop in retail sales per capita from 1929 to 1933 and the 1930 unemployment rate in also had negative effects on earnings. In counties where the 1930 unemployment rate was OSD higher, annual earnings in 1939 were 1.62 percent lower on the “County without” line in Table 2. In the counties where the drop in retail sales per capita was OSD higher in Table 2, annual earnings in 1939 were 1.35 percent lower. The combined effect was a reduction of 2.97 percent lower. The two measures had different effects on weekly earnings and weeks worked in 1939 but the combined impact was 1.15 percent lower weekly earnings and 1.81 percent lower weeks worked in 1939. A slower recovery between 1933 and 1935, measured by minus retail sales per capita growth, also had negative effects on annual earnings and weekly earnings. When all of these contraction effects are added together for a county that had a quadruple whammy of contractions on all four dimension, the 1939 annual earnings were 5.6 percent lower, and this was due to both lower weekly earnings and weeks worked in 1937. The effects are somewhat smaller in specifications controlling for net migration on the lines for “County with” and “SEA with.”

Most of the effects of contraction measures from before 1937 are associated with the unemployment rate in 1930. On the negative side in Table 3 on the “County without” line, men located in counties with OSD higher unemployment that year were 0.76 percentage points more likely to be fully unemployed, 1.21 percentage points less likely to be self-employed and 0.55 percentage points less likely to be employment by government in 1940. On the positive side they were 1.06 percentage points more likely to be privately employed in 1940. However, when we add the four contraction effects together near the bottom of Table 3, the sum of the effects is -1.94

because that positive effect is overwhelmed by the negative effects of the other three contraction measures.

Overall, men in areas with more severe contractions earned lower annual earnings due to lower weekly earnings and fewer weeks worked in 1939. They also worked fewer hours per week in March 1940. They were less likely to be employed or self-employed in the private sector, and more likely to be on work relief, fully unemployed or not in the labor force. Part of these effects came through the pathway of net migration. When we control for net migration, the magnitudes are weakened somewhat, but the effects are still sizeable.

### *5.2 New Deal Effects*

Nearly all of the prior studies have examined the combined effects of public works and relief spending when they had information on both. A variety of studies have shown salutary effects of relief spending on death rates, crime, and economic activity alone and in combination with the public works, while estimates of the impact on private employment have found negative or no positive effects (Fishback 2017). Neumann, Fishback, and Kantor (2010 209) found positive short run effects of relief spending on monthly earnings that lasted up to three years in the impulse response functions from a panel VAR. This is the first study that estimates the separate effect of the public works programs. In the discussions of the New Deal variables we will focus on the “county without” rows to illustrate the full impact of the programs. The effects of the other specifications are similar.

Public works programs were associated with higher annual earnings in the private sector in 1939 but had little effect on the probability of private employment. The “County without” line in Table 2 shows that a private worker in a county with OSD more public works spending per capita would have earned 0.42 percent higher annual earnings largely because his weekly earnings

were a statistically significant 0.4 percent higher. The positive dollar-for-dollar effect in Table 4 of 0.09 on annual earnings is substantially smaller than the effect Fishback, Horrace, and Kantor (2005) found of 0.44 for retail sales per capita in 1939. OSD more in public works also stimulated weekly hours worked in March 1940 by a statistically significant 0.34 percent. In Table 3 for the “County without” line, OSD in additional public works had little effect on private employment in 1940 while shifting men out of work relief by -0.22 percentage points into government employment by 0.3 percentage points.” This lack of an effect on private employment is similar to what Fishback and Kachanovskaya (2015) found for combined public works and relief in their estimates on a state panel data set from the 1930s. Except for weekly hours, the effects of public works are much smaller when controlling for migration.

In contrast, relief spending did not have the same positive effects on earnings in 1939 or employment status in 1940. In Table 3 in the “County without” row for relief spending, workers in a county with OSD more in relief spending per capita were 0.96 percentage points more likely to be on work relief, -0.75 percentage points less likely to be self-employed and -0.39 percentage points less likely to be privately employed. The relief “county without” results in Table 2 imply that private workers in counties with OSD more in relief spending per capita worked 0.57 percent longer hours in 1940, but they earned a statistically insignificant 0.37 percent less in annual earnings and 0.41 percent less per week in 1939. Controlling for net migration generally strengthens the OSD relationships between relief spending and the various forms of employment status, and lead to less positive effects on weeks worked and working time. The dollar-for-dollar effect was a negative 10 cents in annual earnings, which contrasts with the positive impact of 44 cents that Fishback, Horrace, and Kantor (2005) found for retail sales per capita. The results for weekly earnings differ sharply from the shorter run positive effects found by Neumann, Fishback,

and Kantor (2010, 209). It seems likely that the firing of WPA relief workers in the middle of 1939 led to the negative effects by increasing the labor supplied to private work in these areas or contributed to the negatively biased measurement error in earnings described at the end of section 3.

The AAA payments had powerful negative effects on private work opportunities and on earnings. The AAA payments to farmers to take land out of production pushed tenants, croppers, and farm workers out of agriculture (Depew, Fishback, and Rhode 2013). The results in Table 3 for the AAA “county without” row show that the drop in private employment among hired workers in the agricultural sector associated with the AAA was largely offset by a rise in the probability of being on work relief, a government worker, or being self-employed. Some of the self-employment rise may have come from a rise in farm owners chasing AAA grants. In those same counties in Table 2 the AAA “county without” row shows that the privately employed workers earned -1.35 percent less per year, primarily because they earned -1.22 percent less per week in 1939. On the other hand, they did work 0.77 hours more per week in 1940. The OSD effects of the AAA are roughly similar when controlling for net migration. The dollar-for-dollar version of the annual earnings effect shows a reduction of 37 to 66 cents associated with a dollar of AAA spending. This is substantially more negative than the effect found by Fishback, Horrace, and Kantor (2005) on retail sales per capita. The combination of the large loss to workers and the small negative effect on retail sales per capita is consistent with their view that the gains in income to farm operators who received AAA funds was more than offset by losses in earnings and opportunities for farm workers.

## **6. The Impact of the Contractions and New Deal on Occupational Change**

A key determinant of the workers' success in obtaining jobs and earning more on those jobs was their skill level. The severity of the Depression led to long durations of unemployment and underemployment that led to skill depreciation, loss of job networks, and skill mismatches for a substantial share of the population. Among the New Deal programs the public works programs likely had the most success at maintaining or enhancing human capital by matching the jobs to the skills of their workers because they were not required to hire from the relief rolls. Relief officials in the FERA and the WPA were aware of the problems surrounding skill maintenance, and they actively sought to match relief jobs to skill levels. However, they were less likely to be as effective as the public works programs because the majority of relief jobs were for unskilled work. For relief workers whose relief jobs did not use their skills, there was at least some maintenance of general human capital (Bakke 1969, 412-425; Howard 1943, 228-43; Williams 1968, 99). The release of tenants, croppers, and farm workers associated with the AAA program likely also was associated with skill depreciation or skill mismatches as they moved down the tenure ladder or left agriculture altogether. .

One way to capture skill appreciation or depreciation is to examine changes in occupation over time for the same workers. Christopher Boone gave us access to his and Laurence Wilse-Samson's linking of individuals from the 1930 5-percent Census sample with the 1940 100-percent Census sample.<sup>26</sup> We use the sample to estimate a multinomial logit analysis of the transition for employed workers in 1930 of three types--unskilled, semiskilled, and skilled--to five categories in 1940--unskilled, semi-skilled, skilled, emergency relief, or unemployment. We use the same

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<sup>26</sup> Boone (2014) kindly provided this linked sample that he and Laurence Wilse-Samson (2018) used to study rural migration. For more information about how the sample was constructed and what criteria were used for the linkages, readers see Appendix I.

covariates as we used for the multinomial analyses in Table 3, except for the occupation and industry dummies as they are used to identify skill levels.

Table 4 is a contingency table that shows the actual transition from the three skill categories in 1930 to the five categories in 1940. The row percentages show the share of people in a specific skill category in 1930 that ended up in one of the five categories in 1940. For example, 34.4 percent of the unskilled workers in 1930 remained in unskilled jobs in 1940, 13.8 percent ended up on emergency work relief, and 10.2 percent ended up unemployed. For both semiskilled and skilled workers in 1930, over 50 percent remained in the same skill category in 1940 while about 7 percent of them ended up unemployed and 5 to 6 percent ended up on emergency work relief.

### *6.1 Effects of the Earlier Contractions*

In general, the effects of contractions or slower growth earlier in the 1930s damaged the prospects of workers employed in 1930 in several ways. When we see them again in 1940 they were less likely to have reached a higher occupation and more likely to have ended up in a lesser occupation, on work relief or unemployed. Tables 5 through 7 show the OSD effects of the contractions, which are calculated in the same way as the OSD effects from the multinomial analysis in Table 3. The coefficients in each row sum to zero. The results for three multinomial estimations on individual decisions are shown for the same three specifications as reported for Tables 2 and 3. In the discussion below we will focus on the rows for the “county without” specifications. Controlling for net migration leads to similar qualitative results with some magnitudes that are larger and some smaller.

As would be expected, the contraction measures were associated with drops down the skill ladder and increases in unemployment and work relief in 1940. The contraction measure with the largest effect was the 1937 unemployment measure. In Table 5 on the “County without” line,”

workers who were unskilled in 1930 and lived in 1940 in counties where the 1937 unemployment rate was OSD higher were 2.88 percentage points more likely to be on emergency unemployment and 1.76 percentage points more likely to be unemployed in 1940. They were 1.21 percentage points less likely to rise to skilled jobs.

The situation was similar for the 1930 semi-skilled workers in Table 6 and for the 1930 skilled workers in Table 7. In a county with OSD more unemployment in 1937, a 1930 semi-skilled worker was 4.66 percentage points more likely to be fully unemployed in 1940 and 3.36 percentage points more likely to be on work relief. In that same county a 1930 skilled worker was 5.26 percentage points less likely to remain in a skilled position in 1940 because he was 2.76 percentage points more likely to end up in relief work and 3.32 percentage points more likely to end up fully unemployed.

The effects of the Great Contraction measures from the early 1930s on the change in skill level is muted somewhat because the effects of the 1930 unemployment measure in a number of cases work in the opposite direction to the effects of the retail sales drop measure for 1929-1933. For example in Table 5 for workers who started as unskilled workers in 1930, an OSD change in 1930 unemployment raises the probability of a rising to semiskilled employment in 1940 by 1.42 percentage points, while an OSD greater drop in retail sales per capita lowers the 1940 probability by 0.93 percentage points. As a result, when all of the contraction measures are combined, the effects look most like the effects from the 1937 unemployment measure.

### *7.2 New Deal Impact*

Our baseline estimates of the relationship between the New Deal and occupation reported in 1940 is less troubled by simultaneity than the estimates of the impact on earnings and weeks worked because the New Deal information ends in June 1939 and the information on occupation

is from April 1, 1940. Per capita relief programs were associated most with shifting employed workers in 1930 on to work relief in 1940 and were not associated with advances upward to more skilled positions. In counties with OSD more relief per capita from 1933 through 1939, workers who were unskilled in 1930 were 1.75 percentage points more likely to be on work relief in 1940, while semi-skilled and skilled workers from 1930 were 2.71 and 2.24 percentage points more likely to end up on work relief in 1940. In those same counties 1930 unskilled workers were 2.21 percentage points less likely to move up to semi-skilled skilled positions in 1940, 1930 semi-skilled workers were 3.2 percentage points less likely to move up to skilled positions in 1940, and 1930 skilled workers were 0.91 percentage points less likely to still be in a skilled regular job in 1940.

The relationship of occupational mobility with public works spending was more positive than for relief spending with respect to opportunities to move up. Yet, public works spending was also associated with more workers ending up unemployed in 1940. On the positive side, in areas with OSD more in public works spending per capita, the 1930 unskilled and 1930 semiskilled were 0.58 and 0.31 percentage points, respectively, more likely to rise to a skilled occupation in 1940 and the 1930 skilled were 0.31 percentage points more likely to remain in skilled positions. The 1930 unskilled in those counties were 0.95 percentage points less likely to end up on work relief in 1940. In those same counties, however, the probability of being unemployed in 1940 was 0.37 percentage points higher for the 1930 unskilled, and 0.21 percent higher for the 1930 semi-skilled.

The AAA program had mixed effects. In Table 6 in areas with OSD more in AAA spending, the semi-skilled of 1930 were -1.34 percentage points less likely to stay in semi-skilled jobs in 1940. Some did better, as their probability of obtaining a skilled job was higher by 0.86 percentage points in 1940, but others fared worse, as the probability of becoming unemployed was

0.26 percentage points higher. Similarly, in those same counties in Table 5, some 1930 unskilled workers fared better with a 0.34 percentage point higher probability of being in skilled jobs in 1940, but they were 1.0 percentage point more likely to end up on emergency relief and 2.45 percentage points less likely to move up to a semi-skilled regular job. Meanwhile, in the counties with OSD higher AAA in Table 7, the 1930 skilled workers were 0.42 percentage points more likely to remain in skilled work and 0.38 percentage points less likely to fall to semi-skilled work in 1940.

## **8. Conclusions**

Why did the labor market take so much longer than real GDP to recover from the contractions during the 1930s? This study shows that the Great Contraction and Second Dip Recession continued to have powerful negative effects on local labor markets in 1939-40. The impacts of public works grants were positive but much weaker than the negative reverberations from the earlier downturns. Any positive effects of relief grants were likely to have been counteracted by the firing of large numbers of WPA workers in the middle of 1939. Finally, the AAA had strong negative effects on wages and working time in 1939 and access to private employment.

Studies of post-war data find that recessions have lasting effects, but modern recessions are relatively mild. The deeper downturns from 1929 to 1933, and again in 1937, had powerful effects on local labor markets that persisted through 1939/40. A male household head who lived in a county hit by OSD drops in retail activity from 1929 to 1933, OSD slower retail growth from 1933 to 1935, and OSD higher unemployment rates in both 1930 and 1937 would have earned 5.6 percent less annually and 2.6 percent less weekly, while working 3 percent fewer weeks in 1939;

in 1940 he was working 1.9 percent fewer hours per week. He was 1.6 percentage points more likely to be unemployed and 1.1 percent more likely to be on work relief because he was 1.9 percentage points less likely to be privately employed and 1.3 percentage points less likely to be self-employed.

The contractions had even stronger effects in forcing men down the occupational ladder and into unemployment and work relief in 1940 in a longitudinal study of workers who worked in unskilled, semi-skilled and skilled jobs in 1930. In a county hit by OSD higher values for all four contraction measures, skilled men from 1930 were 6.5 percentage points less likely to remain skilled, and 1.6 percentage points less likely to be semi-skilled, largely because they were 3.7 percentage points more likely to be unemployed and 3.4 percentage points more likely to be on work relief in 1940. In a similar county semi-skilled workers from 1930 fared worse. They were 4.9 percentage points less likely to remain in semi-skilled positions and 3.2 percentage points less likely to rise to skilled positions, mostly because they were 7.9 percentage points more likely to be unemployed and 4.4 percentage points more likely to be on work relief. The effect of the contractions on unskilled men looked more like that of skilled men with increases of 3.4 and 3.7 percentage points in unemployment and work relief and reductions of 3.3 percentage points in the probability of moving up to a skilled position.

To combat the contractions, President Roosevelt and Congress distributed large amounts of grants in three major categories: public works, relief, and AAA farm payments. We show that only public works programs had consistent positive impacts on the 1939/40 county labor markets. The magnitudes of those OSD effects were much smaller than the damage done by OSD changes in the contraction measures. As an example, a county with OSD more in public works had only

0.4 percent higher weekly earnings compared to a reduction of 1.1 percent associated with an OSD higher drop in retail sales per capita in 1940.

The impact of the relief programs on the 1939/40 labor markets were even more disappointing because relief programs were associated with lower earnings and weeks worked, lower probabilities of employment or self-employment in the private sector in 1940 and lower probabilities of moving up to or staying in skilled occupations jobs between 1930 and 1940. The results are somewhat surprising because they differ from the short run positive effects on earnings found by Neumann, Fishback, and Kantor (2010) and salutary effects on a variety of other measures of economic welfare (Fishback 2017). The difference in results likely occurs because the WPA fired a large share of relief workers in 1939. In areas with more WPA activity, some of the workers listed as privately employed in 1940 might have worked part of the time as relief workers in 1939. Since relief workers were paid low earnings, this may have artificially reduced their measured earnings.

The results for the AAA were more still more disappointing. The effects on the probability of transitioning to higher skill levels between 1930 and 1940 were mixed, probably because the range of skills among the farm workers pushed out of agriculture by the AAA was so varied. More AAA spending was associated with lower probabilities of private employment in 1940 and lower annual and weekly earnings in 1939. These findings add to the findings of earlier studies that show AAA farm program was associated with a sharp reduction in the number of croppers, tenants, and farm worker in the mid-1930s (Depew, Fishback, and Rhode 2013).

The results therefore provide further evidence that the New Deal grant programs did not provide much in the way of positive spillover effects in private labor markets. In addition, the results add more information about the lasting effects of the Great Contraction. In their panel

study of post-war data Blanchard and Katz (1992) found that negative effects of contractions on wages and employment lasted for up to a decade and some times more. The contractions in the 1930s were much deeper than those studied by Blanchard and Katz. Recent studies show that men who were born in the worst years of the Depression in low-income states earned less and had more disability later in life (Thomasson and Fishback 2014); males who were teenagers in the hardest hit states became more conservative investors and savers (McGuire, 2018), the Depression stunted intergenerational mobility (Feigenbaum 2015) and the Dust Bowl had impact on economic activity for decades (Hornbeck 2012; Arthi 2018).<sup>27</sup>

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<sup>27</sup> There is an expanding literature on the effect of recessions later in life. See Moulton (2016) on the effect of entering the workforce after 1930 on labor market success in 1940, and Stuart (2016) for the effect of the 1980s recessions on later success. Each contains a summary of the modern literature and references.

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Table 1: Distribution of Male Emergency Workers' Usual Occupations from 1935 Relief Survey and Their Occupations Listed in the 1940 Census

Usual Occupation	Relief Survey 1935		Occupation	1940 Census 100 Percent Sample	
	Number	Percent		Male	Male Percent
<i>White-collar workers</i>			<i>White-collar workers</i>		
Professional and technical workers	48,799	1.21	Professional, Technical	46,904	2.53
Proprietors, managers, and officials	75,289	1.86	Managers, Officials, and Proprietors	30,383	1.64
Office workers	127,729	3.16	Clerks	98,562	5.31
Sales and kindred workers	124,295	3.07	Sales Workers	43,260	2.33
<i>Manual workers</i>			<i>Manual workers</i>		
Skilled workers and foremen	733,686	18.14	Craftsman	212,132	11.43
Semiskilled and unskilled workers	1,828,861	45.21	Operatives	162,501	8.76
			Non-Farm Laborers	1,078,512	58.12
Domestic and personal service workers	169,301	4.19	Service Workers (Private HH)	3,488	0.19
			Service Workers (Non-HH)	81,055	4.37
<i>Agricultural workers</i>			<i>Agricultural workers</i>		
Farm operators	453,849	11.22	Farmers	38,653	2.08
Farm laborers	483,524	11.95	Farm Laborers	17,134	0.92
			Farm Laborers, Wage Workers	43,212	2.33
<b>Total</b>	<b>4,045,333</b>	<b>100</b>	<b>Total</b>	<b>1,855,796</b>	<b>100.01</b>

Sources: Hauser (1938) and IPUMS 100-Percent 1940 Census, Ruggles, et. al.(2016).

Table 2: Percentage Change in Earnings or Working Time Associated with One Standard Deviation Increase in Grants or Contraction Measure in County Specifications with and without Net Migration, and at the SEA Level (Three Specifications)

Correlate	Specification and Aggregation	Percentage Change in				\$ for \$
		Annual Earnings, 1939	Weekly Earnings, 1939	Weeks Worked, 1939	Hours per Week, March 1940	
<b>REAL PER CAPITA NEW DEAL GRANTS</b>						
Relief, 1933-1939	County without	-0.37	-0.41	0.03	0.57*	-0.10
	County with	0.01	-0.03	0.03	0.59*	-0.01
	SEA with	0.18	0.87	-0.69*	0.20	0.05
Public Works, 1933-1939	County without	0.42	0.40**	0.02	0.34***	0.09
	County with	0.16	0.14	0.01	0.33***	0.03
	SEA with	0.32	0.13	0.18	0.56*	0.13
AAA, 1933-1937	County without	-1.35***	-1.22***	-0.13	0.77***	-0.66***
	County with	-1.07***	-0.94***	-0.13	0.79***	-0.46***
	SEA with	-0.71*	-0.49	-0.21	0.79***	-0.37*
<b>CONTRACTIONS</b>						
Percent unemployed or laid off, 1930	County without	-1.62***	-0.07	-1.54***	-1.54***	
	County with	-1.21***	0.32	-1.52***	-1.52***	
	SEA with	-0.64	0.43	-1.07***	-0.40	
Minus Pct. Chg. in Retail Sales Per Capita, 1929-1933	County without	-1.35***	-1.08***	-0.27	-0.14	
	County with	-0.57	-0.32	-0.26	-0.10	
	SEA with	-1.07**	-0.38	-0.70**	-0.12	
Minus Pct. Chg. in Retail Sales Per Capita, 1933-1935	County without	-0.73**	-0.84***	0.11	-0.09	
	County with	-0.38	-0.5**	0.12	-0.07	
	SEA with	-0.54	-0.76**	0.21	-0.23	
Pct. Fully Unemployed or on Work Relief, 1937	County without	-1.90***	-0.58	-1.33***	-1.04***	
	County with	-2.46***	-1.11***	-1.35***	-1.06***	
	SEA with	-1.51***	-0.97***	-0.53*	-0.83**	
Contraction on All Four Dimensions**	County without	-5.60	-2.57	-3.02	-2.81	
	County with	-4.62	-1.61	-3.01	-1.67	
	SEA with	-3.76	-1.68	-2.09	-1.58	
NET MIGRATION	County without	NA	NA	NA	NA	
Net Migration Rate	County with	2.56***	2.53***	0.04	0.13	
	SEA with	1.66***	2.2***	-0.54**	-0.27	

\*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.

\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*The Value for contraction on all four dimensions is the sum of the OSD changes in the unemployment and drop in percentage change in real per capita retail sales variable. We did not calculate standard errors for these effects. Notes. The entries report OSD effects calculated from coefficients from 12 regressions. For example, in the column for annual earnings, there were three regressions. The lines for "County without" show the calculations of the impact of the OSD change based on Appendix Table 2-1 when the New Deal and contraction measures are county aggregates and net migration is not included. The lines for "County with" come from specifications when net migration at the county level is added at the county level. The lines for "SEA with" show results from a specification when the New Deal, contraction, and net migration levels are aggregated to the State Economic Area (SEA) level and net migration is included in the specification.

Table 3: Percentage Point Change in Employment Status in 1940 in Response to One Standard Deviation Changes in Grant and Contraction Measures, County Sample with and without Net Migration, SEA sample with Net Migration (3 Specifications)

Correlate	Specification	Percentage Point Change in Status Associated with OSD Change in Measure					
		Private Emp.	Work Relief	Fully Unemp.	Not in Labor Force	Self Employed	Regular Govt.
<b>REAL PER CAPITA NEW DEAL GRANTS</b>							
Relief, 1933-1939	County without	-0.39	0.96***	-0.13	0	-0.75**	0.3
	County with	-0.3	0.94***	-0.13	0.01	-0.83***	0.3
	SEA with	-0.78	1.31***	-0.17	0.02	-0.53	0.15
Public Works, 1933-1939	County without	-0.15	-0.22**	0.03	-0.04	0.08	0.30***
	County with	-0.28	-0.14	0.01	-0.06	0.17**	0.30***
	SEA with	-0.05	-0.13	-0.13	-0.08	-0.09	0.48***
AAA, 1933-1937	County without	-2.41***	0.27***	0.12	-0.01	1.61***	0.41***
	County with	-2.29***	0.22***	0.13	0.01	1.52***	0.41***
	SEA with	-2.31***	0.18*	0.35***	0.03	1.29***	0.45***
<b>CONTRACTIONS</b>							
Percent unemployed or laid off, 1930	County without	1.06***	-0.05	0.76***	0.00	-1.21***	-0.55***
	County with	1.2***	-0.1	0.77***	0.02	-1.32***	-0.55***
	SEA with	0.91**	-0.29*	0.60***	-0.08	-0.80**	-0.33*
Minus Pct. Chg. in Retail Sales Per Capita, 1929-1933	County without	-0.48**	0.1	-0.06	0.04	0.49***	-0.10
	County with	-0.28	0.01	-0.03	0.08	0.33**	-0.10
	SEA with	-0.39	0.18	-0.03	0.30***	0.12	-0.18
Minus Pct. Chg. in Retail Sales Per Capita, 1933-1935	County without	-0.16	0.11	0.02	0.03	0.02	0.01
	County with	-0.07	0.07	0.02	0.05	-0.05	0.01
	SEA with	0.26	-0.07	-0.19	0.12*	-0.13	0.01
Pct. Fully Unemployed or on Work Relief, 1937	County without	-2.36***	0.97***	0.91***	0.40***	-0.59***	0.68***
	County with	-2.53***	1.02***	0.90***	0.38***	-0.45*	0.68***
	SEA with	-1.55***	0.58***	0.67***	0.24**	-0.38	0.43**
Contraction on All Four Dimensions**	County without	-1.94	1.13	1.63	0.47	-1.30	0.04
	County with	-2.31	1.00	1.66	0.52	-1.50	0.04
	SEA with	-0.77	0.39	1.06	0.59	-1.19	-0.07
<b>NET MIGRATION</b>							
Net Migration	County without	NA	NA	NA	NA	NA	NA
	County with	0.73*	-0.31*	0.09	0.14*	-0.66*	0.01
	SEA with	-0.21	-0.14	0.23*	0.23*	-0.57*	0.46*

\*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.  
\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.  
\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*The Value for contraction on all five dimensions is the sum of the OSD changes in the unemployment and drop in percentage change in real per capita retail sales variables. We did not calculate standard errors for these sums.  
Notes. The OSD estimates are calculated from marginal effects and reported for three multinomial analyses. The information from the "county without" rows is calculated by multiplying the marginals from the multinomial analysis in Appendix Table 2-2 by the standard deviation for the same measure in Appendix Table 2-1. In the "County without" analysis the grants variables are county aggregates and net migration is not included in the specification. The "County with" rows are based on one multinomial analysis in which county level net migration is added to the analysis using the county aggregates for contractions and New Deal grants. All information for "SEA with" refers to a single multinomial analysis in which grants, contractions, and net migration are aggregated at the SEA level. The underlying analysis included the correlates listed in Table 2 minus the industry and occupation dummy variables and adding married, number of children under age 5, wages from other household members, other family members with more than \$50 in nonwage income, other nonpaid family workers in household, other family members at work, and other family members on emergency relief. The sample percentages for employment status were regular private workers 51.59, work relief, 4.87, unemployed 5.77, out of the labor forced 4.92, self-employed 26.32, and regular government workers 6.52.

Table 4: Number and Percentage of Workers by Skill Level in 1930 Who Were in Jobs by Skill, Unemployed or Emergency Relief Workers in 1940

Occupational Categories and Employment Status in 1940						
	Regular, Unskilled Occ in 1940	Regular, Semi- Skilled Occ in 1940	Regular, Skilled Occ in 1940	Emergency	Unemployed	Total
Unskilled Occ in 1930	7998	6138	3531	3217	2376	23260
(Row Pct)	(34.4)	(26.4)	(15.2)	(13.8)	(10.2)	(100.0)
SemiSkilled Occ in 1930	3260	17349	6764	2070	2333	31776
(Row Pct)	(10.3)	(54.6)	(21.3)	(6.5)	(7.3)	(100.0)
Skilled in 1930	2493	7348	18440	1821	2370	32472
(Row Pct)	(7.7)	(22.6)	(56.8)	(5.6)	(7.3)	(100.0)
Total	13751	30835	28735	7108	7079	87508
(Row Pct)	(15.7)	(35.2)	(32.8)	(8.1)	(8.1)	(100.0)
(Column Pct)	100.00	100.00	100.00	100.00	100.00	100.0

Source: Sample developed by Christopher Boone and Laurence Wilse-Samson to match workers from the 1930 Census to the 1940 Census. See Appendix 1 for more detail.

Table 5: OSD Effects from Multinomial Logit of Skill Levels, Emergency Work, and Unemployed in 1940 for Workers Who Were in Unskilled Jobs in 1930 (Three Samples)

		(1)	(2)	(3)	(4)	(5)
Sample		Regular, Unskilled Occ in 1940	Regular, Semi- Skilled Occ in 1940	Regular, Skilled Occ in 1940	Relief Work, 1940	Fully Unem- ployed, 1940
<b><u>New Deal Grants</u></b>						
Real Relief Per Cap 1933-1939 (in 1967\$)	Co without	0.75	-2.21***	0.29	1.75***	-0.58
	Co with	0.69	-2.02***	0.27	1.62***	-0.56
	SEA with	1.11	-3.14***	0.11	1.64***	0.28
Real Public Works Per Cap 1933-1939 (in 1967\$)	Co without	0.75**	-0.75	0.58***	-0.95**	0.37***
	Co with	0.69*	-1.02*	0.56***	-0.56	0.32**
	SEA with	0.33	0.05	0.21	-0.23	-0.36
Real AAA Per Cap 1933-1939 (in 1967\$)	Co without	0.88**	-2.45***	0.34	1.00***	0.23
	Co with	0.85**	-2.3***	0.35	0.83***	0.27
	SEA with	0.65	-1.78***	0.38	0.64**	0.1
<b><u>Contraction Measures</u></b>						
Number of Unemployed or Laidoff 1930 % pop 1930	Co without	-1.44**	1.42**	-1.15***	-0.09	1.25***
	Co with	-1.45**	1.55***	-1.13***	-0.26	1.29***
	SEA with	-1.22	1.28***	-0.05	-1.03*	1.01**
% Drop in Retail Sales per Cap from 1929 to 1933	Co without	0.78**	-0.93***	-0.56**	0.72**	-0.01
	Co with	0.72*	-0.64***	-0.57**	0.42	0.07
	SEA with	0.44	-0.14	-1.27*	1.09*	-0.12
% Drop in Retail Sales per Cap from 1933 to 1935	Co without	0.57	-0.77**	-0.35	0.17	0.38
	Co with	0.52	-0.61	-0.35	0.03	0.41*
	SEA with	1.01*	-0.05	-0.77**	0.12	-0.31
Number of Unemployed or Emergency Worker in 1937 as % pop 1930	Co without	-3.13***	-0.3	-1.21***	2.88***	1.76***
	Co with	-3.09***	-0.52	-1.19***	3.09***	1.69***
	SEA with	-3.01***	0.59	-0.79	2.52***	0.68
All Four Contraction Measures	Co without	-3.23	-0.57	-3.26	3.68	3.38
	Co with	-3.3	-0.22	-3.25	3.28	3.46
	SEA with	-2.77	1.68	-2.89	2.71	1.26
<b><u>Net Migration</u></b>						
Net Migration, 1930- 1940	Co without	NA	NA	NA	NA	NA
	Co with	-0.04	1.02***	0.12	-1.41***	0.32
	SEA with	0.2	-0.65	0.65*	-0.74	0.54*
Individual Characteristics		Y	Y	Y	Y	Y
Economic Conditions (1929-1930)		Y	Y	Y	Y	Y
State Dummies		Y	Y	Y	Y	Y
Observations		23481	23481	23481	23481	23481

\*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.

\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

Notes. The OSD estimates are calculated from marginal effects and reported for three multinomial analyses. The information from the "county without" rows comes from one multinomial analysis in

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which the contraction and grants variable are county aggregates. The "County with" rows are based on one multinomial analysis in which county level net migration is added to the analysis. All information for "SEA with" refers to a single multinomial analysis in which grants, contractions, and net migration are aggregated at the SEA level.

**Table 6: OSD Effects from Multinomial Logit of Skill Levels, Emergency Work, and Unemployed in 1940 for Workers Who Were in Semi-skilled Jobs in 1930 (Three Samples)**

		(1)	(2)	(3)	(4)	(5)
Sample		Regular, Unskilled Occ in 1940	Regular, Semi- Skilled Occ in 1940	Regular, Skilled Occ in 1940	Relief Work, 1940	Fully Unem- ployed, 1940
<b><u>New Deal Grants</u></b>						
Real Relief Per Cap 1933-1939 (in 1967\$)	Co without	-0.58	1.1	-3.2***	2.71***	-0.03
	Co with	-0.3	0.56	-1.49***	1.26***	-0.03
	SEA with	-0.49	0.12	-0.73	1.82***	-0.71
Real Public Works Per Cap 1933-1939 (in 1967\$)	Co without	0.25***	-0.68**	0.31*	-0.1	0.21***
	Co with	0.45***	-1.33**	0.49	0	0.39***
	SEA with	0.09	-0.17	0.25	0.05	-0.22
Real AAA Per Cap 1933-1939 (in 1967\$)	Co without	0.1	-1.34***	0.86***	0.12	0.26***
	Co with	0.23	-3.03***	2.12***	0.11	0.57**
	SEA with	-0.34	-1.78***	1.42***	0	0.69**
<b><u>Contraction Measures</u></b>						
Number of Unemployed or Laid off in 1930 as % of pop 1930	Co without	-1.64**	3.39***	-4.05***	0.24	2.06***
	Co with	-0.78**	1.67***	-1.79***	-0.05	0.94***
	SEA with	-0.48	-0.05	-0.79	0.1	1.23***
% Drop in Retail Sales per Cap from 1929 to 1933	Co without	0.3	-2.99*	-0.06	1.78**	0.97
	Co with	0.08	-0.8	0.17	0.3	0.24
	SEA with	-0.88**	-0.25	0.46	0.45	0.21
% Drop in Retail Sales per Cap from 1933 to 1935	Co without	-0.25	0.66	0.29	-0.94***	0.24
	Co with	0.15	-0.35	-0.11	0.49**	-0.17
	SEA with	-0.39	0.39	0	0.08	-0.08
Number of Unemployed or Emergency Worker 1937 as % pop in 1930	Co without	-2.69**	-5.99***	0.66	3.36***	4.66***
	Co with	-0.92**	-2.09***	0.11	1.28***	1.63***
	SEA with	-0.95**	-0.98	-0.08	0.57*	1.44***
All Four Contraction Measures	Co without	-4.29	-4.92	-3.16	4.44	7.94
	Co with	-1.46	-1.57	-1.63	2.02	2.64
	SEA with	-2.69	-0.9	-0.4	1.2	2.8
<b><u>Net Migration</u></b>						
Net Migration 1930-1940	Co without	NA	NA	NA	NA	NA
	Co with	-0.02	0.61	0.75**	-1.19***	-0.15
	SEA with	-0.45	-0.14	0.91**	-0.6**	0.28
Individual Characteristics		Y	Y	Y	Y	Y
Economic Conditions (1929-1930)		Y	Y	Y	Y	Y
State Dummies		Y	Y	Y	Y	Y
Observations		31860	31860	31860	31860	31860

Note: \*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.

\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

**Table 7: OSD Effects from Multinomial Logit of Skill Levels, Emergency Work, and Unemployed in 1940 for Workers Who Were in Skilled Jobs in 1930 (Three Samples)**

		(1)	(2)	(3)	(4)	(5)
Sample		Regular, Unskilled Occ in 1940	Regular, Semi- Skilled Occ in 1940	Regular, Skilled Occ in 1940	Relief Work, 1940	Fully Unem- ployed, 1940
<b><u>New Deal Grants</u></b>						
Real Relief Per Cap 1933-1939 (in 1967\$)	Co without	0.08	-0.81	-0.91	2.24***	-0.59
	Co with	0.04	-0.23	-0.57	1.08***	-0.31
	SEA with	-0.06	-0.25	-0.32	0.94***	-0.31
Real Public Works Per Cap 1933-1939 (in 1967\$)	Co without	0.12**	-0.45	0.31	-0.03	0.05
	Co with	0.22**	-1.02	0.66	0.04	0.1
	SEA with	0.21	-1.11*	1.15*	0.06	-0.31
Real AAA Per Cap 1933-1939 (in 1967\$)	Co without	0.01	-0.38*	0.42**	-0.03	-0.02
	Co with	0.04	-0.7	0.92**	-0.21	-0.05
	SEA with	-0.06	-0.73*	0.83*	-0.16	0.12
<b><u>Contraction Measures</u></b>						
Number of Unemployed or Laidoff 1930as % pop 1930	Co without	-0.7	2.9***	-2.93***	-0.37	1.13*
	Co with	-0.31	1.55***	-1.45***	-0.3	0.52*
	SEA with	-0.92***	0.04	0.67	-0.36	0.57
% Drop in Retail Sales per Cap from 1929 to 1933	Co without	1.05	-2.97*	1.87	1.22*	-1.17*
	Co with	0.35	-0.53	0.4	0.18	-0.4
	SEA with	0.76**	-1.01*	-0.1	0.36	-0.01
% Drop in Retail Sales per Cap from 1933 to 1935	Co without	-0.03	-0.08	-0.14	-0.19	0.45
	Co with	0.04	0.24	0.01	0.02	-0.3
	SEA with	0.01	-0.59	0.63	0.12	-0.17
Number of Unemployed or Emergency Worker 1937 as % of pop 1930	Co without	0.62	-1.45	-5.26***	2.76***	3.32***
	Co with	0.2	-0.74	-1.66***	1.04***	1.17***
	SEA with	0.55	-0.24	-1.91***	0.86***	0.75**
All Four Contraction Measures	Co without	0.93	-1.61	-6.46	3.42	3.74
	Co with	0.27	0.51	-2.71	0.94	0.99
	SEA with	0.39	-1.8	-0.71	0.97	1.14
<b><u>Net Migration</u></b>						
Net Migration 1930-1940	Co without	NA	NA	NA	NA	NA
	Co with	0.12	1.12***	-0.37	-0.84***	-0.02
	SEA with	0.13	-0.01	0.19	-0.72**	0.41
Individual Characteristics						
Economic Conditions (1929-1930)		Y	Y	Y	Y	Y
State Dummies		Y	Y	Y	Y	Y
Observations		32472	32472	32472	32472	32472

\*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.

\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

## Appendix 1

### Appendix 1 Matched Sample for Occupation Mobility

Boone and Wilse-Samson (2018) constructed a panel data set that included individuals who were both in the 1930 Census 5-percent sample and 1940 Census 100-percent sample. The 1930 Census 5 percent sample is available from IPUMS while the 1940 Census 100 percent sample was digitized by Ancestry.com and is available to researchers at the NBER (Ruggles, et al., 2016). Both Census data sets contain similar type of information, including names, age, location, birthplace, farm status, employment status, and occupations etc. However, the individual earnings were only available in the 1940 Census data. Due to the fact that both data sources lack unique identifiers such as the social security number for each individual, Boone and Wilse-Samson (2015) matched individuals based on exact place of birth, exact first and last names, and year of birth within a +/- 3 year band.<sup>28</sup> No phonetic name cleaning was performed. They did match on common names but required exact matches. The matching process was only conducted on males because females might change their last names due to marriage. As acknowledged in Boone and Wilse-Samson (2018), their matching strategy is conservative in order to minimize false positives. As a cost, a majority of individuals in the 1930 Census data were not matched. The final linked data represents 18 percent of the males in the 1930 IPUMS 5 percent sample and contains over 550,000 individuals.

This study focuses on male household heads within a certain age range. Other sample selection criteria are applied. Therefore, this matched sample is subjected to further sample elimination. The final matched sample used for evaluating the skill transition during the 1930s in this study has over 100,000 observations. To make sure that this linked sample is representative and consistent with the individual characteristics distribution in the 1940 Census sample that we use for our main results, we report the descriptive statistics for the match sample in Appendix Table 1-1. The means of most individual characteristics in the matched sample are very similar to the means shown in Appendix Table 2-1, although there are some differences in earnings and working time variables. For instance, the means and standard deviations of individual earnings

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<sup>28</sup> They did only minimal cleaning of the names before the match: removing annotations like "abs;" removing suffixes like "JR" and "SR", which were sometimes in the first name and sometimes in the last name; removing special characters including apostrophes, hyphens, periods, and other special characters like @,?, and \*); removing spaces within first and last names; and replacing zeros with O. Sometimes multiple names were listed in the name field, probably by the transcription service. For example they might list two or three options with slightly different spelling (John OR Jon OR Jonn). In those cases, they chose the first option.

and working time in the matched sample are higher than in the 1940 Census sample. Individuals in the matched sample tend to be older and have slightly more family members.

Appendix Table 1-1: Summary Statistics for Linked Sample Between IPUMS 5-Percent in 1930 and IPUMS 100-Percent in 1940

Variable	Mean	Std. Dev.	Minimum	Maximum
Real Relief Per Cap 1933-1939 (in 1967\$)	215.064	106.569	10.492	2,304.466
Real Public Works Per Cap 1933-1939 (in 1967\$)	79.065	143.546	0.000	9,458.803
Real AAA Per Cap 1933-1939 (in 1967\$)	26.148	61.369	0.000	2,272.876
Number of Unemployed or Laidoff 1930 % pop 1930	2.874	1.344	0.000	10.404
% Drop in Retail Sales per Cap from 1929 to 1933	34.510	10.744	-186.069	79.489
% Drop in Retail Sales per Cap from 1933 to 1935	-24.741	15.516	-460.687	64.510
Number of Unemployed and Emergency Workers in 1937 as % population in 1930	6.506	2.236	0.363	32.144
Net migration Rate	2.553	14.642	-54.367	306.482
<b><u>Demographic Profile:</u></b>				
# of Fam Members in HH	3.904	1.892	1.000	23.000
Age	41.329	11.415	16.000	65.000
Black	0.066	0.248	0.000	1.000
American Indian	0.001	0.035	0.000	1.000
Other Race	0.001	0.034	0.000	1.000
% Urban in a County	0.606	0.303	0.000	1.000
Below Grade 6	0.196	0.397	0.000	1.000
6 < Grade <= 12	0.685	0.465	0.000	1.000
Some College	0.096	0.294	0.000	1.000
Some College	0.761	0.427	0.000	1.000
Farm Status	0.098	0.297	0.000	1.000
Rent Dwelling	0.609	0.488	0.000	1.000
<b><u>Economic Conditions (County Level):</u></b>				
Total Population in 1930	810,258.200	1,648,889.000	640.000	6,930,446.000
Land Area in 1930 Sq Mile	932.767	1,414.838	24.000	20,175.000
% Black in 1930	7.755	12.256	0.000	85.829
% Urban in 1930	62.705	31.558	0.000	100.000
% Married in 1930	61.299	4.270	47.802	81.703
% Illiterate in 1930	3.856	3.665	0.000	50.291
% Pop Aged 20-29	16.960	2.169	10.057	28.186
% Pop Aged 30-34	7.648	1.216	4.202	12.074
% Pop Aged 35-44	14.443	2.008	8.353	18.695
% Pop Aged 45-54	10.838	1.374	5.514	19.363
% Pop Aged 55-64	6.983	1.547	2.330	16.078
Real Retail Sales per Cap in 1929 (in 1967\$)	845.829	297.480	36.273	1,764.647
Real Retail Wage per Employee in 1929 (in 1967\$)	2,576.159	388.428	0.000	5,458.090

Note: This sample uses Christopher Boone's and Laurence Wilse-Samson's matches of workers from the 1930 Census to the same workers in the 1940 Census.

## **Appendix 2**

### **Tables with Additional Estimation Results**

These Appendix Tables provide additional estimate results. Appendix Table 2-1 is the full set of results for all correlates except the state fixed effects associated with the “County without” specification in Table 2 in the text. Appendix Table 2-2 shows the marginal effects for the New Deal grants and contraction measures associated with the OSD effects reported in Table 3 in the text.

Appendix Tables 2-2 through 2-6 redo the analysis while adding “minus Retail Sales Per Capita Growth from 1935-1939” as a correlate. The results are similar to the results reported in the paper. Compare Table 4 in the paper to Appendix Table 2-2, Table 5 to Appendix Table 2-3, Table 7 to Appendix Table 2-4, Table 8 to Appendix Table 2-5, and Table 9 to Appendix Table 2-6.

Appendix Table 2-7 provides information on the means by state for the New Deal programs and the various aspects of the labor market studied in the paper.

Appendix Table 2-1: Means, Standard Deviations, and OLS Regression Estimates of Impact of County New Deal and Contraction Measures on Log Earnings and Log Time Worked Without Controlling for Net Migration

		(1)	(2)	(3)	(4)
	Mean (Std. Dev.)	Log Real Annual Earnings	Log Real Weekly Earnings	Log Weeks Worked	Log Hours Worked
REAL PER CAPITA NEW DEAL GRANTS (hundreds of dollars)					
Relief, 1933-1939	2.1963 (1.0695)	-0.00347 (0.00411)	-0.00380 (0.00393)	0.000329 (0.00280)	0.00533* (0.00288)
Public Works, 1933-1939	0.7729 (1.3104)	0.00317 (0.00208)	0.00301** (0.00153)	0.000159 (0.000915)	0.00261*** (0.000840)
AAA, 1933-1937	0.2206 (0.5728)	-0.0235*** (0.00536)	-0.0213*** (0.00457)	-0.00226 (0.00232)	0.0135*** (0.00261)
CONTRACTION MEASURES					
Percent Unemployed or Laid Off, 1930	2.98 (1.33)	-0.0122*** (0.00352)	-0.000555 (0.00311)	-0.0116*** (0.00195)	-0.0116*** (0.00266)
Minus Pct. Chg. In Retail Sales Per Capita, 1929-1933	34.58 (10.72)	-0.00126*** (0.000393)	-0.00101*** (0.000245)	-0.000249 (0.000239)	-0.000128 (0.000194)
Minus Pct. Chg. In Retail Sales Per Capita, 1933-1935	-24.34 (14.82)	-0.000491** (0.000201)	-0.000568*** (0.000171)	0.0000771 (0.000103)	-0.0000579 (0.000122)
Pct. Fully Unemployed or on Work Relief, 1937	6.56 (2.16)	-0.00882*** (0.00196)	-0.00267 (0.00181)	-0.00615*** (0.00117)	-0.00483*** (0.00129)
INDIVIDUAL CORRELATES					
Number of Family Members	3.73 (1.89)	0.00987*** (0.000999)	0.00725*** (0.000818)	0.00261*** (0.000538)	0.000317 (0.000545)
Age	40.29 (10.97)	0.00350*** (0.000227)	0.00427*** (0.000160)	-0.000771*** (0.000114)	-0.000668*** (0.0000878)
Black	0.071 (0.257)	-0.296*** (0.0114)	-0.298*** (0.0113)	0.00184 (0.00519)	-0.0213*** (0.00609)
American Indian	0.0005 (0.022)	-0.267*** (0.0752)	-0.146*** (0.0517)	-0.121** (0.0508)	0.00483 (0.0462)
Other Race	0.001 (0.038)	-0.144** (0.0635)	-0.189*** (0.0605)	0.0447** (0.0202)	0.0663*** (0.0204)
Urban	0.680 (0.466)	0.0531*** (0.00715)	0.0452*** (0.00595)	0.00782*** (0.00257)	0.00775*** (0.00245)
Schooling, Under 6 Years	0.183 (0.387)	0.115*** (0.00862)	0.0778*** (0.0113)	0.0374*** (0.0102)	0.0258*** (0.00682)
Schooling, 6 to 12 years	0.685	0.295***	0.214***	0.0811***	0.0720***

	(0.465)	(0.00868)	(0.0122)	(0.0116)	(0.00699)
Schooling Some College or More	0.106	0.488***	0.391***	0.0973***	0.0746***
	(0.308)	(0.0114)	(0.0125)	(0.0111)	(0.00836)
Live in Same Community as in 1935	0.799	-0.0161***	-0.0298***	0.0137***	-0.0149***
	(0.401)	(0.00610)	(0.00473)	(0.00250)	(0.00217)
On Farm	0.071	-0.0829***	-0.0694***	-0.0135***	0.0209***
	(0.257)	(0.00809)	(0.00654)	(0.00481)	(0.00502)
Renter	0.641	-0.133***	-0.111***	-0.0212***	0.00659***
	(0.48)	(0.00431)	(0.00354)	(0.00211)	(0.00196)
OCCUPATION					
Professional, Technical	0.044	0.297***	0.267***	0.0304**	0.0175
	(0.204)	(0.0223)	(0.0210)	(0.0127)	(0.0119)
Farmers	0.002	-0.0166	-0.0952**	0.0786***	0.164***
	(0.045)	(0.0537)	(0.0478)	(0.0227)	(0.0271)
Managers, Officials, Proprietors	0.075	0.466***	0.413***	0.0532***	0.0913***
	(0.263)	(0.0272)	(0.0248)	(0.0122)	(0.0113)
Clerical	0.079	0.0539**	0.0241	0.0298**	0.0138
	(0.27)	(0.0216)	(0.0193)	(0.0122)	(0.0112)
Sales worker	0.084	0.142***	0.126***	0.0160	0.0687***
	(0.278)	(0.0220)	(0.0208)	(0.0123)	(0.0114)
Craftsman	0.231	0.0242	0.0488**	-0.0246**	0.00121
	(0.422)	(0.0207)	(0.0197)	(0.0123)	(0.0107)
Operatives	0.273	-0.177***	-0.111***	-0.0655***	-0.0202*
	(0.446)	(0.0217)	(0.0201)	(0.0126)	(0.0108)
Service workers in private household	0.004	-0.515***	-0.417***	-0.0977***	-0.0627**
	(0.061)	(0.0407)	(0.0329)	(0.0196)	(0.0245)
Service workers outside household	0.052	-0.292***	-0.273***	-0.0183	0.0794***
	(0.222)	(0.0236)	(0.0210)	(0.0132)	(0.0124)
Farm laborers	0.042	-0.557***	-0.451***	-0.106***	0.00296
	(0.201)	(0.0330)	(0.0282)	(0.0192)	(0.0197)
Non-farm laborers	0.110	-0.373***	-0.259***	-0.113***	-0.0409***
	(0.313)	(0.0226)	(0.0211)	(0.0129)	(0.0112)
INDUSTRY					
Agriculture, Forestry, or Fishing	0.050	-0.101***	-0.104***	0.00289	0.0912***
	(0.217)	(0.0286)	(0.0233)	(0.0167)	(0.0177)
Mining	0.048	0.162***	0.255***	-0.0935***	-0.151***
	(0.213)	(0.0254)	(0.0165)	(0.0153)	(0.0173)
Construction	0.059	-0.0786***	0.0898***	-0.168***	-0.0599***
	(0.235)	(0.0199)	(0.0151)	(0.0130)	(0.0114)
Manufacturing	0.396	0.140***	0.114***	0.0266**	0.00398
	(0.489)	(0.0210)	(0.0137)	(0.0123)	(0.0106)

Transportation or Communication	0.136 (0.343)	0.288*** (0.0232)	0.215*** (0.0161)	0.0727*** (0.0105)	0.0838*** (0.0112)
Wholesale Trade	0.041 (0.199)	0.160*** (0.0209)	0.0919*** (0.0140)	0.0685*** (0.0119)	0.0884*** (0.0118)
Retail Trade	0.125 (0.331)	-0.00719 (0.0187)	-0.0499*** (0.0127)	0.0427*** (0.0120)	0.148*** (0.0133)
Finance, Insurance, Real Estate	0.042 (0.201)	0.172*** (0.0384)	0.109*** (0.0326)	0.0629*** (0.00962)	0.0713*** (0.0107)
Business and Repair Services	0.024 (0.154)	0.0210 (0.0181)	-0.0178 (0.0144)	0.0388*** (0.0103)	0.119*** (0.0125)
Personal Services	0.033 (0.18)	0.0153 (0.0236)	-0.0476*** (0.0153)	0.0629*** (0.0127)	0.145*** (0.0124)
Entertainment	0.011 (0.103)	0.104*** (0.0286)	0.109*** (0.0316)	-0.00553 (0.0169)	0.0180 (0.0230)
Professional and Related	0.022 (0.148)	-0.00967 (0.0187)	-0.0495*** (0.0152)	0.0399*** (0.0107)	0.0779*** (0.0131)

COUNTY VARIABLES  
IN 1929/1930

Population	995039 1843722	-1.43e-08*** (2.26e-09)	-1.11e-08*** (2.23e-09)	-3.14e-09*** (9.96e-10)	3.38e-09*** (1.28e-09)
Land Area (Sq. Miles)	886.1 (1306.2)	0.00000162 (0.00000191)	-0.000000758 (0.00000174)	0.00000237* (0.00000131)	0.00000704*** (0.00000224)
Pct. Black	8.2 (12.2)	0.00146*** (0.000402)	0.000932** (0.000365)	0.000524*** (0.000192)	0.000223 (0.000251)
Pct. Urban	66.5 (30.6)	0.000529** (0.000256)	0.000348 (0.000232)	0.000181 (0.000123)	-0.000319** (0.000149)
% Married	61.1 (4.3)	0.00124 (0.00121)	0.00229** (0.00107)	-0.00106* (0.000596)	-0.00147* (0.000754)
% Illiterate	3.9 (3.6)	-0.00305** (0.00130)	-0.00261** (0.00119)	-0.000449 (0.000624)	-0.00144* (0.000784)
% Aged 20-29	17.3 (2.2)	0.0130*** (0.00375)	0.00831** (0.00333)	0.00469*** (0.00177)	0.00206 (0.00208)
% Aged 30-34	7.8 (1.2)	0.00407 (0.0108)	0.00565 (0.00957)	-0.00158 (0.00556)	0.00228 (0.00659)
% Aged 35-44	14.6 (2)	0.0304*** (0.00648)	0.0243*** (0.00572)	0.00610* (0.00338)	0.00535 (0.00408)
% Aged 45-54	10.8 (1.4)	0.0121 (0.00783)	0.0123* (0.00665)	-0.000269 (0.00433)	-0.00858* (0.00473)
% Aged 55-64	6.8 (1.5)	-0.0224*** (0.00580)	-0.0263*** (0.00532)	0.00385 (0.00339)	0.0172*** (0.00386)

Retail sales per capita	876.0 (293.5)	-0.00000582 (0.0000227)	-0.00000258 (0.0000199)	-0.00000325 (0.0000106)	0.0000220** (0.0000102)
Retail Annual Earnings	2615.2 (384.5)	0.000162*** (0.0000162)	0.000168*** (0.0000149)	-0.00000605 (0.00000833)	-0.00000820 (0.00000840)
Constant		6.551*** (0.121)	2.801*** (0.107)	3.750*** (0.0637)	3.660*** (0.0803)
State Fixed Effects		Yes	Yes	Yes	Yes
Observations		126303	126303	126303	126303
R-squared		0.454	0.490	0.106	0.145
Adjusted R-squared		0.453	0.490	0.105	0.144

*Sources and Notes:* See Data section for sources. There were 126,303 observations. Asterisks denote statistical significance in two-tailed t-tests with errors clustered at the county level at \*\*\* 1 percent, \*\* 5 percent, \* 10 percent levels. The means were log(annual earnings) 7.94, log(weeks worked) 3.8, log(weekly hours) 3.74, and log(weekly wage) 4.14.

Appendix Table 2-2: Marginal Effects of County New Deal and Contraction Measures from Multinomial Logit Estimation of Employment Status in 1940 Without Controls for Migration

	Marginal Effects (t-statistics)						
	Private Emp.	Work Relief	Fully Unemp.	Not in Labor Force	Self Employed	Regular Govt.	Mean (Std. Dev.)
Relief, 1933-1939 (hundred of dollars)	-0.003 (-0.8)	0.009 (5.92)	-0.001 (-0.77)	0.000 (-0.05)	-0.007 (-2.4)	0.003 (1.6)	2.0466 (1.1139)
Public Works, 1933- 1939 (hundred of dollars)	-0.001 (-0.96)	-0.002 (-2.34)	0.000 (0.48)	0.000 (-0.78)	0.001 (0.84)	0.002 (2.73)	0.7944 (1.4036)
AAA, 1933-1937 (hundred of dollars)	-0.031 (-8.04)	0.004 (3.75)	0.002 (1.29)	0.000 (-0.14)	0.021 (9.91)	0.005 (4.42)	0.3714 (0.7716)
Number Laid Off of Unemployed as % of pop, 1930	0.00735 (3.27)	-0.00036 (-0.45)	0.00527 (6.04)	0.00001 (0.01)	-0.00843 (-4.74)	-0.00384 (-3.59)	2.63 (1.44)
Minus Pct. Chg. Retail Sales Per Capita, 1929-33	-0.00041 (-2.44)	0.00009 (1.39)	-0.00005 (-0.78)	0.00004 (0.73)	0.00042 (4.2)	-0.00008 (-0.64)	34.97 (11.58)
Minus Pct. Chg. Retail Sales Per Capita, 1933-35	-0.00009 (-0.93)	0.00006 (1.63)	0.00001 (0.21)	0.00002 (0.6)	0.00001 (0.17)	0.00001 (0.16)	-25.25 (17.03)
Number fully unemployed or on Work Relief, 1937	-0.01000 (-6.71)	0.00411 (8.25)	0.00387 (6.85)	0.00169 (4.73)	-0.00251 (-2.65)	0.00286 (4.29)	6.39 (2.36)

Notes: These are marginal effects are calculated from a multinomial logit estimation with 6 choice categories. The marginal were calculated by making a one unit change for the variable for each observation and seeing how the mean changed from the actual mean. There were 266,282 observations. The t-statistics are in parentheses below the marginal and are based on robust standard errors clustered at the county level. The analysis included the correlates listed in Table 2 minus the industry and occupation dummy variables and adding married, number of children under age 5, wages from other household members, other family members with more than \$50 in nonwage income, other nonpaid family workers in household, other family members at work, and other family members on emergency relief. The sample percentages for employment status were regular private workers 51.59, work relief, 4.87, unemployed 5.77, out of the labor forced 4.92, self-employed 26.32, and regular government workers 6.52.

Appendix Table 2-3: Percentage Change in Earnings or Working Time Associated with One Standard Deviation Increase in Grants or Contraction Measure with and without Net Migration and at the County and SEA Level, Including Minus Retail Sales Per Capita Growth, 1935-1939

Correlate	Specification and Sample	Percentage Change in				
		Annual Earnings, 1939	Weekly Earnings, 1939	Weeks Worked, 1939	Hours per Week, March 1940	\$ for \$ Annual Earnings, 1939
<b>REAL PER CAPITA NEW DEAL GRANTS</b>						
Relief, 1933-1939	County without	-0.52	-0.53	0.01	0.54*	-0.14
	County with	-0.09	-0.08	-0.01	0.55*	-0.02
	SEA with	0.68	1.15**	-0.47	0.30	0.20
Public Works, 1933-1939	County without	0.40	0.38*	0.02	0.34***	0.08
	County with	0.18	0.15	0.02	0.34***	0.04
	SEA with	0.22	0.13	0.09	0.50***	0.09
AAA, 1933-1937	County without	-1.33***	-1.21***	-0.13	0.78***	-0.65***
	County with	-1.09***	-0.96***	-0.14	0.78***	-0.54***
	SEA with	-0.86**	-0.61**	-0.24	0.77***	-0.44**
<b>CONTRACTIONS</b>						
Percent Unemployed or Laid Off, 1930	County without	-1.52***	0.00	-1.52***	-1.52***	
	County with	-1.23***	0.30	-1.52***	-1.52***	
	SEA with	0.44	1.29***	-0.85*	-0.29	
Minus Pct. Chg. in Retail Sales Per Capita, 1929-1933	County without	-1.8***	-1.46***	-0.34	-0.22	
	County with	-0.83*	-0.45	-0.38	-0.20	
	SEA with	-0.14	-0.05	-0.09	0.20	
Minus Pct. Chg. in Retail Sales Per Capita, 1933-1935	County without	-1.23***	-1.26***	0.03	-0.17	
	County with	-0.61*	-0.61*	0.01	-0.17	
	SEA with	-0.27	-0.79**	0.52**	-0.02	
Minus Pct. Chg. in Retail Sales Per Capita, 1935-1939	County without	-1.36***	-1.14***	-0.22*	-0.24	
	County with	-0.51	-0.25	-0.26*	-0.23	
	SEA with	-0.11	-0.29	0.18	0.10	
Pct. Fully Unemployed or on Work Relief, 1937	County without	-1.69***	-0.4	-1.29***	-1.00***	
	County with	-2.31***	-1.03***	-1.28***	-1.00***	
	SEA with	-2.03***	-1.22**	-0.8**	-0.89***	
Contraction on All Five Dimensions**	County without	-7.60	-4.25	-3.35	-3.16	
	County with	-5.48	-2.05	-3.43	-3.13	
	SEA with	-2.11	-1.07	-1.04	-0.90	
<b>NET MIGRATION</b>						
Net Migration Rate	County without	NA	NA	NA	NA	
	County with	2.28***	2.37***	-0.09	0.03	

SEA with            2.08\*\*\*    2.33\*\*\*    -0.25    -0.08

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\*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.

\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*The Value for contraction on all five dimensions is the sum of the OSD changes in the unemployment and drop in percentage change in real per capita retail sales variable.

Notes. The entries report OSD effects calculated from coefficients from 12 regressions. For example, in the column for annual earnings, there were three regressions, a baseline regression with county aggregates for the New Deal and contraction measures that excluded net migration, a similar regression that includes net migration at the county level, and a third regression that aggregates the New Deal, contraction measures, and net migration at the State Economic Area level.

Appendix Table 2-4: Percentage Point Change in Employment Status in 1940 in Response to One Standard Deviation Changes in Grants and Contractions, Controlling for Minus Percentage Change in Per Capita Retail Sales, 1935-1939

Correlate	Specification	Percentage Point Change Status Associated with OSD Change in Measure					
		Private Emp.	Work Relief	Fully Unemp.	Not in Labor Force	Self Employed	Regular Govt.
<b>REAL PER CAPITA NEW DEAL GRANTS</b>							
Relief, 1933-1939	County without	-0.49	0.98***	-0.11	0	-0.69**	0.32*
	County with	-0.45	0.96***	-0.1	0.03	-0.77**	0.32*
	SEA with	-1.21**	1.27***	-0.09	0.06	-0.21	0.18
Public Works, 1933-1939	County without	-0.18	-0.21**	0.03	-0.04	0.09	0.30***
	County with	-0.25	-0.15*	0.01	-0.06	0.16**	0.30***
	SEA with	0.02	-0.12	-0.14	-0.09	-0.15	0.48***
AAA, 1933-1937	County without	-2.33***	0.25***	0.1	-0.02	1.59***	0.4***
	County with	-2.28***	0.22***	0.12	0.01	1.52***	0.41***
	SEA with	-2.23***	0.18**	0.33***	0.01	1.27***	0.43***
<b>CONTRACTION MEASURES</b>							
Percent unemployed or laid off, 1930	County without	1.12***	-0.07	0.75***	0	-1.23***	-0.56***
	County with	1.21***	-0.11	0.77***	0.01	-1.31***	-0.57***
	SEA with	0.68*	-0.32*	0.62***	-0.07	-0.59*	-0.33*
Minus Pct. Chg. in Retail Sales Per Capita, 1929-1933	County without	-0.81***	0.18**	-0.01	0.07	0.63***	-0.05
	County with	-0.7***	0.08	0.06	0.13**	0.46***	-0.03
	SEA with	-1.52***	0.09	0.2	0.42***	0.90***	-0.09
Minus Pct. Chg. in Retail Sales Per Capita, 1933-1935	County without	-0.6***	0.21***	0.08	0.06	0.21*	0.04
	County with	-0.53***	0.16**	0.11	0.10*	0.11	0.05
	SEA with	-0.75**	-0.15	-0.01	0.22**	0.6***	0.08
Minus Pct. Chg. in Retail Sales Per Capita, 1935-1939	County without	-1.15***	0.26***	0.16	0.07	0.51***	0.15
	County with	-1.07***	0.2**	0.21*	0.12	0.38***	0.16
	SEA with	-1.81**	-0.15	0.34**	0.18**	1.31***	0.13
Pct. Fully Unemployed or on Work Relief, 1937	County without	-2.21***	0.95***	0.89***	0.39***	-0.67***	0.65***
	County with	-2.31***	0.99***	0.86***	0.35***	-0.54**	0.65***
	SEA with	-0.86**	0.63***	0.55	0.17	-0.88*	0.39**
Contraction on All Five Dimensions**	County without	-3.65	1.52	1.87	0.58	-0.55	0.23
	County with	-3.40	1.33	2.00	0.71	-0.91	0.26
	SEA with	-4.25	0.09	1.71	0.93	1.34	0.18
Net Migration	County without	NA	NA	NA	NA	NA	NA
	County with	0.38*	-0.25**	0.15*	0.18***	-0.52**	0.06
	SEA with	-0.88***	-0.2	0.34**	0.28***	-0.04	0.49**

\*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.

\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*The Value for contraction on all five dimensions is the sum of the OSD changes in the unemployment and drop in percentage change in real per capita retail sales variable.

Notes. The OSD estimates are calculated from marginal effects and reported for three multinomial analyses. The information from the "county without" rows comes from one multinomial analysis in which the contraction and grants variable are county aggregates. The "County with" rows are based on one multinomial analysis in which county level net migration is added to the analysis. All information for "SEA with" refers to a single multinomial analysis in which grants, contractions, and net migration are aggregated at the SEA level.

Appendix Table 2-5: OSD Effects from Multinomial Logit of Skill Levels, Emergency Work, and Unemployed in 1940 for Workers Who Were in Unskilled Jobs in 1930 (Three Samples), including Minus Percentage Change in Per Capita Retail Sales, 1935-1939

		(1)	(2)	(3)	(4)	(5)
		Regular, Unskilled Occ in 1940	Regular, Semi- Skilled Occ in 1940	Regular, Skilled Occ in 1940	Relief Work, 1940	Fully Unem- ployed, 1940
<b><u>New Deal Grants</u></b>						
Real Relief Per	Co without	0.78	-2.3***	0.31	1.81***	-0.6
Cap 1933-1939 (in 1967\$)	Co with	0.75	-2.16***	0.33	1.66***	-0.59
	SEA with	1.2	-3.46***	0.3	1.68***	0.27
Real Public Works	Co without	0.74**	-0.8	0.59***	-0.89*	0.36***
Per Cap 1933-1939 (in 1967\$)	Co with	0.67*	-0.98*	0.55***	-0.57	0.32**
	SEA with	0.31	0.1	0.18	-0.23	-0.36
Real AAA Per Cap	Co without	0.88**	-2.41***	0.33	0.96***	0.24
1933-1939 (in 1967\$)	Co with	0.88**	-2.31***	0.35	0.82***	0.26
	SEA with	0.62	-1.69***	0.34	0.63**	0.1
<b><u>Contraction Measures</u></b>						
Number of	Co without	-1.45**	1.48***	-1.16***	-0.14	1.27***
Unemployed or Laidoff 1930 % pop 1930	Co with	-1.44**	1.56***	-1.12***	-0.28	1.29***
	SEA with	-1.19	1.19	0.01	-1.02*	1.00**
% Drop in Retail	Co without	0.84**	-1.21***	-0.49*	0.96***	-0.1
Sales per Cap from 1929 to 1933	Co with	0.83**	-0.95**	-0.42	0.57	-0.03
	SEA with	0.69**	-0.95	-0.81	1.21**	-0.15
% Drop in Retail	Co without	0.65*	-1.1***	-0.27	0.45	0.27
Sales per Cap from 1933 to 1935	Co with	0.63	-0.91**	-0.21	0.19	0.31
	SEA with	1.25*	-0.77	-0.36	0.22	-0.33
% Drop in Retail	Co without	0.17	-0.84***	0.22	0.73**	-0.27**
Sales per Cap from 1935 to 1939	Co with	0.15	-0.61**	0.28	0.4	-0.22
	SEA with	0.38	-1.14*	0.66*	0.17	-0.06
Number of	Co without	-3.18***	-0.17	-1.24***	2.80***	1.78***
Unemployed or Emergency Worker 1937 % pop 1930	Co with	-3.15***	-0.34	-1.28***	3.04***	1.74***
	SEA with	-3.14***	1.04	-1.06**	2.46***	0.7
All Five	Co without	-2.97	-1.84	-2.94	4.79	2.95
Contraction Measures	Co with	-2.98	-1.25	-2.76	3.92	3.09
	SEA with	-2.02	-0.62	-1.56	3.05	1.16
<b><u>Net Migration</u></b>						
Net Migration, 1930-40	Co without					
	Co with	0.11	0.72*	0.24	-1.29***	0.21
	SEA with	0.34	-1.09*	0.9**	-0.67	0.52
Ind. Characteristics		Y	Y	Y	Y	Y
Econ. Cond. 1929- 30		Y	Y	Y	Y	Y
State Dummies		Y	Y	Y	Y	Y
Observations		23481	23481	23481	23481	23481

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\*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.  
\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.  
\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

Table 2-6: OSD Effects from Multinomial Logit of Skill Levels, Emergency Work, and Unemployed in 1940 for Workers Who Were in Semi-skilled Jobs in 1930 (Three Samples) including Minus Percentage Change in Per Capita Retail Sales, 1935-1939

		(1)	(2)	(3)	(4)	(5)
		Regular, Unskilled Occ in 1940	Regular, Semi- Skilled Occ in 1940	Regular, Skilled Occ in 1940	Relief Work, 1940	Fully Unem- ployed, 1940
<b><u>New Deal Grants</u></b>						
Real Relief Per	Co without	-0.23	0.39	-1.60***	1.41***	0.02
Cap 1933-1939 (in	Co with	-0.21	0.33	-1.44***	1.31***	0.02
1967\$)	SEA with	-0.45	-0.08	-0.76	1.89***	-0.6
Real Public Works	Co without	0.47***	-1.29**	0.57*	-0.15	0.4***
Per Cap 1933-1939	Co with	0.44***	-1.3**	0.48	0	0.38***
(in 1967\$)	SEA with	0.08	-0.14	0.25	0.04	-0.23
Real AAA Per Cap	Co without	0.2	-3.01***	2.04***	0.22	0.55**
1933-1939 (in	Co with	0.22	-2.99***	2.17***	0.06	0.55***
1967\$)	SEA with	-0.36	-1.64***	1.44***	-0.04	0.61*
<b><u>Contraction</u></b>						
<b><u>Measures</u></b>						
Number of	Co without	-0.82**	1.75***	-1.85***	0.03	0.90***
Unemployed or	Co with	-0.81**	1.75***	-1.76***	-0.09	0.9***
Laidoff 1930 %	SEA with	-0.47	-0.09	-0.8	0.11	1.26***
pop 1930						
% Drop in Retail	Co without	0.24	-1.45***	-0.11	0.86***	0.46
Sales per Cap from	Co with	0.28	-1.47**	0.25	0.52*	0.43
1929 to 1933	SEA with	-0.76	-0.95	0.35	0.7*	0.66
% Drop in Retail	Co without	0.35	-1.01**	-0.28	0.95***	-0.01
Sales per Cap from	Co with	0.38	-1.05*	-0.04	0.73***	-0.02
1933 to 1935	SEA with	-0.29	-0.19	-0.09	0.28	0.28
% Drop in Retail	Co without	0.45	-1.42***	-0.28	0.79***	0.46
Sales per Cap from	Co with	0.48	-1.48***	0.03	0.54*	0.43
1935 to 1939	SEA with	0.14	-0.88	-0.14	0.32	0.56
Number of	Co without	-1.00**	-1.85***	0.24	1.05***	1.56***
Unemployed or	Co with	-1.03**	-1.78**	0.04	1.2***	1.57***
Emergency Worker	SEA with	-1.01**	-0.65	-0.03	0.46	1.23***
1937 % pop 1930						
All Five	Co without	-0.79	-3.99	-2.28	3.69	3.38
Contraction	Co with	-0.7	-4.03	-1.48	2.9	3.31
Measures	SEA with	-2.39	-2.76	-0.71	1.87	4
<b><u>Net Migration</u></b>						
Net Migration,	Co without					
1930-40	Co with	0.15	0.07	0.88***	-1.07***	-0.04
	SEA with	-0.4	-0.45	0.86**	-0.47	0.46*
Individual		Y	Y	Y	Y	Y
Characteristics						
Econ. Conditions		Y	Y	Y	Y	Y
(1929-1930)						
State Dummies		Y	Y	Y	Y	Y
Observations		31860	31860	31860	31860	31860

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\*Coefficient in original regression is statistically significant at 10 percent level in a two-tailed test.

\*\*Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

\*\*\* Coefficient in original regression is statistically significant at 5 percent level in a two-tailed test.

Appendix Table 2-7: OSD Effects from Multinomial Logit of Skill Levels, Emergency Work, and Unemployed in 1940 for Workers Who Were in Skilled Jobs in 1930 (Three Samples) including Minus Percentage Change in Per Capita Retail Sales, 1935-1939

		(1)	(2)	(3)	(4)	(5)
		Regular, Unskilled Occ in 1940	Regular, Semi- Skilled Occ in 1940	Regular, Skilled Occ in 1940	Relief Work, 1940	Fully Unem- ployed, 1940
<b><u>New Deal Grants</u></b>						
Real Relief Per	Co without	0.03	-0.45	-0.45	1.14***	-0.27
Cap 1933-1939 (in	Co with	0.03	-0.24	-0.61	1.1***	-0.28
1967\$)	SEA with	0.02	-0.19	-0.63	1.01***	-0.22
Real Public Works	Co without	0.22**	-0.84	0.57	-0.05	0.1
Per Cap 1933-1939	Co with	0.22**	-1.03	0.66	0.04	0.11
(in 1967\$)	SEA with	0.2	-1.12***	1.19***	0.05	-0.32
Real AAA Per Cap	Co without	0.03	-0.85**	1.01**	-0.1	-0.09
1933-1939 (in	Co with	0.04	-0.68	0.95*	-0.22	-0.08
1967\$)	SEA with	-0.08	-0.76*	0.95**	-0.18	0.07
<b><u>Contraction Measures</u></b>						
Number of	Co without	-0.32	1.4***	-1.36***	-0.21	0.49*
Unemployed or	Co with	-0.31	1.56***	-1.42***	-0.31	0.49*
Laidoff 1930 %	SEA with	-0.89*	0.07	0.53	-0.33	0.62*
pop 1930						
% Drop in Retail	Co without	0.28	-1.11***	0.51	0.54**	-0.21
Sales per Cap from	Co with	0.29	-0.57	0.21	0.28	-0.2
1929 to 1933	SEA with	0.99**	-0.77	-1.25*	0.58*	0.45
% Drop in Retail	Co without	-0.04	-0.16	0.03	0.29	-0.13
Sales per Cap from	Co with	-0.02	0.2	-0.17	0.13	-0.13
1933 to 1935	SEA with	0.21	-0.39	-0.35	0.31	0.22
% Drop in Retail	Co without	-0.14	-0.5**	-0.26	0.42	0.48
Sales per Cap from	Co with	-0.12	-0.12	-0.48	0.24	0.49
1935 to 1939	SEA with	0.32	0.31	-1.57***	0.32	0.63*
Number of	Co without	0.22	-0.44	-1.82***	0.92***	1.11***
Unemployed or	Co with	0.22	-0.73	-1.62***	1.02***	1.12***
Emergency Worker	SEA with	0.42	-0.36	-1.37**	0.75**	0.55
1937 % pop 1930						
All Five	Co without	0.01	-0.81	-2.89	1.96	1.73
Contraction	Co with	0.05	0.33	-3.49	1.35	1.76
Measures	SEA with	1.05	-1.13	-4.02	1.63	2.47
<b><u>Net Migration</u></b>						
Net Migration,	Co without					
1930-40	Co with	0.07	1.12***	-0.47	-0.79***	0.07
	SEA with	0.25	0.09	-0.31	-0.61**	0.58**
Ind. Char.	Y	Y	Y	Y	Y	Y
Econ. Cond. 1930	Y	Y	Y	Y	Y	Y
State Dummies	Y	Y	Y	Y	Y	Y
Observations		32472	32472	32472	32472	32472

**Appendix Table 2-8: State Means for Earnings and Working Time for Male Household Heads, Per Capita New Deal Grants, and Distribution of Male Household Heads in Employment and Nonemployment, Dollar Amounts are in 1967 Dollars**

State	Earnings and Working Time for Privately Employed Workers				Per Capita New Deal Grants			Percentage in Categories of Employment and Nonemployment					
	Annual Earnings	Weekly Earnings	Weeks Worked	Weekly Hours	Relief	Public Works	AAA	Private Employ	Emerg Work	Fully Unemp.	Out of the Labor Force	Self-Employment	Regular Govt. Employ
Alabama	2412	52.13	45.4	42.9	150	57	30	43.4	5.4	3.8	3.8	38.6	4.9
Arizona	2995	63.74	45.7	48.2	252	371	28	47.4	5.5	8.2	6.9	24.3	7.8
Arkansas	2038	44.60	43.5	45.0	146	55	70	30.7	7.1	5.0	4.3	48.9	4.1
California	3846	81.75	46.3	43.9	249	87	10	55.4	3.3	7.9	6.7	18.9	7.8
Colorado	3231	69.80	46.0	46.8	312	133	43	43.1	8.3	5.5	6.7	28.6	7.7
Connecticut	3886	81.14	47.4	43.2	147	71	5	66.9	2.7	5.3	4.2	14.9	6.0
Delaware	3857	79.60	47.4	44.8	150	127	11	57.6	1.9	4.7	4.1	26.4	5.3
Florida	2585	55.81	45.3	48.2	181	82	9	55.3	5.2	4.4	6.7	21.2	7.2
Georgia	2410	50.77	46.7	45.2	139	47	28	47.6	4.0	2.7	4.0	36.0	5.7
Idaho	3014	65.90	44.8	49.2	216	137	95	32.9	8.7	7.6	3.9	38.2	8.7
Illinois	3881	82.05	46.9	43.2	257	73	21	58.3	5.7	5.2	5.0	19.8	6.0
Indiana	3428	72.88	46.5	43.5	221	71	36	54.0	5.6	4.5	4.4	26.0	5.5
Iowa	3164	65.87	47.5	48.4	119	69	121	37.6	3.3	4.3	4.4	44.6	5.8
Kansas	3137	66.22	46.9	48.2	171	85	146	36.7	5.1	4.4	4.9	42.0	6.8
Kentucky	2662	59.92	43.9	42.0	119	55	28	43.0	6.1	5.5	4.7	35.7	5.0
Louisiana	2630	56.62	45.4	45.7	169	54	44	44.3	4.8	5.1	5.7	34.5	5.6
Maine	2829	61.68	45.2	44.2	114	148	3	52.8	4.0	9.4	5.1	21.6	7.1
Maryland	3374	71.60	46.8	44.0	138	103	8	59.8	2.6	4.1	5.0	19.4	9.0
Massachusetts	3787	78.69	47.4	42.9	250	59	1	60.1	6.1	5.9	5.4	13.6	8.9
Michigan	3830	84.75	44.9	42.2	226	48	8	61.2	4.6	4.9	4.0	18.9	6.3
Minnesota	3857	79.58	48.1	45.9	263	84	36	38.8	6.1	6.3	4.7	37.4	6.6
Mississippi	2072	46.20	44.7	46.8	114	63	56	26.6	4.7	3.8	3.7	56.9	4.3

Missouri	3327	70.06	46.6	44.9	205	68	28	45.8	6.8	4.8	5.2	32.2	5.3
Montana	3550	76.94	45.6	45.9	333	207	116	36.2	7.4	6.7	4.1	35.2	10.4
Nebraska	3426	70.36	48.5	49.9	216	84	111	32.1	8.4	3.5	4.4	45.6	5.9
Nevada	4021	84.78	46.6	47.2	273	1583	7	51.6	3.2	4.6	4.6	21.7	14.3
New Hampshire	3121	66.14	46.0	44.1	141	69	2	57.1	5.3	7.2	5.9	16.2	8.3
New Jersey	4193	86.68	47.6	43.0	220	78	1	63.2	4.3	6.5	4.5	14.5	7.1
New Mexico	2771	59.23	45.9	47.0	209	199	65	38.6	8.9	8.1	5.6	29.2	9.6
New York	4046	85.46	46.9	44.0	297	75	1	57.6	2.9	8.9	5.4	17.5	7.7
North Carolina	2361	50.16	46.3	42.9	76	59	32	43.9	4.0	2.6	4.3	40.4	4.9
North Dakota	3369	69.59	48.7	50.5	254	127	171	22.8	9.0	5.0	3.2	53.0	7.0
Ohio	3705	78.85	46.5	42.1	293	58	13	59.2	5.8	4.9	4.9	19.7	5.5
Oklahoma	3022	63.37	46.5	46.3	165	60	60	36.6	6.5	7.0	5.0	37.8	7.1
Oregon	3462	74.96	45.2	43.2	195	109	27	51.5	4.1	6.1	5.6	25.4	7.4
Pennsylvania	3409	75.82	44.4	40.6	266	56	3	61.7	4.3	8.2	5.0	14.7	6.0
Rhode Island	3454	74.15	45.7	42.3	150	95	0	60.7	6.0	7.8	4.5	14.3	6.8
South Carolina	2163	44.96	47.1	43.9	131	108	46	47.7	6.1	2.3	3.9	34.9	5.1
South Dakota	3312	67.88	47.8	50.4	205	126	259	22.5	8.0	3.0	4.2	54.1	8.2
Tennessee	2662	56.44	46.1	44.3	112	66	21	41.9	5.4	4.2	4.2	37.6	6.6
Texas	2954	62.10	46.3	47.3	114	91	67	46.0	4.1	5.0	4.2	35.3	5.4
Utah	3658	77.08	47.1	46.3	236	141	24	48.0	7.1	6.2	5.4	25.4	7.9
Vermont	2930	61.23	47.3	47.7	111	73	5	51.2	4.2	4.4	3.8	29.6	6.7
Virginia	2834	60.27	45.9	44.2	77	161	11	51.9	2.3	2.8	4.4	29.3	9.3
Washington	3616	79.34	45.0	42.7	255	125	25	50.8	5.1	6.6	6.5	21.7	9.2
West Virginia	3038	70.99	42.7	39.0	196	48	3	58.6	6.9	6.6	6.5	16.3	5.1
Wisconsin	3724	77.21	48.0	44.6	255	71	18	46.4	6.0	4.7	4.4	32.3	6.3
Wyoming	3451	73.49	46.5	46.7	287	259	52	48.2	4.9	5.1	3.0	28.2	10.6

Standard Deviation for Counties	965	19.67	5.1	7.1	151	106	98	18.3	6.5	5.0	4.7	19.8	6.1
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*Notes.* The means for earnings, working time, and per capita New Deal grants is from the sample for private employment used in Tables 2 and 4. The means for the remaining variables are from the sample used in Tables 3 and 5. The standard deviation for counties is the standard deviation of county aggregates for the same variables.