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Public Relief and Private Employment in the Great Depression

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The unemployment relief programs introduced by the federal government in the 1930s were the largest single factor in the growth of the federal budget over the decade. We develop a model that enables us to estimate the effects of the relief programs on private employment. Cross-sectional data bearing on the operation of the Federal Emergency Relief Administration rejects the hypothesis that the federal relief programs reduced private employment. Individuals did respond to the incentives of relief benefits, but only by moving between relief and non-relief unemployment.

IN May 1933 the federal government initiated a massive unemployment relief program. The ensuing expenditures on relief accounted for over two thirds of the 300 percent increase in federal spending from 1932 to 1940, with benefits going to a minimum of three million families each month. The administration of the federal relief effort permanently altered the relationship between federal, state, and local governments at the same time that it presented millions of individuals with unprecedented alternatives to private employment. The Federal Emergency Relief Administration (FERA) was the centerpiece of the initial relief effort and is the focus of this paper. Using data for 52 large cities over the year from July 1934 to June 1935, we attempt to identify (1) the forces influencing the number of cases on relief and (2) the effects of public relief on private employment.[1]

Before 1933 relief was the responsibility of city and county governments. Few states had relief administrations or were appropriating money for relief. FERA policies utilized the existing relief structure by allocating

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[1] This paper is a preliminary report on research in progress. Our conclusions are subject to a number of qualifications that include but are not limited to the following: (a) our assumption that local relief budgets are exogenous; (b) our treatment of the budget allocation process followed by the local relief authorities; (c) our "market clearing" assumptions regarding both the public and private labor markets; (d) our failure to control for differences in non-pecuniary relief criteria across cities; (e) our measure of benefits, which does not control for differences in the composition of the recipient populations across cities; (f) our measure of wages, which does not control for hours of work and may be contaminated by the effects of NRA codes; (g) our method of constructing measures of aggregate demand and employment stability. All of these issues are discussed at length in our "Public Relief and Private Unemployment," University of Washington Discussion Paper No. 80-10, and our "On the Construction of Aggregate Demand and Employment Instability Measures," University of Washington Discussion Paper No. 80-11. Persons interested in pursuing ideas suggested in this paper, or dissatisfied with these disclaimers, should contact the authors for copies of these other papers.

federal moneys to be spent at the discretion of local relief authorities. Although local authorities operated with budgets largely beyond their control (over 75 percent of the money was federal), they were free (subject to their budgets) to determine who would receive relief and how much that relief would be. Consequently, benefits per case varied widely across cities. We have assumed that, given its exogenously determined budget, each relief agency tried to help as many cases as possible. To accomplish this the agency would have to set the "market clearing" level of benefits per case, since any other level would produce either an excess demand or an excess supply of cases.

In modeling the alternatives facing individuals in the labor market we assume there are two potential consumers of labor services, the private employer and the government. We depict the two markets and their connections graphically in Figure 1. Figure 1d represents the public labor market. The curve C_d is not a demand curve in the usual sense. It simply shows the combinations of benefits and case loads from which the relief agency can choose. The C_d curve in Figure 1d is an identity in which the relief budget (G) equals the number of cases per month (C) times the average benefits per case (B): $G \equiv C \cdot B$.

In Figure 1d, C_s is the supply of relief cases; the number of cases increases as benefits per case rise. As wages in the private market (W) increase, the supply of relief cases shifts to the left. A measure of the instability of private employment (V) is included in this supply function and in the private employment supply function as a control variable. Holding annual wages constant (as we are forced to do by our data) higher instability of employment means more leisure time associated with private employment. Hence a rise in V will reduce the attractiveness of relief relative to private employment.

The private labor market is shown in Figure 1a. The demand for labor, L_d, is the value of marginal product of labor and is dependent on the level of aggregate demand (A). As aggregate demand increases, the demand for private workers increases. The supply of private labor, L_s, is upward sloping with respect to wages. As benefits in the public market increase, the supply of labor in the private market shifts to the left.

The functions C_d and L_d are determined independently by exogenous factors: local relief budgets and aggregate demand. The supply functions are dependent upon one another since individuals are choosing between two competing forms of employment. We assume that some unique relationship exists between employment in the private market and employment in the public market, and that the two activities are negatively related, as depicted in Figure 1c. The slope of the line at various points depends on the movement of individuals between employment, relief, and leisure. With a unique relationship between cases and employment we can

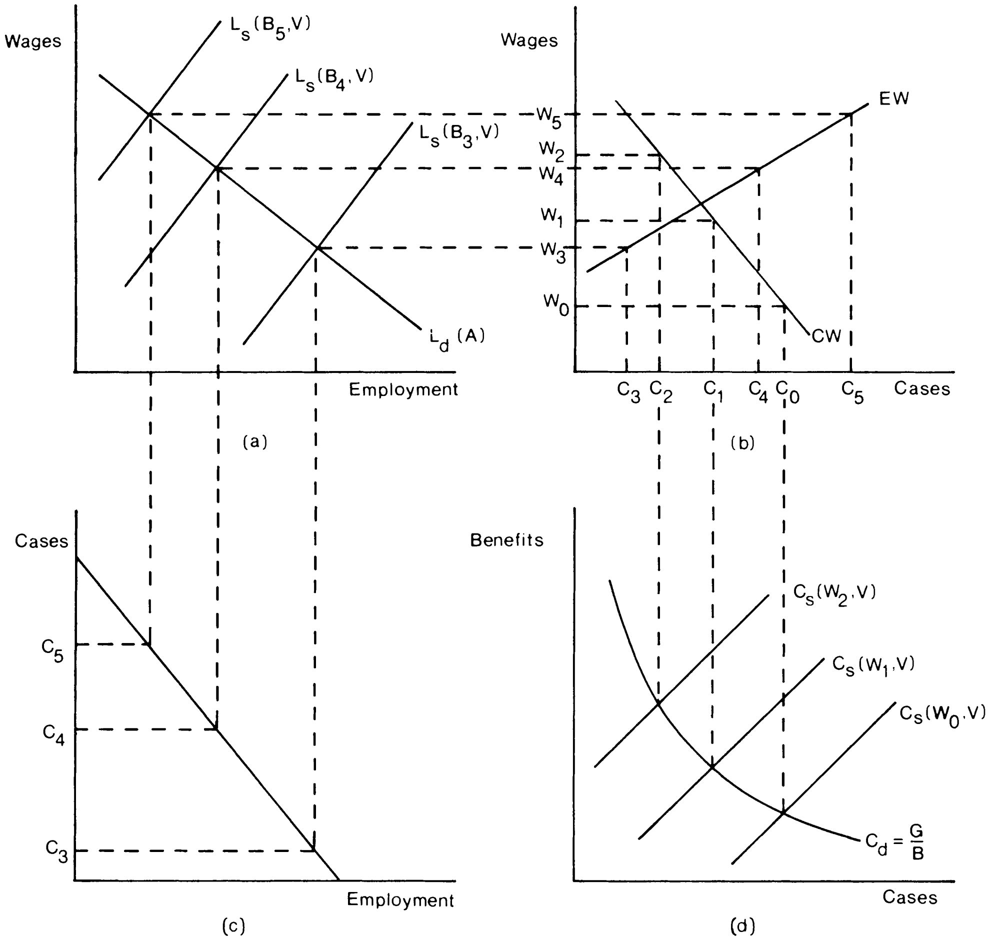

FIGURE 1
EMPLOYMENT IN THE PUBLIC AND PRIVATE LABOR MARKETS

derive observable implications about the changes in market behavior when exogenous variables change.

Benefits and wages move to "clear" the markets for labor. Figure 1b shows combinations of wages and relief cases that clear the public market (CW) and the private market (EW). CW is derived by allowing wages to vary (W_0, W_1, W_2) and observing the equilibrium number of cases (C_0, C_1, C_2) that clear the public market as the C_s curve moves in response to the wage changes. EW is derived by allowing benefits to vary (B_3, B_4, B_5) and observing the market clearing combinations of employment and wages (W_3, W_4, W_5) in the private market as L_s moves in response to benefit changes. Using the relationship in Figure 1c, we can transform employment into relief cases, giving us the combinations of relief cases and wages that clear the private market. Combining the CW and EW curves yields the unique combination of cases, benefits, employment, and wages that simultaneously clears both markets.

The equilibrium levels of cases and wages in Figure 1b depend on the levels of the exogenous variables—budgets, aggregate demand, and employment instability. As budgets increase, the C_d curve in the public market shifts to the right. At every level of wages more cases will be observed, that is, the CW curve shifts to the right. The increased demand in the public market leads to higher benefits and case loads. Higher benefits cause the private labor supply curve (L_s) to shift to the left; this raises wages and decreases employment. Thus, the effect of an increase in the relief budgets is to decrease employment and increase case loads, wages, and benefits.

As aggregate demand increases, L_d shifts to the right. At every level of wages more employment and thus fewer cases will be observed, that is, the EW curve shifts to the left. As a result, wages and employment both increase. The higher wage levels shift C_s to the left, resulting in lower case loads and higher benefits per case. The result of an increase in aggregate demand thus is higher wages, employment, and benefits, and lower case loads.

To test these predictions we have calculated real average monthly per capita relief budgets and case loads for each city.[2] Benefits per case (B) are the real average monthly per capita budget (G) divided by average monthly per capita cases (C). Wages (W) are real average monthly wages for all employees. The two other variables, aggregate demand (A) and employment instability (V) are based on the industrial composition of employment in the 52 cities in 1930, and on monthly indices of nationwide employment by industry, July 1934 to June 1935. Our index of aggregate demand for each city is the weighted average of the nationwide indices, with each industry index receiving a weight equal to that industry's share of employment in that city in 1930. Our measure of employment instability in a city is simply the variance of the detrended monthly aggregate demand indices for the city.

The model yields a set of comparative statics predictions. Since cases and benefits are rigidly linked via the budget, there are only two independent endogenous variables—wages and either benefits or cases—and three exogenous variables—budgets, aggregate demand, and employment instability. OLS estimates of the reduced forms implied by the CW and

[2] The benefit, case and budget variables were obtained from Works Progress Administration, *Final Statistical Report of the Federal Emergency Relief Administration* (Washington, D.C., 1942). The wage data for 1935 are from U.S. Department of Commerce, *Personnel and Payroll in Industry and Business, and Farm Personnel by Counties* (Washington, D.C., 1937), and for 1929 from U.S. Department of Commerce, *Fifteenth Census of the United States, Manufactures: 1929*, vol. 1 (Washington, D.C., 1931). The price series used to deflate nominal values across cities is from Margaret L. Stecker, *Intercity Differences in the Costs of Living, March 1935, 59 Cities* (Washington, D.C., 1937). The aggregate demand variable is constructed from information found in U.S. Department of Commerce, *Fifteenth Census of the United States: 1930, Unemployment*, vol. 1 (Washington, D.C., 1931), and U.S. Department of Labor, *Monthly Labor Review*, 39 (July 1934) through 42 (June 1936).

EW curves, measuring all variables as natural logarithms, are shown below (standard errors in parentheses):

$$\ln C = -4.97 + .68 \ln G - 3.83 \ln A - .20 \ln V \quad R^2 = .46$$
$$\quad (.98) \quad (.11) \qquad (2.53) \qquad (.13) \qquad df = 48 \qquad (C1)$$

$$\ln W = 4.51 + .06 \ln G + .29 \ln A - .03 \ln V \quad R^2 = .10$$
$$\quad (.26) \quad (.03) \qquad (.66) \qquad (.03) \qquad df = 48 \qquad (W1)$$

At face value these estimates are consistent with our model. Cities with more depressed demand conditions had, as a result, lower wages and higher per capita relief case loads. Cities with more generous relief budgets experienced higher case loads and, presumably as a result of attracting people out of private employment, higher wages as well.

These results, however, cannot be taken at face value. Cross-sectional variations in real wages generally are due largely to differences in industrial composition, schooling, on the job experience, sex, and race—characteristics that we shall lump under the rubric "human capital." Our failure to account for differences in human capital is a serious omission, and is reflected most visibly in the poor fit of the wage equation.

We cannot directly observe the cross-sectional differences in human capital. As a proxy for human capital we have chosen the level of wages in 1929, a time prior to the onset of the Great Depression and the initiation of the federal relief programs. The results of incorporating 1929 wages (W29) into the reduced-form wage equation as a control for cross-sectional differences in human capital are shown below (standard errors in parentheses):

$$\ln W = 1.78 + .01 \ln G - .08 \ln A - .03 \ln V + .57 \ln W29 \quad R^2 = .70$$
$$\quad (.32) \quad (.02) \qquad (.39) \qquad (.02) \qquad (.06) \qquad df = 47 (W2)$$

The interpretation suggested by this estimate is sharply at odds with that suggested by Equation W1. The estimated effects of aggregate demand and relief budgets are both small and statistically insignificant. Instead, cross-sectional differences in wages are determined by differences in human capital—as measured by 1929 wages. Our interpretation that 1935 real wages were independent of demand conditions in the private market and of relief budgets has three implications. First, cross-sectional differences in aggregate demand did not result in wage adjustments, but rather in employment adjustments. Second, differences in relief benefits appear to have had no discernable effects on employment in the private market, for such effects would have shown up via an effect of relief budgets on wages. Finally, wages must be treated as an exogenous variable reflecting cross-sectional differences in human capital. This implies that our private and public labor supply functions, which assume that wages are endogenous, are misspecified.

To specify the model correctly we need only refocus on the supply conditions in the public market. The relationship between budgets, cases, and benefits is unchanged. Now, however, aggregate demand enters the supply function directly:

$$\ln C_s = \text{Constant} + a_1 \ln B + a_2 \ln W + a_3 \ln A + a_4 \ln V$$

This equation can be estimated by two-stage least squares. The benefit variable in this equation is the predicted level of benefits obtained from regressing benefits on the exogenous variables. The results are shown below (standard errors in parentheses):

$$\underset{}{\ln B} = \underset{(2.59)}{.35} + \underset{(.11)}{.26} \ln G + \underset{(.53)}{1.02} \ln W + \underset{(2.47)}{3.53} \ln A + \underset{(.13)}{.22} \ln V \qquad R^2 = .28 \quad df = 47 \qquad \text{(B2)}$$

$$\ln C = \underset{(2.56)}{-1.34} + \underset{(.42)}{2.81}\, \text{Bhat} - \underset{(.78)}{3.90} \ln W - \underset{(2.96)}{13.45} \ln A - \underset{(.17)}{.85} \ln V \qquad \text{(C2)}$$

where Bhat = Predicted ln B from Equation B2.

The effects of wages, aggregate demand, and employment instability in Equation B2 are manifestations of "supply side" effects in the public market. Conversely, the coefficient of the relief budget reflects the influence of larger amounts of funding on the "demand" for relief cases. The magnitude of this coefficient implies that local relief authorities used about one fourth of an additional dollar of funding to increase benefits per case and about three fourths to add to their case load.

As noted before, the estimates of Equation W2 imply that wages are unaffected by either aggregate demand or the level of relief benefits. The negative coefficient on the wage variable in Equation C2 thus reflects the combination of two forces. High-wage individuals place a high marginal value on their leisure time. The non-pecuniary costs of relief, such as waiting in line or the possibility of being assigned to work relief, will be higher for such persons, producing a smaller number of cases. In addition, workers with more human capital should have higher levels of non-human capital, and thus be less likely to qualify for relief.

The coefficient of the benefit variable in Equation C2 is an estimate of the elasticity of supply of relief cases with respect to benefits. Since benefits appear to have no effect on wages in the private market, their effect on the level of private employment must also be nil. The positive effect of benefits on the number of cases thus reflects the movement of individuals between relief and non-relief unemployment.

These results are strikingly at odds with the notion that federal relief programs produced lower employment in the private sector in the 1930s. It would appear that relief served only to redistribute wealth toward persons who otherwise would have been unemployed and without a source of market income. It is true, however, that the empirical measures of our theoretical constructs are flawed. It would not surprise us if improvements in measurement, particularly of wages and benefits, would yield significantly different conclusions from those we have suggested here.