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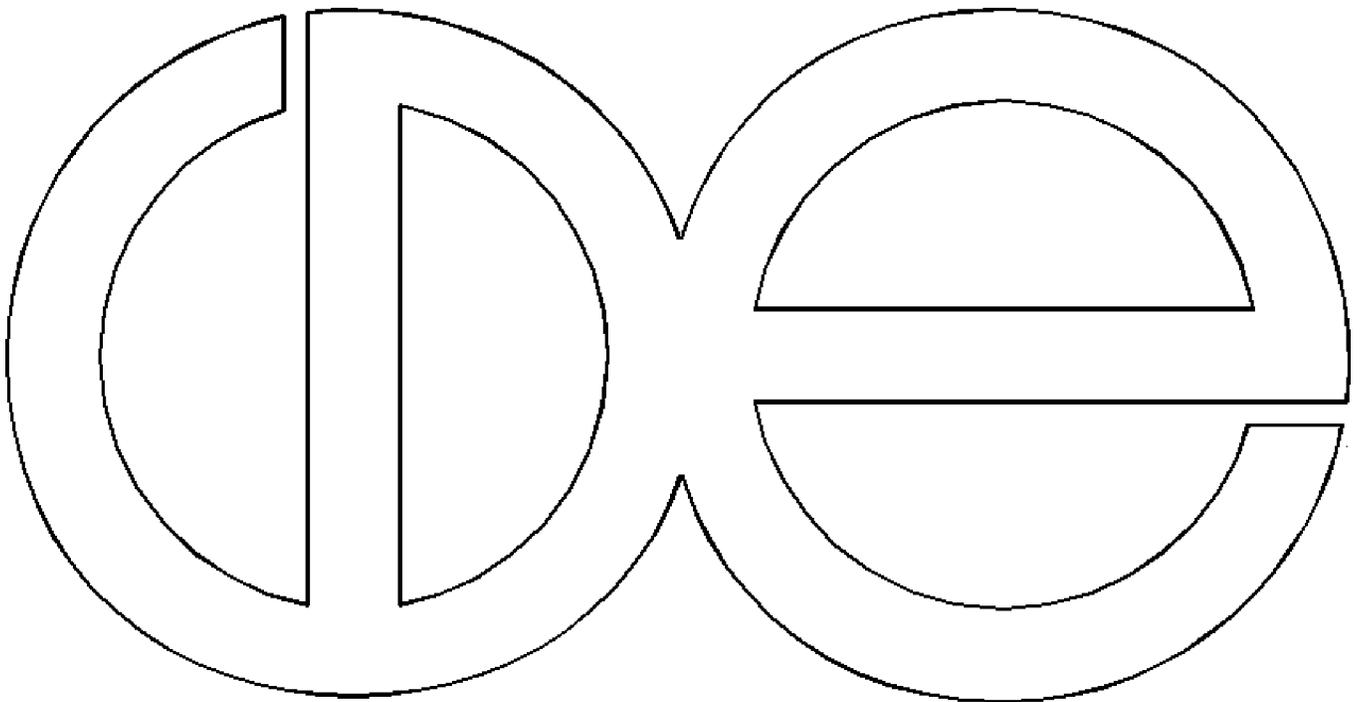
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An Empirical Analysis of AFDC Exits,
Employment, and State-Level Minimum Wages

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Abstract

As the effects of minimum wages on welfare exits and employment of welfare mothers is unknown, this study examined those effects using data from the Survey of Income and Program Participation. It found that higher minimum wage levels and hikes in those levels slowed AFDC exit rates. Analyses of work effort and duration of employment among working welfare mothers yielded similar results. Among all working welfare mothers, those working in states with higher minimum wages or working in states that increased them worked fewer hours and worked shorter periods of time. Results suggest that raising the minimum wage will not reduce welfare dependency by making work pay. Indeed, the disemployment effect resulting from minimum wage hikes impedes policies aimed at reducing welfare dependency through work. As an anti-poverty device, the minimum wage, on its own, is ineffective and outdated.

1. INTRODUCTION

Studies have recently shown that many mothers work while receiving welfare. A study in Chicago by Edin and Jencks (1992) found that among a selected group of welfare recipients, most worked while on welfare and their earnings accounted for nearly fifteen percent of their income. Another study by Harris (1992), using a nationally representative sample of mothers instead of a select group like the one Edin and Jencks (1992) studied, found that 51 percent of welfare mothers worked and that women with the shortest welfare spells worked while receiving welfare. These two studies and others show that work and welfare participation are not necessarily mutually exclusive and suggest that more mothers than earlier presumed earn their way off welfare. (See Tienda, 1990; Ellwood, 1988; Bane and Ellwood, 1983).

Research also shows that mothers earning their way off welfare differ from those who do not earn their way off welfare. Compared to mothers who do not work their way off welfare, those who do have higher educational levels (Bane and Ellwood, 1983), better job skills (Duncan, 1984; Ellwood, 1988; O'Neill et al., 1984; O'Neill, Bassi, and Wolf, 1987), and longer job histories (Plotnick, 1983; Bane and Ellwood, 1983). Hence, improving the productivity of welfare mothers through adult education, job training, and job search programs hastens welfare exits.

What is less understood, however, is the effects that changes in labor demand have on employment among welfare mothers and their ability to exit welfare through work. In particular, the effects of raising the minimum wage on welfare mothers' labor force participation and their exits from welfare remain obscure. Indeed, few have considered the possibility that this anti-

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poverty policy[1] may thwart another one, that being, requiring welfare mothers to work and work hard enough to become economically self-reliant.

In fact, I argue that these two policies are incompatible. My research indicates that minimum wage increases discourage, rather than encourage, work among welfare mothers and decrease, rather than raise, their exit rates from welfare. Instead of making work pay, higher minimum wages cause disemployment effects among working welfare mothers--an effect researchers have repeatedly found for other low-wage workers.

The paper has the following sections. Section 2 provides some background and motivation for the study. Section 3 describes the data and methods. In Section 4, I present the results and in Section 5, I draw some conclusions.

2. BACKGROUND

The literature on the effects of minimum wages on employment opportunities of low-wage workers is vast, containing many articles reviewing the state of knowledge at the time they were written or reporting new results. (See Lester [1946], Gramlich [1976], Mincer [1976], Welch and Cunningham [1978], Parsons [1980], Freeman et al., [1981], Brown et al., [1982], Brown et al., [1983], Brown [1988], and Neumark and Wascher [1992]). Apart from a few exceptions, like Card and Krueger (1994), the literature supports economic theory suggesting that setting minimum wages above the prevailing wage in competitive labor markets increases the cost of labor and, all else equal, will lead firms to demand less labor. That lower demand therefore reduces employment opportunities for low-wage, low-skill labor (Katz and Krueger, 1992).

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[1]Minimum wage increases are intended to boost the incomes of the working poor.

Most economists agree that increases in minimum wages increase unemployment among unskilled workers (Alston et al., 1992). Most would also agree that most welfare mothers find work in low-wage industries (Ellwood, 1988).

However, until recently, there would have been little unanimity over studying the effects of minimum wages on AFDC mothers' employment chances. Those contesting the need for such research would have had sound reasons. First, many rightly assumed that it was a fruitless topic to pursue because few should choose minimum wage jobs with no benefits over higher welfare benefits accompanied by Food Stamps and Medicaid. Second, most minimum wage workers are not AFDC mothers. Rather, most are young, not poor, and work only part-time (Stigler and Raisian, 1988). Third, before Congress enacted the Family Support Act of 1988, AFDC eligibility mostly excluded a mandatory work requirement.

Not surprisingly, therefore, no study shows effects of minimum wages on welfare-to-work transitions or their impact on the labor supply of welfare mothers. This lack of knowledge should end, however, especially when poor women are: (1) over-represented in the low-wage labor market and should encounter the same disemployment effect that minimum wages impose on other groups of low-wage workers (Martin and Giannaros, 1990); (2) over-represented among those heading working low-income families (Mazur, 1987); and (3) the ones most likely to be affected by tougher AFDC work rules. Indeed, even if welfare mothers are a minority among all low-wage workers, many work to end welfare dependence or to supplement cash transfers with earnings.

Since welfare mothers are a major group that policymakers hope will benefit from, not be disadvantaged by, increases in the minimum wage,[2] knowing whether minimum wages reduce

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[2]On February 2, 1995 the Secretary of Labor, Robert Reich, argued that an increase in the minimum wage would get "people off of welfare into work." (Press briefing of 2/3/1995.)

the number of mothers who can work their way off welfare is essential. If so, such reductions are costly as the welfare system supports more mothers than it otherwise would support. Additionally, AFDC mothers may lose on-the-job training opportunities that could increase their earnings and promote their job security.

Policymakers also believe that adding tougher work requirements to the AFDC program is indispensable (Danziger et al., 1994). Work, they argue, develops job skills among recipients, lengthens their work experience, and promotes their economic self-sufficiency.

Few would disagree that work brings financial and personal rewards. But, the benefits from working are reaped over time, not just by attaining a job. For AFDC mothers to exploit the gains from working, several conditions supporting their ongoing attachment to the work force have to exist and remain present.

Some of those conditions they control, like choice of child care arrangement. Others, however, are beyond their control, may change, and may ultimately limit their work effort. One such factor is government regulation of the low-wage labor market through increases in minimum wages. Such increases should lessen the number of hours AFDC mothers work or shorten their attachment to the labor force. Either outcome means that AFDC mothers lose the benefits from working, possibly discouraging some from future job searches as well.

Plainly, research is needed on the link between minimum wages and the labor supply of welfare mothers. Changes in the composition of the low-wage labor force, changes in welfare policies, declines in the real value of public assistance benefits (Blank, 1994), proposals to increase the federal minimum wage, as well as newly formed gaps in the literature, make this study timely and important.

3. EMPIRICAL APPROACH AND DATA DESCRIPTION

Empirical Approach

My empirical approach uses panel data (described in the next section) to study effects of minimum wages on welfare exits and the labor market behavior of welfare mothers. Ideally, I would like a "natural experiment" in which the timing of a minimum wage increase was randomized across states (or employers) and I could study state-specific changes in the duration of welfare spells, the duration of employment spells among welfare mothers, and the hours worked by them. Like its predecessors that studied the effects of minimum wages on teenage employment, however, my study lacks such data with which to disentangle the true effects of minimum wage increases.

But, during the period under study, several state legislatures did increase minimum wages within the state (Appendix A) and those actions inadvertently generated useful data that I could exploit to identify state-specific effects of minimum wages on welfare durations, employment durations among welfare mothers, and hours worked by them.

As my primary foci are exits from AFDC participation and from the labor force, the study readily lends itself to estimating dynamic models of determinants of exit rates from each of these events. The empirical framework therefore assumes that the durations of welfare spells and employment spells of welfare mothers are influenced by a set of state-level variables X, individual-level variables Z_k, and a person-specific random component ϵ_k. In some specifications, state (S) and industry (J) dummy variables are included to account for unobserved, fixed influences common to all individuals within states or industries. Theoretically, the utility for the *kth* mother in state *I* and period *t* is,

$$U_{kit} \;=\; X_{it}\beta \;+\; Z_{it}\gamma \;+\; S_i\delta \;+\; J_{it}\xi \;+\; \epsilon_{kit} \,. \tag{1}$$

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Included in *X* are state-specific minimum wage levels and AFDC levels as well as a dummy variable indicating that a state increased its minimum wage level during the *kth* individual's spell of welfare receipt or employment. Included in Z_k are dummy variables for headship status, disability status, and an additional birth, as well as continuous variables measuring the individual's age, completed education level, and level of reported household unearned income.

Equation (1) underlies the reduced-form Cox proportional hazards model (Cox, 1972; Cox and Oats, 1984) which I estimate and describe in (2):

$$\lambda(t_i) \quad = \quad e^{(-\beta'X_i)(-\gamma'Z_i)(-\delta'S_i)(-\xi'J_i)}\lambda_o(t_i) \tag{2}$$

The function λ_o is the baseline hazard that produces estimates of the time until exits from AFDC participation or labor force participation. It assumes that each individual is "at risk" of leaving employment or welfare participation each instant and during that period the person is subject to a shock, ς, at time $t + \triangle t$. Contained in the set of possible shocks are state-generated increases in minimum wages (that is, $X_{it} \in \varsigma$). The reduced-form model thereby controls for state and industry fixed effects while identifying effects of state-level minimum wage increases on the probability of exiting the AFDC program (the hazard rate) in period $t + \triangle t$.

For the duration models, I recognized four ways in which welfare participation could have ended: (1) by increased earnings that made the mother ineligible for AFDC; (2) through a marriage; (3) by losing dependent children;[3] or (4) by remaining on AFDC for the entire panel

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[3]By losing a child, I mean that the child enters adulthood or moves away from the household.

period (i.e., becoming right censored). The variable "Censor" in column 1 of Table 2 gives the final share of the sample (43 percent) that were censored due to any one of the four ways.

Blank and Ruggles (1994) call the second and third types of terminations "demographic endings," and so do I, although becoming ineligible for AFDC through marriage is quite different than becoming ineligible through losing children. Further, a child can return and a marriage can end; either event would reactivate eligibility for AFDC. Indeed, of the mothers who terminated their welfare spells through marriage, 6.6 percent of those marriages dissolved before the survey's end.

Data Description

Analyses use data from the Survey of Income and Program Participation (SIPP), a longitudinal survey of a random sample of the U.S. population. I used the 1986, 1987, and 1988 panels of the SIPP, each of which contains four rotation groups spanning the period from October 1985 through March 1990. Each rotation group provides information on 24 or 28 consecutive months. Each wave of the survey was collected every four months, so each participant was interviewed three times a year about his or her monthly experiences over the previous quarter. Thus, the data provide monthly information on household composition, labor market behavior, and income sources. (See U.S. Bureau of the Census, 1991b.)

The SIPP is particularly useful because it has monthly, longitudinal information on the welfare participation and labor market experiences of women. Possessing monthly (rather than yearly)[4] data on welfare receipt and employment makes analyses of welfare-to-work transitions more accurate, although the length of time to study one or subsequent transitions is limited.

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[4]Another commonly used data set, the Panel Study of Income Dynamics, provides yearly data on welfare receipt and employment.

Combining the three SIPP panels yielded a sample of 12,017 black and white women who reported that they were mothers of children under the age of 18.[5] About 90 percent of them, (N = 10,743), reported no AFDC participation. The remaining 1,274 mothers reported AFDC participation for one or more months of the panel period.

It was from this group of 1,274 mothers that I drew the sample I needed for the different types of empirical models in the study. Numbering 982,[6] this subsample of single mothers either ended a spell of AFDC receipt or always received AFDC during the observation period. Some of the 982 mothers experienced several episodes of AFDC receipt, thereby contributing towards a total count of 1,171 welfare spells. Those spells, rather than the mothers themselves, were the units of analysis for one set of duration models.

To achieve the goals of the study, I had to examine employment among the sample of welfare mothers. First, I found that 499 of the 982 mothers were employed for one or more periods of time during the panel. Those spells of employment, however, did not necessarily have to coincide with spells of welfare receipt. Upon further investigation, I found that 419 of these mothers did have employment spells overlapping with welfare spells. Those overlaps not only included those who were working, but also contained those who reported actively searching for work or temporarily laid-off. Of the 419 mothers, I found that 319 of them worked during their first welfare spell, had reported their average weekly hours of work, and had also reported the industry within which they worked. For example, 105 of the 319 women worked in retail trade,

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[5]Due to initial construction of these data, Hispanics and other ethnic groups in the SIPP are excluded from these analyses.

[6]Factors decreasing the size of the sample from 1,274 to 982 observations included: mothers that worked in different states from the ones in which they resided; mothers categorized into multi-state groupings (see Appendix A); mothers that reported self-employment; mothers with too many changes in reported state of residence--excessive changes that were impossible to reconcile.

while another 143 worked in the service industry. Hence, I could estimate the impact of minimum wages on average hours of work during this welfare spell as well as evaluate that impact on the duration of employment during a spell (or spells) of AFDC receipt.

Combining three SIPP panels provided much information on the single mothers who participated in the AFDC program. Still, because of the construction of the SIPP, I was limited to 24 or 28 months of data on each sample member. The weakness of the SIPP is that it disallows analyses of long-term welfare participation. Many single mothers were receiving AFDC when they were first interviewed (N = 344). Not knowing if this was a protracted spell of AFDC or if it was one of many short spells may have biased, to some degree, my estimates of exit rates. In retrospect, each SIPP survey should have collected information on the timing and duration of any past use of public assistance, even if they were not currently receiving assistance.

For the 982 mothers contributing 1,171 spells, a record of their experiences in the labor market, changes in their household composition, and shifts in their sources of income was created. Durations of jobs, occupations, and housing arrangements, as well as numbers of coresiding children, were added to information collected on their demographic attributes. Together, the variables portray the experiences of AFDC mothers who ended a welfare spell or received welfare for the panel period.

Besides generating the sample, I collected information on state minimum wages, state AFDC benefit levels, and industry-specific average hourly wages by state. Once assembled, those data were modified so that they spanned the same period as the combined SIPP panels.

These state-level data were then appended to each individual that lived in each particular state. When an increase in a state minimum wage occurred during the observation period, that increase and the amount of the increase were recorded and added to each individual's record. Integrating these multiple data sources resulted in one source of data that contained the timing

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of changes in state minimum wages and state AFDC benefit levels, and the timing of changes in mothers' AFDC participation.

For convenience, I placed details about creation of these state-level panel data and their overlay with SIPP data into appendices A, B, and C. Also for clarity of presentation, I defined all variables in the first table (Table 1) and I reported all descriptive statistics in the second table (Table 2). Other tables in the main text, tables 3 through 8, I used to summarize the multivariate analyses.

4.   FINDINGS

Findings reported in tables 3 through 8 suggested that--by raising the cost of low-skilled labor--minimum wages lowered chances that women receiving AFDC left that program through work.

First, I discuss the results for three alternative welfare duration models that are contained in Tables 3 and 4. The three welfare duration models, developed within a competing risk framework,[7] distinguished between those who ended their AFDC spell through work and those who ended AFDC spells through demographic changes.

The reason I present three models in tables 3 and 4 was that I wanted to show results for three different ways of measuring the impact of minimum wages on the exit rate from the AFDC program. Thus, the variable in Model 1 of each table, "Minwage level," showed how variation in minimum wage levels across states affected AFDC exit rates; the variable in Model 2, "Minwage up," displayed how increases in states' minimum wages affected those same exits; and the variable in Model 3, "Marginal," measured how differences across states in the amount of an

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[7]A competing risk framework adjusts for alternative exit routes. Hence, in the nonparametric duration models, women leaving welfare through demographic changes are censored.

increase affected those exits. Though each model measured a unique part of state-level minimum

wages, each one shared a common finding: that minimum wage increases lowered the rate of

exiting the AFDC program.

Model 1 in Table 3 showed that variation in state minimum wage levels lowered the rate

at which mothers left the program. The estimated coefficient for "Minwage level" indicated that

those who received AFDC in higher minimum wage states left the AFDC program more slowly

than those who received AFDC in states with lower minimum wages.

Model 2 of Table 3, instead of estimating effects of minimum wage levels, estimated the

effect of minimum wage hikes on AFDC exits. The negative coefficient for "Minwage up"

(column 2) indicated that AFDC exit rates were lower among women who lived in states that

increased minimum wages while they also had received AFDC. Model 3 completed Table 3 by

showing the effect of the marginal increase in minimum wages on AFDC exits. The estimated

coefficient for "Marginal" was large and statistically significant, again reflecting the theme that

minimum wage hikes hindered welfare exits through work.

Table 3 revealed other useful data about factors affecting AFDC exits. Increases in

nonearned income accelerated welfare exits, a finding that is consistent with Ellwood (1988) and

Blank and Ruggles' (1994) findings. And, as expected, educational levels and adding children

to the family during a spell of welfare receipt influenced rates of AFDC exits too. The latter

lowered rates of exit while the former increased them. I suspect that magnitudes for estimates

of "Add child" would have risen if I could have distinguished births from returns of older

children.[8]

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[8]Analyses clump births and returns of other dependent children during the welfare spell
together.

I expected disability status, race, and age to significantly affect AFDC exits. (See Bane and Ellwood [1983]; Rank [1985]; and Plotnick [1983].) In Table 3, "Disabled" and "White" have the predicted impact but the estimated effects are statistically insignificant; thus only suggesting that Whites and the Disabled exited AFDC faster than others. The negative coefficients across the three models for "AFDC Benefits" were also what I would have expected: benefit levels reduced work effort. AFDC mothers living in states with more generous benefits left the AFDC program more slowly.

Holding constant maternal characteristics, state-level AFDC benefits, and state-level hourly average wages, models showed that minimum wages slowed AFDC exits. I was concerned, however, about the true effects of minimum wages since variables measuring industry effects and state effects remained omitted from the models. I added these variables and the results appear in Table 4.

Panels A and B of Table 4 showed the estimated effects of minimum wages after controlling for industry and state effects. (Since other results largely stayed unchanged, for simplicity, I did not repeat them in Table 4.) Minimum wage effects remained strong, even after industry and state effects were accounted for, while the addition of state dummies strengthened the measured effects of AFDC generosity levels.

Minimum wages lowered AFDC exit rates because they caused disemployment among working welfare mothers, thereby lowering chances that they can work their way off welfare. Without alternative paths off welfare, like marriage, the welfare spell presumably lengthens. If true, higher minimum wages should reduce the duration of a mother's employment spell while on welfare or decrease her labor supply or both. When I tested the latter propositions, I found evidence, albeit weaker, to support both of them. This information is contained in tables 5 through 8.

Starting with Tables 5 and 6, the dependent variable was the duration of employment *during* an observed welfare spell. Not all mothers worked during a welfare spell but some did and those mothers reported their monthly labor market attachments while receiving welfare. For them, I estimated the effects of minimum wages on the length of their employment spell during that coterminous spell of AFDC receipt.

In Table 5, a positive association between the level of minimum wages and the duration of employment while receiving welfare, (0.40), showed that higher minimum wage levels shortened spells of employment among working welfare mothers. Although statistically insignificant, according to estimated coefficients for "Minwage level," higher minimum wages accelerated exits from the labor force among working welfare mothers. (Like the models in Tables 3 and 4, I measured demographic changes that could affect exits from work. Work exits in these analyses happened *before* welfare exits.) Though statistically insignificant as well, estimated coefficients for "Minwage up" and "Marginal," -0.15 and -0.11 respectively, suggested that higher minimum wages slowed exits from the labor force among working welfare mothers. This was the only evidence I found for the entire study indicating that higher minimum wages could promote, rather than discourage, labor force attachments among welfare mothers.

Copying the presentation style for Tables 3 and 4, Panels A and B of Table 6 showed estimated effects of minimum wages on employment spells among working welfare mothers, again controlling for industry and state effects. Signs for those effects remain unchanged and again statistically weak, even after I included industry or state effects.

Also, the prevailing effects of AFDC generosity levels in Panel B of Table 6 remained, reflecting detected effects from Panel B of Table 4, where state dummies were found to strengthen AFDC effects. Such results are at least suggestive that labor force attachments among working welfare mothers are shorter in those states possessing higher benefit levels.

Contrasting results in tables 3 and 4, I found that disability status, at least for Model 1, and maternal age (all models) had the expected effects on employment duration. Whereas the ages of mothers slowed exits from employment during the welfare spell, disability status increased it. Also, the same negative coefficient (-0.08) across each model for "Education" again indicated that the more educated stayed employed for longer periods during their spell of AFDC receipt.

Since I found that minimum wages lowered AFDC exits and possibly increased employment exits among working welfare mothers, I argue that minimum wages do cause disemployment effects among working welfare mothers.

Before concluding the analyses, however, I decided to conduct a final test of effects of minimum wages on the labor supply of working welfare mothers. In an ordinary least squares regression model, higher minimum wages should reduce working welfare mothers' hours of work, just as they do for other low-wage workers. When I tested this hypothesis, I again found some evidence suggesting a negative effect of minimum wages on work effort among welfare mothers.

Table 7 shows that higher minimum wages reduced the labor supply of working welfare mothers. The estimated coefficient for "Minwage level" (-8.69) indicated that average weekly hours worked during an observed welfare spell fell substantially, about eight and half hours. The binary variable indicating an increase in the minimum wage, "Minwage up," which incidentally was the only statistically significant variable of the three minimum wage measures, suggested that mothers worked about five hours less each week after the rise (-5.14).

Repeating the same effects shown before in other tables, panels A and B of Table 8 showed that even if industry and state dummy variables were included in models, effects of minimum wage levels and hikes continued to lessen hours worked. Admittedly, the estimated effects were statistically insignificant. However, relative to Table 7's estimated coefficients, the

estimates in Table 8 remained stable and kept on demonstrating a reduction in work effort. Indeed, when AFDC generosity levels were held constant, along with dummy variables for states, race, female headship, and adding children during a welfare spell, weekly average hours of work fell by at least four hours. (See the estimates for "Minwage Up" in panels A and B of Table 8.)

To assess the effects of policy initiatives that either raised minimum wage levels or AFDC benefit levels on welfare mothers' labor supply, I conducted sensitivity analyses using the findings reported in Table 7. What I calculated were the proportional changes in hours of work for ten percent increases in minimum wage levels and AFDC benefit levels (i.e., partial elasticities), as well as proportional changes in work hours for a ten percent increase in the real wage level.[9]

I found that a ten percent increase in minimum wages, (33 cents), lowered the average weekly hours of work of welfare mothers by about two hours (-2.05). Policymakers making an equivalent rise in AFDC benefit levels would reduce (my measure of) a welfare mothers' work effort by a quarter of an hour (-0.25). If real wages increased by ten percent, however, average weekly hours of work would increase by three quarters of an hour (0.44).

These figures persuade me that the minimum wage, as a policy instrument, is less effective than targeted tax policies such as the Earned Income Tax Credit (EITC), which indirectly increases wages for the working poor, or macroeconomic policies that directly promote real wage growth. Moreover, the minimum wage provides less incentive for welfare mothers to work than policies that would raise the earnings disregard of the AFDC program or would lower the program's benefit reduction rate.

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[9]The elasticities are evaluated at the sample means of the independent variables. Thus, the elasticities are for the typical mother in the sample.

In closing my review of Tables 7 and 8, I briefly underscore once again the negative coefficients across the three models for "AFDC Benefits." Not surprisingly, higher AFDC benefit levels reduced hours of work among working AFDC mothers while higher real hourly average wages increased hours of work among these mothers.

Finally, levels of minimum wages and levels of AFDC benefits were correlated, albeit imperfectly (rho = 0.46). The modest collinearity between AFDC benefits and minimum wages did not bias the models, however (Goldberger, 1991), and I could still identify each variable's effect. Possibly, when states change one social policy they change another; I imagine that when those changes happen they are closely tied to the performance of each state's economy too.

5. CONCLUSIONS

This study and others cited in this paper show that mothers earning their way off welfare routinely worked in the low-skill, low-wage labor market where minimum wage increases matter. I found that higher state-level minimum wages lowered AFDC exit rates and reduced the labor force participation of poor mothers receiving AFDC benefits.

In my judgment, raising the minimum wage will not move a large number of welfare mothers into the work force. Indeed, my findings suggest that the effect of raising state-level minimum wages on welfare mothers' employment prospects is negative, not positive. Increasing minimum wages will not make work pay for welfare-dependent mothers because, in reality, such hikes increase the cost of their labor.

Increases in minimum wages may further disadvantage these women if employers become more selective in hiring practices, preferring to employ teenagers finishing their high school diplomas, college students looking for part-time work, or other low-wage workers having fewer family responsibilities. Further, increases in minimum wages, if tied to the distribution of human capital levels, raise the educational qualifications of the marginal worker. If hiring is now based

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on the marginal worker possessing a high school diploma, many mothers receiving AFDC will remain unemployed as many do not possess that level of education (Table 2). Conversely, college and high school students could find the low-wage job now sufficiently attractive to compete for it, "crowding out" those welfare mothers willing to work.

My findings, showing the adverse effect that minimum wages have on AFDC mothers' employment prospects, cast further doubt over the effectiveness of minimum wages as an antipoverty device. The evidence supports those arguing that minimum wages, on their own, are "badly targeted as an antipoverty device" and questioning whether increases in the minimum wage close the gap between rich and poor (Blank, 1994; Horrigan and Mincy, 1993; Burkhauser, Couch, and Wittenburg, 1995). My back-of-the-envelope calculation suggests that Congress would need to increase the minimum wage to at least $9.50 an hour to ensure that a welfare mother with two children could support herself and her children from her earnings alone. Moreover, policymakers must deal with a basic policy dilemma: when minimum wages are increased, welfare mothers have more trouble maintaining work hours mandated by welfare rules because they are now more costly to employ. It seems counterproductive to raise the minimum wage on the one hand while mandating tougher work rules for welfare eligibility on the other.

If welfare mothers have to satisfy work rules to receive assistance, yet also want to stay employed and gain work skills, devising another subminimum wage level, like that created for students, along with child care subsidies, may be necessary.

Apart from highlighting how one social policy can undermine another, the study also broadens the literature. Heretofore, findings that have been driving the debate over the anti-poverty effectiveness of minimum wages have pertained to low-wage workers and teenagers, not welfare recipients or female heads of households, the ones most likely to live in poverty.

In my opinion, there are better ways of promoting economic independence among welfare mothers and raising their incomes above the poverty line than raising the minimum wage.

For starters, macro-economic policies that promote a healthy economy would serve all workers, not just welfare mothers willing to work. Employment policies should give former and present welfare mothers greater incentives to work. Many more welfare mothers work than people realize. Their efforts should be encouraged either by raising the earnings disregard of the Aid to Families with Dependent Children (AFDC) program or by lowering its benefit reduction rate. Beyond such tinkering, maintaining the current level of the Earned Income Tax Credit benefits is pivotal because it rewards work. If the aim is to convince mothers that welfare is temporary, then those who are not working should attend job training or remedial education programs, like JOBS or JPTA.

Finally, mothers who move off welfare and into jobs need employment-related services and other assistance. Many former welfare mothers return to welfare because there are too many uncertainties. Irregular child support payments, unstable child care arrangements, and inadequate health insurance make welfare look more attractive than juggling a job and family demands. Policies that promote stability in the early phase of economic independence, like child support enforcement and the Dependent Care Tax Credit, are essential to keep women from returning to welfare. These sorts of policies targeting former welfare mothers and current ones will be more effective and more relevant to the 1990's than raising the minimum wage.

APPENDIX A

THE STATE MINIMUM WAGE PANEL DATA SET

The panel data on minimum wages include observations covering 50 states and the District of Columbia for the same time period as the SIPP panel data set: October 1985 until January 1990. For this period of time, I constructed a chronology of changes in each state's minimum wage using information published by each state's labor department or from other publications disseminated by the Bureau of Labor Statistics (Nelson, 1991). With those sources, I created variables that measured the length of time that each state's minimum wage applied and that identified the month when each state's minimum wage was increased, if it did increase during the period when SIPP data were collected.

I encountered difficulties while constructing these data. Most problems were a by-product of multiple minimum wages within each state and rules about which workers were covered by the state minimum wage/s. For instance in Minnesota, there were two minimum wages for different types of workers. The minimum wage for Minnesotans covered by the Fair Labor Standards Act (FLSA) differed from the level for those covered only by state law. The District of Columbia had nine different minimum wages that were dependent upon industries and occupations. For Minnesota, I used the FLSA minimum wage level and for the District of Columbia I used the same weighted average that Neumark and Wascher (1992) used.

Before merging these data with the SIPP data, I deflated average hourly wages into 1987 real dollar amounts. The deflator I chose was a recalibrated version of the Consumer Price Index, excluding food and energy, as reported in Table B-62 of the *1994 Economic Report of the President* (Council of Economic Advisors, 1994). This deflator, or its variants, have been often used. (See Moffit, 1992).

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Another problem was that several of the least populated states in SIPP were combined into multi-state groupings to protect respondents' privacy.[10] A few respondents came from those states. Because I was unable to correctly match minimum wages to those respondents, they were excluded from analyses.

The creation of these state minimum wage data was assisted by two factors: (1) during the period of the SIPP panel, state minimum wage levels were never lowered and (2) the federal minimum wage level was never raised above $3.35. (See Table 9).

Since the federal minimum wage remained constant over the survey period, I created variables indicating levels of state minimum wages relative to the level of the federal minimum wage. One variable indicated whether a state's minimum wage was increased to equal the federal minimum wage; another noted whether a state's minimum wage was increased above the federal minimum wage; and, a final one marked whether a state's minimum wage level remained below the federal minimum wage. Those states with minimum wages always below the federal minimum wage were given an effective minimum wage equal to the statutory federal minimum wage.

The details on state minimum wages and the federal minimum wage are summarized in Table 9. Table 9 shows that between 1985 and 1989, several states had minimum wages above the uniform federal minimum wage.

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[10]The multi-state groupings consisted of these states: Iowa, North Dakota, South Dakota, Alaska, Idaho, Montana, and Wyoming.

THE STATE AFDC PANEL DATA SET

Panel data on AFDC benefit levels have one observation for each state and protectorate

for the same time period as the SIPP panel data set: October 1985 until January 1990. For this

period of time, I constructed a chronology of changes in each state's AFDC benefit levels by

family size using information disseminated by the Administration of Children and Families (U.S.

Department of Health and Human Services, 1994) and data published in the *Green Book* (U.S.

House of Representatives, 1994). From these sources, I created variables that measured the

length of time that each state's AFDC benefit level for each family size was valid, as well as

variables that measured nominal levels of benefits for families of different sizes. Obviously, the

procedure identified the months when states' AFDC benefit levels increased, if they did go up

during the period when SIPP data were collected. The maximum number of benefit level changes

in the five year period is nine and the maximum family size is five.[11]

Before merging these data with the SIPP data, I deflated AFDC benefits into 1987 real

dollar amounts. The deflator I choose was a rebased version of the Consumer Price Index,

excluding food and energy, as reported in Table B-62 of the *1994 Economic Report of the*

President (Council of Economic Advisors, 1994). This deflator, or its variants, have been

commonly used. (See Moffit, 1992).

When joining these state-level panel data to the SIPP data, I again encountered the

problem of several of the least populated states having been combined to protect respondents'

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[11]Data I possessed on state AFDC benefits went up to a family size of 14. However, the marginal increases in benefits above family sizes of five are paltry and my sample contained few single mothers who had families sized greater than five. For computing efficiency, I appended benefit levels for a family size of five to those few who had family sizes greater than five.

privacy. (See Footnote 10.) I had to discard mothers living in those states (N = 35) because I

was unable to correctly match AFDC benefit levels to their welfare and employment histories.

APPENDIX C

THE STATE HOURLY WAGE PANEL DATA SET

Panel data on average hourly real wages by state by industry include observations covering 50 states and the District of Columbia for the same time period as the SIPP panel.

To create these data, I used the Bureau of Labor Statistics (BLS) publication, *Employment and Wages: Annual Averages* (U.S. BLS, 1994) for the years 1985 through until 1989. Except for the government sector, industry classifications match those of SIPP. For the government sector, I used average weekly hours reported in Table 6 of the publication for public administration workers in state government. I calculated an hourly wage measure by dividing average weekly wages by average weekly hours by industry at the national level. These data come from *Employment and Earnings*, another BLS publication (U.S. BLS, 1994). Also, hours data for calculating hourly wages pertains only to private non-farm payrolls; data on average weekly hours of work for farming and government workers are unavailable. As a proxy, average weekly hours for total private non-farm payrolls has been used instead.[12]

Before merging these data with the SIPP data, I deflated average hourly wages into 1987 real dollar amounts. The deflator I choose was a rebased version of the Consumer Price Index, excluding food and energy, as reported in Table B-62 of the *1994 Economic Report of the President* (Council of Economic Advisors, 1994). This deflator, or its variants, have been commonly used. (See Moffit, 1992).

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[12]The steps introduce measurement error into analyses but I do not believe that compromises results. First, few mothers reported working in the public sector (Table 2) and none worked in agriculture. Second, no published state/industry breakdowns are available for hours so I had to exploit national sources of data. I could have used state hours data for manufacturing only but the proportion of mothers in manufacturing was modest (Table 2); thus, manufacturing hours would have been a poor proxy for all industries. Besides, manufacturing is heavily unionized relative to other industries and using state hours data for manufacturing would have narrowed variation in average hourly wages.

BLS confidentiality reporting standards and SIPP protections against respondent identification generated missing data when I merged these two sources of data. The problem of combining the least populated states to protect respondents' privacy has been discussed already. The BLS's strict confidentiality reporting standards, which generated some additional missing data, prevent publishing data that, if otherwise printed, would expose small firms at a point in time within an industry and state. These observations were coded as -99 for missing. This problem, luckily, caused no additional attrition from the sample.

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Table 1

Definitions of Variables

Age	Age of mother at start of first observed welfare spell
White	1 if non-hispanic white, 0 otherwise
Disabled	1 if reports work disability in Wave 2 of survey, 0 otherwise
Add child	1 if a dependent child either returns to mother or born before welfare spell ends, 0 otherwise
Otherinc	Log of average amount of household income minus all household income minus all household transfers and mother's earnings
Education	Years of completed schooling
Minwage up	1 if state minimum wage was increased above federal level while woman was receiving AFDC
Minwage level	State minimum wage level prevailing while mother receiving welfare
AFDC benefits	State AFDC benefit level, for a given family size, prevailing during period mother was receiving AFDC (1987$)
Hourly wage	For the industry in which mother works, real average hourly rate for that industry in that state (1987$)
Marginal	Amount that the minimum wage increased (1987$)
State	State the mother lived in while receiving welfare and subsequent to welfare spell if she exited AFDC
Female head	1 if heads own household and never marries during survey period, 0 otherwise
Agric	1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for agriculture forestry, and fisheries, 0 otherwise
Const	1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for construction, 0 otherwise
Manu	1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for manufacturing, 0 otherwise

Table 1--con't

Definitions of Variables

TransCom   1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for transportation, communications, public utilities, 0 otherwise

Wholesale   1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for wholesale trade, 0 otherwise

Retail   1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for retail trade, 0 otherwise

Insurance   1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for finance, insurance, real estate, otherwise 0

Busrepair   1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for business and repair, otherwise 0

Service   1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for personal, etc. services, otherwise 0

Govern   1 if worked in any of the 3-digit Standard Industrial Classification (SIC) codes for public administration, otherwise 0

Weldur   Length of time (in months) mother was receiving AFDC

Hours   Average weekly hours worked while receiving welfare

Empdur   Length of time (in months) that mother was continuously working during her first welfare spell

Censor   1 if spell of welfare receipt or employment is right censored, i.e., spell continues until end of observation period.

Source: SIPP (1986, 1987, 1988 panels).

Table 2

Descriptive Statistics for Variables by Type of Analysis
(Standard deviations in parentheses)

Analysis of:	AFDC exits[a]	Employment exits[b]	Work effort[c]
Sample size:	N = 1,171	N = 388	N = 319
Unit of observation:	Spell of AFDC receipt	Employment spells	Working welfare mothers
Variables			
Age	30.8	30.5	30.3
	(9.6)	(8.7)	(8.4)
White	0.56	0.58	0.57
	(0.49)	(0.49)	(0.49)
Disabled	0.14	0.08	0.08
	(0.35)	(0.27)	(0.27)
Add child	0.27	0.02	0.21
	(0.44)	(0.16)	(0.40)
Otherinc	3.83	3.84	3.22
	(5.14)	(5.7)	(6.96)
Education	10.7	11.2	11.4
	(2.4)	(2.1)	(2.0)
Minwage up	0.09	0.03	0.06
	(0.29)	(0.26)	(0.24)
Minwage level	$3.38	$3.38	$3.38
	(0.14)	(0.14)	(0.12)
AFDC benefits	$353.32	$360.35	$353.64
	(181.88)	(179.84)	(177.11)
Hourly wage	$4.79	$9.91	$10.06
	(5.36)	(2.77)	(2.75)
Marginal	0.036	0.009	0.032
	(0.13)	(0.11)	(0.12)
Female head	0.86	0.86	0.87
	(0.33)	(0.31)	(0.32)
Hours	5.36	11.8[d]	14.12
	(10.30)	(12.05)	12.45
Manu	0.07	0.14	0.12
	(0.26)	(0.34)	(0.32)
Wholesale	0.02	0.03	0.03
	(0.14)	(0.16)	(0.17)
Retail	0.14	0.31	0.33
	(0.34)	(0.46)	(0.47)
Insurance	0.01	0.02	0.02
	(0.11)	(0.12)	(0.14)
Service	0.20	0.42	0.45
	(0.40)	(0.49)	(0.49)

Table 2--con't

Descriptive Statistics for Variables by Type of Analysis
(Standard deviations in parentheses)

Govern	0.01	0.04	0.03
	(0.11)	(0.19)	(0.18)
Weldur	14.13	N.A.	N.A.
	(9.43)		
Empdur	N.A.	6.22	N.A.
		(5.14)	
Censor	0.43	0.35	N.A.
	(0.49)	(0.47)	

Source: SIPP (1986, 1987 ,1988 panels).
[a]Individual's length of AFDC participation.
[b]Measured during first observed spell of AFDC receipt.
[c]Hours reported for the first AFDC spell only. Minority of mothers have more than one spell
 but hours measured only for first welfare spell for those who did report employment and average
 weekly hours of employment.
[d]Measured only for the first employment spell while on welfare. Other statistics available for
 other employment spells for subsequent welfare spells.
N.A. = Not Applicable.

Table 3

Determinants of AFDC Exits [a]
(Standard errors in parentheses)

	Model 1	Model 2	Model 3
Female head	-0.95***	-0.91***	-0.96***
	(0.11)	(0.11)	(0.12)
White	0.08	0.13	0.09
	(0.10)	(0.10)	(0.10)
Age	-0.002	-0.002	-0.002
	(0.005)	(0.005)	(0.005)
Disabled	0.10	0.10	0.08
	(0.14)	(0.13)	(0.14)
Add child	-0.33***	-0.31***	-0.32***
	(0.10)	(0.11)	(0.10)
Otherinc	0.08***	0.08***	0.08***
	(0.01)	(0.01)	(0.02)
Education	0.04**	0.05***	0.04**
	(0.01)	(0.01)	(0.01)
Hourly wage	0.04***	0.04***	0.04***
	(0.01)	(0.01)	(0.01)
Hours	0.02***	0.02***	0.02***
	(0.005)	(0.005)	(0.005)
AFDC Benefits	-0.003	-0.0002	-0.0003
	(0.0002)	(0.0002)	(0.0003)
Minwage level	-1.28***	--	--
	(0.44)		
Minwage up	--	-1.24***	--
		(0.24)	-2.23***
Marginal	--	--	(0.54)
N =	1,171.00	1,171.00	1,171.00
Log likelihood =	-3,281.07	-3,268.17	-3,273.74
Chi^2 (14) =	261.89***	287.69***	276.55***

Source: SIPP (1986, 1987, 1988 panels).
[a]Models include a control for seam bias and four-month time parameters.
*p <= .10; **p <= .05; ***p <= .01.
-- Omitted from model.

Table 4

Selected Determinants of AFDC Exits [a]
(Standard errors in parentheses)

Panel A: Effects of Minimum Wages and AFDC Benefits Controlling for State-Level Industry Effects[b]

	Model 1	Model 2	Model 3
AFDC benefits	-0.0002	-0.0001	-0.0002
	(0.0002)	(0.0002)	(0.0002)
Minwage level	-1.23***	--	--
	(0.44)		
Minwage up	--	-1.21***	--
		(0.24)	
Marginal	--	--	-2.18***
			(0.54)
N =	1,171.00	1,171.00	1,171.00
Log likelihood =	-3,277.74	-3,265.56	-3,270.86
$\mathrm{Chi}^2\,(20) =$	268.55***	292.91***	282.32***

Panel B: Effects of Minimum Wages and AFDC Benefits Controlling for State Effects[c]

	Model 1	Model 2	Model 3
AFDC benefits	-0.0008**	-0.0006	-0.0007*
	(0.0004)	(0.0004)	(0.0004)
Minwage level	-2.10***	--	--
	(0.62)		
Minwage up	--	-1.44***	--
		(0.25)	
Marginal	--	--	-2.59***
			(0.58)
N =	1,171.00	1,171.00	1,171.00
Log likelihood =	-3,265.73	-3,271.76	-3,244.78
$\mathrm{Chi}^2\,(52) =$	320.83***	347.50***	334.47***

Source: SIPP (1986, 1987, 1988 panels).
[a]Models include a control for seam bias and four-month time parameters.
[b]Six state-level industry dummies are entered into the model: "Retail", "Service", "Manu", "WTrade", "Govern", "Insurance." The omitted dummy variable is "Const." No respondents were employed in the remaining industry categories.
[c]All state dummies for all states, except "Wisconsin", were entered. (See Appendix A for a discussion of states "clumped" together in SIPP.)
*$p \leq .10$; **$p \leq .05$; ***$p \leq .01$.

Table 5

Determinants of Employment Exits During Observed Spells of AFDC Receipt [a]
(Standard errors in parentheses)

	Model 1	Model 2	Model 3
Female head	-0.56**	-0.54**	-0.55**
	(0.25)	(0.25)	(0.25)
White	0.08	0.10	0.10
	(0.21)	(0.21)	(0.21)
Age	-0.04***	-0.04***	-0.03***
	(0.01)	(0.01)	(0.01)
Disabled	0.52*	0.49	0.49
	(0.33)	(0.33)	(0.33)
Add child	0.42	0.42	0.43
	(0.43)	(0.43)	(0.43)
Otherinc	-0.010	-0.010	-0.01
	(0.01)	(0.01)	(0.01)
Education	-0.08*	-0.08*	-0.08*
	(0.45)	(0.04)	(0.04)
Hourly wage	-0.037	-0.036	-0.036
	(0.040)	(0.040)	(0.040)
AFDC benefits	0.0004	0.0006	0.0006
	(0.0006)	(0.0005)	(0.0005)
Minwage level	0.40	--	--
	(0.68)		
Minwage up	--	-0.15	--
		(0.48)	-0.11
Marginal	--	--	(1.20)
N =	388	388	388
Log likelihood =	-709.45	-709.57	-709.61
$Chi^2(10)$ =	23.9***	23.65***	23.56***

Source: SIPP (1986, 1987, 1988 panels).
[a]Models include a control for seam bias.
*p <= .10; **p <= .05; ***p <= .01.
-- Omitted from model.

Table 6

Determinants of Employment Exits During Observed Spells of AFDC Receipt
(Standard errors in parentheses)[a]

Panel A: Effects of Minimum Wages and AFDC Benefits Controlling
for State-Level Industry Effects[b]

	Model 1	Model 2	Model 3
AFDC benefits	0.0004	0.0006	0.0006
	(0.0006)	(0.0005)	(0.0005)
Minwage level	0.46	--	--
	(0.69)		
Minwage up	--	-0.210	--
		(0.49)	
Marginal	--	--	-0.08
			(1.21)
N =	388	388	388
Log likelihood =	-706.61	-708.73	-708.82
$Chi^2(16)$ =	25.56*	25.32*	25.14*

Panel B: Effects of Minimum Wages and AFDC Benefit
Controlling for State Effects[c]

	Model 1	Model 2	Model 3
AFDC benefits	0.0008	0.0008	0.0008
	(0.0009)	(0.0009)	(0.0009)
Minwage level	0.15	--	--
	(0.92)		
Minwage up	--	-0.01	--
		(0.52)	
Marginal	--	--	0.11
			(1.23)
N =	388	388	388
Log likelihood =	-688.28	-688.29	-688.29
$Chi^2(48)$ =	66.23**	66.20**	66.21**

Source: SIPP (1986,1987,1988 panels).
[a] Models include a control for seam bias and four-month time parameters.
[b] Six state-level industry dummies are entered into the model: "Retail", "Service", "Manu",
 "WTrade", "Govern", "Insuran." The omitted dummy variable is "Const." No respondents
 were employed in the remaining industry categories.
[c] Note in panel B the omitted state is Wisconsin.
*p <= .10; **p <= .05; ***p <= .01.
-- Omitted from model.

Table 7

Determinants of Average Hours Worked During First Welfare Spell
(Standard errors in parentheses)

	Model 1	Model 2	Model 3
Female head	0.90	1.08	0.59
	(2.07)	(2.09)	(2.07)
Age	0.38***	0.38***	0.36***
	(0.08)	(0.08)	(0.08)
White	3.10**	3.11**	2.83**
	(1.40)	(1.40)	(1.40)
Disabled	-3.80	-3.90*	-3.51
	(2.47)	(2.47)	(2.48)
Add child	-2.82*	-2.76*	-3.08*
	(1.63)	(1.63)	(1.65)
Otherinc	0.26***	0.25***	0.25***
	(0.09)	(0.10)	(0.10)
Education	0.25	0.25	0.23
	(0.32)	(0.32)	(0.32)
Hourly wage	0.69***	0.66***	0.70***
	(0.26)	(0.26)	(0.26)
AFDC benefits	-0.01**	-0.01**	-0.01***
	(0.004)	(0.004)	(0.004)
Minwage level	-8.69	--	--
	(5.62)		
Minwage up	--	-5.14*	--
		(2.85)	
Marginal	--	--	-1.74
			(5.56)
Constant	23.25	-5.63	-4.12
	(18.72)	(5.55)	(5.58)
N =	319	319	319
Adj R^2 =	0.12	0.13	0.12
$F_{(10,308)}$ =	5.44***	5.54***	5.18***

Source: SIPP (1986, 1987, 1988 panels).
*p <= .10; **p <= .05; ***p <= .01.

Table 8

Selected Determinants of Average Hours Worked During First Welfare Spell [a]
(Standard errors in parentheses)

Panel A: Effects of Minimum Wages and AFDC Benefits Controlling For State-Level Industry Effects[b]

	Model 1	Model 2	Model 3
AFDC Benefits	-0.01***	-0.01***	-0.01***
	(0.004)	(0.004)	(0.004)
Minwage level	-6.61	--	--
	(5.7)		
Minwage up	--	-4.52	--
		(2.8)	
Marginal	--	--	-2.49
			(5.6)
N =	319	319	319
Adj R^2 =	0.13	0.13	0.13
F(16,302) =	3.99***	4.07***	3.90***

Panel B: Effects of Minimum Wages and AFDC Benefits Controlling for State Effects[c]

	Model 1	Model 2	Model 3
AFDC benefits	-0.01**	-0.01**	-0.01**
	(0.007)	(0.007)	(0.007)
Minwage level	-6.41	--	--
	(7.78)		
Minwage up	--	-4.0	--
		(3.1)	
Marginal	--	--	-7.20
			(6.55)
N =	319	319	319
Adj R^2 =	0.13	0.13	0.12
F(48,270) =	1.92***	1.95***	1.94***

Source: SIPP (1986, 1987, 1988 panels).
[a]Models include a control for seam bias and four-month time parameters.
[b]Six state-level industry dummies are entered into the model: "Retail", "Service", "Manu", "WTrade", "Govern", "Insuran." The omitted dummy variable is "Const." No respondents were employed in the remaining industry categories.
[c]All state dummies for all states, except "Wisconsin", were entered. (See Appendix A for a discussion of states "clumped" together in SIPP.)
*p <= .10; **p <= .05; ***p <= .01.
-- Omitted from model.

Table 9

**States with Minimum Wages
Above Federal Minimum Wage**

Federal Minimum

Year	States	Federal Minimum
1985	AK, CT, DC, ME	$3.35
1986	AK, CT, DC, ME	$3.35
1987	AK, CT, DC, ME	$3.35
1988	AK, CT, DC, HI, MA, ME, MN, NH, RI, VT	$3.35
1989	AK, CA, CT, DC, HI, MA, ME, MN, NH, PA, RI, VT, WA	$3.35

Source: Data collected by author from various publications. See Appendix A.

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