Do Social Policy Reforms Have Different Impacts on Employment and Welfare Use as Economic Conditions Change?

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Abstract

This paper uses March Current Population Survey data from 1985 to 2004 to explore whether social policy reforms implemented throughout the 1990s have different impacts on employment and welfare use depending on economic conditions, a topic with important policy implications but which has received little attention from researchers. I find evidence that many reforms operate differently as labor market conditions fluctuate. Although social policies increase employment during economic slowdowns, the largest effects are generated in favorable labor market conditions. The impact of time limits, mandatory job search, and cash diversion programs are particularly sensitive to the macroeconomy, while the earned income tax credit is associated with similar employment effects in most environments. The results vary substantially across policy "carrots" and "sticks," levels of work intensity, and subsamples of single mothers, but a tentative conclusion is that a strong economy reinforces the positive incentives created by social policy reforms. © 2008 by the Association for Public Policy Analysis and Management.

INTRODUCTION

The flurry of social policy reforms implemented throughout the 1990s has led to an impressive empirical literature attempting to dissect the relative contribution of public policies and the economy to employment growth among single mothers.[1] While there remains strong disagreement over the precise contribution of each factor, recent evidence suggests a coalescence around the earned income tax credit (EITC), the economy, and welfare reform, in that order, as the primary determinants of the observed employment changes throughout the 1990s.

A drawback associated with every study in this literature is that policy reforms and the economy are viewed as *independent* or *competing* explanations, thereby neglecting the possibility that labor market conditions *interact* with or *facilitate* public policy to influence employment outcomes. In other words, previous research focuses on estimating average effects of social policy reforms that are assumed to

[1] For thorough reviews of the literature, see Blank (2002) and Grogger and Karoly (2005).

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hold equally during periods of economic expansion and contraction.[2] Therefore, the key contribution of this work is to study comprehensively the differential effects of a large number of social policies across varying labor market conditions.

A central goal of this study is to clarify whether the strong economy throughout the 1990s interacted with welfare and other policy reforms to generate more favorable employment outcomes than if the policies had been implemented in weaker economic conditions. This issue has gained considerable traction in recent years, given the 2001 recession and the slippage in single mothers' work participation. Although economic theory provides useful predictions for the role of specific social policy reforms and the economy separately, it is not clear a priori how the economy should influence the impact of public policies. Ultimately, this is an empirical issue. However, a number of considerations guide this study's estimation. I pay particular attention to how such interactions differ across policy "carrots" and "sticks," levels of work intensity, and policy-relevant subsamples of single mothers. Moreover, I explore whether the economy *facilitates* or *offsets* the incentives created by recent policy reforms, or whether the effects of these reforms are *invariant* to local labor market conditions.

By matching detailed data on policy reforms with Current Population Survey (CPS) samples over the period 1985–2004, I improve upon the simple state-level coding of policies that characterizes most studies in the literature by exploiting program rules on eligibility, the timing of policy effects, and the characteristics of families most likely affected. This leads to an identification strategy that takes advantage of policy variation not only across states and over time, but also across mothers within a given state and year. In addition, this study extends the literature by testing for heterogeneous policy effects across three work "margins": any work participation; work and no welfare receipt; and full-time, full-year work. Although neglected by previous studies, the latter two outcomes are rapidly becoming the focus of welfare and other policy reforms. It is therefore crucial to determine whether policy-economy interactions operate differently depending on the work margin.

Results suggest that the effects of social policy reforms vary with local labor market conditions. Generally speaking, policy effects are more sensitive to the economy as work intensity increases and among low-skilled mothers. Policy "carrots" appear to be more effective at low-intensity work margins, while policy "sticks" display greater employment effects at more demanding margins. Although many reforms continue to increase employment during economic slowdowns, all policies generate the greatest employment effects when economic conditions are favorable, implying that a strong economy *reinforces* the positive incentives created by social policy reforms.

These findings have important policy implications. Public policies do not create the same employment incentives across all economic conditions and work margins. Therefore, flexibility in the design and implementation of policies is crucial: Reforms should be carefully tailored to specific employment goals and take account of the economic environment in which they operate. These results also suggest that economic "triggers"—in which states stop the time limit clock or adjust downward work participation rates when the unemployment rate exceeds a certain level—is a useful mechanism to help welfare recipients and states avoid financial penalties.

[2] In his review of Grogger and Karoly's (2005) book on welfare reform, Gelbach (2006) argues that given the potential treatment effect heterogeneity, it is possible that "there is no such thing as the effect of welfare reform." While Gelbach limits his discussion of heterogeneous policy effects to common subgroups defined by race and ages of children, a strong possibility exists that policy effects may also differ across economic conditions—not only for the average single mother but perhaps even more substantially for the subgroups mentioned by Gelbach.

THE INTUITION FOR HETEROGENEOUS POLICY EFFECTS

A sizeable empirical literature has attempted to dissect the relative contribution of social policy reforms and the economy to the growth in employment of single mothers (Fang & Keane, 2004; Looney, 2005; Grogger, 2003; Kaushal & Kaestner, 2001; O'Neil & Hill, 2001; Schoeni & Blank, 2000; Meyer & Rosenbaum, 2001; Moffitt, 1999; Noonan, Smith, & Corcoran, 2007). Most studies parameterize specific components of welfare reform (for example, work requirements and time limits) and include these variables in an employment model along with controls for the EITC, child care subsidies, welfare benefits, and the unemployment rate. A few studies use the coefficients on the policy and economic variables to calculate the fraction of single mothers' employment growth attributable to these competing factors. Overall, these studies explain between 57 percent and 93 percent of the rise in single mothers' work participation throughout the 1990s, with the EITC responsible for approximately one-third of the employment growth and the economy and welfare reform each responsible for another 25 percent.

An implicit assumption in these studies is that social policy reforms act independently of prevailing economic conditions to influence employment. As such, most of the academic and policy debate focuses on whether welfare reform or the economy played a larger role in lowering welfare use and increasing employment among single mothers.[3] Of course, social policy reforms and economic conditions are expected to have independent effects on these outcomes, but with a few exceptions, the literature largely neglects the possibility that economic conditions play a facilitative role or even magnify the effects of policies. To my knowledge, three studies explicitly allow the effects of welfare reform to vary with the economy (Bartik & Eberts, 1999; Figlio & Ziliak, 1999; Hofferth, Stanhope, & Harris, 2002). The first two studies interact a welfare waiver dummy variable with the unemployment rate, and the third interacts a work requirement dummy variable with the state median income. All three studies use as the dependent variable a measure of participation in or an exit from welfare, and find that welfare reform is more effective when economic conditions are favorable. However, a remaining issue in the literature is whether this general finding applies to specific policies and across levels of work intensity.

It is not clear a priori how economic conditions influence the effects of social policies, but a number of considerations guide this study's empirical strategy. First, the influence of the economy could conceivably vary depending on the specific reform. Incentives created by policy "carrots," such as the EITC or child care subsidies, may operate differently in an economic downturn from policy "sticks," such as work requirements or welfare sanctions. Disparities in the funding mechanism and overall policy design may drive some of these differences. Child care subsidies, for example, are currently funded through a close-ended block, which limits states' ability to accommodate fluctuations in demand due to fluctuations in the economy.[4] The EITC is a universal entitlement, and so one might conclude that employment incentives are less responsive to changes in economic conditions.

[3] This was especially true in the years immediately following welfare reform. For a sampling of early studies see, CEA (1997, 1999), Figlio and Ziliak (1999), Wallace and Blank (1999), and Ziliak et al. (2000).

[4] Further complicating the issue for subsidies is that some of these funding constraints are offset by significant flexibility in the design and implementation of states' subsidy regimes. Recent evidence suggests that states respond rapidly to deteriorating fiscal and economic conditions: 23 states in 2001 altered eligibility and benefit rules to decrease the availability of child care assistance (U.S. GAO, 2003). The policy changes include lowering income eligibility limits, raising copayment rates, and initiating waiting lists. These changes, as well as those expected during a recovery, are hypothesized to influence employment incentives. Here, a policy–economy interaction is clear and depends crucially on the funding mechanism: A close-ended block grant forces states to deal with economic conditions by altering subsidy policy in a way that alters access to child care assistance, which ultimately impacts the employment decisions of low-income families.

However, given that EITC eligibility is contingent on working, which depends in part on local labor market conditions, there are also reasons to believe that EITC–economy interactions vary with the unemployment rate. In contrast, work requirements and welfare sanctions are not tied to a strict funding mechanism. States can therefore operate these policy interventions in a way that communicates similar employment incentives in most economic environments.

A second consideration is that policy–economy interactions might operate differently depending on the employment goal or the amount of work required by policy reforms. For example, the effects of work supports might not be sensitive to prevailing economic conditions if the goal is to simply move single mothers from welfare to work. However, if the employment goal is more ambitious–such as working full time—one might expect new or tenuous workers to be more sensitive to policy reforms as economic conditions deteriorate. A potential concern is that such workers might be forced to accept lower-paying jobs than those obtained during strong economic periods in order to comply with work requirements and avoid benefit sanctions. This issue is important in the wake of the 2005 TANF reauthorization, which accelerates work participation rates for states and welfare recipients, narrows the range of acceptable work activities, and stiffens financial penalties on states that fail to comply with the new work targets.

Finally, interactions between policy reforms and economic conditions could take place through one of three channels. First, a policy intervention that requires work as a condition for welfare benefits could be more successful in tight labor markets because new jobs are created for welfare recipients to fill. In this formulation, the economy *reinforces* the impact of policy reforms. Alternatively, work requirements could be less successful during periods of strong economic growth because many recipients would leave welfare for work even in a world without those requirements. This formulation implies that policy reforms and economic conditions are partially *offsetting*. Finally, certain policy reforms might be as effective, or ineffective, at increasing employment under most economic conditions. This is particularly the case for work requirements because they are always "turned on" and operate in a similar manner in most economic conditions. In this scenario, social policy reforms are *invariant* to local labor market conditions.

EMPIRICAL IMPLEMENTATION

Labor Market and Demographic Data

Individual-level data on single mothers are drawn from the annual demographic supplement to the Current Population Survey (CPS). The CPS is a nationally representative survey of approximately 60,000 households providing detailed data on labor market behavior, income, and demographic characteristics for individuals ages 15 and over. March CPS surveys for the years 1986 to 2005 are used, yielding information on employment and income for the years 1985 to 2004. Included in the sample are single women (widowed, divorced, separated, and never married) ages 18 to 64, who have at least one child ages 18 and under. Single mothers from census-defined families comprise the unit of analysis. I include not only independent female-headed families (primary families), but also female heads of related subfamilies and (unrelated) secondary families. After applying a number of standard exclusions on the sample composition, the final analysis sample consists of 120,189 single mothers with at least one child ages 0 to 18.[5]

[5] Exclusions to the sample include women in the armed services and women with negative earnings, negative non-labor income, positive earnings but zero hours of work, or positive hours of work but zero earnings. Also, approximately one-fourth of single mothers appear in the sample for two consecutive years, given the CPS rotating sample design.

As shown in Table 1, three employment outcomes are explored in this paper, reflecting work margins critical to the success of social policy reforms. I first construct a measure of annual employment, defined as whether a single mother was employed at all in the previous year (AW). This measure reflects the dichotomous work decision, or employment at the extensive margin, that has been the focus of most previous research. Participation along the AW margin increased from 68 percent to 83 percent between 1992 and 2000. Two infra-marginal employment measures are also constructed: whether the mother was employed at all and did not receive welfare in the previous year (WNW) and whether the mother was employed full time (35+ hours/week), full year (48+ weeks) (FTFY). Although neglected by earlier work, participation along these two work margins increased substantially throughout the 1990s. At the WNW margin, employment increased from 57 percent to 76 percent, while employment at the FTFY margin increased from 58 percent to 65 percent (Table A1).[6]

Table A2 presents summary statistics for the CPS sample of single mothers, organized around the three employment outcomes. It appears that the observable characteristics of these mothers are correlated with the intensity of work. Women participating at the FTFY margin are older, on average, than women at the AW margin. In addition, single mothers employed at the FTFY margin are more highly skilled, as measured by educational attainment, less likely to be never married, and less likely to head families with greater numbers of young children. These descriptive results are intuitively reasonable, given that participation at the FTFY margin is significantly more demanding, requiring greater work experience and skills and fewer barriers.

Social Policy Variables

The following discussion describes the construction of social policy variables (Tables 1 and A1).[7] I pay careful attention to creating potentially exogenous variation in each policy reform by exploiting not only cross-state and year-to-year variation, but also that across mothers within a given state and year.[8] In doing so, I make two assumptions. First, by conditioning the sample on women being single and having children, I take marriage and fertility decisions to be exogenous. Economic models provide clear predictions that welfare and tax policy should influence these decisions, but the empirical evidence is mixed.[9] Even if social policy reforms affect

[6] Appendixes are available at the end of this article as it appears in JPAM online. Go to the publisher's Web site and use the search engine to locate the article at http://www3.interscience.wiley.com/cgi-bin/jhome/34787.

[7] Several data sources were used to collect and corroborate these data. I am indebted to Hanming Fang and Michael Keane for sharing their extensive documentation of policy reforms. Many of the variables I construct are different in important ways from their variable list, and I discuss these differences where appropriate. The Urban Institute's *Welfare Rules Databook* (for example, see Rowe & Versteeg, 2005) and the Welfare Rules Database were invaluable for coding many of the TANF variables. Crouse (1999), U.S. DHHS (1997), and U.S. GAO (1997) provided information on states' waiver programs. Federal and state EITC parameters were drawn from Fang and Keane (2004) and various publications from the Center on Budget and Policy Priorities. Data on CCDF spending (and its predecessor programs) were taken from the *Green Book* (U.S. House of Representatives, various years). Finally, states' earnings disregard policies were coded using the Welfare Rules Database and *Characteristics of State Plans for Aid to Families with Dependent Children* (U.S. DHHS, various years). Appendixes are available at the end of this article as it appears in JPAM online. Go to the publisher's Web site and use the search engine to locate the article at http://www3.interscience.wiley.com/cgi-bin/jhome/34787.

[8] With the estimation including over 12 policy variables, one might be concerned about multicollinearity. However, allowing policies to vary across mothers in the same state and year reduces this threat. The largest correlation between any two policies is 0.68 (EITC benefits and work requirements), followed by 0.67 (lifetime time limits and work requirements) and 0.64 (EITC benefits and CCDF spending). Most other correlations fall significantly below those reported here.

[9] See Moffitt (1997), who concludes that "A majority of the studies show that welfare has a . . . positive effect on fertility rather than none at all. . . . Considerable uncertainty surrounds this consensus because a sizable minority of the studies find no effect at all. . . ." More recent evidence from Fitzgerald and Ribar (2004) suggests that welfare reform did not impact female headship decisions. Bilter et al. (2004) review the evidence on marriage, and provide some of their own, which in both cases show mixed results.

Table 1. Variable description and identification strategy.

Variable Name	Description	Identifying Variation			
		State	Year	Rules	Kids
Employment Outcomes					
Work	= 1 if the mother was employed in the previous year; 0 = otherwise	—	—	—	—
Work and no welfare	= 1 if the mother was employed and did not receive welfare in the previous year; 0 = otherwise	—	—	—	—
Full-time, full-year work	= 1 if the mother was employed full-time (35+ hours), full-year (48+ weeks), conditional on being employed; 0 = otherwise	—	—	—	—
Social Policy Reforms					
EITC maximum credit	Combined federal and state EITC maximum credit for families with 1, 2, or 3+ children	✓	✓		✓
CCDF spending	Federal and state spending through the CCDF (and its predecessor programs) per child ages 0–12	✓	✓	✓	
Welfare maximum benefit	AFDC/TANF maximum benefit for a 3-person family, assuming the mother is not employed	✓	✓	✓	
Disregarded earnings	Predicted amount of disregarded earnings when calculating welfare benefits for employed recipients, based on states' earnings disregard policies (initial disregard and benefit reduction rate)	✓	✓	✓	
Job search	= 1 if a state mandates job search activities at the time of welfare application; 0 = otherwise	✓	✓	✓	
Diversion program	= 1 if a state operates a formal welfare diversion program; 0 = otherwise	✓	✓	✓	
Work Requirement	= 1 if the mother could be subjected to a work requirement, based on states' age-of-child work exemption and work requirement time limit; 0 = otherwise	✓	✓	✓	✓
Welfare sanction	= 1 if the mother could be subjected to an initial full-family sanction for not meeting work requirements, based on states' sanction policies, length of work requirement time limit, and whether the mother could be subjected to a work requirement; 0 = otherwise	✓	✓	✓	✓
Lifetime time limit	= 1 if a state has a lifetime time limit, followed by a full-family benefit reduction; 0 = otherwise	✓	✓	✓	
Intermittent time limit	= 1 if a state has an intermittent time limit; 0 = otherwise	✓	✓	✓	
Time limit is binding	= 1 if a state's lifetime time limit could be binding, based on states' time limit policy and the age of the mother's oldest child; 0 = otherwise	✓	✓	✓	✓
Medicaid coverage	= 1 if all children in a working family are potentially covered by Medicaid, based on states' eligibility age limit policies and the age of the mother's oldest child; 0 = otherwise	✓	✓		✓
Indicators of Macro-economic Conditions					
Unemployment rate	Average annual state unemployment rate	✓	✓		

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underlying preferences for marriage and fertility, this sample selection problem will produce a downward bias if marriageability and employment outcomes are positively correlated. Limiting the sample to single women with children—as opposed to all mothers regardless of marital status and family composition—also assumes a partial-information decision-making process, such that social policies are "turned on" to influence women's employment behavior only when they become single mothers (Blank, 2004). Again, this is a conservative assumption, leading me to understate the impact of policy reforms.[10, 11]

Federal and State Earned Income Tax Credits

Arguably the most important change to work incentives faced by single mothers comes from the EITC. Enacted in 1975, federal expenditures on the EITC increased dramatically throughout the 1990s. By 2004, forgone revenue totaled $39.3 billion, up from $2.1 billion in 1985. Single-parent families comprise 48 percent of all claimants, and 75 percent of EITC dollars are paid to these families (Liebman, 2000; U.S. House of Representatives, various years). In addition, state EITCs are increasingly widespread. In 1985, two states (Rhode Island and Wisconsin) operated their own EITC, increasing to 16 states by 2004. These credits simply "piggyback" onto the federal credit by using its eligibility rules and credit rates. To capture EITC effects, I combine the federal and state maximum credits that apply to families of a given size. Identification of this variable comes from annual changes in the federal credit (especially after the 1986, 1990, and 1993 expansions), cross-state variation in state EITCs, and the differential treatment of families with different numbers of children.

Child Care Subsidies

Child care subsidies help low-income families defray child care costs, thereby reducing fixed work costs and increasing the likelihood of employment. The federal and state governments significantly increased child care funding over the past two decades by consolidating four preexisting programs and raising overall spending. By 2004, approximately $9.4 billion was spent through the CCDF, serving 1.7 million children per month. I parameterize changes to child care subsidy policy by summing federal and state expenditures through the CCDF (and its predecessor programs) and dividing by the number of children ages 0–12 in a given state and year.[12] Several sources of variation identify this variable: year-to-year changes in CCDF spending (which prior to 1991 was zero), cross-state variation in funding

[10] Constraining the sample to single mothers may lead to another form of sample selection bias if the composition of single mothers is changing over time. As noted by Herbst (2008) and Fang and Keane (2004), the average skill level of single mothers increased throughout the 1990s and marital behavior changed substantially (with never married mothers comprising a majority of all single mothers). Welfare reform and other policies may have influenced these behaviors as well. One way to deal with this problem is to estimate the effects of policies on the entire population of women or on all mothers regardless of martial status. However, this approach is unsatisfying because many of these women are ineligible for cash assistance and face a low "risk" of ever receiving benefits. If the implementation of welfare reform causes a change in the composition of single mothers, many of these changes will most likely lead to a downward bias of the effects of public policies.

[11] Policy endogeneity is another concern. Legislative endogeneity is the idea that federal and state policymaking is a purposive process that responds to economic conditions or other underlying societal conditions (Besley & Case, 2000). Failure to account for the processes that determine legislative outputs could bias the coefficients on these outputs when used as right-hand-side variables. I rely on state and year fixed effects to purge the model of unobserved political and economic factors that are correlated with states' policy choices and single mothers' work decisions.

[12] Given the variation in states' CCDF subsidy regimes, one might be tempted to capture the effects of child care subsidy policy through reimbursement or copayment rates. However, these data are not available prior to welfare reform and are only available for select years and states after 1996. Data on subsidy expenditures are available for all years and states included in the current paper.

generosity, and program rules governing the age-eligibility of children who can receive subsidies. In particular, mothers whose youngest child is over age 12 are ineligible for child care assistance, making such families a comparison group.

Welfare Benefits and Earnings Disregards

Welfare benefits paid to non-working women increase the utility of remaining unemployed, thereby providing an unambiguous work disincentive. States have taken a number of steps to mitigate this disincentive. First, the real value of maximum welfare benefits declined substantially, with some states experiencing declines as large as 25 percent in the period following welfare reform. Second, states expanded the earnings disregards that apply to benefits for employed welfare recipients. Specifically, states increased the initial disregard and lowered the benefit phase-out rate. I control for the generosity of states' welfare benefits through the maximum AFDC/TANF benefit paid to non-working recipients. Changes to disregards are captured by assigning to each single mother a predicted amount of annual disregarded earnings, based on mothers' own earnings and states' disregard policies.[13] Identifying variation for both variables comes from the large geographic and temporal variation in benefits and disregards.[14] Moreover, disregards vary across mothers within state-year cells, depending on exogenous determinants of earnings.

Mandatory Job Search and Cash Diversion Programs

Many states have begun experimenting with policies that deter potential welfare recipients from receiving aid. Currently, 20 states mandate job search activities at the time of application. Specifically, these policies require applicants to search for a job either prior to applying for welfare or while the application is being vetted. Second, 30 states operate formal cash diversion programs, in which eligible applicants forgo welfare receipt in order to obtain temporary cash payments. States vary greatly in the amount provided to families, with some states providing a one-time lump sum transfer and others calculating the diversion payment as a percentage of the normal benefit. In addition, states limit the number of times an eligible family can receive payments, and many deny eligibility for some period following the transfer. I code both policies as state-level dummy variables, since they likely influence the behavior of a broad group of single mothers. Therefore, identification is achieved mainly through the differential timing of "turning on" these policies.

Work Requirements and Sanctions

With the passage of welfare reform in 1996, all states require recipients to participate in an acceptable work activity within 24 months, although 42 states require work immediately. Prior to the Family Support Act (FSA) of 1988, recipients with

[13] This is a new approach to controlling for earnings disregard policies. Previous research simply incorporates the benefit reduction rate. I accomplish this by coding both the initial (fixed) component and the variable component of each state's disregard policy and then apply these rules to the earnings of employed single mothers. The fixed component refers to the first $30 of earnings, for example, while the variable component is 33 percent of the remainder. I code only the initial earnings disregard, omitting both the work expense and child care expense components. This process assumes that women are in the first four months of welfare receipt. After four consecutive months, states continued only the initial $30 disregard; after one year on welfare, individuals faced a 100 percent implicit tax on earnings. To predict disregarded earnings for non-working mothers, I estimated for each CPS survey a simple OLS regression of annual disregarded earnings on several exogenous demographic and human capital characteristics plus a vector of state fixed effects.

[14] An additional source of variation for these and all other welfare-related variables is that welfare benefits are paid until the youngest child reaches age 17. Since the sample includes families whose youngest child is 18, these families provide a comparison group.

children under age 6 were exempt from work requirements. Over time, states lowered this age exemption, thereby exposing more mothers to work requirements. Most states currently exempt only those families with children under 12 months old. In cases where the recipient is not exempt from work requirements and not complying with them, states have the option to sanction these families by reducing or eliminating all or part of their welfare benefits. As of 2004, 18 states had an initial full-family sanction, and 42 states had an ultimate full-family sanction. I create two dummy variables that capture the effects of work requirements and sanctions. First, I use states' work requirement time limits combined with age exemption policies and the age structure of CPS families to code single mothers as potentially exposed to a work requirement. Second, I use the policy variation noted above in conjunction with state-specific sanction policies to code mothers as potentially affected by an initial full-family sanction.[15] Identification for these variables comes from multiple sources. States vary dramatically in terms of when both policies were first implemented and, depending on the work requirement time limit, when individuals could be subjected to them. Another source of variation comes from the dramatic changes to states' age exemption polices. Thus, women who are shielded from work requirements because their children fall within the age exemption range helps to identify the impact of work requirements and welfare sanctions.

Time Limits

The origins of time-limited welfare receipt are found in the AFDC waiver period, when 16 states retracted the entitlement status of welfare. With the implementation of PRWORA, all states have to abide by the federally mandated 60-month time limit.[16] Two types of time limit policies are implemented: lifetime and intermittent. The former deems ineligible those families that have received welfare for 60 months, consecutively or nonconsecutively. The latter allows families to receive welfare for a certain number of months in a given period and then requires a "benefit waiting period" before regaining eligibility. By 2004, 43 states implemented a lifetime time limit, 16 states implemented an intermittent time limit, and 5 states (District of Columbia, Maine, Michigan, New York, and Vermont) do not have either. Time limits have mechanical and behavioral effects on employment.[17] Mechanical effects arise from the fact that individuals must work after hitting the state-defined limit, assuming it is enforced. The behavioral effect incorporates the assumption that forward-looking women will save their stock of welfare benefits until they experience an employment shock. Therefore, the hypothesized positive effects of time limits are greater when women are in their early working years and should decrease as they age.[18] I create three dummy variables to account for these

[15] Specifically, I use the age of the youngest child in a given family in concert with state-specific age-exemption policies to determine whether, in principle, a family could be exempt from work requirements, even if the state's time limit is exhausted. Furthermore, most studies focus on whether states implement an ultimate full-family sanction. However, this is misspecified because it is difficult to determine when that sanction will be used. As a result, I model the initial sanction because it is the one that likely has the most proximate influence on single mothers' work decisions.

[16] A critical point is that states have enormous flexibility on how to implement their time limit policies. On the one hand, states can set stricter limits than the 60-month time limit, but on the other hand, states can and do continue to pay benefits after the time limit is reached as long as they do so with their own funds.

[17] For detailed reviews of both effects, see Fang and Keane (2004) and Grogger (2003).

[18] The precise relationship between time limits and employment depends on the age of the mother's youngest child. Beginning with the observation that AFDC/TANF eligibility ends when the youngest child reaches age 18, a five-year time limit does not influence work decisions when the youngest child is between ages 13 and 17. However, the younger the youngest child is below age 13, the stronger the incentive to "bank" welfare benefits for future use. Another critical point is that time limits generate negative work incentives for some mothers and positive incentives for others, both of which depend on the age of the youngest child.

mechanical and behavioral effects. The first two are state-level measures designed to capture whether a state has a lifetime or intermittent time limit. These variables are then interacted with mothers' age to account for the age dependence of time limit effects. The third variable uses information on when states implemented their time limits, the amount of time allotted for welfare receipt, and the age of mothers' oldest child to determine whether a time limit could be binding. The intuition for this variable is that mothers cannot receive welfare longer than the age of the oldest child. Therefore, it is impossible for time limits to bind for a mother whose oldest child is "younger" than the time limit.

Medicaid

Enacted in 1965, the Medicaid program provides medical insurance to low-income families. Prior to the mid-1980s, participation in Medicaid was linked to participation in AFDC, but a number of recent changes allow single mothers and their children to maintain eligibility after leaving welfare. Arguably the most important change came through OBRA 1990, which required states to phase in coverage for children born after September 1983, until all poor children ages 18 and under were insured. This benchmark was met in 2002. To capture changes in Medicaid generosity, I create a dummy variable to reflect whether all children in a working family are potentially insured. I exploit year-to-year variation in eligibility rules as well as variation in the age structure of children within state–year cells.

Estimating the Employment Models

Two employment models are estimated in this study: average effects (AE) and heterogeneous effects (HE) models, with the latter relaxing the assumption that policy reforms create similar employment effects across all labor market conditions. Within each model, three employment outcomes are investigated: AW (any work), WNW (work and no welfare), and FTFY (full-time, full-year work). Given the discrete characterization of the employment outcomes, the decision to participate in each work state arises from the underlying utility generated by single mothers' work choices. This underlying propensity to work at a given margin is not observed, however, and so I express the AE model in the following manner:

$$\Pr[emp_{ist} = 1 \mid \mathbf{x}] = \Phi\{\alpha + \mathbf{P}'_{ist}\beta + \phi E_{ist} + \mathbf{X}'_{ist}\theta + \mu_s + \nu_t + (\text{trend} \times \mu_s) + \varepsilon_{ist}\}, \quad (1)$$

for $i = 1, \ldots, N_{is}$; $s = 1, \ldots, S$; $t = 1, \ldots, N$, where $\varepsilon \sim$ i.i.d. $N(0,1)$. Given the normality assumption on ε, I estimate this model using probit regression. The dependent variable, *emp*, is one of three employment outcomes for the ith single mother in state s and year t. The $\mathbf{P}$ represents a vector of social policy reforms, and E is the average annual state unemployment rate. I also include controls for mothers' observable characteristics that are correlated with underlying preferences for employment. The $\mathbf{X}$ is a vector of demographic and human capital variables, such as age, race, marital status, educational attainment, number and ages of children, metropolitan status, and non-wage income. The parameters μ_s and ν_t denote state and year fixed effects, while (trend $\times$ μ_s) indicates state-specific time trends. The parameters of interest are β and ϕ, which measure the impact of social policy reforms and the economy, respectively, on the employment of single mothers.

Specifically, these parameters measure the average effect of policy and economic variables across all mothers and economic conditions.[19]

To test for heterogeneous policy effects (HE model), I estimate permutations of the following stylized model:

$$\begin{aligned}\Pr[emp_{ist} = 1 \mid \mathbf{x}] = \Phi\{\alpha &+ \beta_1 (P_{ist} \times E_{\text{UR}<26\text{th}}) + \beta_2 (P_{ist} \times E_{\text{UR}26\text{th}-50\text{th}}) \\ &+ \beta_3 (P_{ist} \times E_{\text{UR}51\text{st}-75\text{th}}) + \beta_4 (P_{ist} \times E_{\text{UR}>75\text{th}}) \\ &+ \mathbf{E}'_{ist}\,\phi + \mathbf{X}'_{ist}\theta + \mu_s + \nu_t + (\text{trend} \times \mu_s) + \varepsilon_{ist}\},\end{aligned} \tag{2}$$

where *emp* denotes the binary work outcomes described above. The key variables in this model are interactions between each social policy reform (P) and dummy variables indicating quartiles of the state unemployment rate (E). The quartile dummies are created in the following manner. I first average in two-year increments the unemployment rate and then create a dummy variable at each quartile break in the distribution. This leads to following four unemployment rate dummy variables: (1) $E_{\text{UR}<26\text{th}}$ (UR is less than the 26th percentile); (2) $E_{\text{UR}26\text{th}–50\text{th}}$ (UR is between the 26th and 50th percentiles); (3) $E_{\text{UR}51\text{st}–75\text{th}}$ (UR is between the 51st and 75th percentiles); and (4) $E_{\text{UR}>75\text{th}}$ (UR is greater than the 75th percentile).

As shown in Table A1,[20] creating quartile distribution breaks in two-year increments ensures a large number of observations in each cell and accounts for cyclical movements in economic conditions.[21] There is considerable variation *across* the distribution breaks, which allows the effects of policy reforms to vary in diverse economic environments. Such a categorization also reduces somewhat the *within* quartile variation, so that the model captures how each reform operates within reasonably specific labor market conditions. Another advantage of the dummy variable approach is that it mitigates the multicollinearity problem that arises when interacting each policy reform with the continuously measured unemployment rate. However, multicollinearity is still somewhat of a concern in (2). Therefore, I estimate separate probit models for each set of policy-economy interactions, resulting in 12 regressions for each employment outcome. I suppress from the model the "main effect" associated with each policy reform, so that the coefficient on the interaction (β) is interpreted as the impact of a given policy reform at the specified unemployment quartile. This parameterization allows for a general test of heterogeneous policy effects.

Two concerns are raised by this approach. First, policy reforms may not vary sufficiently within and across quartiles of the unemployment rate. This could lead to a situation in which mothers from a single state dominate certain policy–unemployment cells, or the fraction of mothers exposed to a given policy does not vary from year to year. Both cases would constrain the identification strategy, potentially biasing

[19] As highlighted by Moulton (1990), analyses that match aggregate policy data with micro units assume a random error structure across units that share values of the policy data. However, if units sharing values of the policy data also share unobserved characteristics that are correlated with the outcomes, the regressions yield standard errors that are biased downward. I take a number of steps to account for this possible correlation. First, all models include an extensive set of controls for unobserved heterogeneity. Second, all policy variables vary across units (single mothers) within state–year cells. That units within state-year cells take different values of the key independent variables should minimize the correlation between unobservables and the policy data. Finally, I adjust the standard errors to account for both arbitrary heteroskedasticity and the clustering of policy data at the state level. Adjusting standard errors for clustering at the state level is common in the welfare reform literature. See Fitzgerald and Ribar (2004) and Grogger (2003) for recent examples. As discussed by Cameron, Gelbach, and Miller (in press), cluster-robust standard errors perform well when the number of clusters is large, and the current study satisfies this criterion. In any case, results are not particularly sensitive to the choice of standard error.

[20] Appendix is available at the end of this article as it appears in JPAM online. Go to the publisher's Web site and use the search engine to locate the article at http://www3.interscience.wiley.com/cgi-bin/jhome/34787.

[21] Two-year incremental averages and quartile breaks are admittedly ad hoc. However, I experiment with alternative break points (for example, three and five distribution breaks) and with one-year and three-year incremental averages. The results are qualitatively similar to the procedure described in the text.

the interaction coefficients or reducing their precision. To allay this concern, I present in Table A1 summary statistics for a subset of policy variables at the top and bottom quartiles of the unemployment rate. Results reveal significant policy variation within and across levels of the unemployment rate, and policy–unemployment cells contain enough observations to estimate heterogeneous policy effects with satisfactory precision. Second, unemployment quartiles are not directly comparable from year to year, and it might be more important to interact policy reforms with the level unemployment rate rather than the relative position in the distribution. In sensitivity tests, I estimate HE models that substitute the continuously measured unemployment rate for the dummy variables. Doing so does not substantially alter the main results.[22]

ESTIMATION RESULTS

This section presents estimation results for the probit AE and HE models. The AE results are depicted in Table 2, and the main HE results are depicted in Tables 3 and 4. In addition, I estimate the HE model on single mothers with a high school diploma or less (Table 5) and non-white single mothers (Table 6). Tables 3–6 also present results from specification tests.

Results from the Average Effects (AE) Models

Table 2 presents marginal effects, evaluated at the sample mean of each variable, associated with social policy reforms and the economy across all three work margins. Coefficients are for the most part statistically significant at conventional levels and have the expected sign. Marginal effects associated with the EITC and child care subsidies suggest that both policies are strongly and positively related to employment at the AW and WNW margins but negatively related to employment at the FTFY margin. For example, a $1,000 increase in the EITC is expected to increase any employment by 1.1 percentage points, but decrease full-time, full-year employment by a similar amount. Although support for the latter result is less common in the empirical literature, it does accord with economic theory. Because of their higher earnings, women at this margin are more likely to be within (or outside) the EITC's phase-out region and experience greater subsidy copayment rates, both of which act as implicit taxes on earnings and therefore create an incentive to reduce work intensity.

The negative job search coefficients may at first appear to be counterintuitive, but recall that states only require a job search as a condition for applying for welfare. No requirement exists that applicants must actually find employment as well. Therefore, it could be the case that welfare applicants simply look for a job (or at least indicate that they have) to fulfill the requirement, and then remain unemployed while receiving welfare. Additional research is needed to verify this assertion. Formal cash diversion programs are positively associated with employment at the AW and WNW margins. Specifically, implementation of this policy is associated with a 1.4 percentage point increase in the likelihood of any work and a 2.4 percentage point increase in the probability of working without welfare. However,

[22] Another way to deal with the incomparability of unemployment quartiles is to define the quartiles based on the average unemployment rate over the entire observation period, 1985–2004. In sensitivity analyses, I experiment with this strategy on a few policy reforms (EITC maximum credit, job search and cash diversion programs, work requirements, and welfare sanctions). Results from this exercise are similar to the ones presented in the text. However, this approach is problematic because it constrains states to a single unemployment quartile over the 20-year period, when in fact states may experience short-run fluctuations in their relative economic position. I also experiment with analyses based on quartiles defined by the 20-year average unemployment rate, but which sorts states into quartiles on a year-by-year basis. This approach ameliorates the above criticism. Again, results from this exercise yield estimates similar to those reported in the text.

Table 2. Effects of policy reforms and the economy on single mothers' work decisions: average effects (AE) model.

Variable	Outcome 1: Work	Outcome 2: Work and No Welfare	Outcome 3: Full-Time, Full-Year Work
EITC maximum credit ($1,000s)	0.0105*** (0.0023)	−0.0001 (0.0028)	−0.0114*** (0.0030)
CCDF spending ($1,000s)	0.1565*** (0.0337)	0.1728*** (0.0404)	−0.1210*** (0.0450)
ln(welfare maximum benefit)	−0.0900*** (0.0260)	−0.1156*** (0.0308)	−0.0460 (0.0352)
ln(disregarded earnings)	0.0524*** (0.0052)	0.0941*** (0.0061)	0.1116*** (0.0070)
Job search	−0.0211*** (0.0077)	−0.0164* (0.0090)	0.0077 (0.0100)
Diversion program	0.0137* (0.0069)	0.0241*** (0.0082)	−0.0012 (0.0092)
Work requirement	0.0124** (0.0059)	0.0138* (0.0071)	0.0390*** (0.0081)
Welfare sanction	0.0120 (0.0083)	0.0234** (0.0098)	0.0294*** (0.0108)
Lifetime time limit	0.0412*** (0.0138)	0.0576*** (0.0167)	−0.0160 (0.0200)
Lifetime time limit × age	−0.0017*** (0.0003)	−0.0026*** (0.0004)	−0.0008* (0.0005)
Intermittent time limit	0.0282* (0.0147)	0.0526*** (0.0176)	0.0693*** (0.0200)
Intermittent time limit × age	−0.0010*** (0.0003)	−0.0015*** (0.0004)	−0.0015*** (0.0005)
Time limit is binding	0.0541*** (0.0152)	0.1100*** (0.0180)	0.0986*** (0.0212)
Time limit is binding × age	−0.0016*** (0.0004)	−0.0029*** (0.0005)	−0.0026*** (0.0006)
Medicaid coverage	0.0133*** (0.0044)	0.0048 (0.0052)	−0.0041 (0.0062)
Unemployment rate	−0.0055*** (0.0017)	−0.0011 (0.0020)	−0.0041* (0.0025)
Mean of dependent variable	0.744	0.647	0.606
Number of observations	120,189	120,189	90,028
Log-likelihood	−54,994.642	−57,200.037	−53,541.574

Notes: Marginal effects are shown, along with robust standard errors (in parentheses). Marginal effects are evaluated at the sample mean for each variable. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models include controls for age; age-squared; whether the youngest child is ages 3–5, ages 6–8, ages 9–12, and ages 13–17; number of children ages 0–5; educational attainment; marital status; non-white; metropolitan residence; and non-wage income. All models include state and year fixed effects and state-specific linear time trends.

Source: Author's calculation from the 1986–2005 March CPS.

these positive effects disappear at the FTFY margin. Such a pattern of results is reasonable given that families must be income-eligible for TANF in order to receive a diversion grant, and so one would not expect the relationship to hold at the FTFY margin.

Work requirements, benefit sanctions, and time limits are, as expected, positively related to employment across virtually all work margins. Time limits display the age dependence predicted by economic theory; that is, this policy leads to smaller increases in employment as the mother ages. Not surprisingly, binding time limits (mechanical effect) are associated with larger employment effects than lifetime and intermittent time limits, which capture behavioral effects. An interesting pattern emerges for these policy "sticks": The magnitude of the employment effect increases with the intensity of work. Implementation of a work requirement, for example, is expected to increase any work by 1.2 percentage points but is expected to raise full-time, full-year work by nearly four percentage points. These results conform to the structure of states' TANF programs, in that most states require full-time participation in a work activity and sanction noncompliant families. Therefore, one might expect greater behavioral effects at the WNW and FTFY margins.

Results from the Heterogeneous Effects (HE) Models

Given the literature's focus on the bundled effects of welfare waivers and TANF, I begin by estimating models that include an interaction between a vector of dummy variables indicating whether each reform is implemented in state *s* and year *t* and the appropriate unemployment rate quartile.[23] Estimates from these models are presented in Table 3. The results show that welfare waivers are associated with a significant increase in employment across all margins when economic conditions are extremely favorable. For example, waivers raised employment at the AW margin by 2.4 percentage points in states with an unemployment rate in the lowest quartile, but the estimates become statistically insignificant as the unemployment rate increases. Somewhat different results are obtained for TANF. They show positive impacts on the probability of employment in diverse economic environments at all but the most demanding work margins. For example, the coefficients on the TANF interactions imply that welfare reform increased employment between 3.4 and 4.3 percentage points in states with an unemployment rate above the median, but only 1.2 percentage points when the unemployment is in the lowest quartile.

While these coarse indicators of policy reforms do not provide a consistent story, there are a number of reasons to be cautious regarding these results. Both variables are constructed as simple state-level dummies that "turn on" for all mothers after states implement a given reform. Therefore, the identification strategy relies only on the timing and frequency of implementation and does not take advantage of policy variation across single mothers. The timing of TANF's implementation, in particular, is problematic because it was introduced by all states in a relatively short time period (between September 1996 and January 1998). Therefore, TANF effects are identified off two years of post-TANF data in the CPS. In addition, capturing the effects of welfare reform with two dummy variables obscures a great deal of complexity. Since PRWORA rolled many policy reforms into one piece of legislation,

[23] To create the welfare waiver and TANF dummy variables, I follow the standard practice in the literature by controlling only for statewide welfare waivers. Included here are work requirements, family caps, termination time limits, work requirement time limits, and sanctions. In addition, in the year waivers and TANF are implemented, I code both variables as equal to the fraction of the year the policy is "turned on." If the policies are implemented for a full year, these variables are equal to unity. If the policies are not in effect at all, they are set to zero. When a state implements its TANF program but was operating under a waiver previously, the waiver dummy variable is set to zero.

Table 3. Effects of welfare waivers and TANF across quartiles of the unemployment rate: heterogeneous effects (HE) model.

Variable	Outcome 1: Work	*p*-value	Outcome 2: Work and No Welfare	*p*-value	Outcome 3: Full-Time, Full-Year Work	*p*-value
Welfare waiver						
× (UR < 26th)	0.0238*	**0.040**	0.0379**	**0.018**	0.0316*	**0.073**
	(0.0137)		(0.0155)		(0.0176)	
× (UR 26th − 50th)	0.0210		0.0032		0.0235	
	(0.0143)		(0.0164)		(0.0199)	
× (UR 51st − 75th)	0.0191		0.0063		−0.0111	
	(0.0139)		(0.0165)		(0.0204)	
× (UR > 75th)	−0.0109		−0.0084		−0.0100	
	(0.0111)		(0.0133)		(0.0170)	
TANF						
× (UR < 26th)	0.0126	**0.063**	0.0310	0.716	0.0226	**0.051**
	(0.0187)		(0.0220)		(0.0262)	
× (UR 26th − 50th)	0.0343*		0.0374*		−0.0060	
	(0.0183)		(0.0218)		(0.0261)	
× (UR 51st − 75th)	0.0426**		0.0460**		0.0014	
	(0.0177)		(0.0211)		(0.0254)	
× (UR > 75th)	0.0342*		0.0360*		−0.0075	
	(0.0183)		(0.0218)		(0.0262)	
Number of observations	120,189		120,189		90,028	
Log−likelihood	−55,145.343		−57,481.401		−53,728.553	

Notes: Marginal effects are shown, along with robust standard errors (in parentheses). Marginal effects are evaluated at the sample mean for each variable. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models include controls for the combined federal and state EITC maximum credit; AFDC/TANF maximum benefit; unemployment rate dummy variables; age; age-squared; whether the youngest child is ages 3–5, ages 6–8, ages 9–12, and ages 13–17; number of children ages 0–5; educational attainment; marital status; non-white; metropolitan residence; and non-wage income. All models include state and year fixed effects and state-specific linear time trends. Withheld from the models is the main effect associated with each policy-unemployment interaction. Reported *p*-values are from a specification test of the null hypothesis that policy-economy interactions at the most and least favorable UR quartiles are equal.

Source: Author's calculation from the 1986–2005 March CPS.

it is difficult to distill meaningful conclusions about which components did and did not increase employment.

To unpack the diversity of welfare and other policy reforms, Table 4 presents results from HE models that interact individual policies with the unemployment quartile dummies. Marginal effects associated with the EITC and child care subsidies are positively associated with employment at the AW margin, and this finding holds across all quartiles of the unemployment rate. Both policies once again become negative as the intensity of work increases. However, whereas the EITC effects are relatively stable across all economic conditions, the impact of child care subsidies is sensitive to the economic environment. Specifically, the magnitude of positive *and* negative effects is greatest when relative economic conditions are favorable. At the AW margin, the magnitude of the positive incentive introduced by CCDF spending increases threefold moving from the least to the most favorable economic environment, while the magnitude of the disincentive more than doubles

Table 4. Heterogeneous effects (HE) of policy reforms across quartiles of the unemployment rate.

Variable	Outcome 1: Work	*p*-value	Outcome 2: Work and No Welfare	*p*-value	Outcome 3: Full-Time, Full-Year Work	*p*-value
EITC maximum credit						
× (UR < 26th)	0.0096***	0.888	0.0001	0.578	−0.0126***	0.504
	(0.0035)		(0.0040)		(0.0043)	
× (UR 26th−50th)	0.0109***		−0.0001		−0.0133***	
	(0.0030)		(0.0036)		(0.0039)	
× (UR 51st−75th)	0.0116***		0.0024		−0.0102**	
	(0.0030)		(0.0036)		(0.0040)	
× (UR > 75th)	0.0102***		−0.0025		−0.0090**	
	(0.0031)		(0.0038)		(0.0043)	
CCDF spending						
× (UR < 26th)	0.2658***	**0.002**	0.2557***	**0.021**	−0.1868***	0.129
	(0.0540)		(0.0637)		(0.0665)	
× (UR 26th−50th)	0.2140***		0.2359***		−0.1326**	
	(0.0492)		(0.0587)		(0.0637)	
× (UR 51st−75th)	0.1527***		0.1696***		−0.1451**	
	(0.0476)		(0.0577)		(0.0641)	
× (UR > 75th)	0.0808*		0.0905*		−0.0703	
	(0.0434)		(0.0523)		(0.0597)	
Welfare max. benefit						
× (UR < 26th)	−0.0847***	0.564	−0.1205***	0.952	−0.0543	0.832
	(0.0299)		(0.0353)		(0.0400)	
× (UR 26th−50th)	−0.0954***		−0.1157***		−0.0569	
	(0.0269)		(0.0319)		(0.0364)	
× (UR 51st−75th)	−0.1003***		−0.1215***		−0.0534	
	(0.0260)		(0.0308)		(0.0353)	
× (UR > 75th)	−0.0942***		−0.1216***		−0.0496	
	(0.0275)		(0.0326)		(0.0373)	
Disregarded earnings						
× (UR < 26th)	0.0445***	**0.006**	0.0910***	0.176	0.1213***	**0.054**
	(0.0061)		(0.0072)		(0.0081)	
× (UR 26th−50th)	0.0520***		0.0928***		0.1084***	
	(0.0058)		(0.0068)		(0.0079)	
× (UR 51st−75th)	0.0567***		0.0956***		0.1112***	
	(0.0056)		(0.0067)		(0.0077)	
× (UR > 75th)	0.0588***		0.0997***		0.1072***	
	(0.0061)		(0.0074)		(0.0086)	
Job search						
× (UR < 26th)	−0.0211*	0.999	−0.0079	0.877	0.0363**	**0.009**
	(0.0129)		(0.0145)		(0.0146)	
× (UR 26th−50th)	−0.0284**		−0.0234*		0.0017	
	(0.0117)		(0.0135)		(0.0140)	
× (UR 51st−75th)	−0.0194*		−0.0233*		0.0079	
	(0.0107)		(0.0128)		(0.0133)	
× (UR > 75th)	−0.0211*		−0.0108		−0.0148	
	(0.0121)		(0.0141)		(0.0163)	

Diversion program						
× (UR < 26th)	0.0166	0.700	0.0385***	0.165	0.0260**	**0.010**
	(0.0104)		(0.0118)		(0.0129)	
× (UR 26th–50th)	0.0173*		0.0323***		−0.0018	
	(0.0096)		(0.0114)		(0.0128)	
× (UR 51st–75th)	0.0127		0.0113		−0.0144	
	(0.0085)		(0.0102)		(0.0116)	
× (UR > 75th)	0.0121		0.0191*		−0.0131	
	(0.0090)		(0.0108)		(0.0124)	
Work requirement						
× (UR < 26th)	0.0067	0.412	0.0168*	0.919	0.0510***	0.332
	(0.0084)		(0.0097)		(0.0105)	
× (UR 26th–50th)	0.0138*		0.0122		0.0346***	
	(0.0076)		(0.0092)		(0.0102)	
× (UR 51st–75th)	0.0153**		0.0109		0.0308***	
	(0.0075)		(0.0092)		(0.0104)	
× (UR > 75th)	0.0146*		0.0156*		0.0389***	
	(0.0076)		(0.0093)		(0.0108)	
Welfare sanction						
× (UR < 26th)	−0.0058	0.583	0.0107	0.421	0.0326**	0.683
	(0.0116)		(0.0132)		(0.0138)	
× (UR 26th–50th)	0.0193*		0.0340**		0.0298**	
	(0.0109)		(0.0130)		(0.0142)	
× (UR 51st–75th)	0.0252**		0.0267*		0.0176	
	(0.0110)		(0.0136)		(0.0150)	
× (UR > 75th)	0.0039		0.0273		0.0415*	
	(0.0166)		(0.0193)		(0.0210)	
Lifetime TL						
× (UR < 26th)	0.0315**	0.441	0.0552***	0.883	0.0057	**0.039**
	(0.0144)		(0.0171)		(0.0210)	
× (UR 26th–50th)	0.0441***		0.0621***		−0.0211	
	(0.0136)		(0.0167)		(0.0213)	
× (UR 51st–75th)	0.0429***		0.0513***		-0.0435	
	(0.0139)		(0.0174)		(0.0221)	
× (UR > 75th)	0.0391***		0.0569***		−0.0230**	
	(0.0141)		(0.0173)		(0.0222)	
Intermittent TL						
× (UR < 26th)	0.0323**	0.239	0.0612***	0.419	0.0820***	0.134
	(0.0154)		(0.0182)		(0.0205)	
× (UR 26th–50th)	0.0222		0.0445**		0.0581***	
	(0.0158)		(0.0188)		(0.0213)	
× (UR 51st–75th)	0.0328**		0.0501**		0.0646***	
	(0.0156)		(0.0190)		(0.0217)	
× (UR > 75th)	0.0148		0.0469**		0.0533**	
	(0.0187)		(0.0219)		(0.0250)	
TL is binding						
× (UR < 26th)	0.0399**	0.252	0.0971***	0.409	0.1108***	**0.031**
	(0.0163)		(0.0184)		(0.0213)	
× (UR 26th–50th)	0.0592***		0.1165***		0.1043***	
	(0.0149)		(0.0173)		(0.0211)	
× (UR 51st–75th)	0.0572***		0.1054***		0.0831***	
	(0.0152)		(0.0180)		(0.0221)	
× (UR > 75th)	0.0521***		0.1067***		0.0808***	
	(0.0158)		(0.0183)		(0.0229)	

(*Continued*)

Table 4. *Continued.*

Variable	Outcome 1: Work	*p*-value	Outcome 2: Work and No Welfare	*p*-value	Outcome 3: Full-Time, Full-Year Work	*p*-value
Medicaid coverage						
× (UR < 26th)	0.0176**	**0.073**	0.0179**	**0.003**	0.0040	0.496
	(0.0071)		(0.0083)		(0.0096)	
× (UR 26th–50th)	0.0258***		0.0144*		−0.0050	
	(0.0062)		(0.0076)		(0.0091)	
× (UR 51st–75th)	0.0082		0.0013		−0.0095	
	(0.0062)		(0.0076)		(0.0093)	
× (UR > 75th)	0.0008		−0.0145*		−0.0050	
	(0.0070)		(0.0087)		(0.0106)	

Notes: Marginal effects are shown, along with robust standard errors (in parentheses). Marginal effects are evaluated at the sample mean for each variable. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Each set of policy-unemployment interaction coefficients is derived from a separate regression of each employment outcome on all policy variables listed in Table 2, as well as controls for age; age-squared; whether the youngest child is ages 3–5, ages 6–8, ages 9–12, and ages 13-17; number of children ages 0–5; educational attainment; marital status; non-white; metropolitan residence; non-wage income; and the set of unemployment rate quartile dummies. All models include state and year fixed effects and state-specific linear time trends. Reported *p*-values are from a specification test of the null hypothesis that policy-economy interactions at the most and least favorable UR quartiles are equal.

Source: Author's calculation from the 1986–2005 March CPS.

at the FTFY margin. Given the negative correlation between CCDF spending and the unemployment rate ($\rho = -0.26$), one explanation for this pattern of results is that mothers' employment decisions are more responsive to child care subsidies as the availability of subsidized child care slots increases.

The pattern of results for job search and cash diversion programs is striking. States' mandatory job search policies lead to lower employment rates at the AW and WNW margins, but the effects become positive at the FTFY margin. In fact, the only positive and statistically significant result for job search policies is found at the FTFY margin when economic conditions are extremely favorable. Diversion programs, on the other hand, are consistently positively associated with employment, but the magnitude and significance of the effect increase as work intensity increases in favorable economic conditions. Together these results imply that soft policy "sticks" require strong labor market conditions in order to produce positive employment effects, especially at high-intensity work margins.

Turning to such hard policy "sticks" as work requirements, welfare sanctions, and time limits, one finds a similar pattern of results. The case of work requirements provides an interesting example. This policy does not produce consistent evidence of a positive employment effect across the AW and WNW margins, but there appears to be strong evidence of an effect at the FTFY margin. In addition, the magnitude of employment effects is remarkably uniform across quartiles of the unemployment rate at the AW and WNW margins but displays greater heterogeneity at the FTFY margin, with larger positive effects in extremely favorable economic conditions. In fact, moving from the least to the most favorable labor market conditions increases the effects of work requirements by 31 percent at the FTFY margin. Welfare sanctions create stronger work incentives across increasingly demanding work margins, but the effects do not reveal much heterogeneity across economic environments. Finally, results for time limits, especially binding and intermittent time

Table 5. Heterogeneous effects (HE) of policy reforms across quartiles of the unemployment rate: single mothers with a high school diploma or less.

Variable	Outcome 1: Work		Outcome 2: Work and No Welfare		Outcome 3: Full-Time, Full-Year Work	
EITC maximum credit						
× (UR < 26th)	0.0196***	(0.0053)	0.0102*	(0.0059)	−0.0037	(0.0062)
× (UR > 75th)	0.0167***	(0.0047)	0.0042	(0.0054)	−0.0095	(0.0061)
p-value	0.641		0.376		0.440	
CCDF spending						
× (UR < 26th)	0.3542***	(0.0823)	0.2756***	(0.0928)	−0.1816*	(0.0972)
× (UR > 75th)	0.1292**	(0.0652)	0.1086	(0.0750)	−0.0963	(0.0855)
p-value	**0.014**		0.111		0.445	
Welfare max. benefit						
× (UR < 26th)	−0.0527	(0.0436)	−0.0455	(0.0495)	−0.0239	(0.0562)
× (UR > 75th)	−0.0659*	(0.0402)	−0.0586	(0.0461)	−0.0069	(0.0525)
p-value	0.578		0.627		0.580	
Disregarded earnings						
× (UR < 26th)	0.0701***	(0.0091)	0.1153***	(0.0103)	0.1388***	(0.0117)
× (UR > 75th)	0.0773***	(0.0091)	0.1114***	(0.0105)	0.1053***	(0.0123)
p-value	0.393		0.691		**0.003**	
Job Search						
× (UR < 26th)	−0.0105	(0.0189)	0.0051	(0.0208)	0.0421**	(0.0211)
× (UR > 75th)	−0.0262	(0.0174)	−0.0157	(0.0198)	−0.0081	(0.0227)
p-value	0.511		0.434		**0.071**	
Diversion program						
× (UR < 26th)	0.0187	(0.0157)	0.0484***	(0.0175)	0.0310*	(0.0186)
× (UR > 75th)	0.0166	(0.0135)	0.0283*	(0.0157)	−0.0239	(0.0177)
p-value	0.907		0.326		**0.012**	
Work requirement						
× (UR < 26th)	0.0218*	(0.0122)	0.0358**	(0.0139)	0.0681***	(0.0149)
× (UR > 75th)	0.0290**	(0.0111)	0.0366***	(0.0132)	0.0446***	(0.0152)
p-value	0.610		0.956		0.190	

(*Continued*)

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Table 5. *Continued.*

Variable	Outcome 1: Work		Outcome 2: Work and No Welfare		Outcome 3: Full-Time, Full-Year Work	
Welfare sanction						
× (UR < 26th)	−0.0102	(0.0176)	0.0194	(0.0193)	0.0494**	(0.0200)
× (UR > 75th)	0.0053	(0.0253)	0.0280	(0.0288)	0.0332	(0.0308)
p-value	0.567		0.777		0.610	
Lifetime TL						
× (UR < 26th)	0.0203	(0.0221)	0.0370	(0.0255)	−0.0040	(0.0290)
× (UR > 75th)	0.0236	(0.0222)	0.0375	(0.0259)	−0.0452	(0.0306)
p-value	0.834		0.975		**0.039**	
Intermittent TL						
× (UR < 26th)	0.0302	(0.0235)	0.0332	(0.0275)	0.0840***	(0.0292)
× (UR > 75th)	−0.0065	(0.0288)	0.0074	(0.0331)	0.0366	(0.0357)
p-value	0.112		0.338		**0.087**	
TL is binding						
× (UR < 26th)	0.0690***	(0.0238)	0.1339***	(0.0274)	0.1254***	(0.0303)
× (UR > 75th)	0.0820***	(0.0234)	0.1442***	(0.0276)	0.0690**	(0.0333)
p-value	0.421		0.577		**0.007**	
Medicaid coverage						
× (UR < 26th)	0.0254**	(0.0104)	0.0113	(0.0118)	−0.0043	(0.0134)
× (UR > 75th)	0.0017	(0.0101)	−0.0156	(0.0119)	−0.0171	(0.0146)
p-value	**0.083**		**0.086**		0.486	

Notes: Marginal effects are shown, along with robust standard errors (in parentheses). Marginal effects are evaluated at the sample mean for each variable. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Number of observations for Outcome 1: 72,730. Number of observations for Outcome 2: 72,730. Number of observations for Outcome 3: 49,001. Each set of policy-unemployment interaction coefficients is derived from a separate regression of each employment outcome on all policy variables listed in Table 2, as well as controls for age; age-squared; whether the youngest child is ages 3–5, ages 6–8, ages 9–12, and ages 13–17; number of children ages 0–5; educational attainment; marital status; non-white; metropolitan residence; non-wage income; and the set of unemployment rate quartile dummies. All models include state and year fixed effects and state-specific linear time trends. The policy-unemployment interactions for the two middle quartiles are excluded from the table for ease of presentation. Reported *p*-values are from a specification test of the null hypothesis that policy-economy interactions at the most and least favorable UR quartiles are equal.

Source: Author's calculation from the 1986-2005 March CPS.

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Table 6. Heterogeneous effects (HE) of policy reforms across quartiles of the unemployment rate: non-white single mothers.

Variable	Outcome 1: Work		Outcome 2: Work and No Welfare		Outcome 3: Full-Time, Full-Year Work	
EITC maximum credit						
× (UR < 26th)	0.0164**	(0.0072)	−0.0009	(0.0084)	−0.0049	(0.0087)
× (UR > 75th)	0.0086	(0.0060)	−0.0105	(0.0072)	−0.0268***	(0.0078)
p-value	0.345		0.318		**0.033**	
CCDF spending						
× (UR < 26th)	0.4000***	(0.1159)	0.3348***	(0.1353)	−0.0112	(0.1362)
× (UR > 75th)	0.0274	(0.0694)	0.0266	(0.0832)	−0.1261	(0.0939)
p-value	**0.002**		**0.028**		0.425	
Welfare max. benefit						
× (UR < 26th)	−0.1487**	(0.0579)	−0.1573**	(0.0683)	−0.1757**	(0.0738)
× (UR > 75th)	−0.1676***	(0.0528)	−0.1846***	(0.0628)	−0.1869***	(0.0675)
p-value	0.530		0.437		0.769	
Disregarded earnings						
× (UR < 26th)	0.0545***	(0.0118)	0.1082***	(0.0141)	0.1019***	(0.0157)
× (UR > 75th)	0.0621***	(0.0115)	0.1178***	(0.0139)	0.0976***	(0.0156)
p-value	0.474		0.460		0.759	
Job search						
× (UR < 26th)	−0.0221	(0.0245)	−0.0097	(0.0278)	0.0603**	(0.0266)
× (UR > 75th)	−0.0460*	(0.0245)	0.0107	(0.0276)	−0.0563*	(0.0303)
p-value	0.434		0.553		**0.000**	
Diversion program						
× (UR < 26th)	0.0040	(0.0212)	0.0089	(0.0245)	0.0396	(0.0240)
× (UR > 75th)	0.0024	(0.0185)	−0.0050	(0.0222)	−0.0272	(0.0239)
p-value	0.949		0.622		**0.020**	
Work requirement						
× (UR < 26th)	0.0198	(0.0167)	0.0100	(0.0204)	0.0664***	(0.0203)
× (UR > 75th)	0.0288*	(0.0146)	0.0213	(0.0181)	0.0198	(0.0201)
p-value	0.635		0.624		**0.053**	
Welfare sanction						
× (UR < 26th)	−0.0079	(0.0225)	0.0034	(0.0257)	0.0403	(0.0259)
× (UR > 75th)	−0.0095	(0.0296)	0.0134	(0.0346)	−0.0151	(0.0368)
p-value	0.961		0.791		0.152	

(*Continued*)

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Table 6. *Continued.*

Variable	Outcome 1: Work		Outcome 2: Work and No Welfare		Outcome 3: Full-Time, Full-Year Work	
Lifetime TL						
× (UR < 26th)	0.0313	(0.0289)	0.0088	(0.0362)	−0.0284	(0.0402)
× (UR > 75th)	0.0403	(0.0280)	0.0249	(0.0356)	−0.0856**	(0.0416)
p-value	0.657		0.518		**0.032**	
Intermittent TL						
× (UR < 26th)	0.0857***	(0.0274)	0.1196***	(0.0346)	0.1156***	(0.0367)
× (UR > 75th)	0.0799**	(0.0309)	0.1609***	(0.0365)	0.0603	(0.0448)
p-value	0.823		0.166		**0.093**	
TL is binding						
× (UR < 26th)	0.0695**	(0.0293)	0.1508***	(0.0340)	0.1374***	(0.0363)
× (UR > 75th)	0.0555*	(0.0306)	0.1448***	(0.0349)	0.0684	(0.0411)
p-value	0.503		0.809		**0.007**	
Medicaid coverage						
× (UR < 26th)	0.0229	(0.0144)	0.0236	(0.0169)	−0.0072	(0.0194)
× (UR > 75th)	0.0088	(0.0131)	−0.0090	(0.0161)	−0.0345*	(0.0190)
p-value	0.444		0.138		0.282	

Notes: Marginal effects are shown, along with robust standard errors (in parentheses). Marginal effects are evaluated at the sample mean for each variable. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Number of observations for Outcome 1: 38,300. Number of observations for Outcome 2: 38,300. Number of observations for Outcome 3: 26,479. Each set of policy–unemployment interaction coefficients is derived from a separate regression of each employment outcome on all policy variables listed in Table 2, as well as controls for age; age-squared; whether the youngest child is ages 3–5, ages 6–8, ages 9–12, and ages 13–17; number of children ages 0–5; educational attainment; marital status; non-white; metropolitan residence; non-wage income; and the set of unemployment rate quartile dummies. All models include state and year fixed effects and state-specific linear time trends. The policy-unemployment interactions for the two middle quartiles are excluded from the table for ease of presentation. Reported *p*-values are from a specification test of the null hypothesis that policy-economy interactions at the most and least favorable UR quartiles are equal.

Source: Author's calculation from the 1986–2005 March CPS.

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limits, follow a pattern similar to work requirements: One finds the largest effects at the FTFY margin when labor market conditions are strong. Moving from the least to the most favorable labor market conditions increases the employment effect by 54 percent and 37 percent for intermittent and binding time limits, respectively.

With a few exceptions, the results in Table 4 imply some interesting patterns. Policy "carrots"—especially child care subsidies, disregarded earnings, and Medicaid generosity—create the greatest employment incentives when the economy is strong and when the work intensity is low. Soft policy "sticks" like mandatory job search and diversion grants actually require strong economic conditions to produce positive employment effects, while hard policy "sticks" like work requirements and time limits produce larger effects in favorable conditions. It is also clear from Table 4 that the effects of policy reforms are relatively stable at low-intensity work margins and become increasingly heterogeneous as work expectations grow. Perhaps somewhat surprising is the finding that most policy reforms continue to be positively associated with employment even when labor market conditions are weak.

A similar pattern emerges, and in many cases is more dramatic, for subsamples of low-skilled and non-white single mothers. Tables 5 and 6 present results for these subgroups. Across both types of mothers, the EITC leads to uniform employment effects across both economic conditions and work margins. Spending on child care subsidies is associated with greater employment rates in favorable economic conditions, and this general pattern holds for the magnitude of negative effects. States' job search and diversion programs are predicted to increase employment more as the intensity of work increases, especially in the presence of strong labor market conditions. While the magnitude of work requirement effects is fairly uniform at the AW margin, there is considerable heterogeneity at the FTFY margin. In fact, moving from the least to the most favorable economic conditions raises the likelihood of employment by 53 percent and 235 percent for low-skilled and non-white single mothers, respectively. Welfare sanctions also reveal greater heterogeneity at the FTFY margin, and the only statistically significant result is estimated for mothers operating in the most favorable labor market conditions. Similar patterns are revealed for the time limit policies.

Specification Tests

Tables 3–6 present results from an explicit test of policy heterogeneity across varying economic conditions. Specifically, I report p-values from a series of χ^2 tests of the hypothesis that policy–economy interactions at the least and most favorable unemployment quartiles are the same. Bolded p-values imply that the null hypothesis of equality of coefficients is rejected at the 10 percent level or better. Generally speaking, there is reasonable evidence of policy effect heterogeneity across economic conditions. Much of the heterogeneity is unevenly distributed across the three work margins, with policy–unemployment interactions revealing the greatest variation at the FTFY margin. The impact of welfare waivers and TANF (Table 3) show considerable heterogeneity across quartiles of the unemployment rate. Considering the individual policy reforms for all single mothers (Tables 4–6), three of the specification tests are rejected at the AW margin, compared to five at the FTFY margin. Results for the subsamples of single mothers are somewhat more pronounced, with corresponding rejections of two and six for low-skilled mothers and one and seven for non-white mothers. Thus, it appears that the economy's influence on the effectiveness of policy reforms is concentrated at the most demanding work margins and among tenuous workers. Conversely, social policies are likely to generate similar employment effects across most economic environments when the expected work intensity is low. These results also confirm that policy "carrots" are more likely to reveal heterogeneous effects at lower-intensity work margins, while policy "sticks" are more likely to show variation at more demanding work margins.

Extensions and Sensitivity Tests

To assess the robustness of the results presented above, I consider a number of extensions to the basic HE model. One criticism of the unemployment quartile approach is that quartiles are not directly comparable from year to year and that it might be more relevant to interact social policies with the unemployment rate rather than states' relative positions in the distribution. Therefore, I estimate HE models that include interactions of each policy reform with the continuously measured unemployment rate. Results from this exercise continue to show a fairly large number of statistically significant coefficients on the interaction terms, and the substantive story remains unchanged. However, the quartile approach is preferable for two reasons: It provides useful information about the impact of social policies in fairly specific economic environments, and it yields more precise estimates by reducing the effects of multicollinearity.

I also experiment with other measures of economic conditions and additional subgroups of single mothers. I test a measure of the volatility of states' economic environments by calculating the mean deviation in county-level unemployment rates from the state average, weighted by the size of the labor force. In addition, I experiment with state-level measures of overall UI-covered employment and wages as well as employment and wages in the retail and service sectors. Employment and wage growth rates are also tested. Many of these measures are statistically significant in the AE and HE employment models, although at times the coefficients are difficult to interpret because they have unexpected signs. I decided ultimately to focus on the state unemployment rate in order to simplify the analysis. In terms of subgroups, I estimate the HE model on mothers with young children (ages 0–5) and never married mothers. Results are qualitatively similar to those reported above, although the smaller sample sizes associated with these groups increase the standard errors so that some of the regression estimates are no longer statistically significant.

Finally, I experiment with more explicit measures of employment at the intensive margin. Specifically, I estimate OLS HE models using hours of work and weeks of work as the dependent variables. With the exception of work requirements and welfare sanctions, the pattern of results is very similar to the analysis of the FTFY work margin. None of the interactions for work requirements and welfare sanctions are statistically significant. However, the overall congruence between the hours, weeks, and FTFY results is not surprising: Conditional on any employment, the empirical distribution for both continuous employment measures suggests that most single mothers are observed to be working full time, full year.

CONCLUSION AND DISCUSSION OF POLICY IMPLICATIONS

This paper examines the plausibility of differential social policy effects on employment across varying labor market conditions. It relaxes the common assumption and analytic practice in the literature to estimate average effects of recent policy reforms that hold for mothers in all economic environments. This study also extends the literature by testing for heterogeneous policy effects across several increasingly demanding work "margins." Findings in this paper imply a number of interesting patterns. Although many social policy reforms are associated with increased employment during economic slowdowns, policies generate the greatest work incentives in favorable economic conditions. Moreover, the economy's influence on the impact of policy reforms appears to be greater as work intensity increases and among tenuous workers. Policy–economy interactions operate differently across broad categories of policy "sticks" and "carrots." Effect heterogeneity is typically greater for policy "carrots" at low-intensity employment, while policy "sticks" display greater variability at high-intensity employment.

Overall, these results suggest a tentative conclusion about the nature of policy–economy interactions: Reforms that promote work and decrease welfare use not only magnify the impact of the economy when it is strong, but also soften its blow during contractions. Of course, this optimistic assessment must be evaluated against the possibility that although welfare and other policy reforms boost employment during economic slowdowns, single mothers could be forced to remain in low-wage jobs with little flexibility and reduced overtime pay in order to comply with work requirements and the threat of sanctions. Future research in this area should investigate whether the employment gains across economic conditions are matched by gains in earnings and other indicators of material well-being.

The case of work requirements highlights many of the findings in this paper. In an average effects world, implementation of a work requirement is associated with a 1.2 to 3.9 percentage point increase in employment, depending on the work margin. However, this average effect masks substantial heterogeneity across economic conditions and subgroups. Allowing the effect of work requirements to vary across the unemployment rate for all single mothers leads to a range of estimates from essentially zero to 5.1 percentage points. Heterogeneity among low-skilled and nonwhite single mothers often exceeds that of the average mother. In fact, the largest employment response to work requirements appears to be among low-skilled mothers working full time, full year in favorable economic conditions (6.8 percentage points).

This research raises several important policy implications. First, one may speculate how welfare participation and employment rates might respond to a deep recession. As previously stated, the salience of this issue has increased in the wake of the 2001 downturn. Specifically, between January 2000 and December 2004, the U.S. unemployment rate increased from 4.0 to 5.4, peaking at 6.3 in June 2003. However, welfare caseloads continued to decline over this period, from 2.2 million to 2.0 million families, and employment rates rebounded after falling approximately five percentage points (U.S. DHHS, various years). These trends conflict with findings from early welfare reform studies, which predicted large increases in welfare caseloads during the next recession. For example, one study found that a 2 percentage point increase in the unemployment rate should increase the number of welfare recipients between 7 and 12 percent (Figlio & Ziliak, 1999).

Results in this study shed light on why such caseload increases did not occur, and why employment fell slightly and temporarily, during the most recent recession. While it is the case that the largest employment effects are found during periods of strong economic activity, many reforms continue to be positively related to employment during slowdowns. Specifically, child care subsidies, earnings disregards, diversion programs, work requirements, sanctions, and time limits provide positive incentives to remain employed and off welfare when the unemployment rate hits relatively high levels. Coefficients on the four policy "sticks" alone imply that employment at this margin would have been at least 10 percentage points lower had these policies not been implemented.

Another set of policy implications focuses on the fact that social policy reforms do not create the same employment incentives across all economic conditions and work margins. Such an observation implies two lessons for policymakers. First, flexibility in the design and implementation of policy reforms is likely to be crucial to their continued success. Allowing states to craft their own TANF regimes, subject to broad federal guidelines, may be the most effective method for ensuring that a common set of work participation rates is met. States' "endowments" of demographic and human capital characteristics vary dramatically, and national economic fluctuations do not impact all jurisdictions in the same manner. A system of policy devolution is well positioned to deal with this demographic and economic diversity, especially when these factors interact with a policy environment that endorses a "work first" philosophy.

Second, policy reforms should be carefully tailored to specific employment goals and take account of the economic environment in which low-income individuals operate. For example, if the goal of a given policy reform is to move welfare recipients into work—without an hours requirement—policymakers can reliably draw from a broad menu of policy options to achieve their objectives. Based on findings in this study, implementation of an EITC or work requirement can achieve similar results across most economic conditions if the employment goal is "any work." However, if the policy stipulates that recipients work full time, as is the case with work requirements, favorable economic conditions must be present if policymakers are to ensure those requirements are met and recipients are to avoid benefit sanctions.

An economic "trigger" is one mechanism by which states can tailor policy reforms to labor market conditions. Including this option in TANF plans can allow states to stop the time limit clock or adjust downward work participation rates when the unemployment rate exceeds a certain level. The primary aim of this mechanism is to help welfare recipients avoid benefit sanctions when poor labor demand conditions make it difficult to meet work requirements. Another option for states operating in a weak economy is to broaden the number of "acceptable" work activities or shift welfare recipients into activities that are less sensitive to the economy. Each of these strategies is increasingly important in light of the 2005 TANF reauthorization, which raises work participation rates for all welfare recipients, narrows the definition of acceptable work activities, and imposes financial penalties on noncomplaint states.

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REFERENCES

Bartik, T., & Eberts, R. (1999). Examining the effect of industry trends and structure on welfare caseloads. In S. H. Danziger (Ed.), Economic conditions and welfare reform. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

Besley, T., & Case, A. (2000). Unnatural experiments? Estimating the incidence of endogenous policies. Economic Journal, 110, F672–F694.

Bitler, M., Gelbach, J., Hoynes, H., & Zavodny, M. (2004). The impact of welfare reform on marriage and divorce. Demography, 41, 213–236.

Blank, R. (2002). Evaluating welfare reform in the United States. Journal of Economic Literature, 40, 1105–1166.

Blank, R. (2004). Assessing the impact of welfare reform on single mothers: Comment. Brookings Papers on Economic Activity, 35, 1–116.

Cameron, C., Gelbach, J., & Miller, D. (in press). Bootstrap-based improvements for inference with clustered errors. Review of Economics and Statistics.

Council of Economic Advisors (CEA). (1997, May). Explaining the decline in welfare receipt, 1993–1996. Washington, DC: Council of Economic Advisors.

Council of Economic Advisors (CEA). (1999, August). The effects of welfare policy and the economic expansion on welfare caseloads: An update. Washington, DC: Council of Economic Advisors.

Crouse, G. (1999). State implementation of major changes to welfare policies 1992–1998. Retrieved September 1, 2006, from http://aspe.hhs.gov/HSP/Waiver-Policies99/policy_CEA.htm.

Fang, H., & Keane, M. (2004). Assessing the impact of welfare reform on single mothers. Brookings Papers on Economic Activity, 35, 1–116.

Figlio, D., & Ziliak, J. (1999). Welfare reform, the business cycle, and the decline in AFDC caseloads. In S. H. Danziger (Ed.), Economic conditions and welfare reform. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

Fitzgerald, J., & Ribar, D. (2004). Welfare reform and female headship. Demography, 41, 189–212.

Gelbach & J. (2006). [Review of the book Welfare reform: Effects of a decade of change by J. Grogger & L. A. Karoly]. Journal of Economic Literature, 44, 1056–1062.

Grogger, J. (2003). The effects of time limits, the EITC, and other policy changes on welfare use, work, and income among female-headed families. Review of Economics and Statistics, 85, 394–408.

Grogger, J., & Karoly, L. (2005). Welfare reform: Effects of a decade of change. Cambridge, MA: Harvard University Press.

Herbst, C. (2008). The effects of child care costs and taxes on the employment of single mothers: Evidence from a SIPP-CPS matching procedure. Manuscript submitted for publication.

Hofferth, S., Stanhope, S., & Harris, K. (2002). Exiting welfare in the 1990s: Did public policy influence recipients' behavior? Population Research and Policy Review, 21, 433–72.

Kaushal, N., & Kaestner, R. (2001). From welfare to work: Has welfare reform worked? Journal of Policy Analysis and Management, 20, 699–719.

Liebman, J. (2000). Who are the ineligible EITC recipients? National Tax Journal, 53, 1165–1185.

Looney, A. (2005). The effects of welfare reform and related policies on single mothers' welfare use and employment in the 1990s. Finance and Economics Discussion Series Working Paper 2005–45. Washington, DC: Federal Reserve Board.

Meyer, B., & Rosenbaum, D. (2001). Welfare, the earned income tax credit, and the labor supply of single mothers. Quarterly Journal of Economics, 116, 1063–1114.

Moffitt, R. (1997). The effect of welfare on marriage and fertility: What do we know and what do we need to know? Discussion Paper No. 1153–97. Madison, WI: Institute for Research on Poverty.

Moffitt, R. (1999). The effect of pre-PRWORA waivers on AFDC caseloads and female earnings, income, and labor force behavior. In S. H. Danziger (Ed.), Economic conditions and welfare reform. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

Moulton, B. (1990). An illustration of a pitfall in estimating the effects of aggregate variables on micro units. Review of Economics and Statistics, 72, 334–338.

Noonan, M., Smith, S., & Corcoran, M. (2007). Examining the impact of welfare reform, labor market conditions, and the earned income tax credit on the employment of black and white single mothers. Social Science Research, 36, 95–130.

O'Neil, J., & Hill, A. (2001). Gaining ground? Measuring the impact of welfare reform on welfare and work. Civic Report No. 17. New York: Manhattan Institute for Policy Research.

Rowe, G., & Versteeg, J. (2005). Welfare rules databook: State TANF policies as of July 2003. Washington, DC: The Urban Institute.

Schoeni, R., & Blank, R. (2000). What has welfare reform accomplished? Impacts on welfare participation, employment, income, poverty, and family structure. Working Paper No. 7627. Cambridge, MA: National Bureau of Economic Research.

U.S. Department of Health and Human Services (U.S. DHHS). (Various Years). Characteristics of state plans for Aid to Families with Dependent Children. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families.

U.S. Department of Health and Human Services (U.S. DHHS). (Various Years). U.S. welfare caseloads information: Total number of families and recipients. Retrieved September 1, 2006, from http://www.acf.hhs.gov/news/stats/newstat2.shtml.

U.S. Department of Health and Human Services (U.S. DHHS). (1997). Setting the baseline: A report on state welfare waivers. Retrieved September 1, 2006, from http://aspe.hhs.gov/HSP/isp/waiver2/title.htm.

U.S. General Accountability Office (U.S. GAO). (1997). Welfare reform: States' early experiences with benefit termination. Report No. HEHS-97-74. Washington, DC: U.S. General Accountability Office.

U.S. General Accountability Office (U.S. GAO). (2003). Child care: Recent state policy changes affect the availability of assistance for low-income families. Report No. GAO-03-588. Washington, DC: U.S. General Accountability Office.

U.S. House of Representatives, Committee on Ways and Means. (Various Years). Green book, background material and data on programs within the jurisdiction of the Committee on Ways and Means. Washington, DC: Government Printing Office.

Wallace, G., & Blank, R. (1999). What goes up must come down? In S. H. Danziger (Ed.), Economic conditions and welfare reform. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

Ziliak, J., Figlio, D., Davis, E., & Connolly, L. (2000). Accounting for the decline in AFDC caseloads: Welfare reform or the economy? Journal of Human Resources, 35, 570–586.