Age-Related Differences in the Effects of Employment Policies on Children in Low-Income Single-Parents Families

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Abstract

Beyond their economic consequences, policies designed to move low-income single parents into work matter to the welfare of children and families, and their effects may vary by child age. Extant research suggests that this is true for children's achievement. However, less is known about age-related differences in the effects of employment policies on children's social behavior or family contexts. Using data from five experimental employment policies, we examine impacts on children's positive and problem behaviors, parents' depression, parenting, and childcare-use at two points in childhood: preschool-age and school-age. We also investigate whether policy-induced changes in parents' depression, parenting, and childcare-use mediated the impacts on children's social behavior. Results indicate that the policies benefitted school-age children and their parents—but not preschool children. Changes in parents' depression, parenting, and childcare-use partially account for improvements in school-age children's social behavior, but among preschoolers, they counteracted a tendency for programs to reduce problem behaviors.

Since the 1980s, public policies have been designed to promote employment among low-income single parents through the "sticks" of work mandates and sanctions and the "carrots" of such incentives as federal and state Earned Income Tax Credits (EITC). Although these policies are designed primarily to influence adult work effort, they have obvious implications for the welfare of parents and children. An accrued body of research shows that policy effects on school achievement vary for children of different ages (e.g., Morris, Duncan, & Clark-Kauffman, 2005), but there is less information about the effects on children's social and emotional development.

A major purpose of the present study was to examine experimental impacts of welfare and employment policies on positive social behavior and behavior problems for children as well as parents' depressive symptoms and parenting at different points in children's development. The second purpose was to investigate parents' depressive symptoms, parenting practices, and type of child care as mediators of policy effects on children's social behavior.

The effects of welfare and employment policies on child development depend on the characteristics of parents and children, the developmental domain under consideration, the policies' effects on both the family context and children's experiences outside the family (e.g., child care), and how policies are designed and implemented. Analyses of random-assignment experiments indicate that policies increasing family income and/or use of center-based child care have positive effects on later school achievement for young children, particularly for those in the preschool years when their parents entered the programs (Hill & Morris, 2008; Morris, Gennetian, Duncan, & Huston, 2010) By contrast, policies slightly reduced achievement for children entering adolescence (Gennetian et al., 2004; Morris et al.).

The developmental differences in impacts observed for achievement suggest that children of different ages may respond differently to parents' entry into employment-based programs (Morris et al., 2005). There is little evidence, however, concerning policy impacts on children's social behavior, including such positive behaviors as compliance, social skills, and autonomy and such problem behaviors as externalizing and internalizing. One demonstration program, New Hope, improved positive behavior and reduced behavior problems, primarily for boys (Huston et al., 2001; 2005), and another analysis indicates that policies encouraging center-based child care reduce later behavior problems (Crosby, Dowsett, Gennetian, & Huston, 2010), but most experiments have found scattered effects (Hamilton et al., 2001; McGroder, Zaslow, Moore, & LeMenestrel, 2000). Data from a large non-experimental study of low-income families demonstrated that job entry was not related to behavior changes for preschool children but was associated with improvements in adolescents' psychological well-being (Chase-Lansdale et al., 2003). Thus, it is plausible that the overall patterns observed in experimental studies mask important age-related differences in impacts on children's social behavior.

Background

Zaslow and colleagues (1995) proposed a model outlining potential pathways by which welfare and employment policies would affect children. Two of those pathways, parents' subjective well-being and child care, are investigated in this paper. Parents' subjective well-being is also central to the family stress model, which is well-developed as an explanation of the effects of family economic stress on children's socioemotional well-being (Conger & Donnellan,

2007; Huston & Bentley, 2010; Yeung, Linver, & Brooks-Gunn, 2002). Family stress theory posits that economic strain from income loss or poverty prompts a cascade of negative family processes that begins with reductions in parents' psychological well-being (increased depression or anxiety). Consequently, parents are less warm and often respond to children with impatience and harsh punishment; such negative parenting leads to emotional distress and behavior problems in children (Conger & Donnellan; McLoyd, 1998). The theory has received extensive empirical support across samples of varied family structure, race/ethnicity, and socio-economic status (e.g., Conger et al., 2002; Mistry, Vandewater, Huston, & McLoyd, 2002). It is applicable to a range of family economic circumstances, including participation in programs designed to move parents into employment. Using this paradigm, we propose that the effects of welfare and employment policies on children's social behavior are partly a function of their effects on parents' psychological well-being and parenting behaviors. If policies encouraging work enhance parents' well-being and supportive parenting, then exposure to them could improve children's behavior, but they diminish family functioning, children might respond with negative behavior.

Child care, the second major pathway proposed by Zaslow et al. (1995), might also affect parental stress and influence children's behavior. For low-income single parents required to initiate employment, the pressures of combining work and family responsibilities can cause role strain and psychological stress. Moving quickly into a job may compel previously unemployed parents to make child care arrangements with little notice and little money. As such, the benefits of work may be offset by the demands of finding appropriate and affordable care, adjusting family routines around work schedules that can be unpredictable and inconvenient (particularly for low-skill workers entering low-wage jobs), and keeping up with household tasks.

As for children's behavioral responses to child care experiences, some longitudinal studies suggest that formal, center-based child care is associated with later externalizing behavior problems (e.g., NICHD Early Childcare Research Network, 2007). However, this pattern is not typical among low-income samples (Fuller, Kagan, Caspary, & Gauthier, 2002). Analyses that control for potential selection bias show the opposite pattern: Welfare and employment policies that increase use of center care diminish behavior problems when children reach school (Crosby et al., 2010). We anticipated that the type of child care utilized would contribute to the policies' effects on children's social behavior such that policies increasing the use of formal care or decreasing informal care would support behavioral improvements.

Demonstrations of welfare and employment policies for low-income single parents are one means of testing whether work-related demands affect children and families in ways consistent with the family stress model. On average, most of the policies examined led to little change in income but did consistently increase employment (Bloom & Michalopoulous, 2001; Morris et al., 2010). Hence, they would not be expected to produce large changes in economic worries and concerns but may have increased family management load, thereby affecting parents' psychological well-being, parenting practices, and children's social behavior.

Children's ages or developmental needs appear to shape the impacts of welfare and employment policies on parents' psychological well-being and parenting. The policies' overall effects are mixed, differing by study and program site (Bloom et al., 2002), but findings are more consistent when child age is taken into account. Parents with preschool-age children responded

with elevated depressive symptoms, particularly when welfare offices emphasized quick job entry, but policies reduced depressive symptoms for parents with school-age children (Morris, 2008). If parental psychological well-being mediates policy effects on families, then parenting and children's social behavior may also differ for preschool and school-age children.

The findings from policy experiments contrast with longitudinal data showing a relation between maternal transitions into employment and improved psychological well-being for low-income parents with preschool children and for those with adolescents. In longitudinal data, moving from welfare to work and from work to welfare bore little relation to parenting practices or young children's parent-rated behavior, but for adolescents, maternal job exits predicted elevated behavior problems (Chase-Lansdale et al., 2003; Coley et al., 2007). In longitudinal studies compared to experiments testing work mandates, job entries were less obviously determined by externally-imposed policy requirements, and parents who entered work may have differed in unmeasured ways from those who did not. Random assignment curbs the extent to which selection bias and omitted variables confound results, enhancing the validity of the results. Nonetheless, both experimental and nonexperimental findings highlight the prospect of identifying age-related variation in the paths through which policies affect families.

Developmental differences in policy effects on parents and children may emerge in part through age-related variation in experiences with child care. The balance of benefits and strains produced by entering or increasing employment may be more positive when children are old enough to be in school because less child care is needed, securing care is less difficult, and parents may feel that school-age children are emotionally ready to be separated from them. Because very young children are more dependent on parents for their basic needs and require more direct care, preschool-age children may pose more of a family management challenge than school children because parents must organize child care during all work hours for children who have not aged into school. In informal settings especially, the quality of care available to low-income parents is often low (Coley, Li Grining, & Chase Lansdale, 2006; Li Grining & Coley, 2006), piquing apprehension parents may already feel about leaving young children in care due to concerns about readiness for separation. Moreover, arrangements are often unstable, exposing young children to repeated changes in caregivers and routines (Lowe & Weisner, 2004).

In this study, data from five experiments were used to examine age-based differences in the effects of welfare and employment policies on children's social behavior and the paths thereto. Thus, we estimated the impacts on child behavior, parents' emotional health, parenting practices, and child care use for preschool children versus those of school age. For preschool children, we expected policy-induced declines in positive behavior and increases in behavior problems alongside increases in parents' depressive symptoms and reductions in positive parenting. For school-age children, we expected the opposite pattern of effects.

We also tested parent psychological well-being, parenting, and type of child care as mediators of experimental effects on child behavior. Based on family stress theory, we expected that developmental differences in impacts on parents' depressive symptoms and parenting practices would account for differences in behavioral impacts. Drawing on research linking social behavior to child care settings, we predicted that age-related differences in impacts on the type of child care used would help to explain differences in policies' effects on behavior.

This investigation has several strengths distinguishing it from prior research. First, the studies' random assignment designs and their use of large samples assure that adults exposed to the experimental policies do not differ in systematic ways from those who were not. Although not perfect, random assignment is the best means of eliminating omitted variables bias. Second, combining information across studies allows generalization across a large sample of families and across a wide range of policies, populations, and geographic locations. Third, some studies gathered both parent and teacher reports of children's social behavior. It is important to have behavior measures independent of parents' reports because parents' own psychological well-being can affect and be affected by their perceptions of their children.

Method

As part of the Next Generation Project, a collaboration designed to identify the wider effects of welfare and employment policies on children and families, data were pooled across eight sites in the following five random-assignment policy demonstrations conducted in the late 1980s and 1990s: Connecticut 's Jobs-First Program (CT; Bloom et al., 2002), Florida's Family Transition Program (FTP; Bloom et al., 2000), Minnesota Family Investment Project (MFIP, two sites designated urban and rural; Gennetian & Miller, 2002), National Evaluation of Welfare to Work Strategies (NEWWS, three sites, Atlanta, Grand Rapids, and Riverside; Hamilton et al., 2001), and Milwaukee's New Hope Project (NH; Bos et al., 1999). These demonstrations tested a range of policies devised to increase work among low-income parents by using mandates, welfare time limits, education and training, and/or financial incentives. In most studies, parents renewing or applying for welfare were randomly assigned to an experimental policy or to the control condition, which was the policy in place in their locale. The exception was NH wherein adults earning less than 150% of poverty were eligible to apply.

A total of 11,758 children and their parents are represented in the pooled dataset. Those missing responses to all child behavior measures (9%) were excluded, resulting in a sample of 10,670 children (program group n = 6,048, control group n = 4,622). Of this sample, 10,358 children had parent ratings of child behavior (program group n = 5,888, control group n = 4,470), referred to as *the parent sample*. Children in three studies (CT, NEWWS-5, and NH) had teacher ratings of child behavior (n = 2,828; program group n = 1,588, control group n = 1,240), referred to as *the teacher sample*. Children ranged from 1 to 11 years old at random assignment and from 3 to 16 years old at follow up. We divided the sample into two age groups: younger than age 5 at random assignment (ages 3 to 9 at follow up; parent sample n = 6,445; teacher sample n=1,662) and age 5 or older at random assignment (ages 7 to 16 at follow up; parent sample n=3,913; teacher sample n=1,166). In NH, 323 families (3%) had two children in the sample.

Sample demographics at random assignment are presented in Table 1. Program and control groups did not differ significantly on most key background measures, including focal child characteristics and family composition, but there were small but significant differences on some parent characteristics and economic factors. Parents in the control group were slightly more likely to have been separated/divorced or employed in the year prior to random assignment relative to program-group parents, who, in turn, were more likely to have been "never married" or on AFDC in the year prior to random assignment. Nonetheless, the program and control

groups were similar enough to presume demographic equivalence.

Measures

Individual surveys were administered in participants' homes. In two studies, NH and NEWWS, each family was assessed twice with surveys fielded 2 years (NH-2, NEWWS-2) and 5 years (NH-5, NEWWS-5) after random assignment. For MFIP and CT, surveying occurred after 3 years, and in FTP, surveys were administered after 4 years. In CT, NEWWS-5, NH-2, and NH-5 mail surveys were collected from teachers. The number and type of measures used in each study are shown in Table A1. Within studies, teachers and parents responded to similar or identical items. Across studies, measures were not identical but overlapped considerably. In order to accommodate differences in scales, all measures were standardized within each study.

All studies included parents' reports of social behavior, and CT, NEWWS-5, NH-2, and NH-5 included teacher ratings of behavior (see Table A1). Parents and teachers were asked to rate children's *positive social behavior*, including such qualities as compliance, autonomy, and social competence. Most studies used portions or all of the Positive Behavior Scale (Quint, Bos & Polit, 1997) for this measure. Parents and teachers also rated *externalizing behavior* (e.g., aggression, cheating, needing discipline) and *internalizing behavior* (e.g., withdrawal, anxiety, depression). These behavior problems were gauged using the Behavior Problem Index (Achenbach & Edelbrock, 1981; Peterson & Zill, 1986) or similar scales from the Social Skills Rating System (Gresham & Elliot, 1990). The items in these two instruments greatly coincide.

In all studies, parents' *depressive symptoms* were measured using the Center for Epidemiology Studies-Depression scale (CES-D; Radloff, 1977), which queries the frequency of such indicators of depression as crying, difficulty sleeping, hopelessness, and fearfulness. High total scores indicate high levels of depressive symptoms.

In all studies, questionnaire measures and, in some cases, brief observations were used to assess three parenting behaviors. Only some studies indexed all three behaviors: NEWWS-5 and NH-5 did not (see Table A1). *Parenting aggravation* was measured with items concerning negative feelings for the focal child (e.g., the extent to which the child was hard to care for or did bothersome things) and such negative sentiments about their parental role as feeling trapped by the child (Abidin, 1995). *Parenting warmth* was measured using questions about the frequency of praise, focused attention, special parent-child activities, and/or observational items from the HOME scale (Caldwell & Bradley, 1984) assessing whether parents convey positive feelings or spontaneously praise their children were also included. *Cognitive stimulation* was measured with such items from the HOME scale as the presence of books and toys and reading to children.

All studies obtained information about the types of child care parents had used during the prior year or two, but they did not consistently assess time in or quality of care. Thus, in the present analyses, child care was dummy coded as four mutually-exclusive and exhaustive categories indicating the type of care used: *only formal care* (center care); *only informal care* (home-based care); *mixed care* (both); or neither (omitted).

Analysis Plan

To test developmental differences in the effects of the policies on children and families,

the sample was divided into two groups by the age of the focal child at random assignment: younger than age 5 (preschool age) and age 5 or older (school age). We selected this age break because children 5 or older were eligible for public school; hence, problems of child care might be substantially reduced for mothers entering jobs.

We first estimated the direct effects, or *impacts*, of the experimental policies on children's social behavior. Although the full sample was examined, the principal analyses of interest were those dividing the two age groups because of our hypotheses about developmental differences. As shown in Equation 1, we estimated experimental impacts by regressing each of our dependent measures (Y_i) on a dichotomous variable (E_i) representing membership in the program group or control group, using the ordinary least squares method. In the model, C is a set of covariates including baseline demographic characteristics (e.g., race, gender, parent education, prior employment) and dummy-coded variables representing studies and program sites that were entered in order to adjust for mean differences between programs. ε is the error term. Program impact coefficients (β_1) indicate the magnitude of the program-control-group differences. To adjust for the non-independence of observations for children within the same family (NH; n = 323; 3% of the parent sample) and across time (NEWWS and NH; n = 2488; 24% of the parent sample), Huber-White corrected standard errors were estimated (White, 1982).

$$Y_i = \alpha + \beta_1 E_i + \Sigma\, \beta_k C_{ik} + \varepsilon_i. \quad (1)$$

In the second phase, we conducted mediation analyses. A conceptual depiction of the path examined is presented in Figure 1, wherein the treatment is shown to affect children's social behaviors through its effects on parent psychological well-being, parenting, and child care type. In the context of an experiment, there are two approaches to testing possible mediators of policy effects. We use both. One approach is to test experimental impacts on the proposed mediators using the rationale that those parent and child care characteristics are significantly affected by the treatment are candidates for mediators of treatment effects on children. An experimental effect on a mediator variable is a necessary though not sufficient condition for identifying it as a mediator of a significant program effects (H. Bloom, personal communication, December 10, 2009). This approach preserves the advantages of random assignment in evaluating both mediators and child behavior. The second approach, which is typically used in nonexperimental studies, is to test for indirect effects through the proposed mediators with models that include the direct relation of the treatment to behavior, the relation of the treatment to the mediator, and the relation of the mediator to behavior. This method provides a more complete test of the theoretical model, but because the test includes a nonexperimental link (the relation of the mediator to behavior), it is subject to selection and omitted variable biases.

Pursuing the first approach to mediation, we estimated treatment impacts on the proposed mediators—parent depressive symptoms, parenting behavior, and child care type—using the previously described OLS framework. Statistical significance of the effects was taken as an indication of a variable's possible meditational role.

In the second approach, we tested for multiple simultaneous indirect effects using the distribution of the product of coefficients method. This strategy supports the detection of indirect effects even when the direct effects on dependent or intervening variables are not statistically

significant (MacKinnon, 2008). This enables the identification of suppressor effects and provides for a more nuanced approach to mediation relative to Baron and Kenny's (1986) causal steps method. Another key advantage of this approach, normality of the distribution is not presumed in assessing the statistical significance of indirect effects, and asymmetric confidence limits for the population indirect effect are constructed using bootstrapping techniques, thereby reducing rates of Type I error. This method undergirds a procedure articulated by Preacher and Hayes (2008) and executable in their INDIRECT macro used in our analyses. It provides indirect effects estimates for each of multiple simultaneous intervening variables, compares their relative robustness, and provides a value for the total (combined) indirect effect of all the mediators. The estimates thereby obtained are based on the product of (a) coefficients for the relations between the initial variable and the mediators and (b) the coefficients for the relations between the mediators and the dependent variable, having adjusted for the direct effect of the treatment on behavior. These relations are identified in Figure 1 with "a" and "b" accordingly. Significance was determined using bootstrapped, bias corrected and accelerated 95% confidence limits.

The primary models testing mediation contained measures of the dependent and mediator variables collected contemporaneously 2 to 5 years after random assignment, referred to as contemporaneous models. Taking advantage of the two times of measurement in NH and NEWWS, we also assessed lagged effects—whether impacts on the mediator variables at 2 years accounted for program effects on children's behavior at 5 years—referred to as lagged models.

Missing Data

Variation in the measures included the studies led to some sampling differences across analyses. In example, the data from the NH-5 and NEWWS-5 surveys were excluded from mediation analyses because they did not include measures of cognitive stimulation or warmth (see Table A1). A summary of the studies used in each type of analysis is provided in Table A2. Incomplete data was low for the main analysis variables (generally below 5%) with one exception. Across the studies that included teacher ratings of social behavior, nearly half of respondents were missing data from teachers. A small portion (3%) is accounted for by 150 NH children not having aged into school. A more modest portion (16%) is due to the decision in CT to survey a subset of children's teachers. The remainder is due to teacher nonresponse.

Results

Do Impacts on Children's Social Behavior Vary by Age?

The impact analyses, presented in Table 2, indicated that the programs affected children's social behavior, but, as predicted, these effects differed depending upon children's ages at random assignment. For children who were school age, the policies reduced parent-rated externalizing and internalizing behavior problems. School-age children in the program group also had higher levels of teacher-rated positive behavior than controls. Among preschool-age children, there were no significant program-control group differences in social behavior.

What Mediates the Behavioral Effects?

Depending upon the focal child's age at random assignment, the policies had different impacts on certain family-level variables. As shown in Table 2, for the parents of school-age children, the programs decreased depressive symptoms and increased cognitive stimulation and

parenting warmth. Among preschool children's parents, depressive symptoms increased for the program group relative to controls, but there were no significant effects on parenting. As for child care, the programs led to an overall increase in the use of mixed care settings across the entire age range. (The impact for the full sample, not shown, was $\beta = 0.03$, $p < .01$). Age-related differences in child care also emerged. School-age children in the program group were more likely to be exclusively in formal child care than were controls. Mixed care increased for preschool children in response to the programs. Together, the pattern of experimental effects on the proposed mediators suggest that policy-induced changes in depressive symptom, cognitive stimulation, warmth, mixed care and formal care may account for the impacts on child behavior.

To more directly test whether the family-level variables account for the policies' effects on children's positive, externalizing, and internalizing behaviors, we used multiple mediator models (see Figure 1). The mediators tested were parental depressive symptoms, parenting warmth, cognitive stimulation, use of formal care, and use of mixed care. These were selected because, in the direct effects analyses, we had observed significant experimental impacts for at least one of the two age groups. Although in some cases the direct effect of the policies on a social behavior variable was not significant (e.g., preschool children's positive, externalizing, and internalizing behaviors), we proceeded to test all three behaviors in both age groups for mediation because indirect effects can occur even when direct effects are not significant (MacKinnon, 2008). Ideally, to be entirely consistent with the family stress model, we would have tested a pathway wherein depressive symptoms preceded parenting practices in predicting child behavior, but the need to standardize variables within study precluded conducting these analyses in a path analytic framework (L. Muthen, personal communication, May 22, 2008).

In Table 3, we show results of analyses of potential mediators and parent-rated child behavior that were measured contemporaneously. The samples in the indirect effects analyses were smaller than those for the experimental impact analyses because NEWWS-5 and NH-5 lacked at least one of the relevant measures (cognitive stimulation and/or warmth; see Table A2). Hence, the direct effects estimates obtained here varied slightly from those in the initial analyses.

For school-age children, the total indirect effects of the mediators were significant for all three social behaviors (positive, externalizing, and internalizing), reducing the direct effects considerably in each case. Among the individual mediators, cognitive stimulation was a significant contributor to the indirect effect for all three behaviors, and parent depressive symptoms contributed significantly to the indirect effect on positive behavior. Given that, in these models, the direct impacts fell short of statistical significance, the indirect effects should be interpreted with some reserve. However, they do suggest that, in general, the improvement in school-age children's behavior in response to parents' exposure to employment programs is brought about by changes in family processes, with a cognitively stimulating home environment and improvements in parents' psychological well-being being particularly influential.

For preschoolers, there were no total indirect effects on parent-rated positive behavior, but the total indirect effects were significant for both externalizing and internalizing behavior problems. In this case, however, there is evidence of suppression: The adjusted direct effects coefficients increased slightly in comparison to the unadjusted coefficients. It appears that program-induced changes in parents' depressive symptoms, parenting, and use of child care—in

particular increased depressive symptoms and mixed care—slightly suppressed or counteracted a tendency for programs to reduce externalizing and internalizing behavior among preschoolers.

As for models examining contemporaneous mediation of teacher-rated behaviors, there were too few cases with both parenting and social behavior measures at the same time of measurement to accurately estimate indirect effects. Of the three studies containing measures of teacher-rated behavior (CT, NEWWS-5, and NH), both NEWWS and NH contained fewer parenting measures at the 5-year assessment than at the 2-year assessment (see Table A1). As a result, the sample sizes for estimation of indirect effects on teacher-rated behavior at any one time-point were quite small, but the sample for lagged analyses (reported below) was acceptable.

Most of the studies included in the pooled dataset assessed child and family well-being only once after random assignment, but two studies, NEWWS and NH, included two survey waves. This design allowed a test of whether impacts on parents' depressive symptoms, parenting, and child care type at the first wave (2 years after random assignment), when program effects on family processes and child care may be most salient, mediated effects on children's behavior at the second wave, collected 3 years later (5 years after random assignment). The results of these lagged mediation models for parent-rated behaviors are shown in Table 4.

For children who were school age at random assignment, program parents reported more positive behavior and fewer internalizing problems at the 5-year survey (when children were 10 to 16 years old) than did control group parents. For positive behavior there was a significant total indirect effect of the 2-year mediators, however the adjusted direct effect remained significant (though less so than the unadjusted coefficient), indicating that mediation was only partial. The measure of parental depressive symptoms was the only significant contributor to the total indirect effect. There was no evidence that the 2-year mediators accounted for effects on later externalizing and internalizing problems. In the case of 5-year internalizing, the unadjusted direct effect was statistically significant and the adjusted coefficient, though smaller in size, showed trend-level significance ($p = .05$), suggesting that the 2-year mediators did not explain program-induced reductions in that behavior among school-age children.

For children in preschool at random assignment (ages 6 to 9 at the 5-year follow up), program-group children were rated lower than controls on externalizing problems (Table 4). There were no significant indirect effects of the mediators, and the adjusted direct effect was slightly larger than the unadjusted value. There were no significant direct or indirect effects on positive social behavior or internalizing problems.

Examining indirect effects on 5-year teacher-rated behavior, we found little evidence that program-induced changes in parent depressive symptoms, parenting, or child care type 2 years after random assignment accounted for experimental effects on behavior. For school-age children, the programs' positive effects on 5-year teacher-rated positive behavior were significant both before and after the adjustment for mediators, and the evidence for mediation by the 2-year variables is weak. The total indirect effect was .003 and not statistically significant, and the adjusted direct effect ($\beta = 0.15$, $p < .10$) was similar to the unadjusted effect ($\beta = 0.17$, $p < .10$). For 5-year teacher-rated externalizing and internalizing problems, the mediation models explained little of the variance therein (the adjusted R^2 values were as low as .02), and there were

no significant direct or indirect effects. Among preschool children, there were no significant direct or indirect paths for any 5-year teacher-rated behaviors.

Discussion

This study had two purposes: (a) estimate the impacts of welfare and employment policies on social behavior for children at different points in development, specifically preschool children versus those of school age when parents entered the programs and (b) test parent emotional well-being, parenting practices, and child care type as mediators of policy effects on children's social behavior. We draw two main conclusions from the results. First, age influences children's behavioral responses to the policies. Second, parent depressive symptoms, parenting practices, and child care type may partially explain the impacts on behavior.

Based on family stress theory, the framework proposed by Zaslow et al. (1995), and prior evidence that welfare and employment policies reduced depressive symptoms among parents whose children were all school-age at random assignment and increased depressive symptoms for those whose children had been preschool age (Morris, 2008), we had expected the five programs examined here to have positive effects on school-age children's social behavior and negative behavioral effects for preschool children. Our prediction about school-age children was supported. In follow-ups conducted 2 to 5 years after random assignment, the experiments reduced externalizing and internalizing behavior problems and increased positive social behavior among school-age children in the treatment-group relative to controls. It is notable that the impact sizes at the 5-year follow-up, when these children were in early to middle adolescence, were larger than those measured across the entire 2-to-5-year follow-up and occurred for both parent- and teacher-rated behavior, suggesting that impacts did not decline over time. As for children who were of preschool age at random assignment, our prediction was not confirmed. There were almost no overall effects of the programs on later social behavior for children who were 1 to 4 years old at random assignment. In fact, 5 years after the programs began, preschool-age program-group children had lower parent-rated externalizing problems than did controls.

We used two approaches to testing family stress theory as an explanation for program effects on children's social behavior: (a) examining program effects on family process variables considered to be possible mediators, and (b) examining the indirect effects of the programs on behavior through these variables. For the school-age group, both methods supported the hypothesis that reductions in parents' depressive symptoms and increases in positive parenting partially mediated some behavioral effects. Yet, the particular pattern of mediators was not entirely consistent with predictions from family stress theory. Cognitive stimulation, which is not central to the theory, emerged as a relatively predominant mediator of policy effects on school-age children's behavior, whereas parenting warmth and aggravation, the practices most clearly posited in family stress theory, received little support. We noted earlier that investment theories better account for the effects of family economic well-being on achievement, whereas family stress theories emphasizing psychosocial processes account better for effects on social behavior. Cognitive stimulation is often considered an indicator of investment in children's human capital, but it may also be a general index of positive parenting, especially for school-age children. Among preschool-age children, there was little evidence that family stress accounted for the patterns of effects. Though the experiments increased parents' depressive symptoms, they did not

significantly affect parenting or social behavior. Nonetheless, elevated depressive symptoms formed a significant indirect path to preschool children's social behavior, but unexpectedly, they seemed to have counteracted what might have been an otherwise positive effect of the policies on behavior. That is, when policy-induced increases in parents' depressive symptoms were taken into account, the treatment had slightly more beneficial effects on preschool children's behaviors compared to models in which changes in depressive symptoms were not statistically controlled (though the effects were still nonsignificant). In sum, based on the pattern of results across both age groups, we conclude that the findings provide provisional support for the paths proposed on the basis of family stress theory, suggesting that depressive symptoms may partially explain children's behavioral responses to welfare and employment policies and that parental investments apart from parenting practices, such as cognitive stimulation, may also be mediators. These findings are best supported for school-age children, suggesting that alternate pathways should be explored among preschool-age children if not both age groups.

Another possible indicator of parental investment in children is the type and quality of child care selected, which we also expected to be a determinant of program effects. Formal care, on average, provides slightly higher quality and is more reliable than the informal care used by low-income families. Mixed care may represent unstable care, long work hours, and parents' having to piece together multiple arrangements. Although the programs increased the use of exclusive formal care for school-age children, there was no indirect effect of this type of care for this age group. Hence, the evidence that child care mediated effects on school-age children's behavior is inconsistent. For preschool children, the programs did increase use of mixed care, but the results of the indirect effects analyses contradicted our predictions. Preschool children's increased exposure to mixed child care formed a significant indirect path to social behavior, but instead of accounting for experimental effects, mixed care slightly counteracted the tendency of the policies to decrease externalizing behavior problems (albeit nonsignificant). When policy-induced increases mixed care were taken into account, the policies yielded a greater (but still nonsignificant) reduction in preschoolers' externalizing problems. Overall, we have some indication that formal care could contribute to effects on school children's behavior and that mixed care could influence effects on preschool children.

Differences Across Developmental Domains

The developmental differences in impacts on social behavior follow a different pattern than previously reported impacts on achievement. The policies tested in these studies had stronger positive effects on achievement for children who were preschoolers at baseline than for children in middle childhood (Morris et al., 2005). By contrast, our analysis incorporating most of the same programs had positive effects on social behavior for school-age children but not preschool children. The distinct patterns for achievement and behavior suggest that different processes may account for program effects in these domains. Other literature indicates that poverty and income during the preschool years are especially likely to affect achievement, but income during both the preschool and school years contributes to social behavior (Huston & Bentley, 2010). Although, on the whole, the welfare and employment policies examined in this study did not consistently increase income, they did increase earnings, among program-group families (Bloom & Michalopoulous, 2001). Program-induced improvements in earnings when children were school age might have had greater effects on social behavior than on achievement. Prior research suggests that economic resources should also have affected preschool children's

social behavior; perhaps they did not because any positive effects were counteracted by increased parental depression and a mixture of child care experiences.

Limitations

One limitation of this work is that our measures are heavily dependent on parent reports. Parents' self-reports of depression are likely to affect their self-reports of parenting and ratings of children's well-being. In the developmental literature, parents' reports of children's behavior and their own psychological well-being are often used, but independent observations (e.g., those made by teachers or interviewers) are generally considered more useful. Where possible, we used teachers' ratings of behavior, finding some congruency in the impacts on parents' and teachers' reports of behavior. Our findings suggest that parents' self-reports of well-being and parenting mediate program effects on their perceptions of their children, at least partially, but they do not mediate impacts on teacher-reported behavior. This finding should not be dismissed simply as evidence of parents' bias: Parents' perceptions of their children may be partially accurate and may have consequences for parent-child interactions and children's behavior at home if not at school. Nonetheless, our conclusions are strengthened by finding partial replication of program effects on some teacher-reported behaviors alongside parents' reports.

It must also be acknowledged that the sizes of the standardized coefficients found for direct and indirect effects are rather small even when statistically significant. This is perhaps not unexpected in pooled data, particularly when the policy environments of both the treatment being demonstrated and the control condition varied across all five studies examined. The size and strength of effects would be expected to vary across studies. The intent of this study was to capture the average effect across the diverse set of policies tested during the welfare reform era that have subsequently been implemented and/or used to inform policy decisions. Findings provide an estimate of age-related differences in the direct and indirect effects on children's social behavior associated with welfare and employment policies. Results should be taken to indicate possible pathways and provide a framework for future inquiry into the effects of economic policies on low-income children and families.

Policy Implications

A major implication arising from this study is the importance of understanding welfare and employment policies' effects on parents' emotional well-being and the resulting impacts on children's social behavior—and how these effects differ by child age. Particular attention should be paid to parents of children who have not aged into school because employment policies have the potential to increase parental depression. Maternal depression is high among low-income women, and it tends to decrease work effort, labor force attachment, and employment stability. Because of their particular vulnerability, the accompaniment of policies to move parents into work with enhanced child care assistance or mental health services may be beneficial to those with young children. Although we do not find significant negative effects on social behavior for preschool children overall, we do find them in families exposed to policies that are least likely to support individual needs and most likely to increase stressful changes in family patterns. In particular, programs emphasizing quick job entry increased problem behavior and decreased positive behavior among preschool-age children. Conversely, programs offering personal client attention to help parents navigate the transition to work appear to have alleviated some problem behaviors. As for school-age children and their parents, finding that the policies examined

supported prosocial behavior and tended to reduce depressive symptoms among parents suggests that at later developmental stages, parents' movement into employment can benefit families. This pattern of findings across both age groups are meaningful in light of the high rates of behavior problems displayed by low-income children, which can have long-term consequences for development as well as short-term consequences for parents' employment stability.

By pooling data across multiple studies, this investigation provides a broad view of the effects on child behavior and the pathways thereto across the wider welfare and employment policy context that exists in the US. But, as such, the question of the specific effects of each component policy is a subject for future research. This research should be informed by the patterns of effects found in this investigation. A next step in our work is to examine other variations in policies to determine which policy components may be most likely to affect child and family well-being.

Discussions about welfare and employment policies often center around their effects on adult employment, earnings, and use of welfare, but the present study and a larger body of research point to the importance of considering their effects on children and family life. Although a fundamental intent of welfare and employment policies, dating back to mothers' aid laws introduced in the early 1900s, was to assure the well-being of children, the young have sometimes gotten lost in the intense and passionate debates about their merits and faults. Research should continue to highlight the experiences of parents and children using solid evidence that contributes to the overall debate.

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Table 1. Sample Demographic Characteristics at Random Assignment

	Program Group	Control Group	Difference	
Parent Characteristics				
Race (%)				
Black	52.4	48.6	3.8	***
White	32.5	34.2	-1.8	†
Latino	12.5	15.1	-2.6	***
Marital Status (%)				
Never married	61.6	58.7	2.9	**
Separated or divorced	35.9	38.4	-2.5	**
Parent younger than 18 at child's birth (%)	10.1	11.1	-1.1	†
Parent received high school degree or GED (%)	61.8	61.2	0.6	
Focal Child Characteristics				
Gender of focal child (%)				
Male	50.2	49.6	0.6	
Female	49.8	50.4	-0.6	
Age of focal child at baseline (years)	4.8	4.8	0.0	
Family Composition				
Number of children in family	2.3	2.3	0.0	
Age of youngest child at baseline (years)	3.6	3.6	0.0	
Age of parent at baseline (years)	29.1	29.0	0.1	
Parental Economic Status				
Employed in year prior to random assignment (%)	45.8	49.7	-3.9	***
Earnings in year prior to random assignment ($1,000)	2.4	2.8	-0.4	***
AFDC receipt in year prior to random assignment (%)	84.8	82.6	2.2	**
Lifetime AFDC receipt (%)				
None	6.1	6.8	-0.7	
1 month to 2 years	23.0	25.7	-2.7	**
More than 2 years	70.9	67.6	3.4	***
Sample Size	6,048	4,622		

Note: Characteristics are reported for the larger "parent model" sample
† p<.10, * p<.05, ** p<.01, *** p<.001

Table 2

Impacts on Child Behavior, Parental Depression, Parenting, and Childcare by Child Age at Random Assignment

	School-age Children (n = 4230)						Preschool-age Children (n = 6761)					
	Program Mean	Control Mean	Impact (β)	SE	R^2	F	Program Mean	Control Mean	Impact (β)	SE	R^2	F
Parent-rated Social Behavior												
Positive behavior	0.00	-0.06	0.06	0.04	0.05	6.89	0.01	0.03	-0.02	0.03	0.02	5.22
Externalizing behavior	-0.06	0.02	-0.08 *	0.04	0.05	7.33	-0.01	0.02	-0.03	0.03	0.04	10.07
Internalizing behavior	-0.02	0.06	-0.08 *	0.04	0.02	3.26	0.02	0.02	0.00	0.03	0.02	3.43
Teacher-rated Social Behavior [a]												
Positive behavior	-0.01	-0.14	0.13 *	0.06	0.08	5.52	0.09	0.09	0.00	0.05	0.06	4.57
Externalizing behavior	0.17	0.18	-0.01	0.06	0.07	3.57	-0.09	-0.04	-0.04	0.05	0.07	5.32
Internalizing behavior	-0.17	-0.10	-0.07	0.07	0.04	1.68	-0.20	-0.22	0.02	0.05	0.02	1.55
Depressive Symptoms and Parenting												
Depressive symptoms	-0.03	0.03	-0.06 †	0.04	0.01	1.68	0.01	-0.04	0.06 *	0.03	0.02	3.84
Parenting aggravation	-0.04	-0.01	-0.04	0.04	0.03	3.63	0.02	0.02	0.00	0.03	0.02	4.13
Cognitive stimulation	0.21	0.11	0.10 **	0.04	0.07	11.18	0.15	0.17	-0.02	0.03	0.07	13.64
Parenting warmth	0.08	0.00	0.08 *	0.04	0.03	3.69	0.04	0.05	-0.01	0.03	0.02	4.27
Child Care Type (n = 3752)												
Only formal care	0.15	0.13	0.02 †	0.01	0.06	6.88	0.23	0.22	0.01	0.01	0.08	15.67
Only informal care	0.37	0.36	0.01	0.02	0.04	6.35	0.27	0.26	0.01	0.01	0.07	17.99
Mixed care [b]	0.34	0.33	0.02	0.01	0.07	14.26	0.32	0.28	0.04 **	0.01	0.10	27.49

Note: The coefficients reported correspond to multiple mediation models in which parent-rated social behaviors were the dependent variables.

[a]For teacher-ratings, school-age n = 1166 and preschool-age n = 1662. [b]Mixed care refers to the use of both formal and informal care.

† p<.10. * p<.05. ** p<.01. *** p<.001.

Table 3

Contemporaneous Indirect Effects by Child Age at Random Assignment: Mediation of Effects on Parent-rated Social Behavior

		School-age children (n = 2838)					Preschool-age children (n = 4201)				
DV	Mediators	Direct Effect on DV	Adjusted Direct Effect on DV	Direct Effect on Mediator	Effect of Mediator on DV	Indirect Effect[a]	Direct Effect on DV	Adjusted Direct Effect on DV	Direct Effect on Mediator	Effect of Mediator on DV	Indirect Effect[a]
Positive behavior		0.03	0.00				-0.02	0.00			
	Depressive symptoms			-0.07 †	-0.15 ***	0.03 *			0.09 **	-0.17 ***	-0.02 *
	Parenting warmth			0.05	0.19 ***	0.01			-0.01	0.21 ***	0.00
	Cognitive stimulation			0.12 **	0.12 ***	0.01 *			-0.02	0.10 ***	0.00
	Only formal care			0.01	-0.09	0.00			0.00	-0.02	0.00
	Mixed care[b]			0.03 †	-0.15 ***	0.00			0.04 **	-0.03	0.00
	Total indirect effect[c]					0.03 *					-0.02
Adjusted R^2						0.13					0.12
F						16.33 ***					20.00 ***
Externalizing behavior		-0.06	-0.03				-0.01	-0.04			
	Depressive symptoms			-0.07 †	0.23 ***	-0.02			0.08 **	0.25 ***	0.02 *
	Parenting warmth			0.06	-0.07 ***	0.00			-0.02	-0.10 ***	0.00
	Cognitive stimulation			0.12 **	-0.12 ***	-0.01 *			-0.01	-0.09 ***	0.00
	Only formal care			0.01	0.12 †	0.00			0.00	0.13 ***	0.00
	Mixed care			0.03 †	0.13 **	0.00			0.04 **	0.13 ***	0.01 *
	Total indirect effect					-0.03 *					0.03 *
Adjusted R^2						0.13					0.13
F						15.93 ***					23.40 ***
Internalizing behavior		-0.05	-0.02				0.00	-0.03			
	Depressive symptoms			-0.07 †	0.32 ***	-0.02			0.08 **	0.32 ***	0.03 *
	Parenting warmth			0.05	-0.06 ***	0.00			-0.02	-0.09 ***	0.00
	Cognitive stimulation			0.12 **	-0.08 ***	-0.01 *			-0.02	-0.05 **	0.00
	Only formal care			0.01	0.08	0.00			0.00	0.08 *	0.00
	Mixed care			0.03 †	0.12 *	0.00			0.04 **	0.03	0.00
	Total indirect effect					-0.03 *					0.03 *
Adjusted R^2						0.14					0.14
F						17.20 ***					25.40 ***

Note: The coefficients reported correspond to multiple mediation models in which parent-rated social behaviors were the dependent variables.

[a]Statistical significance was tested using 95% confidence intervals. [b]Mixed care refers to the use of both formal and informal care. [c]The total indirect effect represents the combined effect of all mediators in the model.

† p<.10. * p<.05. ** p<.01. *** p<.001.

Table 4

Lagged Indirect Effects by Child Age at Random Assignment: Mediation of 5-Year Effects on Parent-rated Social Behavior by 2-Year Variables

		School-age children (n = 778)					Preschool-age children (n = 1682)				
DV	Mediators	Direct Effect on DV	Adjusted Direct Effect on DV	Direct Effect on Mediator	Effect of Mediator on DV	Indirect Effect[a]	Direct Effect on DV	Adjusted Direct Effect on DV	Direct Effect on Mediator	Effect of Mediator on DV	Indirect Effect[a]
Positive behavior		0.21 **	0.16 *				0.00	0.00			
	Depressive symptoms			-0.14 †	-0.09 **	0.01 *			0.09 †	-0.10 ***	-0.01
	Parenting warmth			0.15 *	0.18 ***	0.03			0.02	0.19 ***	0.00
	Cognitive stimulation			0.13 †	0.13 ***	0.02			0.06	0.17 ***	0.01
	Only formal care			0.05	-0.21 *	-0.01			0.03	-0.03	0.00
	Mixed care[b]			0.00	-0.13	0.00			0.03	0.08	0.00
	Total indirect effect[c]					0.05 *					0.00
Adjusted R^2						0.09					0.11
F						4.36 ***					9.65 ***
Externalizing behavior		-0.11	-0.09				-0.09 †	-0.11 *			
	Depressive symptoms			-0.13 †	0.13 ***	-0.02			0.09 †	0.18 ***	0.02
	Parenting warmth			0.16 *	-0.05	-0.01			0.03	0.00	0.00
	Cognitive stimulation			0.13 †	-0.04	-0.01			0.06	-0.093 ***	-0.01
	Only formal care			0.05 †	0.19 †	0.01			0.03	0.07	0.00
	Mixed care			0.00	0.12	0.00			0.03	0.11 †	0.00
	Total indirect effect					-0.02					0.02
Adjusted R^2						0.09					0.13
F						4.17 ***					12.19 ***
Internalizing behavior		-0.16 *	-0.14 †				0.02	0.00			
	Depressive symptoms			-0.13 †	0.23 ***	-0.03			0.08	0.27 ***	0.02
	Parenting warmth			0.16 *	-0.01	0.00			0.02	0.02	0.00
	Cognitive stimulation			0.13	0.07 *	0.01			0.05	-0.03	0.00
	Only formal care			0.05 †	0.16 †	0.01			0.03	0.04	0.00
	Mixed care			0.00	0.14	0.00			0.02	0.06	0.00
	Total indirect effect					-0.01					0.02
Adjusted R^2						0.08					0.10
F						3.89 ***					8.76 ***

Note: The coefficients reported correspond to multiple mediation models in which parent-rated social behaviors were the dependent variables.

[a]Statistical significance was tested using 95% confidence intervals. [b]Mixed care refers to the use of both formal and informal care. [c]The total indirect effect represents the combined effect of all mediators in the model.

† p<.10. * p<.05. ** p<.01. *** p<.001.

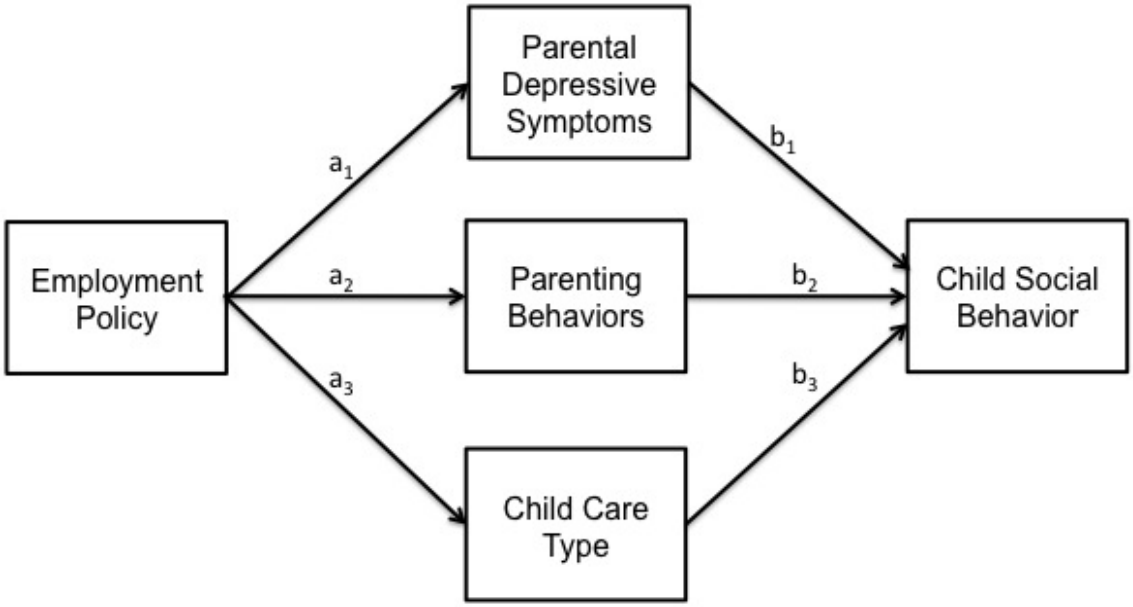

Figure 1. Conceptual model of the indirect effects of employment policies on children's behavior through indicators of family stress. Parenting behaviors include parental aggravation, warmth, and home cognitive stimulation. Childcare types are formal, informal, and "mixed" (i.e., both formal and informal)

Appendix

Table A1

Measures by Study

	CT (3 years)	FTP (4 years)	MFIP (3 years)	NEWWS 2 (2 years)	NEWWS 5 (5 years)	NH 2 (2 years)	NH 5 (5 years)
			Measures				
Social Behavior (Parent)							
Positive	*	*	*	*	*	*	*
Externalizing	*	*	*	*	*	*	*
Internalizing	*	*	*	*	*	*	*
Social Behavior (Teacher)							
Positive	*				*	*	*
Externalizing	*				*	*	*
Internalizing	*				*	*	*
Parenting							
Depressive symptoms	*	*	*	*	*	*	*
Aggravation	*	*	*	*	*	*	*
Warmth	*	*	*	*		*	*
Cognitive stimualtion	*	*	*	*		*	
Child Care Type							
Only formal care	*	*	*	*		*	*
Only informal care	*	*	*	*		*	*
Mixed care	*	*	*	*		*	*

Note: The number below study name designates number of years between random assignment and the follow-up survey.

Table A2

Analyses by Study

	CT	FTP	MFIP	NEWWS 2	NEWWS5	NH 2	NH 5
Direct Effects	*	*	*	*	*	*	*
Mediation - Contemporaneous	*	*	*	*		*	
Mediation - Lagged				*	*	*	*
Moderation	*	*	*	*	*		