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How Welfare Policies Affect Child and Adolescent Achievement

Recent research based on random-assignment experiments has found that the effects of welfare and employment policies appear to vary by children's developmental stage. Programs that increase parents' employment and income have been found to have either neutral or positive effects for preschool and early-school-age children in poverty, depending on the policy approach utilized (Pamela Morris et al., 2001). At the same time, negative effects have been observed for adolescent children (Lisa Gennetian et al., 2002), and the limited research on very young children has shown neutral effects (Morris and Charles Michalopoulos, 2000).

We pool data on over 30,000 achievement reports for children in families enrolled in 14 different random-assignment welfare and work programs to examine how the impacts of policies aimed at increasing parents' employment and their income vary across childhood. Our efforts extend past work by including more programs, using longer-run follow-up data from some of the programs that had been included in prior studies, and pooling micro-level data rather than applying meta-analytic techniques to study-wide impact estimates.

Both economic and psychological theories suggest that changes in parents' economic and employment circumstances may affect children's development, although each emphasizes a different pathway of influence (Gary S. Becker, 1981; James S. Coleman, 1988; Vonnie McLoyd, 1998). But children in different developmental periods may respond differently to the same changes in employment on the part of their parents. For example, employment in the first year of a child's life may be associated with more negative child outcomes (Jeanne Brooks-Gunn et al., 2002), especially if it involves many hours of work (Elizabeth Harvey, 1999) or is associated with long hours in nonmaternal care (Michael Lamb, 1998; McLoyd, 1998). After-school arrangements are associated with positive outcomes for both pre-adolescent and adolescent children, keeping them in structured care and away from peers (Gregory S. Pettit et al., 1999; Jill K. Posner and Deborah Lowe Vandell, 1999).

At the same time, adolescents may have difficulties if left alone after school and into the evening hours as mothers take on off-hour and shift work; maternal employment has been found to be associated with reduced parental supervision and increased adolescent delinquency among low-income families (Robert J. Sampson and John H. Laub, 1994). Finally, adolescent children may also be asked to take on greater household responsibilities when their single mothers move into employment, which may result in negative academic performance.

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Since some of the welfare programs in our pooled data provided financial incentives and boosted not only employment, but also family income, we are able to ascertain whether income-augmenting programs benefit children more than programs that merely increase employment. Note, however, that none of our studies randomly allocated participants into either a financial incentive or a nonfinancial incentive program, so our comparison of impacts between these two types of programs is nonexperimental. Experimental research to date suggests that programs that increase both parents' employment and their income produce positive effects for preschool and early-school-age children even as they negatively affect adolescents (Morris et al., 2001; Gennetian et al., 2002). In contrast, programs without these same effects on parents' income have few effects on preschool and early-school-age children.

Based on this past work, we expect that the effects of welfare and employment programs will change over the childhood age span, with more positive effects for preschool and early-school-age children and more negative effects for adolescents; that this pattern of impacts will be most pronounced for programs with earnings supplements; and that programs that increase parents' transitions from welfare to employment may have their strongest effects on children when these impacts coincide with transition points in children's development (i.e., the transition from preschool to school-age or that from preadolescence to adolescence).

Understanding the Source of the Variation in Effects

Age-specific patterns of effects of welfare programs may arise because of differences in the way child characteristics interact with microsystem changes brought about by policy initiatives targeting maternal employment and income. Prior theoretical work would suggest that differences in developmental tasks, sensitivity to change, and interactions with the environment across childhood may explain differences in the way younger, middle childhood, and adolescent children are affected by maternal employment.

First, responses by younger and older children to changes in parents' employment and income may reflect differences in the extent to which changes in employment and income affect the achievement of developmental tasks, that is, the goodness of the stage-environment fit (Eccles et al., 1993). Children across developmental periods may vary in their responses to policies that affect employment and income because of differences in the fit between these changes in children's proximal environments and the attainment of stage-salient developmental tasks (Sroufe, 1979; Waters and Sroufe, 1983). For example, researchers finding negative effects of maternal employment in the second and third quarter of the first year of life have argued that the parent-child separation that occurs with parental employment interferes with the child's formation of the representation of the parent at the critical moment when these representations are being established (Baydar and Brooks-Gunn, 1991). For older children, parents' transitions to employment that occur at the time of identity development may foster the increasing autonomy needed at this point in development.

Differences across developmental responses to policy changes may also reflect differential sensitivity of children of different ages to changes in development. A number of researchers have argued that early childhood is a sensitive period in development, amenable to intervention (Shonkoff and Phillips, 2000; Sroufe, 1979). Waddington (1957) has described development as proceeding along the branches of a tree; whereas changes in developmental trajectories can occur at any point at which a new branch is formed, the ability of the individual to substantially alter his or her developmental course becomes increasingly difficult over time.

Transitions in development may also serve as important periods in which change may be most likely to occur. Because developmental transitions involve a qualitative reorganization of an individual's organizing systems, these transitions are points at which development is most in flux and open to change in direction (Graber and Brooks-Gunn, 1996). For example, some researchers have found that the transition to adolescence is a time of an increased number of stressful life events (Brooks-Gunn, 1991; Ge, Lorenz, Conger, Elder, and Simons, 1994). Experiencing changes in maternal employment along with the pubertal and life-events stresses that may accompany the transition to adolescence may have negative implications for the development of young adolescents.

Also important is the extent to which the interaction between the child and the environment may change with development. Bronfenbrenner has described the development of the individual as occurring within a nested and interactive set of systems (Bronfenbrenner and Morris, 1998). However, the nature of the interactions among these systems is affected by the developmental stage of the individual. For example, young children are primarily affected by their family context and only indirectly, through interactions with their family, by community or neighborhood contexts. In contrast, older children may be more directly affected by their own interactions within their neighborhoods. Because welfare and employment policy interventions target changes in the family (rather than school or community contexts), they may play a relatively stronger role for younger children's developmental outcomes (McCall, 1981; Yoshikawa, 1994).

Data and Measures

Our pooled sample consists of children aged 0–15 at the point of random assignment whose families were enrolled in seven experimental studies that together tested the effects of 14 different welfare and work programs. Although most of the studies were under way by 1996, they were designed to test the effects of many program features that have been implemented by the states since the federal welfare law of 1996 was passed. The following studies were included in this analysis: Connecticut Jobs-First (abbreviated CT Jobs First in subsequent discussion), Florida's Family Transition Program (FTP), Los Angeles Jobs-First GAIN (LA GAIN), Minnesota Family Investment Program (MFIP; testing the effects of two programs, Full MFIP and MFIP Incentives Only), National Evaluation of Welfare to Work Strategies (NEWWS; testing the effects of six programs in three sites across two follow-up points), New Hope, and the Canadian Self-Sufficiency Project (SSP, testing the effects of one program at two follow-up points).

Taken together, the experimental studies tested three basic approaches that are currently used in many state welfare policies to increase the self-sufficiency of welfare recipients: earnings supplements, mandatory employment services, and time limits on welfare receipt, at times combining these approaches into a single package. Five of the 14 programs (two variants of the MFIP program, New Hope, CT Jobs First and SSP) offered generous earnings supplements designed to make work more financially rewarding by providing families with monthly cash supplements or by increasing the amount welfare recipients could keep when they went to work. Ten of the programs (LA GAIN, the six programs evaluated as part of the NEWWS evaluation, the Full MFIP program, CT Jobs First, and FTP) provided such mandatory employment services as education, training, or immediate job search in which parents were required to participate to be eligible to receive cash welfare benefits. Two of the programs under study put time limits on families' eligibility for welfare benefits (CT Jobs First and FTP), restricting eligibility to a certain number of months in a specified period. As confirmed in our empirical analysis below, all program types increased the employment of welfare-

recipient parents, but only programs with generous earnings supplements were intended to, and were successful at, increasing both parents' employment and their family incomes (Howard Bloom and Michalopoulos, 2001).

Achievement Outcomes

Children's cognitive performance or school achievement were assessed 2–5 years after parents' entry into the programs. We utilize all of the achievement measures available in the studies of the 14 programs. Achievement measures are based on parent report (available in estimates of seven programs assessed in six studies), teacher report (available in estimates of nine programs in three studies), and test scores (available in estimates of eight programs in two studies), with some studies including multiple reports per child, and two of the studies assessing children at multiple points in time. All achievement scores were standardized using study-specific control-group means and standard deviations to provide comparability. We include in our regressions dummy variables indicating the source of the achievement report. All told, our data include 30,623 achievement reports of 24,050 individual children residing in 16,456 families.

Earnings and Family Income Outcomes

For all sample members, administrative records provided data on monthly cash assistance and Food Stamp benefits as well as quarterly earnings in jobs covered by the Unemployment Insurance system. We use data covering the first two years following random assignment to construct measures of (i) average annual earnings and (ii) average annual family income, based on the sum of earnings, AFDC/TANF payments, and Food Stamp payments for both parents. Note that our family-income measure omits self-employment and informal earnings, other public transfers, private transfers, and earnings from family members other than the sample member and, if present, his or her spouse or partner.

Baseline Controls

Baseline surveys and administrative data sources provided a set of comparable pre-random-assignment parental and family control measures: whether the family received cash assistance in the two years prior to baseline; average earnings in the two years prior to baseline, measured in thousands of 2001 dollars; average earnings in the two years prior to baseline squared; whether employed in the year prior to baseline; whether the parent has a high-school degree or GED; whether the parent was a teenager at the child's birth; the marital status of the parent; the number of children in the family; the age of the youngest child in the family; and the race/ethnicity of the parent.

Analysis Strategy

We test our hypotheses by estimating ordinary least-squares (OLS) models in which treatment status (e.g., whether in the experimental or control group) varies with children's age. We accomplish this by constructing a set of interaction terms of child age group (0–2, 3–5, 6–8, 9–11, or 12–15 at baseline) with the experimental dummy. We also include dummy variables for these age groups and type of test, plus baseline controls and a measure of the time between baseline and the given achievement assessment. Huber-White methods are employed to adjust standard errors for nonindependence of multiple reports per child and multiple children per family.

Results

The first column of Table 1 presents coefficients and standard errors from regression models estimated for the achievement scores of the entire sample of children. We find statistically significant and positive experimental impacts for the two youngest groups of children: those aged 0–2 and 3–5 at baseline. These positive effects of welfare-reform strategies are small: a 0.05–0.07 standard-deviation increase in achievement scores brought about by parents' assignment to the program group.

Table 1. Regression Coefficients and Standard Errors for Models of Achievement

	Dependent Variable = Child Achievement		
Variable	*All Programs*	*Earnings-Supplement Programs*	*All Other Programs*
Exp × age 0–2	0.070*	0.082*	-0.016
	(0.031)	(0.034)	(0.074)
Exp × age 3–5	0.051**	0.080**	0.035
	(0.019)	(0.026)	(0.026)
Exp × age 6–8	-0.018	-0.025	-0.015
	(0.030)	(0.033)	(0.070)
Exp × age 9–11	-0.045	-0.043	-0.046
	(0.036)	(0.040)	(0.082)
Exp × age 12–15	-0.073	-0.039	-0.167
	(0.051)	(0.060)	(0.102)
Age 0–2	0.139**	0.171**	0.182*
	(0.040)	(0.045)	(0.087)
Age 3–5	0.134**	0.147**	0.104
	(0.033)	(0.038)	(0.071)
Age 6–8	0.177**	0.215**	0.059
	(0.034)	(0.038)	(0.074)
Age 9–11[a]	—	—	—
Age 12–15	-0.101*	-0.132*	-0.019
	(0.047)	(0.054)	(0.091)
Baseline demographic controls	yes	yes	yes
Type of achievement report	yes	yes	yes
Study dummies	yes	yes	yes
R^2	0.0318	0.0346	0.0409
N	30,623	18,641	11,982

Note: "Exp" indicates the experimental dummy. Baseline demographic controls include follow-up length, prior earnings, prior earnings squared, prior AFDC receipt, prior years of employment, high-school degree, teen parent, marital status, number of children, and age of youngest child.

[a]Omitted from the regression.

* Statistically significant at the 5-percent level.

** Statistically significant at the 1-percent level.

For the other age groups the estimated coefficients are negative, but none attains statistical significance at conventional levels.

The second and third columns present the results separately for programs with generous earnings supplements and other program models (programs with mandatory employment services and programs with time limits, both without generous supplements). Only programs with earnings supplements produce positive effects on the younger two groups of children. Apart from a marginally significant (p = 0.101) negative impact on youth 12–15 years old at baseline, the non-earnings-supplement programs have no impacts, either positive or negative, on sample children. None of the t tests performed on coefficient differences between the two samples was statistically significant at conventional levels. Control variables produce predictable effects, with lower achievement associated with older ages, pre-baseline AFDC receipt, lower maternal schooling, and larger family sizes.

Table 2 presents the effects of these same welfare reform strategies on parents' earnings and family income. Consistent with past analyses of the individual programs, the effects of welfare-reform programs on earnings are positive and significant for both earnings-supplement and non-earnings-supplement

Table 2. Regression Coefficients and Standard Errors for Models of Earnings and Family Income

	Dependent Variable = Earnings in $1,000's		Dependent Variable = Family Income in $1,000's	
Variable	*Earnings-Supplement Programs*	*All Other Programs*	*Earnings-Supplement Programs*	*All Other Programs*
Exp × age 0–2	0.818**	0.762*	1.535**	0.235
	(0.175)	(0.328)	(0.182)	(0.355)
Exp × age 3–5	0.900**	0.749**	1.673**	0.104
	(0.156)	(0.126)	(0.158)	(0.125)
Exp × age 6–8	1.003**	1.093**	1.967**	0.163
	(0.208)	(0.378)	(0.211)	(0.385)
Exp × age 9–11	0.758**	0.921*	1.602**	0.162
	(0.237)	(0.421)	(0.236)	(0.426)
Exp × age 12–15	0.718*	1.124*	1.924**	0.235
	(0.349)	(0.558)	(0.332)	(0.523)
Age 0–2	0.004	-0.211	0.262	-0.248
	(0.244)	(0.396)	(0.240)	(0.403)
Age 3–5	-0.073	0.120	0.118	-0.144
	(0.209)	(0.322)	(0.202)	(0.319)
Age 6–8	-0.274	-0.118	-0.211	-0.107
	(0.200)	(0.327)	(0.190)	(0.312)
Age 9–11[a]	—	—	—	—
Age 12–15	0.040	-0.415	0.184	-0.520
	(0.295)	(0.444)	(0.274)	(0.416)
Baseline demographic controls	yes	yes	yes	yes
Type of achievement report	no	no	no	no
Study dummies	yes	yes	yes	yes
R^2	0.3146	0.2966	0.2184	0.3242
N	18,582	11,982	18,641	11,982

Note: "Exp" indicates the experimental dummy. Baseline demographic controls include follow-up length, prior earnings, prior earnings squared, prior AFDC receipt, prior years of employment, high school degree, teen parent, marital status, number of children, and age of youngest child.

[a]Omitted from the regression.

* Statistically significant at the 5-percent level.

** Statistically significant at the 1-percent level.

programs for all the age groups of children. Earnings impacts per year over the first two years following random assignments ranged from $700 to $1,100 for both sets of programs and in no case were the age-specific earnings impacts significantly different between the two sets of programs.

In contrast, family-income impacts were significantly higher for all age groups of children in the earnings-supplement programs compared with the other programs. Impacts ranged from $1,500 to $2,000 per year for the family incomes of families enrolled in the earnings-supplement programs but never exceeded $250 per year for families enrolled in the other programs.

Discussion

Our analysis suggests that welfare reform and antipoverty programs affect children and adolescents differently. When we pool across all

program models, we observe positive impacts for the two youngest age groups, children 0–5 at the beginning of these studies. Ironically, younger children were viewed as most at risk for negative impacts of maternal employment in the debate that preceded welfare reform. Moreover, we find that the positive impacts on young children's achievement appear to be confined to family-income-boosting programs offering generous earnings supplements as compared with programs with mandatory employment services and time limits but no generous supplements. That younger children's achievement appears to benefit from higher family incomes has also been documented in the nonexperimental literature (Duncan and Brooks-Gunn, 1997).

Why might effects on achievement differ for children of differing developmental periods? Our investigation of whether effects on earnings and income impacts differed by child age revealed no such differences. Both kinds of programs boosted parents' earnings, and earnings-supplement programs alone increased family income as well as earnings. Thus, the differing effects observed across the age groups are likely due to different responses on the part of children to similar changes in their parents' economic circumstances. Other work (Gennetian et al., 2002) has suggested that some negative effects are observed for adolescents in both programs with earnings supplements and those without such supplements, although the precise outcome affected might differ by program model.

REFERENCES

Baydar, N., and Brooks-Gunn, J. "Effects of Maternal Employment and Child-care Arrangements in Infancy on Preschoolers' Cognitive and Behavioral Outcomes: Evidence from the Children of the NLSY." *Developmental Psychology*, 1991, *27*, pp. 932–45.

Becker, Gary S. *A treatise on the family.* Cambridge, MA: Harvard University Press, 1981.

Bloom, Howard and Michalopoulos, Charles. *How welfare and work policies affect parents: A synthesis of research.* New York: Manpower Demonstration Research Corporation, 2001.

Bronfenbrenner, U., and Morris, P. "The Ecology of Developmental Processes," in W. Damon, series ed., and R.M. Lerner, vol. ed., *Theoretical models of human development: Vol. I, Handbook of child psychology,* 5th ed. New York: Wiley, 1998, pp. 993–1028.

Brooks-Gunn, J. "How Stressful Is the Transition to Adolescence for Girls?" in M.E. Colten and S. Gore, eds., *Adolescent stress: Causes and consequences.* Hawthorne, New York: Aldine de Gruyter, 1991, pp. 131–49.

Brooks-Gunn, Jeanne; Han, Wen-Jui and Waldfogel, Jane. "Maternal Employment and Child Cognitive Outcomes in the First Three Years of Life." *Child Development*, July/August 2002, *73*(4), pp. 1052–72.

Coleman, James S. "Social Capital in the Creation of Human Capital." *American Journal of Sociology*, Supplement 1988, *94*, pp. S95–S120.

Duncan, Greg J. and Brooks-Gunn, Jeanne, eds., *Consequences of growing up poor.* New York: Russell Sage, 1997.

Eccles, J.S., Midgley, C., Wigfield, A., Buchanon, C.M., Reuman, D., Flanagan, C. and MacIver, D. "Development During Adolescence: The Impact of Stage-Environment in Fit in Young Adolescents' Experiences in Schools and in Families." *American Psychologist*, 2000, *48*, pp. 90–101.

Ge, X., Lorenz, F.O., Conger, R.D., Elder, G.H., Jr., and Simons, R.L. "Trajectories of Stressful Life Events and Depressive Symptoms During Adolescence." *Developmental Psychology*, 1994, *30*, pp. 467–83.

Gennetian, Lisa; Duncan, Greg; Knox, Virginia; Vargas, Wanda; Clark-Kauffman, Elizabeth and London, Andrew. *How welfare and work policies for parents affect adolescents: A synthesis of research.* New York: Manpower Demonstration Research Corporation, 2002.

Graber, J.A., and Brooks-Gunn, J. "Transitions and Turning Points: Navigating the Passage from Childhood Through Adolescence." *Developmental Psychology*, 1996, *32*, pp. 768–76.

Harvey, Elizabeth. "Short-Term and Long-Term Effects of Early Parental Employment on Children of the National Longitudinal Survey of Youth." *Developmental Psychology*, March 1999, *35*(2), pp. 445–59.

Lamb, Michael. "Nonparental Child Care, Context, Quality, Correlates and Consequences," in I. E. Siegel and K. A. Renninger, eds., *Handbook of*

child psychology, 4th Ed. New York: Wiley, 1998, pp. 73–134.

McCall, R.B. "Nature-Nurture and the Two Realms of Development: A Proposed Integration with Respect to Mental Development." *Child Development*, 1981, *52*, pp. 1–12.

McLoyd, Vonnie. "Children in Poverty, Development, Public Policy and Practice," in I. E. Siegel and K. A. Renninger, eds., *Handbook of child psychology*, 4th Ed. New York: Wiley, 1998, pp. 135–210.

Morris, Pamela; Huston, Aletha; Duncan, Greg; Crosby, Danielle and Bos, Hans. *How welfare and work policies affect children: A synthesis of research.* New York: Manpower Demonstration Research Corporation, 2001.

Morris, Pamela and Michalopoulos, Charles. *The Self-Sufficiency Project at 36 months: Effects on children of a program that increased employment and income.* Ottawa, Canada: Social Research and Demonstration Corporation, 2000.

Pettit, Gregory S.; Bates, John E.; Dodge, Kenneth A. and Meece, Darrell W. "The Impact of After-School Peer Contact on Early Adolescent Externalizing Problems Is Moderated by Parental Monitoring, Perceived Neighborhood Safety and Prior Adjustment." *Child Development*, June 1999, *70*(3), pp. 768–78.

Posner, Jill K. and Vandell, Deborah Lowe. "After-School Activities and the Development of Low-Income Urban Children: A Longitudinal Study." *Developmental Psychology*, May 1999, *35*(3), pp. 868–79.

Sampson, Robert J. and Laub, John H. "Urban Poverty and the Family Context of Delinquency: A New Look at Structure and Process in a Classic Study." *Child Development*, April 1994, *65*(2), pp. 523–40.

Shonkoff, J.P. and Phillips, D.A. *From neurons to neighborhoods: The science of early childhood development.* Washington, D.C.: National Academy Press, 2000.

Sroufe, L.A. "The Coherence of Individual Development: Early Care, Attachment and Subsequent Developmental Issues. *American Psychologist*, 1979, *34*, pp. 834–41.

Waddington, C.H. *The strategy of genes.* London: Allen and Unwin, 1957.

Waters, E., and Sroufe, L.A. "Social Competence as a Developmental Construct." *Developmental Review*, 1983, *3*, pp. 79–97.

Yoshikawa, H. "Prevention as Cumulative Protection: Effects of Early Family Support and Education on Chronic Delinquency and Its Risks." *Psychological Bulletin*, 1994, *115*, pp. 28–54.