Developmental Changes in Impacts of An Antipoverty Experiment on Low-Income Children's Structured Out-of-School Time

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Abstract

The experiment reported here tested impacts of New Hope, an employment-based poverty-intervention for adults on developmental patterns of children's participation in structured out-of-school activities, using a cross sequential design spanning ages 6 through 19. New Hope increased participation in activities (lessons, sports, religious, clubs, community centers, service). Its effects did not vary significantly across age, time of measurement, or gender, lasting well beyond parents' eligibility for program benefits. Overall participation peaked in early adolescence, declining thereafter. Policies that enhance participation during middle childhood may have long-term benefits because structured activities can provide opportunities for skill development and adult supervision that may especially useful for children from low-income families.

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By early elementary school, the average middle class child spends time in soccer, softball, music and dance lessons, or other structured out-of-school activities. Although some critics worry about overscheduled childhoods in America (e.g., Luthar, Shoum, Brown, 2006), the evidence suggests that such activities offer many benefits including the opportunity for youth to develop a range of skills, while reducing the likelihood of delinquent behaviors, alcohol and drug problems, and depressed mood and anxiety (Eccles & Barber, 1999; Fredricks & Eccles, 2010; Mahoney, Larson, Eccles & Lord, 2005).

As is true for many social advantages, income disparities exist. On average, children from low-income families are less likely than those in affluent families to be involved in out-of school activities (Mahoney & Eccles, 2008). That low-income children participate in fewer structured activities than their higher-income peers is concerning in light of research showing the advantages and buffering nature of activity participation for poor children's development (Eccles & Barber, 1999, Mahatmya & Lohman, 2011; Pederson & Seidman, 2005). Within low-income populations, we know relatively little about why some youth become involved in activities and others do not. Although individual differences in interests and ability undoubtedly play a role, public policies may also affect the opportunity and motivation to participate.

In this paper, we examine a policy that promoted parent employment along with a set of benefits designed to reduce poverty and provide resources for child care. Welfare policies have become increasingly stringent in requiring parents to be employed, increasing the need for supervision for their children. If these policies lead to reduced poverty or increases in family

resources, they may also promote young people's involvement in structured activities that can provide supervision and opportunities for development of skills.

Developmental changes in participation are a second focus of this paper. Available cross-sectional and short-term longitudinal data show rises in participation into early adolescence, with declines as youth reach later adolescence, but most of the current information is based on middle class white youth. Minority youth in low-income families might have different patterns because of fewer opportunities for participation, different family and peer pressures, and/or fewer resources. In a cross sequential design, we examine young people's participation in six activities--lessons, sports, religious activities, clubs, community centers, and service--across the age range from 6 to 19, using three waves of data collected over a time span of six years. The cross sequential design allows us to separate the changes associated with age from those associated with secular changes that may have occurred between 1997 and 2003.

Family Income Differences in Participation

Children from low-income families participate in fewer out-of-school activities compared to their more affluent peers (Dearing et al., 2009; Mahoney & Eccles, 2008; Pedersen & Seidman, 2005). In their review of findings from the National Survey of America's Families, Casey and colleagues (2005) report that 90 percent of children aged 6 to 17 from non-poor families participated in at least one activity while only 59 to 69 percent of children in welfare, welfare leaver, and poor non-welfare families participated in one activity. Several reasons for this disparity have been suggested. Despite their potential value for young people from low-income families, publicly supported activities are more available in affluent neighborhoods than in low-income neighborhoods (Hirsch et al., 2000). Coordinating children's out-of-school activities often involves challenges for low-income parents, including lack of resources and

transportation as well as work schedules. Such activities as sports and lessons are expensive and may require transportation during after-school hours or on weekends, both of which can pose barriers, especially for parents with few resources and inflexible employment schedules (Casey et al., 2005; Quinn, 1997; Hsueh & Yoshikawa, 2007). Many children ride a bus to and from school, making it impossible for them to stay after school hours without private transportation. Finally, some young people must be home after school to take care of their younger siblings (Simpkins, Ripke, Huston, & Eccles, 2005). Despite these barriers, many low-income parents believe their children should be involved in organized activities (Lareau & Weininger, 2008).

Benefits of Participation

Increasing the participation of children from poverty households may have considerable benefits for their development. Longitudinal evaluations consistently provide evidence of positive associations between structured activity participation—those organized and supervised by an adult in a relatively public setting (e.g., community center) or in a private setting (e.g., music lessons) — and positive development for youth from all income groups (Casey et al., 2005; Eccles & Barber, 1999; Fredricks & Eccles, 2008). Structured activities may serve a protective function for youth living in poverty and for youth of color who are at risk for low achievement, low self-esteem, and deviant behavior (Pederson & Seidman, 2005). Out-of-school activities may buffer the negative effects of dangerous neighborhoods by providing safe, adult-supervised environments (Brooks-Gunn, Duncan, & Maritato, 1997; McLoyd, 1990; 1998; Mahatmya & Lohman, 2011). In their review of findings from the Yale Study of Children's After-School Time (Y-CAST), a longitudinal study of after-school activities for children from poor families, Mahoney and Eccles (2008) show that children's participation in structured activities had benefits for children in a variety of developmental domains including higher

reading achievement, lower levels of aggression, and smaller increases in body mass index compared to children in self-care.

In a study of urban, African American adolescents, though the overall amount of time spent in structured activities was small, those who participated had the highest levels of motivated engagement and confidence as well as the lowest levels of alienation (Bohnert, Richards, Kolmodin, & Lakin, 2009). In the Three Cities longitudinal study of low-income families, adolescents who increased their structured activity participation as their mothers transitioned out of welfare reported reduced delinquent behaviors (Mahatmya & Lohman (2011).**Developmental Continuity and Change**

Across many social groups, children's participation in structured activities starts in early elementary school, peaks during early adolescence (roughly age 11 to 13), and declines as youth move into late adolescence (Eccles & Gootman, 2002; Mahoney et al., 2005; Persson, Kerr, & Stattin, 2007). Data from a large sample of youth in low-income families, however, show declines in activity participation as early as age 11 (Mahatmya & Lohman, 2011). Although discussions of out-of-school activities often focus on adolescents, the fact that children typically begin engagement during the elementary school years suggests that middle childhood may be a critical time for initiating involvement in such activities as organized sports and lessons because the skills needed are cumulative, making it difficult for an older novice to enter the field (Howie et al., 2010; McNeal, 1998). Adolescents tend to settle into particular activities (Mahoney & Cairns, 1997). Given the importance of early involvement in activities, it may be particularly important useful to understand patterns of involvement over time beginning in middle childhood.

Gender

Girls tend to engage in a wider variety of activities than do boys, but not necessarily a greater total number of activities (Barko & Eccles, 2003; Jacobs, Vernon, & Eccles, 2005). As noted in Simpkins, Eccles, & Becnel (2008), one reason for this may be because girls are more likely to be put in adult supervised settings and less likely than boys to be allowed to spend time in unsupervised settings. The New Hope experiment that formed the basis for this paper had stronger positive effects on boys' achievement and social behavior than on that of girls (Huston et al., 2001); hence, it may have affected boys' activity participation more as well. Ethnographic data indicates that parents worried about their elementary-school-aged boys becoming involved in drugs and crime if left unsupervised (Gibson-Davis & Duncan, 2005). As a result parents may have been particularly likely to invest any extra resources in activities that would keep their sons away from harmful influences.

Anti-poverty Policy and Youth Participation

Policies that alter family resources and routines may affect youth participation in structured activities through changing family income and other resources and by increasing parents' need for supervised activity settings for children and adolescents (Lopoo, 2007; Zaslow, Moore, Morrison & Coiro, 1995). The Canadian Self-Sufficiency Project (SSP), an experimental anti-poverty demonstration program in which single-parents were offered generous earnings supplements in return for working full time and leaving the welfare system, had substantial positive impacts on the economic circumstances of participants. There were also small, but significant, positive impacts on participation in sports, lessons, and clubs for children aged 6-11, but not for adolescents aged 12-18 (Morris & Michalopoulos, 2000).

In this paper, we go beyond point-in-time experimental effects to examine developmental changes and developmental differences in the impacts of the New Hope intervention on

children's participation in structured activities. The New Hope Program offered earnings supplements, child care subsidies, and health care subsidies to low-income adults who worked full time. Why do we expect New Hope to affect participation? Although New Hope benefits were directed to adults, previous research on the impact of this intervention has revealed that their children's lives were directly affected in part because the program increased parents' employment as well as use of center-based child care (Huston, Duncan, McLoyd, Crosby, Ripke, Weisner, et al., 2005; Huston, Epps, Shim, Duncan, McLoyd, Weisner, et al. 2006). Parents' increased employment led to the need for child supervision, and the child care subsidy not only offered the opportunity to pay for organized after-school settings for the study children, but provided care for their younger siblings, which freed older children from care responsibilities. The earnings supplement provided extra income that could be used to support the costs of out-of-school programs. It is possible that involvement with formal child care settings provided parents with the knowledge and institutional connections leading to structured activities as their children grew older.

Finally, the early positive effects of New Hope on children's achievement and social behavior (e.g., Huston, Duncan, Granger, Bos, McLoyd, Mistry, et al., 2001) may have increased children's continuing interest and motivation for out-of-school activities. Participation also depends on children's interests and skills. They sometimes choose an activity in order to develop skills in a sport, musical instrument, or leadership (Oneill, 2005), and they also select activities that match existing skills and interests (Watts & Caldwell, 2008; Fawcett, Garton, & Dandy, 2009; Simpkins, Vest & Becnel, 2010). Academic competence may lead children to be involved in a range of activities, especially school-based activities, in part because high achievers are apt

to be more attached to school and to other socially-approved institutional contexts (Barber et al., 2005; Pedersen & Seidman, 2005).

Present Study

The random assignment experimental design of the New Hope evaluation offers a unique opportunity to test the effects of this package of benefits while avoiding the inherent problems of selection bias in correlational studies. The New Hope experiment affected several documented barriers to participation for low-income children—more income was coming into the household and less income was needed for child care.

We examined children's participation in six activities—lessons, sports, religious activities, clubs, community centers, and service for three cohorts across a six-year period. The major research questions were: (a) Did New Hope affect young people's rates of participation in structured activities? We expected that children in New Hope families would have higher levels of participation than would control group youth. (b) How did participation in various activities vary across the age range from 6 to 19? A cross sequential design permitted examination of both developmental differences and developmental changes. We expected participation to peak in early adolescence. (c) Did the impacts of New Hope vary for youth of different ages at the beginning of the intervention and across the time period after the intervention ended? We expected that children in New Hope families would have slower rates of decline in participation as they grew older than would control group children. We also expected that the effects of New Hope would decline after parents' eligibility for program benefits ended. (d) Did the effects of New Hope or the developmental patterns of participation in different activities differ for boys and girls? Because New Hope had stronger impacts on achievement and behavior of boys than girls, we expected that it would affect boys' participation more than that of girls.

The study adds to current knowledge by providing information about a large sample of children from an understudied population of low-income, predominantly Black and Hispanic youth living in urban neighborhoods, and it takes advantage of a cross-sequential and experimental design.

Methods

New Hope Evaluation Random Assignment Design

Data are from the Child and Family component of the evaluation of New Hope, a program for adults that was designed to demonstrate a policy that would encourage work, reduce poverty, and reduce welfare use. New Hope was expected to improve children's lives by increasing family income, providing child care assistance, and offering health care assistance. The program was run in two inner-city areas in Milwaukee and had four eligibility requirements: that applicants live in one of the two targeted service areas; be age 18 or over; be willing and able to work at least 30 hours per week; and have earnings at or below 150% of the federally-defined poverty level. From August 1994 through December 1995, 1,362 adults who applied for the New Hope program and met the eligibility requirements were randomly assigned to have access to services (the program group) or to be in a control group that did not have access to New Hope but could use any other services in the community. The program ran from 1994 to 1998, offering three years of eligibility for any one participant.

Child and Family Sample. Adult sample members who had one or more children from the ages of 1 year and 0 months to 10 years and 11 months at the time of random assignment (N=745) were selected for further study of whether the program affected children and family life.[1] If a family had more than one child in the target age range, two children were identified as

[1] Those of Asian and Pacific Islander descent were excluded because almost all members were Hmong refugees from Laos and Cambodia for whom the parent and child measures were deemed culturally inappropriate

"focal children." Parents and children were interviewed on three occasions—two (wave 1), five (wave 2), and eight (wave 3) years after random assignment. For a detailed summary of the program design, implementation processes, and sample characteristics, see Bos, Huston, Granger, Duncan, Brock, & McLoyd (1999). The timeline for services and data collection is shown in Figure 1.

[FIGURE 1 ABOUT HERE]

For the 745 eligible families, approximately 60% had two eligible children, making the total number of focal children = 1160. Parent reports of activity participation were collected for children age 6 and older at each wave; youth reports were not collected at wave 1 and were obtained in waves 2 and 3 only for youth age 9 and older. Response rates for parent-reported activity information were: wave 1 = 68%, wave 2 = 72%, wave 3 = 79% and for youth report: wave 2 = 66%, wave 3 = 68%.

Cross sequential design. The cross-sequential design combines cross-sectional and longitudinal comparisons to cover the age range from 6 through 19. Children were divided into three cohorts: age 6-7, age 8-10, and age 11-13 at wave 1, and followed over three time periods, each separated by three years (see Table 1 for the age groupings at each time point). In wave 1, these three groups represent three developmental periods ranging from early school age to early adolescence. Because the longitudinal analyses required data from all three waves for parents and for the last two waves for youth reports, only the children who were age 6 or older at wave 1 and 9 or older at wave 2 (N = 824) were eligible for our analyses.

[TABLE 1 ABOUT HERE]

Attrition. To evaluate selective attrition, baseline characteristics of respondents were compared to those of nonrespondents at each time of measurement. In one or more waves,

compared with nonrespondents, adult respondents were significantly more likely to be female than male, more likely to have ever worked full time prior to random assignment, more likely to have lived as a child in a household that received Aid to Families with Dependent Children (AFDC), were more likely to be African American (and less likely to be Hispanic), to have three or more children at home, to have been receiving public assistance at baseline. The two groups did not differ on experiment vs. control assignment, parent age, having only one child at home, the ages of their children, previous earnings, education, or car ownership. Detailed sample demographics are presented in Table 2.

[TABLE 2 ABOUT HERE]

Treatment of missing data. Missing data can lead to biased estimates of effects when the participants for whom data are missing differ systematically from those with complete data, particularly in longitudinal studies. Differential attrition reduces the ability to generalize findings to the original population. Multiple imputation is one way of protecting against such bias because it corrects for differences in the frequency of missing data for different categories of respondents. If only those cases with complete data are used, it is assumed that individuals are equally likely to have missing values on any variable. Instead, multiple imputation assumes that missing data are randomly distributed within one or more subpopulations of individuals and that plausible estimates of the missing values can be generated using observed variables in the data set.

Multiple imputation was used to replace missing data with estimates using all other observed data. The number of datasets generated depends on the frequency of missing data (we generated 10), and the estimates of missing values within each data set differ because a

stochastic or random component is added during the imputation process (Schafer & Graham, 2002).

Data were imputed using the IVEware program to generate a sequential regression multivariate imputation procedure (http://www.isr.umich.edu/src/smp/ive, version dated 9/11/2006; Raghunathan, Solenberger, Van Hoewyk, 2002). A normal linear regression model was used to compute missing values for all continuous variables in the imputation model. Binary variables were imputed using a logistic model, and categorical values were imputed using a polytomous or generalized logistic model. The program imputes missing values in a cyclical manner and overwrites previously drawn values to build interdependence among imputed values and exploit the correlational structure among covariates. All information across waves was used to estimate missing values, including three interaction terms: treatment*child age, treatment*gender, and treatment*prior level of earnings at baseline. The imputation model was set to use only those variables that contributed at least 1 percent of the variance to the prediction of a given missing value.

Ten data sets were created and concatenated. As a first check on the validity of the imputation process, the means and standard errors before and after imputation were compared. In almost all cases, the imputed and original means and standard errors are quite similar. (Tables showing comparisons are available upon request).

After eliminating the families with no data in any of the three waves (n = 54), we included the remaining 691 families with 1,097 children in the imputation data set. For measures that should be missing (i.e., were not missing at random)—parent-reported activity for children younger than 6 and youth report for children younger than age 9--values were set to missing after the imputation. The decision to delete cases after the imputation was made to reduce the amount

of noise that is introduced during the imputation process as recommended by von Hippel (2007). The number of children age 6 or older in the imputed data set was 780; 13 could not be classified in any cohort. Hence, the analysis sample N = 767.

Measures

Activity participation. Parents and children each reported the youth's participation in out-of-school activities at each assessment (waves 1-3 for parents and waves 2 and 3 for youth). The questions, based on those used in the Canadian Self-Sufficiency Project (Morris & Michalopoulos, 2000), presented a 5-point scale to indicate frequency of participation in the past year (1= "never," 2= "less than once a month," 3= "about every month," 4= "about every week," 5 = "about every day") in each of five structured activities: (a) Take *lessons* such as dance, music, or arts and crafts that do not involve sports; (b) Play a *sport* or take lessons with a coach or instructor, things like gymnastics, karate, soccer, baseball, softball, cheerleading/drill team; (c) Go to Sunday school or *religious* services, take religion classes, or participate in church or temple choir; (d) Belong to a *club* or youth group like cubs, or boy scouts/girl scouts, drama club, or a youth group associated with a church or temple; (e) Go to recreation or *community centers* where there were adults supervising, such as the Y, the Boys and Girls Club. These five were averaged to form a total structured activity score for each wave. At Waves 2 and 3, a sixth activity, "Do *service* or volunteer activities (including participating in service organizations, or tutoring other children)" was added. Because the response scale is ordinal, not interval, conclusions about the exact amount of time children spend in activities cannot be drawn.

Youth and parent reports were modestly correlated (total score r = .42 and .43 for waves 2 and 3 respectively). For specific activities, the correlations for waves 2 and 3 respectively were: lessons = .11 and .17; sports = .29 and .38; religious = .50 and .47; clubs = .33 and .28;

community centers = .46 and .37; service = .16 and .12. All were statistically significant at $p < .01$. Adjusted means on the dependent variables are presented in Table 3 for parent-reported participation and Table 4 for child-reported participation.

[TABLE 3 ABOUT HERE]

[TABLE 4 ABOUT HERE]

Analysis Plan

The major purpose of the analyses was to examine impacts of New Hope on developmental patterns of activity participation, using a cross-sequential design that permits both cross-sectional and longitudinal comparisons. Analyses of covariance with repeated measures were conducted with treatment (New Hope program group vs. control), cohort (6-7, 8-10, 11-13), and gender (2) as between-subjects factors and time period or wave (3 for parent report; 2 for youth report) as a repeated measure. The principal dependent variables were the average participation scores from parent and youth reports (based on five activities). Analyses were also performed for each of the six activities to provide a more nuanced picture of patterns of effects. Analyses for each of the ten imputed datasets were conducted using the linear mixed-effects models procedure in SPSS. Mixed models differ from general linear models in that they can handle repeated measurements of data and the hierarchical nesting of children within families. The results were then averaged across the 10 imputed data files.

The random assignment design should insure that individual differences are balanced across program and control groups, but a set of family and child characteristics collected at baseline were included as covariates to make the estimates more precise. These were: children's ethnic group (African American, Latino, other), parents' earnings during the year prior to

random assignment, whether the parent had a high school diploma or GED, and whether they had access to a car.

Analysis of variance was selected because it detects both linear and nonlinear effects over time. The main effect of treatment indicates an overall difference produced by New Hope, and the interactions of treatment with cohort and time indicate any developmental variations in experimental effects over the course of the middle childhood and adolescence years. Main effects and interactions between cohort and time detect developmental differences and developmental changes in frequency of participation. Interactions with gender indicate variations in these patterns for girls and boys. Interactions were followed up with examinations of estimated means.

Results

Impact of New Hope

Parent reports. According to parent reports, children in New Hope families were significantly more likely than control group children to participate in structured activities, F (1, 2254) = 6.42, $p < .05$. The mean structured activity participation scores were: program group children (M = 2.35, SD = .08) and control group children (M = 2.26, SD = .08). The means for each group are displayed by cohort and wave in Figure 2. There were no significant interactions of treatment with cohort or wave, indicating that the experimental effect did not vary significantly for children of different ages and that it endured across the six-year period, well after the families' eligibility for New Hope benefits had ended.

[FIGURE 2 ABOUT HERE]

Analyses of the six individual activities indicated similar patterns across all, but the overall effect of treatment was significant only for religious activities, F (1, 2246) = 6.12, $p<.05$,

and service, F (1, 1470) = 6.12, p<.05; it reached a borderline level of significance for clubs, F (1, 2243) = 3.63, p<.10. Program group children scored higher than control group children for each activity: religious (program M = 2.71, SD = .12; control M = 2.58, SD = .12); service (program M = 1.87, SD = .10; control M = 1.71, SD = .10); clubs (program M = 2.2, SD = .12; control M = 2.1, SD = .12). The only interaction involving treatment was treatment*wave for lessons, F (2, 1532) = 3.81, p<.05. Program group children in all cohorts participated in lessons more than control group children at wave 1, with declining differences in later waves. The patterns are illustrated in Figure 3.

[FIGURE 3 ABOUT HERE]

Child reports. There was not a significant New Hope effect on the overall average of child-reported participation, F (1, 1488) = 2.27, *ns*. The mean scores were: program group children (M = 2.39, SD = .03) and control group children (M = 2.33, SD = .03). Similarly, the main effects and interactions involving experimental treatment were nonsignificant on all of the individual activities, with the exception of a borderline effect of treatment*cohort for religious activities, F (2, 1494) = 3.34, p < .10.

Developmental Patterns

Parent reports. Because the design is cross-sequential, the effects of cohort and wave separately and in interaction with each other provide information about the overall developmental patterns of participation from age 6 through 19. The results show consistent variation associated with both cohort and wave. For the average participation score, the interaction of cohort*wave was significant, F (4, 1487) = 8.88, p<.01. The means are illustrated in Figure 2. In general, activity participation rose as children moved from middle childhood to

adolescence, was greatest during the early adolescent period, and then declined as they reached later adolescence.

In the analyses of individual activities, the cohort*wave interaction was significant for lessons, F (4, 1532) = 4.19, p<.01; sports, F (4, 1451) = 7.84, p<.001; religious activities, F (4, 1535) = 4.11, p<.01; clubs, F (4, 1447) = 2.65, p<.05; and community centers, F (4, 1510) = 2.82, p<.05. For service, there were significant main effects of both cohort, F (2, 1469) = 4.38, p<.05, and wave, F (1, 1468) = 11.03, p<.001. The means are illustrated in Figure 3.

Although the patterns for each activity were consistent with the total score, the cohort and wave patterns varied slightly. For most activities, participation increased in the middle childhood years and declined after age 15 or 16. Lessons were highest in wave 1, particularly for the program group, and their frequency was relatively stable across ages until the oldest cohort reached wave 3 (when they were 17 or older). Participation in community centers declined after about age 12 or 13, and a similar decline occurred in religious activities in the control group. Participation in service activities increased in adolescence and did not decline in the oldest age group.

Child reports. The reader is reminded that we have child reports only for waves 2 and 3. For the average structured activity score, the interaction of cohort*wave was significant, F (2, 1487) = 8.55, p<.001. The means are shown in Table 4. Although these analyses encompass a smaller age range than do the parent reports, they show a similar pattern with the highest levels of participation in late middle childhood and early adolescence. The patterns for each individual activity (not shown) are similar to those from the parent reports.

Gender

Parent reports. There were no overall gender differences in total participation, but the interaction of gender*cohort was significant, F (2, 2253) = 4.09, p<.05. The mean participation scores for boys were: cohort 1 (M = 2.34, SD = .04), cohort 2 (M = 2.29, SD = .04), cohort 3 (M = 2.3, SD = .04). The mean scores for girls were: cohort 1 (M = 2.24, SD = .05), cohort 2 (M = 2.42, SD = .04), cohort 3 (M = 2.30, SD = .04). For boys, average activity participation was relatively stable from middle childhood through late adolescence while girls showed an increase in activity participation from middle childhood to early adolescence with a decline in later adolescence.

Not surprisingly, the patterns of gender differences varied across activities. The interaction of gender*cohort for participation in lessons was significant, F (2, 2181) = 3.72, p<.05. The mean scores for boys were: cohort 1 (M = 2.01, SD = .07), cohort 2 (M = 1.87, SD = .06), cohort 3 (M = 1.95, SD = .07). The mean scores for girls were: cohort 1 (M = 2.10, SD = .07), cohort 2 (M = 2.31, SD = .06), cohort 3 (M = 2.17, SD = .07). Boys' participation in lessons declined from middle childhood to early adolescence while girls' participation increased during the same period. From early adolescence to later adolescence, participation in lessons increased for boys, but not for girls.

Boys were more likely than girls to participate in sports and community centers. The main effect of gender was significant for sports, F (1, 2231) = 17.26, p<.001 and for community centers, F (1, 2257) = 9.18, p<.01. The mean scores for sports were: boys (M = 2.43, SD = .04), girls (M = 2.19, SD = .04). The mean scores for community centers were: boys (M = 2.41, SD = .04), girls (M = 2.23, SD = .04). For clubs, the interaction of gender*cohort was significant, F (2, 2257) = 4.78, p<.01. The mean scores for boys were: cohort 1 (M = 2.20, SD = .07), cohort 2 (M = 2.11, SD = .06), cohort 3 (M = 2.07, SD = .07). The mean scores for girls were: cohort 1 (M

= 2.14, *SD* = .07), cohort 2 (*M* = 2.38, *SD* = .06), cohort 3 (*M* = 1.99, *SD* = .07). Boys' participation in clubs declined from middle childhood to late adolescence while girls' participation increased from middle childhood to early adolescence and then declined in later adolescence. There were no gender differences or interactions of gender for religious or service activities.

Child reports. In contrast to the parent reports, the gender differences in children's reports of total participation was significant, F (1, 1488) = 9.21, $p<.01$. Boys reported more overall participation than did girls (boys *M* = 2.41, *SD* = .03; girls *M* = 2.30, *SD* = .03).

In the analyses of individual activities, girls reported higher levels of participation in lessons, F (1, 1397) = 4.47, $p < .05$, and clubs, F (1, 1477) = 4.43, $p < .05$. The mean scores for lessons were: boys (*M* = 2.09, *SD* = .05), girls (*M* = 2.23, *SD* = .05). The mean scores for clubs were: boys (*M* = 2.00, *SD* = .05), girls (*M* = 2.14, *SD* = .05). Boys reported more participation in sports, F (1, 1450) = 75.07, $p < .001$, and community centers, F (1, 1503) = 12.86, $p < .001$. The mean scores for sports were: boys (*M* = 2.87, *SD* = .05), girls (*M* = 2.22, *SD* = .05). The mean scores for centers were: boys (*M* = 2.49, *SD* = .05), girls (*M* = 2.24, *SD* = .05). There were not significant gender differences in religious or service activities, and there were no interactions of gender with treatment, cohort, or wave.

Discussion

The major purpose of this cross-sequential study was to examine the developmental patterns of young people's activity participation in the context of an experimental anti-poverty intervention for low-income families. The principal research questions concerned the impacts of New Hope on children's rates of participation and the changes in participation with age across three developmental periods—middle childhood, adolescence, and late adolescence. New Hope did have a modest but

significant positive impact on children's participation in structured activities, and its effects did not vary significantly across age groups or across time. These findings are consistent with impacts of the Canadian Self-Sufficiency Project, which provided parents with income supplements when they left welfare to work full time (Morris & Michalopoulos, 2000). The effect of New Hope on the oldest children is encouraging because late adolescence is the time when activity involvement declines precipitously and because it occurred several years after the benefits of the program ended. The difference occurred even though New Hope youth were also more likely to engage in paid employment, which can conflict with out-of-school activities (McLoyd, Kaplan, Purtell & Huston, 2011).

The results demonstrate effects of New Hope, but do not permit clear determination of the reasons for program impacts. Based on information about barriers to participation for low-income families, it seems likely that the increase in resources provided by the earnings supplement played a role in enabling parents to cover the costs of participation. The child care subsidy led many parents to use center-based child care when children were in preschool or early elementary school, so they may have become familiar with the benefits of organized programs for their children. The child care subsidy also indirectly increased resources by reducing the costs of child care, and its use for younger siblings may have freed the older study children from child care responsibilities after school (Casey et al., 2005; Gennetian, Duncan, Knox, Vargas, & Clark-Kauffman, 2004). Parents' increased work hours increased their need for supervision, especially as children moved into late childhood and early adolescence. Finally, New Hope increased children's school achievement and positive behavior (Huston et al., 2001), which may in turn have led children to be interested in and motivated to participate in out-of-school activities. By the wave 3 follow-up, New Hope adolescents had

substantially higher levels of school engagement than controls, a difference which may reflect both cause and effect of participating in extra-curricular activities (Huston et al., 2001).

Perhaps the strongest evidence of the impact of New Hope was children's sustained participation beyond early adolescence, a time when involvement typically declines, suggesting that New Hope's early impact on children's participation may have led to skills, interests, or motivations that then sustained their participation. Children were ages 4-11 when their parents entered New Hope (two years before wave 1); hence, they were all in early or middle childhood when many of program effects presumably began. The oldest cohort went through an important developmental transition into early adolescence during the program benefit period—a n age in which unsupervised out-of school time can be especially risky (e.g., Pettit, Bates, Dodge, Meece, 1999).

It is possible that the New Hope intervention was more effective because it began when children were still in middle childhood than it would have been for youth who were already adolescents at its onset. It is noteworthy that the Canadian Self-Sufficiency Project increased participation by children in middle childhood, but did not affect adolescent involvement (Morris & Michalopoulos, 2000). During middle childhood, children typically settle into their main activity of interest (Howie et al., 2010). Once they reach late adolescence and are near the completion of high school, participation becomes even more defined or in some cases completely drops off (Mahoney et al., 2005). Experiences during middle childhood may set patterns of achievement and motivation during the transition from middle childhood to adolescence. The older program group children were transitioning to adolescence when New Hope was providing their parents with access to wage supplements and child care subsidies, some of which may be important for facilitating participation. During this time, perhaps these resources enabled children to become engaged in activities, and this early participation may have been key in sustaining their later involvement.

New Hope impacts were most prevalent for religious activities, service, and clubs. Some families in need of supervision for their children may turn to religious environments that offer supervised and highly structured activities for youth at all ages in a setting that is consistent with parental values. In this context, service activities may be encouraged by religious institutions as well as by schools. Nevertheless, the overall pattern of increased participation across activities suggests a range of possible reasons for the program effects.

Overall, the developmental patterns of participation in this study are similar to those in previous research with a range of populations showing increases until early adolescence with declines thereafter (e.g., Pedersen & Seidman, 2005; Eccles & Gootman, 2002; Mahoney et al., 2005; Jacobs, Vernon, & Eccles, 2005). What these data add is a comprehensive picture of patterns for children from low-income families across the age range from 6 to 19 using both longitudinal and cross-sectional data in a cross-sequential design. They contradict findings suggesting that participation declines begin at an earlier age for low-income children (Mahatma & Lohman, 2011).

We expected that New Hope would have greater effects on boys than girls because of its larger effects on early achievement and social behavior, but there was no evidence of differential treatment effects. The absence of differences is consistent with the fact that many of the program effects on social behavior and school engagement that endured at wave 3 did not differ by gender.

Although the random assignment experimental test of New Hope and the cross-sequential developmental design are strengths of this study, the measures of participation are single items and indicate only frequency of participation. The specific content and quality of the sports, lessons, and other activities are not known. The measure of activity participation does not provide information about the exact amount of time children spent or the consistency of their involvement over a long period of time. Perhaps most important, parent and child reports agreed only moderately, and New

Hope effects were evident only in the parent reports. Similarly, significant impacts from the Canadian Self-Sufficiency Project on children's activities were found for parent-reported, but not child reported daily activity participation (Morris & Michalopoulous, 2000). It is possible that parents had incomplete knowledge or overestimated their children's time in activities, but it seems unlikely that New Hope parents were more apt than control group parents to make this error. Children's reports may have been less accurate than those of adults because they were asked about the prior year, a long time period for a child or young adolescent to recall accurately. The child reports were obtained only in waves 2 and 3; hence, they did not reflect participation during the New Hope benefit period.

In summary, the low-income children and adolescents in this study were involved in a variety of activities, and some of this participation was the result of the New Hope program. Structured activities offer a range of benefits and learning experiences that have well-documented effects on youth development. Though we do not have details about the quality or specific content of the activities included in our data nor whether they were community or school sponsored, there is evidence to suggest that such activities offer a point of intervention and a platform for prevention. It is especially noteworthy that the effects of New Hope were indirect; the intervention targeted the parents rather than providing direct services to children. A two-generation intervention designed to focus on children as well as adults might be considerably more powerful and might offer a clearer picture of the factors determining effectiveness.

After nearly two decades of large scale antipoverty interventions, it is clear that positive impacts are prevalent for adults and their children when the intervention increases resources (Morris, Gennetian, Duncan & Huston 2009). Our findings highlight the importance of understanding policy effects on children using a developmental lens from middle childhood through adolescence. They set the stage

for a more complete understanding of the potential of structured out-of-school activities for promoting positive development of young people facing the risks associated with family poverty.

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Table 1. Ages of Three Cohorts at Three Waves

Cohort	Wave (Year)			
	Baseline (1995)	1 (1997-98)	2 (2000/01)	3 (2003/04)
1	4-5	6-7	9-10	12-13
2	6-8	8-10	11-13	14-16
3	9-11	11-13	14-16	17-19

Table 3. Average Parent-Reported Activity Participation by Treatment Status, Cohort, and Wave

	Cohort	***Younger***						***Middle***						***Older***					
	Wave	*1*		*2*		*3*		*1*		*2*		*3*		*1*		*2*		*3*	
	Group	*E*	*C*	*E*	*C*	*E*	*C*	*E*	*C*	*E*	*C*	*E*	*C*	*E*	*C*	*E*	*C*	*E*	*C*
Activity																			
Total Activities	**M**	**2.18**	**2.15**	**2.23**	**2.25**	**2.50**	**2.42**	**2.40**	**2.21**	**2.40**	**2.43**	**2.40**	**2.28**	**2.46**	**2.34**	**2.42**	**2.23**	**2.15**	**2.02**
	SE	*(0.08)*	*(0.07)*	*(0.08)*	*(0.08)*	*(0.08)*	*(0.08)*	*(0.07)*	*(0.07)*	*(0.07)*	*(0.07)*	*(0.07)*	*(0.07)*	*(0.07)*	*(0.08)*	*(0.08)*	*(0.08)*	*(0.08)*	*(0.08)*
Lessons	**M**	**2.21**	**2.06**	**1.95**	**1.97**	**2.13**	**2.02**	**2.33**	**2.05**	**1.95**	**2.16**	**2.08**	**1.96**	**2.65**	**2.27**	**1.95**	**1.93**	**1.77**	**1.77**
	SE	*(0.13)*	*(0.13)*	*(0.11)*	*(0.10)*	*(0.12)*	*(0.12)*	*(0.12)*	*(0.12)*	*(0.09)*	*(0.09)*	*(0.11)*	*(0.11)*	*(0.12)*	*(0.13)*	*(0.10)*	*(0.10)*	*(0.11)*	*(0.12)*
Sports	**M**	**2.08**	**2.06**	**1.92**	**2.04**	**2.60**	**2.61**	**2.32**	**2.00**	**2.36**	**2.31**	**2.55**	**2.47**	**2.55**	**2.53**	**2.44**	**2.28**	**2.28**	**2.17**
	SE	*(0.13)*	*(0.13)*	*(0.12)*	*(0.12)*	*(0.14)*	*(0.13)*	*(0.12)*	*(0.12)*	*(0.11)*	*(0.11)*	*(0.12)*	*(0.12)*	*(0.12)*	*(0.13)*	*(0.11)*	*(0.12)*	*(0.13)*	*(0.14)*
Religious	**M**	**2.48**	**2.67**	**2.75**	**2.70**	**2.65**	**2.65**	**2.87**	**2.82**	**2.91**	**2.74**	**2.61**	**2.35**	**2.86**	**2.73**	**2.82**	**2.52**	**2.42**	**2.03**
	SE	*(0.13)*	*(0.12)*	*(0.12)*	*(0.11)*	*(0.12)*	*(0.12)*	*(0.11)*	*(0.11)*	*(0.11)*	*(0.10)*	*(0.11)*	*(0.11)*	*(0.12)*	*(0.13)*	*(0.11)*	*(0.12)*	*(0.11)*	*(0.12)*
Clubs	**M**	**1.91**	**1.88**	**2.16**	**2.23**	**2.42**	**2.42**	**2.08**	**1.95**	**2.35**	**2.43**	**2.44**	**2.21**	**1.96**	**1.79**	**2.38**	**2.11**	**2.09**	**1.85**
	SE	*(0.12)*	*(0.12)*	*(0.12)*	*(0.11)*	*(0.13)*	*(0.13)*	*(0.11)*	*(0.11)*	*(0.11)*	*(0.11)*	*(0.12)*	*(0.11)*	*(0.11)*	*(0.12)*	*(0.11)*	*(0.12)*	*(0.12)*	*(0.13)*
Centers	**M**	**2.23**	**2.10**	**2.29**	**2.22**	**2.67**	**2.42**	**2.38**	**2.20**	**2.38**	**2.56**	**2.34**	**2.41**	**2.29**	**2.38**	**2.19**	**2.20**	**2.23**	**2.26**
	SE	*(0.13)*	*(0.13)*	*(0.13)*	*(0.13)*	*(0.13)*	*(0.13)*	*(0.12)*	*(0.12)*	*(0.12)*	*(0.12)*	*(0.12)*	*(0.12)*	*(0.12)*	*(0.13)*	*(0.12)*	*(0.13)*	*(0.12)*	*(0.13)*
Service	**M**			**1.56**	**1.54**	**1.84**	**1.79**			**1.80**	**1.58**	**2.08**	**1.79**			**1.99**	**1.74**	**1.97**	**1.83**
	SE			*(0.09)*	*(0.09)*	*(0.11)*	*(0.11)*			*(0.08)*	*(0.08)*	*(0.10)*	*(0.10)*			*(0.09)*	*(0.09)*	*(0.10)*	*(0.11)*

Note. E = Experimental Group; C = Control Group

Table 4.
Mean and Standard Deviations of Activity Participation by Cohort and Wave

Cohort		**Younger**		**Middle**		**Older**	
Wave		*2*	*3*	*2*	*3*	*2*	*3*
Activity							
Total	**M**	**2.30**	**2.53**	**2.43**	**2.45**	**2.30**	**2.13**
	SE	*(0.05)*	*(0.05)*	*(0.04)*	*(0.05)*	*(0.04)*	*(0.05)*
Lessons	**M**	**2.07**	**2.41**	**2.02**	**2.36**	**2.00**	**2.12**
	SE	*(0.07)*	*(0.10)*	*(0.07)*	*(0.09)*	*(0.07)*	*(0.10)*
Sports	**M**	**2.30**	**2.86**	**2.57**	**2.74**	**2.46**	**2.34**
	SE	*(0.09)*	*(0.10)*	*(0.08)*	*(0.09)*	*(0.08)*	*(0.10)*
Religious	**M**	**2.90**	**2.61**	**2.97**	**2.47**	**2.80**	**2.09**
	SE	*(0.08)*	*(0.09)*	*(0.07)*	*(0.08)*	*(0.08)*	*(0.09)*
Clubs	**M**	**1.98**	**2.25**	**2.12**	**2.15**	**2.03**	**1.88**
	SE	*(0.08)*	*(0.09)*	*(0.07)*	*(0.08)*	*(0.08)*	*(0.09)*
Centers	**M**	**2.26**	**2.50**	**2.47**	**2.53**	**2.20**	**2.24**
	SE	*(0.09)*	*(0.09)*	*(0.08)*	*(0.08)*	*(0.09)*	*(0.09)*
Service	**M**	**NA**	**1.94**	**1.71**	**1.97**	**1.71**	**1.94**
	SE	*NA*	*(0.08)*	*(0.08)*	*(0.08)*	*(0.07)*	*(0.08)*

Figure 3. Mean Participation in Individual Activities by Age and Treatment