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Early Education Experiences & School-to-Work Program Participation

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This study assesses the effects of Head Start participation and demonstrated academic ability during elementary school on School-to-Work (STW) program participation. The study sample comes from the National Longitudinal Survey of Youth, 1997 Cohort and comprises 4,370 adolescents who reported grades they received while in the 8th grade and whether or not they ever repeated a grade in grammar school. Findings indicate that STW programs attract disproportionate numbers of students with histories of marginal demonstrated academic ability. This is so because STW programs are also more likely to attract Head Starters. Demonstrated academic ability varies by race/ethnicity and sex, with lower participation rates by white males. The author suggests that efforts to achieve a more heterogeneous racial/ethnic mix of students to take advantage of school-to-work based initiatives would strengthen such programs. In doing so, such efforts would increase the prospects of Head Start participants entering the mainstream of socioeconomic life in the US more easily than would be the case otherwise. In addition, such efforts would make the US workforce more competitive in an increasingly global economy.

Keywords: Head Start, School-to-Work initiatives, economically disadvantaged adolescents

This study assesses the effects of Head Start participation and demonstrated academic ability during elementary school on STW program participation. It takes into account gender and race/ethnicity, and, to a lesser extent, later socioeconomic status. The study sample comes from the National Longitudinal Survey of Youth, 1997 Cohort and comprises 4,370 adolescents who reported grades they received while in the 8th grade and whether or

not they ever repeated a grade in grammar school. At issue here is the extent to which STW programs attract students from less diverse racial and ethnic backgrounds and with roughly similar academic experiences while in elementary school.

This issue is important given that proponents of STW programs sought to appeal to all high school students, and thereby ensure a greater likelihood of academic rigor when linking workplace experience with school-based instruction. These objectives would be thwarted if STW programs were more likely to attract students primarily from minority racial and ethnic backgrounds or with poor histories of demonstrated academic ability, or if such programs catered primarily to women. This is so in part because teachers often expect less of students they perceive as academically marginal, or as more likely to occupy positions in the secondary tier of the labor market, or as less likely to pursue life-long careers in the labor market. It is also so in part because programs that cater to such students often lack the level of resources of other programs. Further, to the extent such programs appeal to lower socioeconomic students, they may also be perceived as a program for the poor. Programs that target poor individuals and families in the U.S. often lack the levels of bipartisan support and public resources as those that benefit broader socioeconomic segments of the population.

Background of Head Start and STW Programs

Created in 1965, Head Start seeks to enhance behavioral, emotional, and cognitive capacities of young children from economically disadvantaged families (Zigler & Muenchow, 1992). It still enjoys popular support and is up for renewal in 2003. Enacted in 1994, the School to Work Opportunities Act (STWOA) sought to provide *all* adolescents opportunities to earn transferable credits, to prepare for first jobs in high-skill careers, and to pursue further education (Harmon, 2000; Imel, n.d.). Federal funding for STWOA ceased as of January 3, 2002.

Head Start is perhaps one of the most extensively written about compensatory education programs in the U.S. Much of the related literature about its purpose, use, implementation, and effects are explored and summarized elsewhere (e.g., Caputo,

1998; Currie, 2001; Karoly, Kilburn, Bigelow, Caulkins, & Cannon, 2001). Briefly, as Epstein (1992) notes, Head Start offers children from disadvantaged backgrounds the opportunity to develop healthy learning habits before they entered primary school. Early studies suggest that compensatory education makes little difference in later student achievement (e.g., Stanley, 1973). Subsequent findings show, however, that children who pursue such a program demonstrate gains in human capital. They score higher on intelligence and achievement measures, have better achievement self-images, and receive more encouragement from parents. These effects also carry over through adolescence (e.g., Oden, Schweinhart, & Weikart, et al., 2000).

STWOA established a national framework within which states and communities could develop School-To-Work Opportunities systems to prepare young people for first jobs and for continuing education (Olson, 1997). Nothing in STWOA philosophy suggested that it was intended for only those students who planned to work immediately after high school. STW programs were intended to provide students with a high school diploma (or its equivalent), a nationally recognized skill certificate, or an associate degree (if appropriate) that could lead to a first job or further education (National Center for Education Statistics, n.d.). By the fall of 1997, 34 of 37 grantee states had formed 1,106 STWOA partnerships, including 83% of their secondary school districts. Funding levels were relatively modest, however, with local grants averaging \$25,000 per school district or \$4.32 per student (Hershey, Silverberg, Haimson, Hudis, & Jackson, 1999).

STWOA adhered to the educational philosophy of John Dewey (1916 & 1977). Dewey rejected vocational education as training for specific trades. Instead, he supported education through occupations as the most powerful way to acquire practical knowledge, apply academic content, and critically examine industrial and societal values (Law, Knuth, & Bergman, 1992). Critics of STWOA raised many of the same concerns that Dewey initially did. In particular they charged that STWOA takes the interests of students and makes them subservient to the interests of employers (Grubb, 1995). Other critics rejected the contemporary application of Dewey's pedagogical approach to education. They claimed it lacked academic rigor and placed too much emphasis

on learning to do and insufficient attention on leaning to know (Patterson, 1998). Regardless of operating philosophy, however, policies and programs linking education and work have become commonplace in many industrial countries such as England, Germany, Australia, Denmark, and The Netherlands (Raffe, 2003).

Research Objectives and Related Literature Review

As noted, this study assesses the effects of Head Start participation and demonstrated academic ability during elementary school on STW program participation. At issue in part is the relationship between participation in a publicly sponsored early education program that targets children from economically disadvantaged families and participation in a publicly sponsored secondary education program that appeals to broader socioeconomic segments of the U.S. population. How does early participation of children from economically disadvantaged families affect the likelihood of later participation in publicly sponsored and more broadly targeted education programs? Also at issue here is the extent to which STW programs attract students from less diverse racial and ethnic backgrounds and with roughly similar academic experiences while in elementary school. This issue is important given that proponents of STW programs sought to appeal to all high school students, thereby ensuring a greater likelihood of academic rigor when linking workplace experience with school-based instruction than they perceived would be the case otherwise. Further, a more heterogeneous group of STW participants fit well with notions of workforce preparedness in an increasingly global economy that requires sensitivity to those from diverse backgrounds. These objectives would be thwarted if STW programs were more likely to attract, for example, students from more homogeneous racial and ethnic backgrounds or with poor histories of demonstrated academic ability.

Opponents of STW programs feared that such programs might lure brighter students to enroll in less academically rigorous curricula than would be the case otherwise. It is commonplace that there is a positive relationship between the academic caliber of students and rigor of curricular, with the better students more likely to enroll in more rigorous curricula. The likelihood of ob-

taining the level of academic rigor proponents of STW programs hoped for is thereby diminished to the extent that STW programs disproportionately enroll poorer academic performers.

These issues are important in light of longstanding but nonetheless contemporary debates about efficiency and equity as competing goals of public policy. As Lewis (1994) notes, some seek ways to make schooling more overtly relevant to economic prosperity, an efficiency rationale. Others seek ways of augmenting the human capital of children and adolescents from economically disadvantaged families by increasing the likelihood that they more successfully negotiate the labor market than might be the case otherwise, an equity rationale. This study is concerned primarily with equity as a manifest function of academic-vocational policies. It is based on the empirically tested and partially corroborated assumption that costs associated with public investments to improve human capital can be offset by gains in both organizational productivity and economic prosperity in the long run (Saul, 1998). Neumark and Joyce (2001), however, report that the existing research basis for the conclusion that STW programs improve labor market outcomes is weak. Much of the research is primarily anecdotal, reflecting the interests of government-sponsored agencies or advocacy groups of differing political persuasions (Dembicki, 1998; Guest, 2000; National Employer Leadership Council, 1999).

An eight-state STW study by Mathematica Policy Research, Inc. indicated that school curriculum (such as career majors and integrating academic and career instruction) had a lower priority than career development (career awareness courses, career development units in other courses), or workplace activities (job shadowing) (Hershey, Hudis, Silverberg, & Haimson, 1997). This finding also held in the more comprehensive national evaluation of STW programs among high school seniors in the class of 1996 (Hershey, Silverberg, Haimson, Hudis, & Jackson, 1999). In the thirty-four states studied nationally, no differences were found between students who completed a college-prep curriculum and those who did not, even when controlling for class rank, attendance, or entry to college. Neither the eight-state nor national study by Mathematica Policy Research, Inc. had comparison groups. Hence, differences between STW participants and

non-participants could not be determined. The study presented here in part overcomes these limitations.

Specifically, this study addresses the following questions:

1. What is the likelihood that STW programs attract students who had lower grades in grammar school?
2. To what extent do STW programs attract students who had enrolled in Head Start and who also had lower grades in grammar school?
3. How do Head Start participation and later socioeconomic status affect STW participation?
4. How do sex and race/ethnicity affect the likelihood of STW participation by demonstrated academic ability?

Answers to these questions will further our understanding of the use and consequences of programs targeting children from economically disadvantaged families and those intended for broader socioeconomic segments of adolescents in the U.S. Merton (1968) suggests that an examination of latent functions of social processes often reveal departures from manifest intentions and goals that policymakers and advocates of specific programs promote. If poor academic performers participate in STW programs disproportionately policymakers will know that a manifest objective of increasing the likelihood of ensuring rigor in school-to-work curricula faces a formidable obstacle. Teachers may be more likely to lower standards to retain students rather than challenge students and risk higher drop out rates than could be the case otherwise. If sex and race/ethnicity further skew the distribution of STW participation beyond that of academic performance, then the appeal to *all* high school students is not being met. Such a result would further decrease the likelihood of ensuring academic rigor and of achieving the related goal of workforce preparedness.

Methods

Data and Study Sample

Data are from the National Longitudinal Survey of Youth 1997 (NLSY97), a nationally representative sample of 8,984 young men and women 12 to 16 years of age as of December 31, 1996. Documentation about the sampling can be found in the *NLS*

Handbook 2000 (Center for Human Resource Research, 2000a) and the *NLSY97 User's Guide* (Center for Human Resource Research, 2000b). The study sample comprises 4,370 adolescents who reported grades they received while in the 8th grade and whether or not they ever repeated a grade in grammar school. As noted below, a subset of the study sample comprises 2,963 adolescents whose responding parents at the time of the 1997 survey reported income from wages, salaries, commissions, or tips from all jobs held in calendar year 1996.

Measures

Adolescents enrolled in the 9th through 12th grade at the time of the 1999 survey who reported that they participated in a school-based learning program since the date of their last interview were classified as STW participants. An adolescent whose responding parent reported that his or her child had participated in Head Start was classified as a Head Start participant. Adolescents were then assigned into one of four program participation groups: Head Start and STW participants, Head Start only participants, STW only participants, or neither Head Start nor STW participants. They were also classified by grade such that 1 = upper level (11th & 12th grade) and 0 = lower level (9th & 10th grade). This division was done in part to control for maturation. In addition, upper level high school students were viewed as having different biases since they face more imminent decisions regarding how best to prepare for either the work force or continuing education upon graduation.

Adolescents were also stratified by school auspices such that 1 = public and 0 = private. For purposes of bivariate analyses, sex and race/ethnicity were combined to create discrete categories of Black Males, Hispanic Males, White Males, Black Females, Hispanic Females, and White Females. For purposes of multivariate analyses described below, race and sex were combined to create a series of dummy variables: white male = 1 and 0 = other, black male = 1 and 0 = other, Hispanic male = 1 and 0 = other, white female = 1 and 0 = other, black female = 1 and 0 = other, and Hispanic female = 1 and 0 = other. The types of curricula in which adolescents were enrolled at the time of survey were College Prep, Academic and Vocational Education Combined, General Program, and Vocational.

Two measures were used to determine demonstrated academic ability in grammar school, namely Grades and Repeat Grade. Respondents were asked what grades they received overall in the 8th grade. The measure Grades was coded such that 1 = Mostly B's or Better and 0 = Mostly C's or Worse. Respondents were also asked if they ever repeated a grade. Repeat Grade was coded such that those who reported that they repeated at least one grade in elementary school = 1, while others = 0.

Finally, on a subset of the study sample ($n = 2,963$), the measure Parental Wages comprised income in dollars from wages, salaries, commissions, or tips from all jobs that responding parents reported at the time of the 1997 survey for calendar year 1996. The measure Low Income Family was coded such that responding parents whose reported wage income fell within the lowest quintile of wage earners (at or below \$7,000 for calendar year 1996) = 1 and those whose wages fell in higher quintiles = 0. The measures Parental Wages and Low Income Family were used to assess the extent to which Head Start participation can serve as a proxy for future economic disadvantage. In addition they were used to assess the relationship between parents' earnings and adolescents' enrollment in STW programs. These assessments were deemed necessary to gain additional insight into how Head Start and later socioeconomic status were likely to affect STW participation. Lucas (1999) showed, for example, that the more proactive role that middle class parents take in their children's education confers academic advantages beyond those accounted for by race, ethnicity, and prior achievement.

Differences in STW participation by socioeconomic status would signify the extent and direction of influence that more affluent parents were likely to exert on their children's decision to enroll in such programs. To the extent STW programs are perceived or stigmatized as less rigorous, then adolescents from more affluent families would be less likely to participate in STW programs than those who participated in Head Start programs or whose parents reported low wage-related income.

Procedures

Chi-square analysis is used to assess bivariate relationships between nominal level measures. The Cochran-Mantel-Haenszel

procedure is used with the chi-square statistic and its related p -value to obtain the odds ratio (Cody & Smith, 1997). Simple regression analysis is used to determine how Head Start participation affects later wage-related earnings of adolescents' responding parents. Simple logistic regression analysis is used to determine if Head Start participation is a predictor of living in a low-income family and if living in a low-income family is a good predictor of STW participation.

Multiple logistic regression analysis is used to determine if Head Start participation and demonstrated academic performance in grammar school are robust predictors of STW participation when controlling for sex, race/ethnicity, class level, curriculum type, and school auspices. For the sex/race/ethnicity dummy variables, the reference category is white males. For curriculum type, the reference category is College Prep. Correlates are grouped into two models. Model A or the Main Effects Model comprises all measures except Head Start participation, Grades, and Repeat Grade. Model B or the Expanded Model includes measures in Model A and adds Head Start participation, Grades, and Repeat Grade. The residual score statistic, Q_{RS} (Breslow & Day, 1980; Stokes, Davis, & Koch, 1995), is used to determine what if any effects Head Start participation had on Model A overall, as well as on individual measures of Model A. Ordinarily, a Main Effects Model fits adequately when the Q_{RS} statistic fails to meet statistical significance with a p -value $< .05$. In addition, the -2 Log Likelihood statistic is used to compare models, with lower values signifying a more desirable model (SAS Institute Inc., 1990). Finally, the Hosmer and Lemeshow Goodness-of-Fit Test is used to assess how well the data fit the Expanded Models, a good fit signified by higher p -values (Cody & Smith, 1997; Stokes, Davis, & Koch, 1995).

Results

Head Start, Elementary School Performance, and Race/Ethnicity

Of the 4,370 high school students who provided information about demonstrated academic ability in grammar school, 1,627 (26.7%) participated in STW programs. Adolescents who earned grades of B or better in the 8th grade were less likely to participate

in STW programs than were those who reported grades of C or less (25.1% of 2,373 vs. 28.6% of 1,997, $\chi^2 = 7.06$, $p < .01$). Head Start participation and race/ethnicity, however, were found to account for this difference. Adolescents who earned grades of B or better in the 8th grade were as likely to participate only in STW programs as were those who reported grades of C or less (20.1% vs. 20.3%). Those who had participated in Head Start and who earned B's or better in the 8th grade were less likely to participate in STW programs than were those who reported grades of C or less (5.0% vs. 8.3%, $\chi^2 = 98.64$, $p < .001$).

Adolescents who repeated a grade in grammar school were as likely to participate in STW programs as those who did not (27.9% of 537 vs. 26.5% of 3,833). This aggregate finding, however, concealed differences in STW participation by the academic ability measure Repeat Grade when controlling for Head Start participation. Grade repeaters in general were less likely to enroll in STW programs than those who did not repeat a grade (15.8% vs. 20.8%), but grade repeaters who had been in Head Start were more likely to enroll in STW programs (12.1% vs. 5.7%, $\chi^2 = 75.00$, $p < .001$).

White males comprised 29.5% of the adolescents in the study sample ($n = 4,370$). White male adolescents who earned grades of B or better in the 8th grade were less likely to participate in STW programs than were those who reported grades of C or less (18.9% of 719 vs. 27.6% of 568, $\chi^2 = 13.74$, $p < .001$). White females comprised 26.4% of the adolescents in the study sample. White female adolescents who earned grades of B or better in the 8th grade were also less likely to participate in STW programs than were those who reported grades of C or less (23.2% of 797 vs. 30.4% of 355, $\chi^2 = 6.73$, $p < .01$). No differences of the effects of Grades on STW participation were found for black males ($n = 557$), Hispanic males ($n = 410$), black females ($n = 549$), or Hispanic females ($n = 415$). Black female adolescents who repeated a grade in grammar school were more likely to participate in STW programs than were those who did not repeat a grade (40.1% of 89 vs. 35.9% of 460, $\chi^2 = 4.07$, $p < .05$). No differences of the effects of Repeat Grade on STW participation were found for any other sex/race/ethnicity group.

Head Start, Later Socioeconomic Status, and STW Participation

A total of 2,963 responding parents reported wage-related income in survey year 1997 for the previous calendar year 1996. Regression analysis indicated that the parents whose adolescent children had participated in Head Start earned an average of \$5,876 less in 1996 than those whose adolescent children had not attended Head Start (SE = 824.9, $t = -7.12$, $p < .001$). Adolescents who had been enrolled in Head Start were also more likely to reside with parents who reported wages for 1996 at or below \$7,000, the cutoff for the lowest 20% of wage earners, than were adolescents who had not participated in Head Start (24.8% vs. 19.8%, $\chi^2 = 6.47$, $p < .01$). Adolescents who resided with low-income responding parents in survey year 1997, however, were as likely to participate in STW programs as those who resided with higher wage earning parents (25.5% vs. 26.7%).

Head Start and Academic Ability as Predictors of STW Participation

As can be seen in Table 1, the Main Effects Model met statistical significance, signifying that it did not fit the data adequately and that one or more of the omitted measures (Head Start, Grades, Repeat Grade) were robust predictors of STW participation. As evidenced in the Expanded Model, the only measure that added to the explanatory power of the model was Head Start. Adolescents who were Head Starters as children were nearly 1.3 times as likely to enroll in high school STW programs than those who had not been Head Starters when controlling for race, sex, school auspices, class level, and curriculum type. Neither Grades nor Repeat Grade met the statistical cut-off criterion level of .05 to enter the model.

The relative influence of other characteristics remained basically unchanged with the addition of Head Start participation to the Main Effects Model. That is, black males, black females, and white females were each about 1.3 to 1.7 times more likely than white males to participate in STW programs, as were upper classmen (Odds = 1.5) and those who attended public schools (Odds = 1.5). In addition, those who were enrolled in a Vocational curriculum (Odds = 3.1) or in an Academic/Vocational curriculum (Odds = 2.6) were also more likely to participate in STW programs than those enrolled in a College Prep curriculum.

Table 1

Standardized Estimates (STB), Standard Errors (SE), and Odds Ratios of STW Program Participation of Students

Sample Characteristics	Main Effects Model			Expanded Model		
	STB	SE	Odds	STB	SE	Odds
Academic ability						
Grades (1=B or better)		—			<i>ns</i>	
Repeat Grade (1=yes)		—			<i>ns</i>	
Head Start (1=yes)		—		.055**	.093	1.29
Race/ethnicity/sex						
White male			Reference			Reference
Black male	.070**	.117	1.47	.054*	.122	1.34
Hispanic male	.024	.136	1.63	.019	.136	1.12
White female	.052***	.097	1.24	.052*	.097	1.24
Black female	.115***	.114	1.89	.098***	.119	1.71
Hispanic female	.026	.135	1.17	.020	.132	1.13
Class level (1=upper level)	.105***	.073	1.47	.106***	.073	1.47
Curriculum type						
College prep			Reference			Reference
Academic / vocational	.130***	.147	3.17	.129***	.138	2.62
General program	-.025	.079	0.91	-.029	.080	0.90
Vocational	.144***	.138	2.65	.142***	.138	3.10
School auspices (1=public)	.066**	.132	1.51	.065**	.132	1.49
Q_{RS}	$\chi^2 = 11.1665, df = 3$					
	$p = .0109$					
-2 Log L	4845.417			4837.079		
Hosmer & Lemeshow				$\chi^2 = 11.7960, df = 7$		
Goodness-of-Fit test				$p = .1078$		

*** $p < .001$, ** $p < .01$, * $p < .05$.

Discussion

This study addressed four issues: the likelihood that STW programs attract students with poorer academic ability when they were in grammar school, the likelihood such programs attract students who had enrolled in Head Start and who did poorly in grammar school, how Head Start participation and later socioeconomic status affect the likelihood of STW participation,

and how sex and race/ethnicity affect the likelihood of STW participation by demonstrated academic ability. Findings indicate that the higher proportions of STW participants with lower levels of demonstrated academic ability as measured by 8th grade grades were due to enrollment of those who had participated in Head Start. In addition, although adolescents who repeated a grade in grammar school were as likely to participate in STW programs as those who did not, grade repeaters were less likely to participate only in STW programs. Grade repeaters who had enrolled in Head Start were also more likely to participate STW programs. These findings suggest that STW programs attract disproportionate numbers of students with histories of marginal demonstrated academic ability because they are also more likely to attract students who had enrolled in Head Start.

This in itself need not be a negative outcome. Participation in STW programs may increase the retention rate of academically marginal adolescents who might otherwise drop out of high school. Findings lend support to this possibility. They suggest that STW programs have something to offer those whose educational experiences in grammar school were at best satisfactory if not worse. They increase the likelihood that academically marginal students remain longer and by extension might complete high school and thereby increase their post secondary educational, career, and economic prospects for years to come.

Findings in regard to Head Start participation and earnings capacity of adolescents' parents suggest that STW programs draw from a broad range of socioeconomic groups, as legislators had intended. Adolescents with low-wage-earning parents are as likely as those with more affluent parents to enroll in STW programs. Hence, distinctions based on current socioeconomic class are not found in STW programs, even though adolescents who had enrolled in Head Start are more likely to reside in poor families and to enroll in STW programs during high school. Here the use of individual level data helps to avoid the ecological fallacy. That is, reliance on the greater likelihood that adolescents who had enrolled in Head Start as children were living in a poor families and participating in STW programs during high school might lead one to conclude that those in poor families would also be more likely to enroll in STW programs. Individual level data

show that this is not the case. Instead they show that adolescents from low-income families and those who had enrolled in Head Start as children participated in STW programs in roughly equal proportions.

These findings are important in part because broader participation along socioeconomic lines ensures a greater level of public support for such programs and in part because such diversity enriches the academic experiences of all participants. This is especially important to adolescents who had enrolled in Head Start. Such adolescents disproportionately enroll in STW programs when in high school. Their parents currently earn less than other adolescents' parents and their parents' wage-related incomes are more likely to fall within the lowest quintile of wage-earning parents. Head Starters who later participate in STW programs are thus likely to reap the benefits of exchanging educational experiences with adolescents from more affluent families.

The reaping of such benefits could not be said, however, regarding heterogeneity along lines of race, ethnicity, and sex. White males, particularly those with higher levels of academic performance in grammar school, are less likely to enroll in STW programs. Achieving a better balance along lines of race, ethnicity, and sex would further increase the workforce preparedness of STW participants than would be the case otherwise.

In conclusion, the analyses that formed the basis of the study findings were limited in part to measures available in the NLS data files. Secondary data analyses in general are inherently limited in this regard and this study is no exception. Nonetheless, as noted, findings do point in certain policy directions in support of school-to-work initiatives, as well as to additional research that can further inform related debates. Future research with additional measures than the two used here to capture elementary school experiences, for example, is needed. Further, more direct measures for socioeconomic status during elementary and high school years of the adolescents would have benefited the study. Also, what accounts for lower participation rates of white males in STW programs needs to be explored. Studies that capture motivations of participants and non-participants in school-to-work initiatives among high school students are needed. Qualitative studies that rely of in-depth interviews would be an appropriate

research design to capture this type of information. Finally, future research should examine the academic and career paths of STW graduates as they mature into young adulthood, enter the labor market, and form their own families.

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