Appendix:

Parenting Promotes Social Mobility Within and Across Generations

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A1. Details of the Perry Preschool and Carolina Abecedarian Project

Eligibility Criteria for Perry. There were three eligibility requirements for Perry (Weikart et al., 1978, pgs.15-18): (i) being African-American; (ii) having low IQ at age 3 (70 to 85 points); and (iii) belonging to a household scoring less than 11 in a socioeconomic index. The socioeconomic index linearly combines three variables: average years of education of the parents present in the household (weight = 0.5); father (if present) or mother employment status (weight = 2); and rooms per person in the household (weight = 2). The employment-status variable had a before-weighting score of 3 if employed in skilled job, 2 if employed in semi-skilled job, and 1 if employed in unskilled job or unemployed.

Eligibility Criteria for ABC. A score of 11 or more in a socioeconomic index determined eligibility for ABC. The score was formed by linearly combining 13 variables (maternal education, paternal education, annual family income, father's absence, lack of maternal relatives in the area, siblings of school age who are one or more grades behind their age-appropriate grade, received welfare payments during the last three months, father's work is unstable or requires a low level of skills, maternal or paternal IQ is below 90, sibling with an IQ below 90, social agency indicates that family needs assistance, one or more family members have sought professional help in the last three years, and special circumstances. García et al. (2020) report the weights of the linear combination.

Table A.1. Comprehensive Details of Perry and ABC

	Perry	**ABC**
Overview		
Years Implemented	1962-1968	1972-1985
Site	Ypsilanti, Michigan	Chapel Hill, North Carolina
Population Targeted	Disadvantaged African Americans	Disadvantaged, no race requirement
Cohorts	5	4
Age at Entry	3	0
Duration	2.5 years	5 years
Sample	58 treatment, 65 control	58 treatment, 56 control (ABC)
Main Treatment Components		
Home Visits	4.5 per month	Not available
Center-based Care	30 weeks per year	50 week per year
	(12.5 hours per week)	(40 hours per week)
Other Treatment Components		Basic health check-ups and referrals
		Formula and diapers (also provided to controls)
		Nutrition
Substitutes Attended by Controls	No	Alternative preschools after age 2
		Enrolled at least for one year: 75%
Staff		
Adult-child Ratio	1:5 to 1:6	1:3 (0 to 1), 1:4.5 (1 to 4), 1:5.5 (age 4 to 5)
Teacher Certification	BA	HS graduates mixes with certified staff
Other Specialists	No	Physician, nurse, social worker
Curriculum Targets		
Cognitive Development	Yes	Yes
High-risk Behavior	No	Yes
Language Development	Yes	Yes
Motor Development	No	Yes
Non-cognitive Development	Yes	Yes
School Readiness	Yes	Yes
Task Orientation	No	Yes

Note: Basic details of the Perry Preschool and Carolina Abecedarian Projects (PPP and ABC). **Source:** Authors' construction using Weikart et al. (1978) and Schweinhart et al. (1993) for PPP and Ramey and Smith (1977), Ramey et al. (1985), Campbell and Ramey (1991), and Wasik et al. (1990) for ABC.

A2. Evidence on Head Start

This appendix presents outcomes from Head Start, an influential federal preschool program founded in 1965. There is autonomy at the local level in the choice of the curricula implemented in Head Start centers. As noted in the main text, the curricula in most Head Start centers is based on Perry (roughly 30%) or ABC (roughly 38%). Evidence on the effectiveness of Head Start is thus evidence on the effectiveness of these curricula at scale. Head Start is the largest early childhood education program in the US. In 2019, 9.7 billion (current) dollars were spent on it. It enrolled almost 900,000 children (U.S. Department of Health and Human Services, 2021). Three-year-old children are eligible for two years. Four-year-old children are eligible for one year. The program is targeted to disadvantaged children: families of child participants are required to be below the poverty line. The main service offered by the program is center-based childcare. Counseling and parent coaching are provided in some centers. The program is rolled out through the provision of federal grants to applying centers. Upon receiving the grants, centers are required to maintain minimum quality levels. The program is generally considered high quality.[1]

The evidence shows that Head Start substantially improves grade repetition, high school and college graduation, criminal convictions and incarceration, employment, labor income, and health. Some of the studies evaluating it are based on within-household comparisons of children who did not attend Head Start and children who attended Head Start, given access variation due to age differences. Other studies compare children who live in counties with Head Start availability to children in counties without availability. An early study of a randomized trial of Head Start showed that the program had essentially no impact on early life test scores (Puma et al., 2012). These results turn out to be a consequence of the fact that many control-group families enrolled their children in other Head Start centers when randomly denied access to their preferred Head Start center. Elango et al. (2016) discuss

[1] This paragraph takes information from Administration for Children and Families Office of Head Start (2009), which provides several additional details on Head Start.

this issue at length, following the discussion of randomization bias in Heckman et al. (2000). Feller et al. (2016) and Kline and Walters (2016) eliminate randomization bias by using standard selection-bias models and make rigorous counterfactual comparisons. They show that the randomized trial of Head Start is effective at boosting test scores in the short run.

Table A.2 describes the studies that we examine. Garces et al. (2002) reports that Head Start increases high school and college graduation rates of its participants by 0.037 (s.e. 0.053) and 0.092 (s.e. 0.056), respectively. They also report that it decreases the arrest rate by 0.053 (s.e. 0.039). They report that impacts on graduation rates are driven by White children at great disadvantage, as measured by their mothers low level of education (high school or less). The respective impacts on this subsample are 0.283 (s.e. 0.119) and 0.276 (s.e. 0.120). The overall sample graduation rates of 0.77 and 0.40 indicate that these impacts are substantial. Garces et al. (2002) also report that the impact on the arrest rate is driven by Black children at greatest disadvantage. The impact for them is -0.126 (s.e. 0.050) and the overall sample mean is 0.100. Carneiro and Ginja (2014) focus on male participants. Their results are consistent with those of other studies. For example, they report that, for males ages 20 to 21, Head Start reduces the probability of idleness by 9 percentage points (p-value < 0.1). This impact is larger for Black (17 percentage points) than for non-Blacks (7 percentage points). Other behavior and health index outcomes in their study display a similar pattern. Another example is De Haan and Leuven (2020). These authors develop methods for estimating the distributional impacts of Head Start. They find that Black and Hispanic individuals benefit the most from program participation, focusing on education and wage income.

Deming (2009), another widely cited study of Head Start, reports sizable impacts on grade retention, high school graduation, college education, employment, and health. All of them, except for the impact on employment, are driven by results for Black child participants. Thompson (2018) reports long-term impacts on college graduation, employment, health, and household income. His estimates by race are not imprecise. Notably, the impact on household

Table A.2. Preschool Policies Targeted to Disadvantaged Children and Life-Cycle Outcomes

	Garces et al. (2002) Head Start			Deming (2009) Head Start			Carneiro and Ginja (2014) Head Start			Thompson (2018) Head Start			Anders et al. (2022) Head Start			Anders et al. (2022) Smart Start		
	All	Black, Mother ≤ High School	White, Mother ≤ High School	All	Black	Non-Black	All	Black	Non-Black	All	Black	White	All	High poverty	Low poverty	All	High poverty	Low poverty
Grade Repetition	–	–	–	-0.069	-0.107	-0.027	–	–	–	–	–	–	–	–	–	–	–	–
	–	–	–	(0.040)	(0.056)	(0.059)	–	–	–	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
High School Graduation	0.037	0.000	0.283	0.086	0.111	0.055	0.090	–	–	–	–	–	–	–	–	–	–	–
	(0.053)	(0.071)	(0.119)	(0.031)	(0.041)	(0.048)	–	–	–	–	–	–	–	–	–	–	–	–
	{0.772}	–	–	–	–	–	{0.669}	–	–	–	–	–	–	–	–	–	–	–
Any College	0.092	0.031	0.276	0.057	0.136	-0.034	-0.018	–	–	–	–	–	–	–	–	–	–	–
	(0.056)	(0.067)	(0.120)	(0.036)	(0.049)	(0.050)	–	–	–	–	–	–	–	–	–	–	–	–
	{0.388}	–	–	–	–	– –	{0.462}	–	–	–	–	–	–	–	–	–	–	–
College Graduation	–	–	–	–	–	–	–	–	–	0.022	0.015	0.019	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	(0.013)	(0.016)	(0.020)	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	{0.180}	–	–	–	–	–	–	–	–
Arrested	-0.053	-0.126	0.058	0.019	0.051	-0.020	-0.114	-0.026	-0.136	–	–	–	-0.002	-0.013	0.003	-0.006	-0.012	0.003
	(0.039)	(0.050)	(0.095)	(0.040)	(0.050)	(0.062)	–	–	–	–	–	–	(0.003)	(0.006)	(0.003)	(0.003)	(0.005)	(0.004)
	{0.100}	–	–	–	–	–	{0.284}	{0.081}	{0.367}	–	–	–	{0.047}	{0.046}	{0.047}	{0.052}	{0.051}	{0.052}
Employment	–	–	–	0.070	0.030	0.123	0.090	0.171	0.070	0.005	-0.007	0.007	–	–	–	–	–	–
	–	–	–	(0.038)	(0.053)	(0.055)	–	–	–	(0.007)	(0.020)	(0.009)	–	–	–	–	–	–
	–	–	–	–	–	–	{0.888}	{0.750}	{0.913}	{0.870}	–	–	–	–	–	–	–	–
Good Health	–	–	–	0.070	0.047	0.094	–	–	–	0.046	0.047	0.058	–	–	–	–	–	–
	–	–	–	(0.026)	(0.035)	(0.043)	–	–	–	(0.015)	(0.029)	(0.022)	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	{0.750}	–	–	–	–	–	–	–	–
Household Income (2012 USD)	–	–	–	–	–	–	–	–	–	2,918	4,716	2,614	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	(1437.375)	(3524.000)	(1701.000)	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	{68,024}	–	–	–	–	–	–	–	–
Data	Panel Study of Income Dynamics			NLSY79 and cNLSY			NLSY79 and cNLSY			NLSY79			Administrative records			Administrative records		
Parameter	ATE (counterfactual is home care)			ATE (counterfactual is home care)			ITT			ITT			ITT			ITT		
Empirical Design	Exploits within-siblings variation in program take-up			Exploits within-siblings variation in program take-up			Regression-discontinuity design based on family-income eligibility cutoffs.			Difference-in-difference comparing individuals exposed to county-level Head Start availability to individuals without such exposure.			Difference-in-difference comparing individuals exposed to county-level Head Start availability in North Carolina to individuals without such exposure—observations are binned at county-tear level in application.			Difference-in-difference comparing individuals exposed to additional 1,000 per 0 to 5 child of county-level funding for Smart Start availability in North Carolina to individuals without such exposure—observations are binned at county-tear level in application.		
Cohorts	Birth years: 1964 to 1977			Birth years: 1970 to 1985			Birth years: 1977 to 1996			Birth years: 1957 to 1964			Birth years: 1955 to 1968			Birth years: 1980 to 1994		
Age when Outcome Measured	18 or above			19 or above			Males, 20-21			48 to 55			35 or older			24 or older		

Note: This table describes the main impact reported by study and type of preschool policy for the demographic subgroups in the label. The result for each outcome is reported together with study authors' preferred standard error (in parentheses) and mean (in curly brackets) for interpreting the statistical and economic significance of the reported impact.

labor income for Blacks is almost twice as large as the impact for Whites. Anders et al. (2022) focus on crime when studying Head Start in North Carolina and Smart Start, a closely related program. They report that Head Start decreases annual county-level criminal conviction rates by 0.013 (s.e. 0.006) in high-poverty counties, which have an average conviction rate of 0.046. They find essentially no impact for children in low-poverty counties.

The evidence on Head Start is consistent with our analyses of Perry and ABC in the main text. This is not surprising in light of the wide spread adoption of the Perry and ABC curricula in the Head Start program. This evidence suggests that Perry and ABC, suitably adapted, can be effectively scaled.

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