BROOKINGS

URBAN INSTITUTE

Child TRENDS

Social Genome Model

- A projection model from the prenatal period to early mid-life.
- Structured around key life stages and benchmarks of success for each stage.
- Parameters estimated separately by race/ethnicity and sex.
- Built from publicly available data.

Purpose

- Simulate policies or changes that might impact social mobility of the less advantaged.
- Compare different strategies within a single consistent framework, including program costs and individual benefits.
- Explore the potential impact of multiple interventions in different life stages.
- Generate descriptive data on pathways to success that can inform discussions in specific policy domains and life stages.
- Set a research agenda for the future.

Advisors—Model Rebuild

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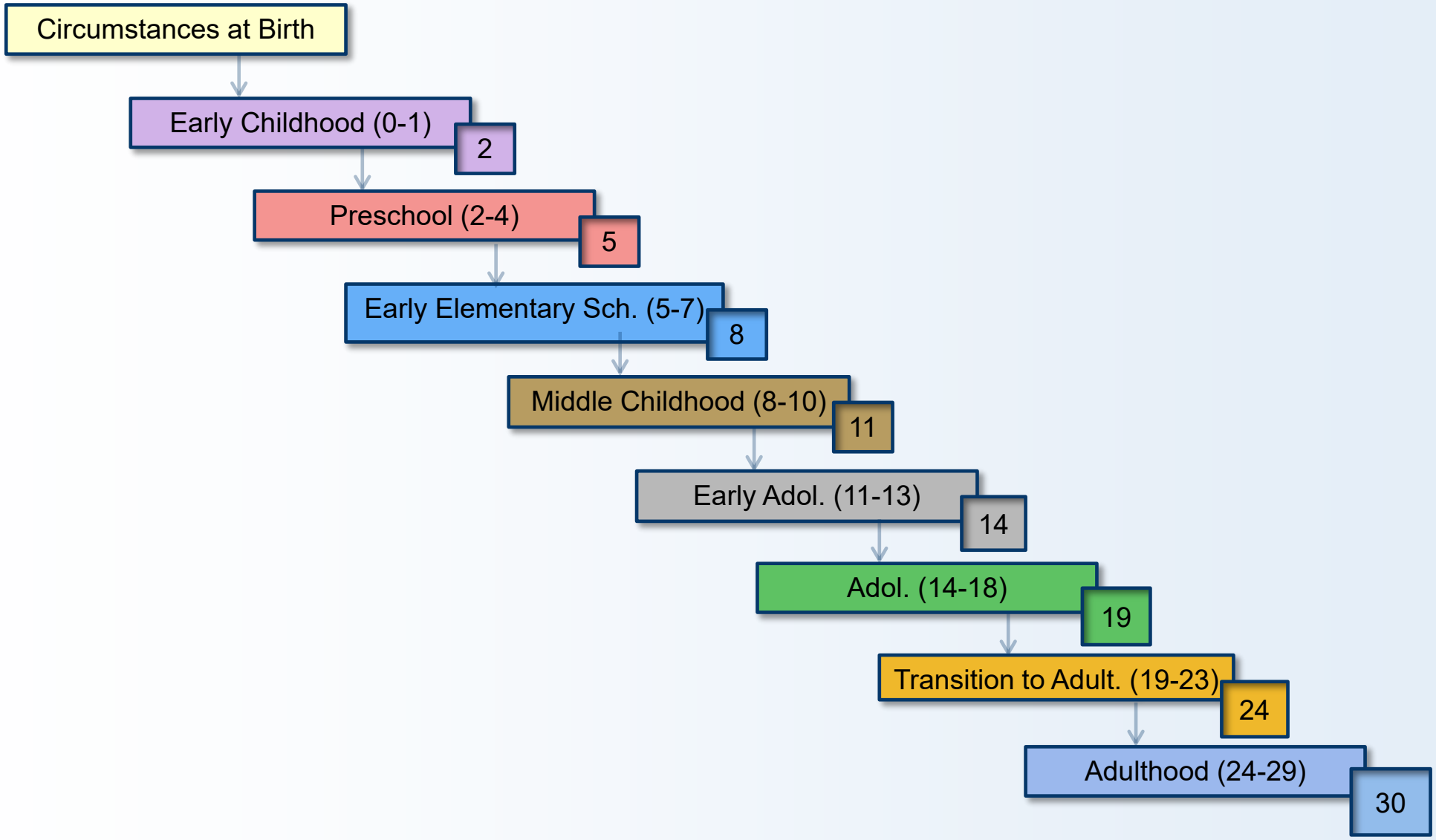
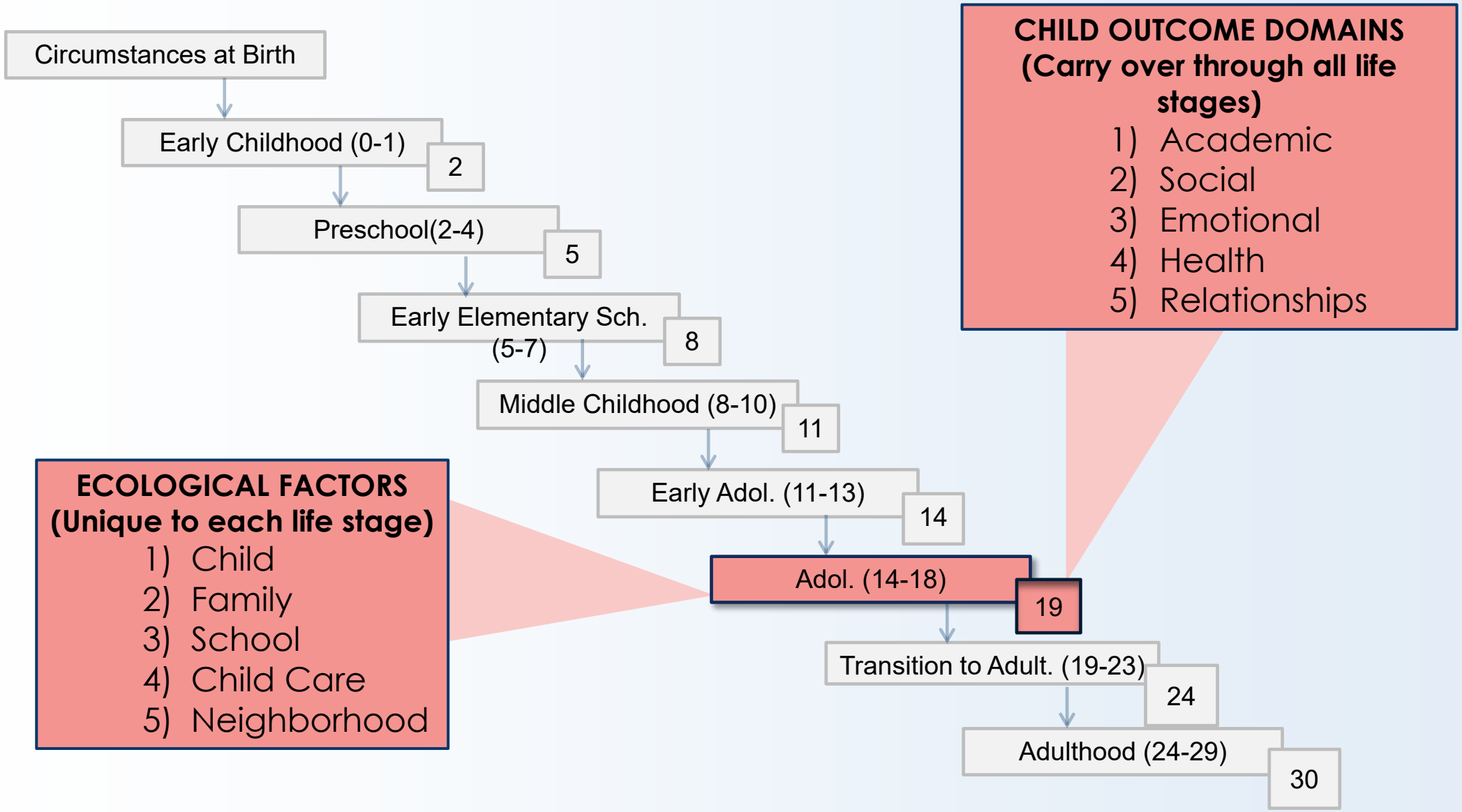
The Model



= indicates the age at which measurement is taken for a given stage

The Model



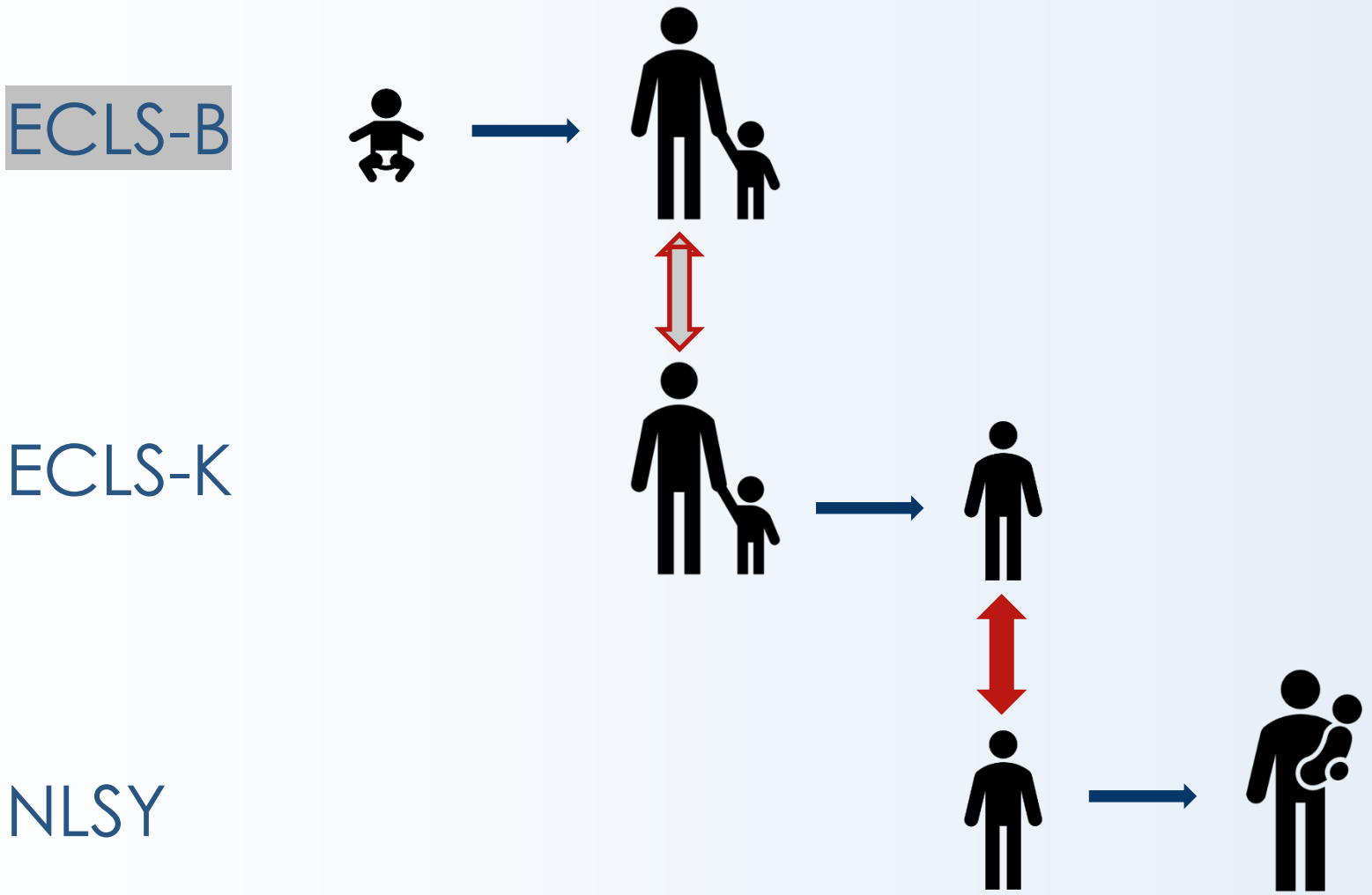
= indicates the age at which outcomes are measured for a given stage

Construction of the New SGM

- A matched panel of children from birth to age 30 built through matching techniques using data from three sources:

1. *Early Child Longitudinal Study, 2001 Birth Cohort (ECLS-B) (n~14,000)*
2. Early Child Longitudinal Study, 1998-1999 Kindergarten Cohort (ECLS-K) (n~22,000)
3. National Longitudinal Survey of Youth, 1997 (NLSY97) (n~8,900)

Matched Panel



Survey Rounds & Life Stages

Survey Round	Life Stage
NLSY97/ECLS-K *(ECLS-B 9-month)*	Circumstances at Birth
(ECLS-B 2-year)	*Early Childhood (age 2)*
ECLS-K *(ECLS-B 4-year)*	Preschool (age 5)
ECLS-K	Early Elementary Sch. (age 8)
ECLS-K	Middle Childhood (age 11)
ECLS-K/NLSY97	Early Adolescence (age 14)
NLSY97	Adolescence (age 19)
NLSY97	Transition to Adulthood (age 24)
NLSY97	Adulthood (age 30)

Simulations

- Simulate the potential effects of changes at different points of the life course on later life outcomes such as educational attainment, earnings at age 30, and lifetime earnings.
  - Direct simulation—changing something in the model
  - "Domino" simulation—changing something that then changes something in the model
  - Simulations to expand results from evaluations—scaling
  - "Aspirational" simulations

Adult Outcomes in the SGM

- Lifetime income
- Age 30 earnings
- AA/BA degrees
- Working for pay
- Criminal conviction
- Health status
- Poverty ratio
- Drinking before school/work
- Mental health
- In training/school
- No child in poverty

Benefits and Limitations of the Model

Limitations

- SGM is not a causal model and cannot be used to make causal conclusions.
- The regressions underlying the model are all linear.
- The longitudinal data used are older by design, in order to have data through age 30.
- The benefits are quantified for individuals, not for society.

Benefits and Limitations of the Model

Benefits

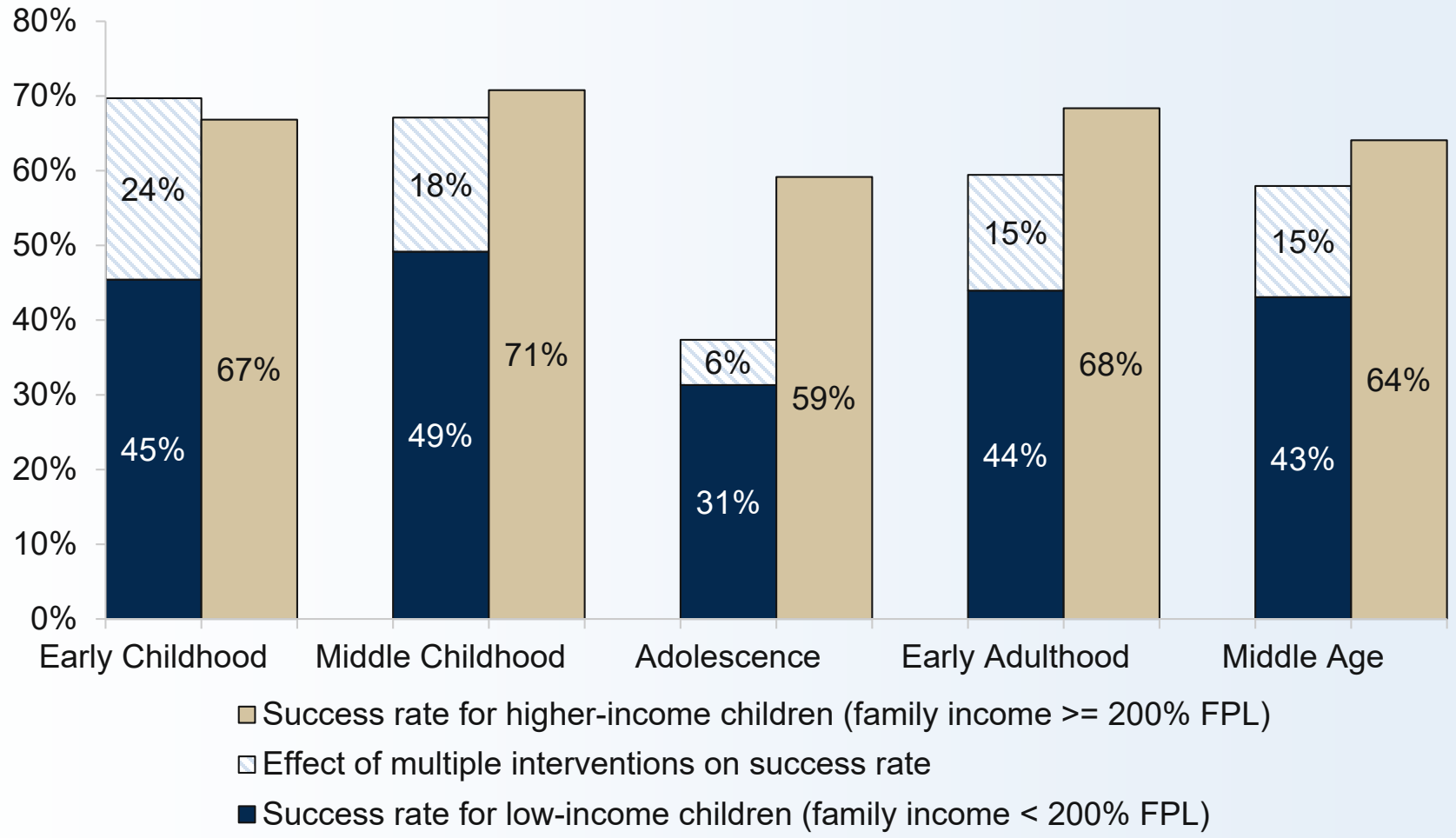
- SGM users can compare different interventions or what-if scenarios on the same outcomes.
- Users can estimate the additive effects of multiple program interventions (e.g., effect of early childhood plus elementary program).
- The model can project varied outcomes to age 30 and lifetime earnings to age 65.
- Model can show how effects vary by race/ethnicity and sex.

Sample Simulation

Example: Programs with Verified Short-Term Benefits

Life Stage	Intervention Model	Description	Level of Evidence	Adjusted Variable	Effect Size
Early Childhood	Home Instruction for Parents of Preschool Youngsters	Biweekly home visits and group meetings to instruct and equip parents to be effective teachers for their children	Meets the DHHS criteria for an evidence-based program model	Reading	0.75 SD
				Hyperactivity	-0.68 SD
	Preschool	High-quality center-based preschool programs that provide educational services to children directly	Meta-analysis of quasi-experimental and randomized studies of early childhood center-based interventions (Camilli et al., 2010).	Reading	0.45 SD
				Math	0.45 SD
				Antisocial Behavior	-0.20 SD
Middle Childhood	Social Emotional Learning	A broad range of interventions that focus on improving behavioral, emotional, and relational competencies	Highest-rated i3 development application (2013)	Reading	0.36 SD
				Math	0.27 SD
	Success for All	A school-wide reform program with a strong emphasis on early detection and prevention of reading problems	Highest-rated i3 scale-up application (2010)	Antisocial Behavior	-0.22 SD
Adolescent	Talent Development	A comprehensive high school reform initiative aimed at reducing student dropout rates	Highest-rated i3 validation application (2010)	Reading	0.32 SD
				Math	0.65 SD
SGM Target Population: Low-income children (family income < 200% FPL)					

Success Rates by Life Stage and Income at Birth After Interventions at Multiple Stages for Kids Born Low-Income

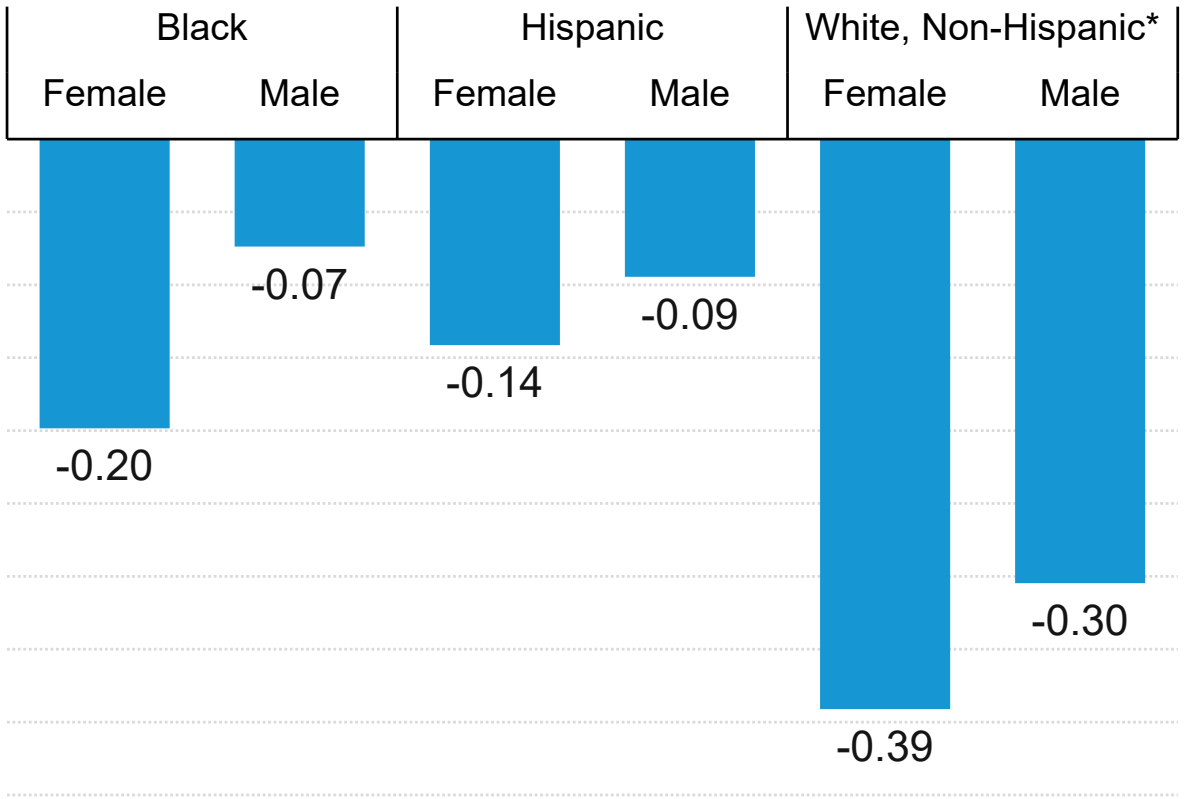


Summary of Results and Costs

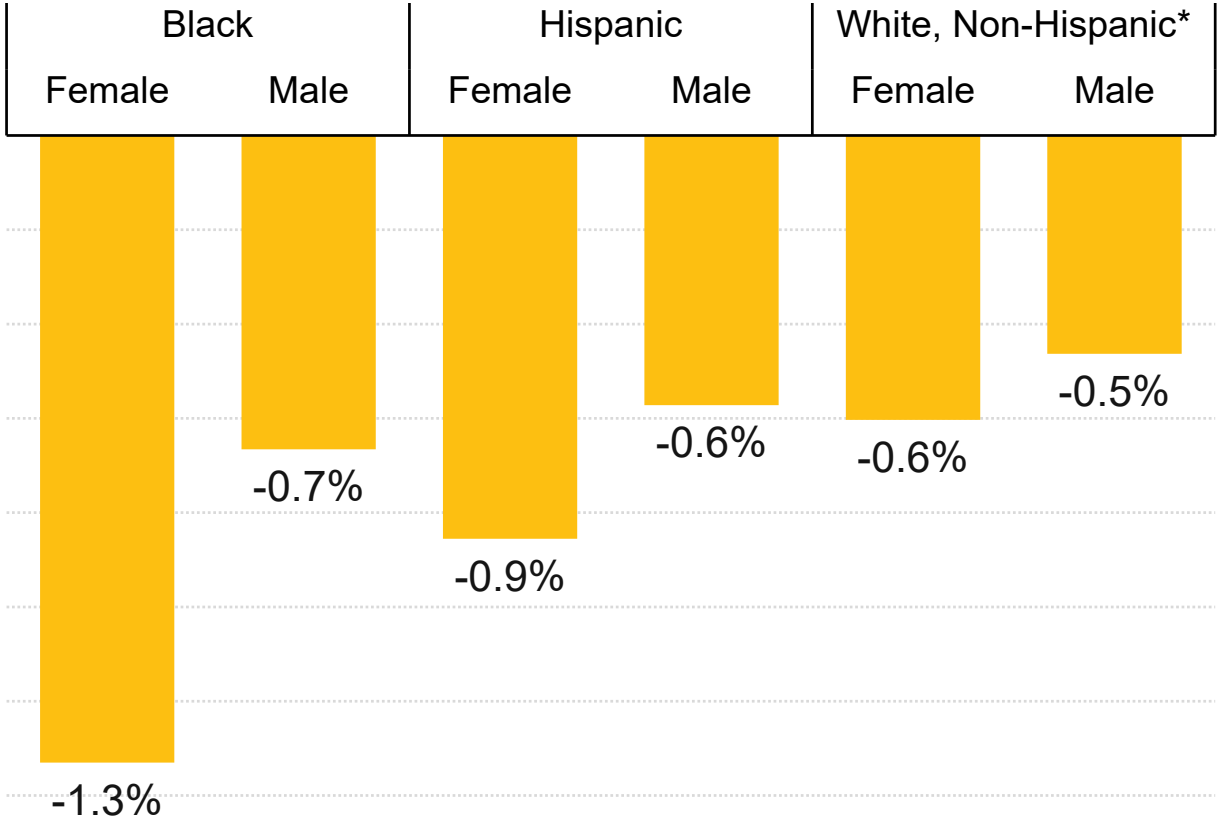
Intervention	Marginal Lifetime Income Effect	Cost Per Child
HIPPY (Age 0-3)	$43,371	$3,500
Preschool (Age 3-5)	$45,651	$8,100
SFA and SFA (Age 6-11)	$47,594	$8,100
Talent Development (Age 14-18)	$68,574	$1,400
Total	$205,189	$21,100

Example Simulation: COVID Learning Loss

- Modeling a **-0.075 standard deviation loss** in early adolescent ASVAB score (math and reading):



Percentage Point Decline in BA Attainment By Age 30



Percent Decline in Lifetime Income

Social Genome Team

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- **Brookings**
  - Isabel Sawhill, John Sabelhaus, and colleagues