Comparing the Long-Term Impacts of Different Child Well-Being Improvements

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Many factors affect children's well-being in adulthood. In this brief, we identify the life stages and aspects of children's development that provide the most leverage for improving their outcomes in adulthood. We aim to understand if devoting resources to children's health and social development yields greater or smaller benefits than devoting resources to their cognitive development, what aspects of a child's cognitive development play relatively larger roles in their adult outcomes, and how potential impacts vary across children's life stages.

We conduct our exploration of these questions using the Social Genome Model (SGM) version 2.1. The SGM is a lifecycle model that uses matched panel data to follow individuals from birth until age 30. The model includes variables across multiple domains (cognitive, behavioral and social, psychological and emotional, health, and relationships) in different life stages (birth, preschool, early elementary school, and middle childhood), allowing us to compare outcomes from changes to different factors at different points in time. The model also allows us to see how the factors associated with adult outcomes vary by race/ethnicity and sex.

To facilitate comparisons, we consider changes of roughly equal magnitude across children's developmental outcomes. For example, we consider the impact of a 0.5 standard deviation improvement in children's math and reading scores at multiple developmental stages. This exercise helps identify key leverage points to improve children's outcomes as adults, but it is only a first step in helping policymakers and practitioners decide when and where to target interventions. Once we identify key leverage points, it will be important to consider the cost and ease of achieving comparable impacts at different life stages and on different outcomes. For example, achieving a 0.5 standard deviation improvement in math scores may be easier or harder than achieving a similar increase in reading scores, and achieving such an increase may be easier at younger ages rather than older ages.[1]

We focus on earnings at age 30 as our primary adult outcome of interest for several reasons. First, age 30 is the latest that individuals are tracked in the SGM. Second, although having higher earnings does not necessarily mean someone will have good outcomes in other aspects of life, it can be a useful proxy measure given the strong relationship between higher income and other indicators of well-being, such as physical and mental health (Ettner 1996). Finally, earnings at age 30 are predictive of lifetime earnings (Björklund 1993; Justman and Stiassnie 2020). Although the correlation is not perfect, the outcome of earnings at age 30 provides insight into how someone will fare financially for the rest of their life.

Some of our key findings include the following:

- Improving math scores by 0.5 standard deviations for children up to age 12 is associated with larger increases on age-30 earnings than other equivalent improvements.
    - The impact of math scores on earnings increases as children age until age 12.
- Improving math scores raises earnings at age 30 for children of all races and ethnicities by roughly the same amount in most life stages, with Hispanic children consistently seeing the largest gains. Girls tend to see a higher earnings boost than boys.
- Improvements in health during childhood lead to larger adult earnings gains for Black and Hispanic children as compared with white children.[2]

Background

Researchers have long been interested in determining if and how investments in children's cognitive, physical, social, and emotional development can influence their well-being in adulthood. Answers are elusive because it requires detailed data on individuals from birth to adulthood. Despite the challenges, some studies have looked at the links between programs aimed at improving childhood outcomes and their relationship to aspects of well-being in adulthood.

Garcia and colleagues (2016) examine two interventions from North Carolina in the 1970s that enrolled children born to disadvantaged families into high-quality child care programs (using random assignment) that included medical care, nutrition, and social services. They find a substantial positive impact of the intervention on many adult outcomes measured in the participant's thirties, including educational attainment, earnings, and health. They also find that the impacts of attending one of the high-quality child care centers was much larger for boys than girls. For instance, boys who received the treatment earned between $19,000 and $24,000 more per year than the control group at age 30, while girls in the study group earned about $2,000 more than the control group. Scaling the high-quality child care intervention may be difficult, and not all interventions should be expected to have such large impacts. That being said, this research is a powerful indicator of the effects that improvements in early life can have.

Chetty and colleagues (2011) examined an experiment in Tennessee that randomly assigned children (from kindergarteners to third graders) to different classroom sizes to assess the impact of class size on school achievement. This enabled them to link the participants in the study with tax records, allowing them to see the children's long-term outcomes. First, the researchers document that a 1 percentile increase in test scores increases annual earnings by a little over $100. This shows the link between improvements in childhood and later outcomes. The study also finds smaller class sizes improve outcomes such as college attendance, reinforcing the idea that making improvements early in children's lives will lead to better outcomes down the road. Interestingly, the adulthood improvements show up even though the benefits of smaller classes faded in high school. These results demonstrate so-called "sleeper effects," meaning the mechanisms for improvement in adulthood are not necessarily straightforward and path-dependent, and that benefits from an intervention can surface later in life even after seemingly diminishing. Chetty and colleagues (2011) posit that these "sleeper effects" may in fact result from improvements in noncognitive skills that are not captured in the data, but they admit that they do not have strong evidence here.

In addition to studies looking at specific programs designed to benefit children, researchers have also looked at the correlation between childhood variables and adult outcomes using longitudinal surveys that follow people through the years. Dougherty (2003) uses the National Longitudinal Survey of Youth 1979 core sample to show that higher math and reading scores on the Armed Services Vocational Aptitude Battery (ASVAB) are associated with higher earnings. Respondents in the survey take the ASVAB test in their teens or early twenties, and the earnings are measured at age 30. Dougherty (2003) notes that, for adolescents, numeracy is more strongly associated with earnings than literacy.

Research also supports the relationship between higher test scores in childhood and increased earnings in adulthood. Looking at data from a longitudinal study in the United Kingdom, Crawford and Cribb (2013) find that an increase in age-10 reading scores of 1 standard deviation correlates with a 4 to 5 percent increase in earnings at age 30. Similarly, a rise of 1 standard deviation in math scores increases earnings by between 10 and 11 percent. Watts (2020) also examines the relationship between childhood test scores and adult earnings using data from the United Kingdom and finds that 1 standard deviation increases in math and reading scores are associated with age 50 earnings increases of 9 and 5 percent, respectively.

Although test scores have been the focus of many studies looking at the influence of childhood performance on adult earnings, some research has also included other factors. For instance, Duckworth and colleagues (2012) examine five studies that track both test scores and noncognitive outcomes for young teenagers. Their findings with test scores are consistent with the other research: a 1 standard deviation increase in math scores raises adult earnings by 10 to 15 percent; a 1 standard deviation increase in reading scores raises earnings by 9 to 11 percent. They also find that comparable improvements in prosocial behavior, absence of aggressive behavior, and absence of withdrawn behavior impact adult earnings, increasing adult earnings by about 5 to 6 percent each.

The studies reviewed above consist of just a portion of the research on the link between outcomes in childhood and outcomes in adulthood. Although it is well established that this link exists, comparing the impact of the change in one childhood variable to another is not always easy, nor is comparing a change at one point in a child's life to another point. We seek to facilitate those comparisons by simulating changes of similar magnitude in several variables at different points in children's lives.

Approach

We use the SGM version 2.1 to conduct our analysis.[3] The SGM is a lifecycle model built on a matched panel dataset providing information from birth until age 30. Because there is no recent, large, nationally representative, longitudinal dataset that follows people from birth to adulthood, we construct the dataset by using statistical techniques to match data from the Early Childhood Longitudinal Survey-Kindergarten Cohort (ECLS-K) and the National Longitudinal Survey of Youth 1997 Cohort (NLSY97). The SGM is structured by life stages. The ECLS-K covers preschool (age 5), early elementary school (age 8), and middle childhood (age 11); the NLSY97 provides the data for early adolescence (age 15), adolescence (age 19), transition to adulthood (age 24), and adulthood (age 30). The SGM also includes data from circumstances at birth, which is sourced retrospectively from the ECLS-K and NLSY97.[4]

For this analysis, we focus on how changes in the circumstances at birth, preschool, early elementary school, and middle childhood life stages affect outcomes in the adulthood life stage. The model contains variables from five different domains for each life stage. The domains are as follows:

- cognitive and academic development
- emotional and psychological development
- physical health and safety
- mental health
- social behaviors

We select a subset of variables to examine for this exercise, as shown in table 1.

TABLE 1

Childhood Variable Changes

Life stage	Variable changed	Amount of change
Circumstances at birth	Birth weight	Increased birth weight of all babies born under 5.5 pounds to 5.5 pounds
Circumstances at birth	Parents married at birth	Increased share of parents married at birth by 5 percentage points
Circumstances at birth	Mom has high school diploma	Increased share of moms with high school diplomas by 5 percentage points
Circumstances at birth	Mom's age at first birth	Increased age at which moms have their first birth to age 22, for all moms who have a first birth at younger than 22
Preschool	Math test score	Increased math test score by 0.5 standard deviations
Preschool	Reading test score	Increased reading test score by 0.5 standard deviations
Preschool	Health index	Improved health index by 0.5 standard deviations
Preschool	Parent–child relationship quality index	Improved parent–child relationship index by 0.5 standard deviations
Early elementary school	Math test score	Increased math test score by 0.5 standard deviations
Early elementary school	Reading test score	Increased reading test score by 0.5 standard deviations
Early elementary school	Health index	Improved health index by 0.5 standard deviations
Early elementary school	Parent–child relationship quality index	Improved parent–child relationship index by 0.5 standard deviations
Middle childhood	Reading test score	Increased reading test score by 0.5 standard deviations
Middle childhood	Health index	Improved health index by 0.5 standard deviations
Middle childhood	Parent–child relationship quality index	Improved parent–child relationship index by 0.5 standard deviations
Middle childhood	Peer relationship quality index	Improved peer relationship index by 0.5 standard deviations

Source: Authors' selection of variables from the Social Genome Model version 2.1.

Note: The health index is a standardized scale of health status. The parent–child relationship quality index is a standardized scale of responses to four items regarding parental relationship with child: have warm, close time together; child likes them; parent shows love; express affection to child. The peer relationship quality index is a standardized scale of self-described competence in peer relationships.

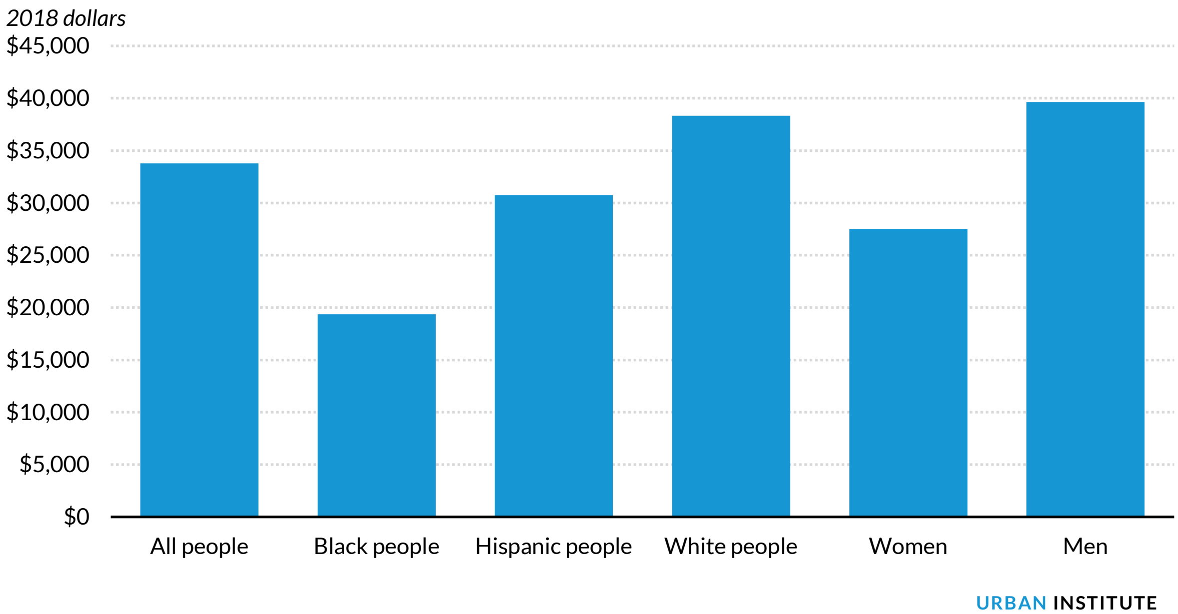
We simulate the change to each variable in each life stage separately so we can isolate the impacts of each change. We do not necessarily know which interventions cause these changes in childhood outcomes, but ample evidence suggests that it is possible to generate improvements in these areas.[5]

Findings

We use earnings at age 30 as our primary outcome measure. For each simulation where we change a childhood variable, we show the resulting percent change in earnings at age 30. We show percent change, rather than absolute dollar change, because it provides additional context when looking at subpopulations. For instance, a $500 increase for a subgroup with baseline earnings of $15,000 is more substantial in percentage terms than a $600 increase for a subgroup with baseline earnings of $25,000. Below we show average earnings at age 30 for the whole population and by race and sex (figure 1).

FIGURE 1

Baseline Earnings at Age 30



Source: Calculated from the Social Genome Model version 2.1.

Notes: Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans , and Alaska Natives—are included in the "white" category. For data by combined race and ethnicity and sex categories, see the appendix.

The average 30-year-old earns a little under $34,000 a year in 2018 dollars. However, earnings vary greatly between subpopulations. The average white 30-year-old person earns $38,000, while the average Black 30-year-old person earns about half that. The average for a Hispanic 30-year-old person falls between the averages for white and Black 30-year-old people. Due to the limited sample size of our dataset, we could not disaggregate race and ethnicity beyond these three categories. People of other races—including Asian Americans and Pacific Islanders, American Indians, and Alaska Natives, and people of other or multiple races—are included in the "white" category. Additionally, men earn about $12,000 more than women at age 30, on average. For comparison, in the 2018 American Community Survey data, the average 30-year-old person earns about $36,000; the gap between white people and

Black people is slightly smaller than in the SGM, at about $14,000, and the gap between men and women is about $11,000 (Ruggles et al. 2023).[6]

Circumstances at Birth

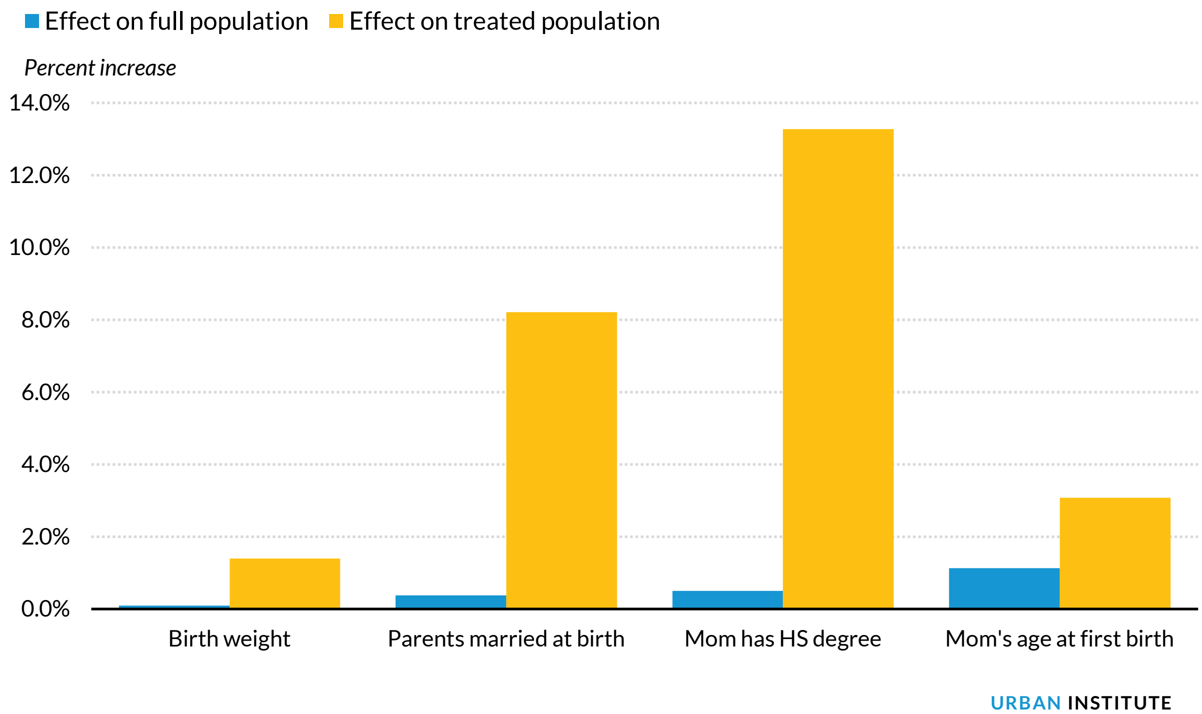
Figure 2 shows the percent change in age-30 earnings resulting from changes in children's circumstances at birth. Each simulation has two results; the first is the effect on the full population, including those whose circumstances we did not change, and the second is the effect only on the group of people with new circumstances, known as the "treatment effect on the treated." The former results show more modest, population-level effects, while the latter show direct impacts on those whose circumstances improve.

Increasing the share of mothers with high school degrees raises children's earnings at age 30 by an average of 0.5 percent for the full population and by over 13 percent for the treated group. The only simulation that increases average earnings for the full population by more than 1 percent is raising the age at which mothers had their first birth from below 22 to 22, but the impact of the "treatment on the treated" is not large. Rather, this simulation shows relatively larger population level effects because many children have mothers who had their first birth before 22. Increasing the birth weight of all babies born below 5.5 pounds to 5.5 pounds has the smallest impact on both the full population and the treated population. This simulation raises adulthood earnings by just 0.1 percent on average for the full population and by 1.4 percent for the treated population.

FIGURE 2

Increase in Earnings at Age 30 from Circumstances at Birth Simulations

All races/ethnicities



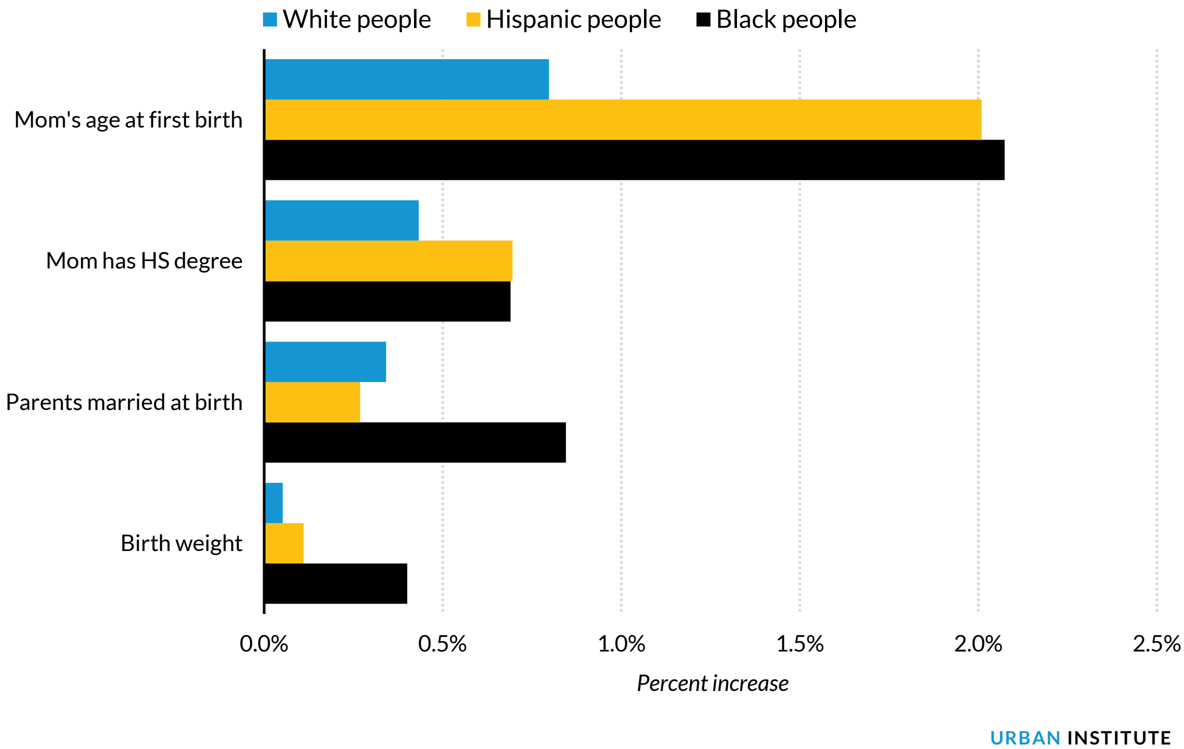
Source: Calculated from the Social Genome Model version 2.1.
Notes: HS = high school. The "mom's age at first birth" simulation increases the age at which a mother had her first child to 22, for all mothers whose first child was born before they were 22 years old. The "mom has HS degree" simulation increases the share of moms with high school degrees by 5 percent. The "parents married at birth" simulation increases the share of parents who were married at the birth of their child by 5 percent. The "birth weight" simulation increases the birth weight of all babies born below 5.5 pounds to 5.5 pounds.

Next, we focus on full population-level findings by race and ethnicity (figure 3). Although raising the age at which mothers had their first child to 22 would have a limited impact on the population overall, Hispanic and Black children benefit disproportionately from this change, in part because Black and Hispanic mothers are more likely to have children before age 22 than white mothers. Increasing their mother's age at first birth to 22 raises earnings for all Black and Hispanic children by about 2 percent. This is more than twice as big as the impact on earnings in adulthood for white children. Increasing the share of parents who were married at birth and raising birth weight both had large impacts on Black children relative to white and Hispanic children. All three groups benefited roughly equally from the simulations that increased mother's education. Breaking the results out by race/ethnicity allows us to see what changes may reduce racial and ethnic disparities in adult earnings.

FIGURE 3

Increase in Earnings at Age 30 from Circumstances at Birth Simulations

By race/ethnicity



Source: Calculated from the Social Genome Model version 2.1.

Notes: HS = high school. The "mom's age at first birth" simulation increases the age at which a mother had her first child to 22, for all mothers whose first child was born before they were 22 years old. The "mom has HS degree" simulation increases the share of moms with high school degrees by 5 percent. The "parents married at birth" simulation increases the share of parents who were married at the birth of their child by 5 percent. The "birth weight" simulation increases the birth weight of all babies born below 5.5 pounds to 5.5 pounds. Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

Childhood

We simulated changes in the three childhood life stages: preschool, elementary school, and middle childhood. These stages are centered around ages 5, 8, and 11, respectively. For each simulation, we increased or improved the childhood variable by half of a standard deviation. Unlike the circumstances at birth life stage, the changes made in the childhood life stages are applied to everyone in the population. Therefore, there is no distinction between results for the whole population and the results for the "treatment on the treated" (table 2).

TABLE 2

Increase in Earnings at Age 30 from Childhood Simulations

All races/ethnicities

	Math test score (%)	Reading test score (%)	Parent–Child relationship quality (%)	Health (%)	Peer relationship quality (%)
Preschool	2.5	0.9	0.6	0.7	N/A
Early elementary school	2.9	0.7	0.5	0.6	N/A
Middle childhood	3.5	0.5	N/A	0.7	0.6

Source: Calculated from the Social Genome Model version 2.1.
Notes: Each variable was improved by 0.5 standard deviations.

In each of these life stages, improving math scores by half of a standard deviation has the greatest influence on age-30 earnings. The impact of math scores also increases as children get older, as a half standard deviation increase in preschool raises earnings by 2.5 percent, while a half standard deviation increase in middle childhood raises earnings by 3.5 percent. A 3.5 percent increase corresponds to about $1,200 per year in additional earnings for the average adult. Although changing math scores has a larger impact as children get older, the benefit of improving reading scores diminishes, falling from 0.9 percent (about $300) to 0.5 percent (less than $200) from ages 5 to 11. We do not have an immediate explanation for these nonlinearities in effect sizes. It is possible that achieving basic literacy is predictive of higher earnings, but improvements in reading ability beyond that are less important.

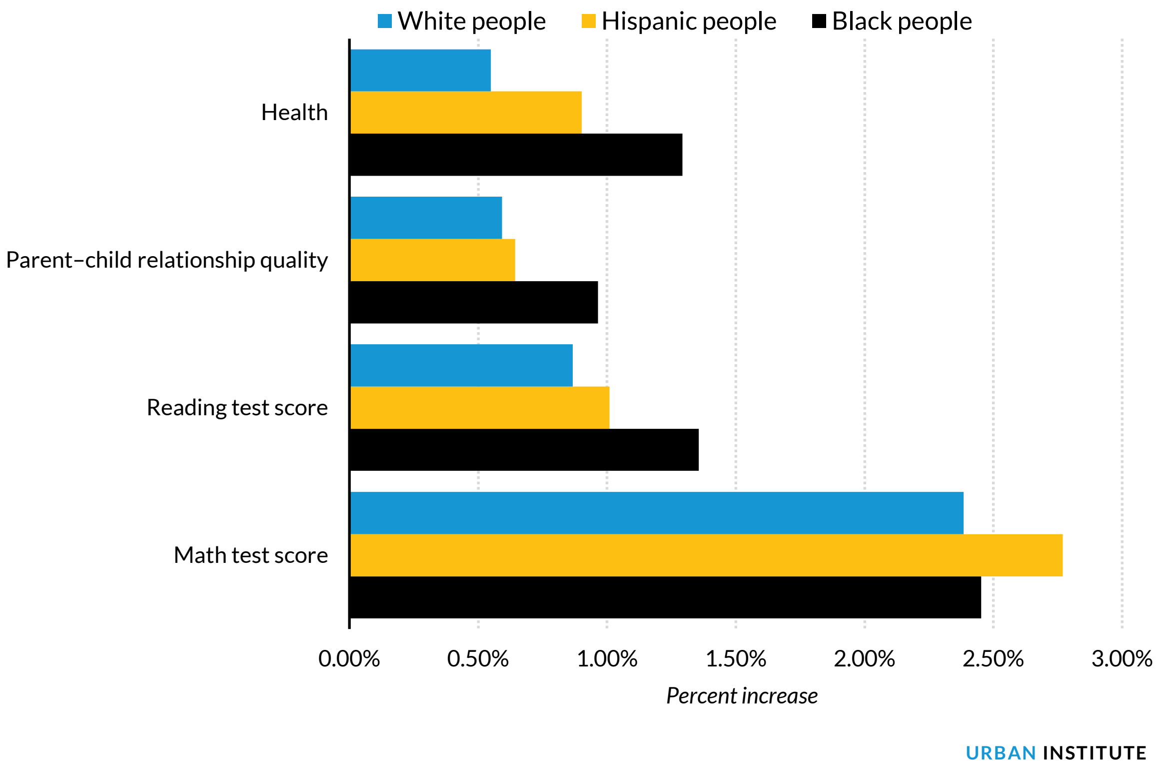
In contrast to math and reading scores, the effects of the two measures of relationships and the measure of health on age-30 earnings are relatively consistent and modest throughout the three life stages.

Improving math scores in preschool has roughly the same effect on age-30 earnings for each racial/ethnic group (figure 3). Each of the three other variables cause adulthood earnings to increase by relatively more for Black and Hispanic children than for white children. For instance, the impact of health is 2.3 times as large for Black children as it is for white children, and 64 percent as large for Hispanic children as it is for white children. Black children also see greater earnings increases from rises in reading scores and quality of parent–child relationships than white children.

FIGURE 4

Increase in Earnings at Age 30 from Preschool Simulations

By race/ethnicity



Source: Calculated from the Social Genome Model version 2.1.

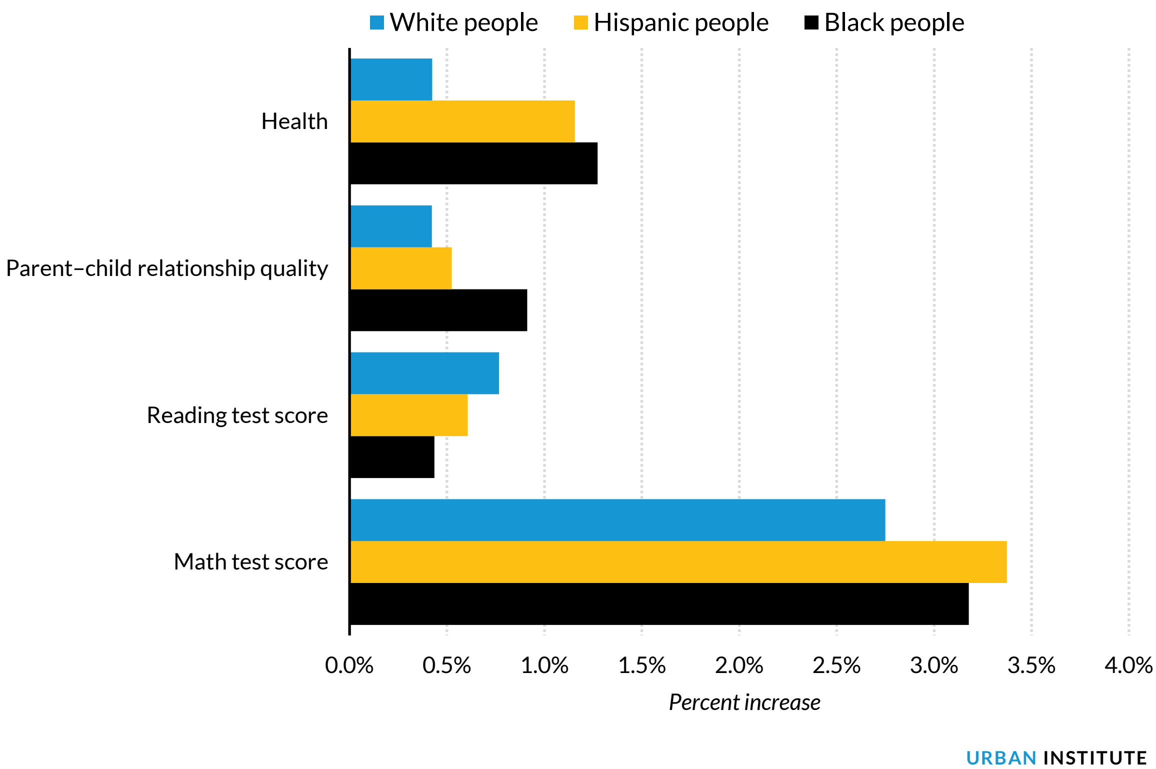
Notes: Each variable was improved by 0.5 standard deviations. Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

In the subsequent life stage, early elementary school, patterns are fairly similar to those at preschool (figure 5). Math scores continue to have the biggest impact on adulthood earnings and again have similar effects for each group. In this life stage, reading test scores are less important for Black children than they are for Hispanic and white children. Improving health raises the adulthood earnings of Black and Hispanic children by more than a percent, while it only raises the adulthood earnings of white children by 0.4 percent. In this life stage, parent–child relationship quality matters more for adulthood earnings of Black children than for children of other races/ethnicities.

FIGURE 5

Increase in Earnings at Age 30 from Early Elementary School Simulations

By race/ethnicity



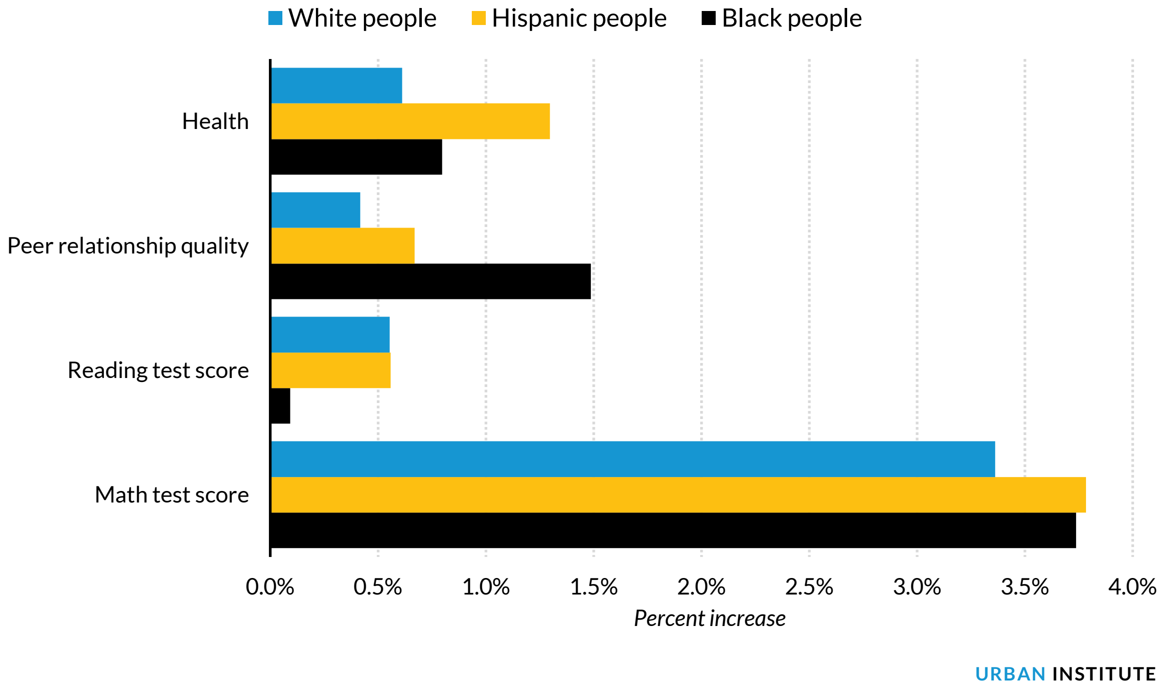
Source: Calculated from the Social Genome Model version 2.1.
Notes: Each variable was improved by 0.5 standard deviations. Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

Finally, we look at how changes to variables in middle childhood impact earnings at age 30 (figure 6). Once again, improving math scores has similar impacts for each of the three groups and has by far the largest effect among the four variables considered for each group. Better health raises earnings at age 30 for Hispanic children by 1.3 percent, which is a much larger effect than for either white or Black children. In this life stage, we use a measure of the child's self-assessed competence in peer relationships instead of the measure of parent–child relationship quality because of a high percentage of missing data in the parent–child relationship variable. A half standard deviation improvement in this variable increases adulthood earnings for Black children by 1.5 percent, far more than for white and Hispanic children. Improving reading scores at this life stage does not matter much for adulthood earnings for children of any race/ethnicity.

FIGURE 6

Increase in Earnings at Age 30 from Middle Childhood Simulations

By race/ethnicity



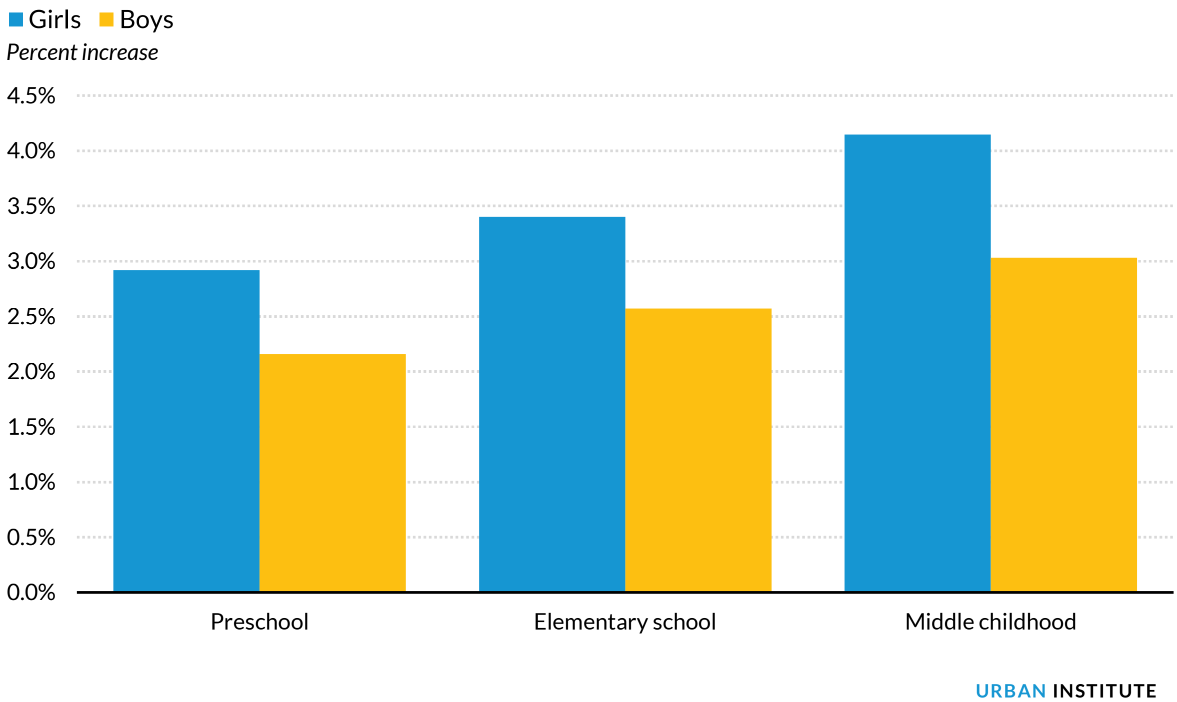
Source: Calculated from the Social Genome Model version 2.1.
Notes: Each variable was improved by 0.5 standard deviations. Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

Although we find differences in the childhood factors influencing adult earnings between racial and ethnic groups, the effects do not vary greatly by sex for most variables. Two notable exceptions are parent–child relationships and math scores. Parent–child relationship quality has almost no impact on girls' adulthood earnings, ranging from 0.1 percent to 0.3 percent, while it has a modest impact on boys' age-30 earnings of between 0.7 percent and 0.9 percent. On the other hand, girls see a greater increase in adulthood earnings from an improvement in math scores than boys, at every life stage (figure 7). The difference is greater than three-quarters of a percentage point in each life stage.

FIGURE 7

Increase in Earnings at Age 30 from Childhood Math Score Simulations

By sex



Source: Calculated from the Social Genome Model version 2.1.
Notes: Each variable was improved by 0.5 standard deviations.

Discussion

By considering what matters—and when—as children grow into adulthood, our results can help policymakers choose among interventions aimed at benefiting children in the short and long term. For instance, if a locality or state had the choice between equivalent improvements in students' math and reading test scores, our findings suggest improving math test scores would have a substantially greater impact later in life. That being said, policymakers will still need to consider the relative costs of equivalent improvements in math and reading to assess the cost effectiveness of alternative approaches.

Not only can this work give clues as to what areas can be targeted early in life to improve later life outcomes, but it can also reveal when those areas should be targeted. As noted, raising math scores in each of the three childhood life stages has a large effect on adulthood earnings. However, the impact is largest in the middle childhood life stage. The difference between increasing math scores by half a standard deviation in middle childhood versus preschool corresponds to about $300 in annual earnings at age 30 for each person. Thus, given the choice, and assuming equal costs, improvements to math scores later in childhood are more effective than improvements earlier.

This analysis does more than just allow policymakers and others to see the overall earnings increases that could come from improvements to childhood measures; it also gives insight into what changes can be made to narrow gaps between children of different races/ethnicities. As an example, in middle childhood, improving reading test scores increases earnings in adulthood for white children more than for Black and Hispanic children. In fact, this intervention has almost no effect on the age-30 earnings of Black children and would lead to a widening of the Black–white earnings gap. If instead there were an intervention to improve peer relationship quality, children of all three races/ethnicities would benefit, and the Black–white earnings gap would become slightly smaller.

Another area to focus on for increasing equity by race/ethnicity is in child health. In each of the three childhood life stages, improving the health of children raised earnings by relatively more for Black and Hispanic children than for white children. Although there is no health variable in the circumstances at birth life stage, the birth weight variable most closely matches to health and again has a bigger effect on the adulthood earnings of Black children than white children, though this may be largely because more Black children have low birth weight. This finding is echoed in the literature. For example, Amis, Hussey, and Okunade (2014) find that being obese during adolescence correlates with lower earnings in adulthood and that the effect is stronger for Black people than people of other races/ethnicities.

Our analysis also provides insight into the earnings gap between men and women. Increasing math scores in childhood consistently raises the adulthood earnings of girls by a greater percentage than the earnings of boys. However, in absolute dollar terms, increasing math scores raises boys' earnings at age 30 by a little more than girls', meaning that a half-standard deviation increase in math scores would slightly widen the absolute-dollar gender wage gap. Policymakers may consider this an acceptable tradeoff given how large the increases in earnings are for both sexes.

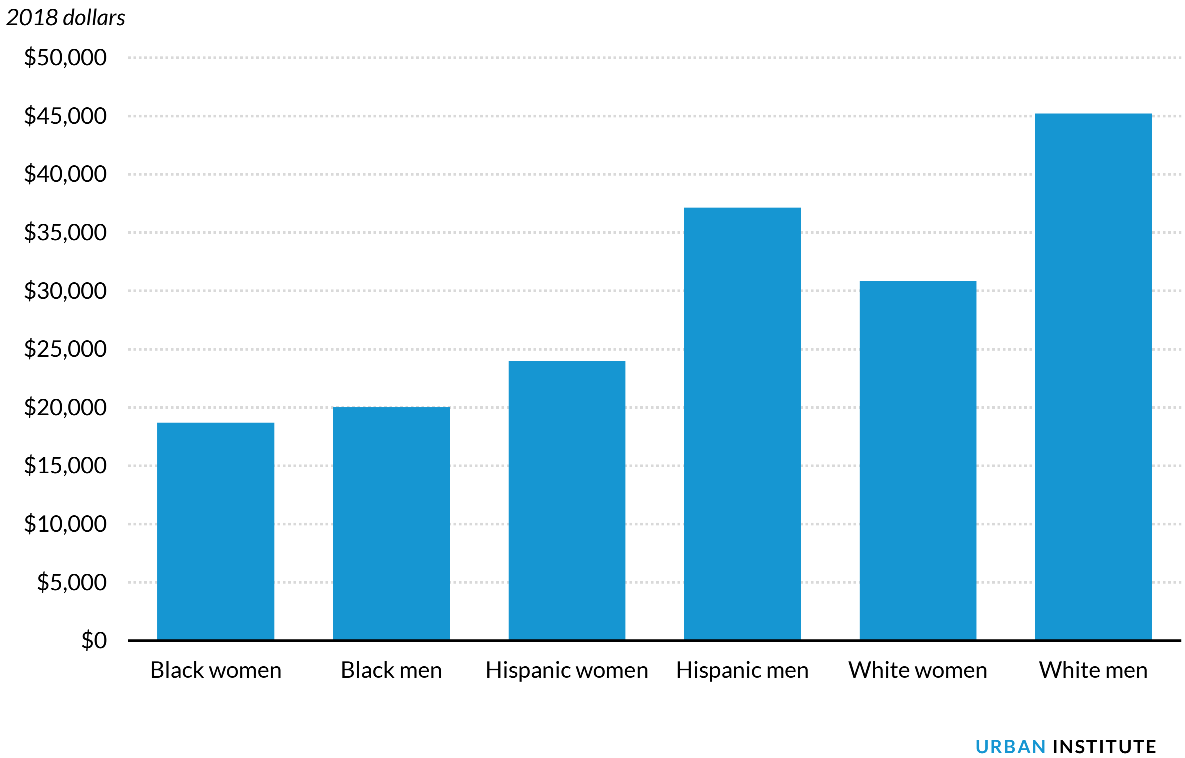
We hope that the results presented in this brief offer useful insights for those interested in improving the long-term well-being of children.

Appendix

FIGURE A.1

Baseline Earnings at Age 30

By race/ethnicity and sex



Source: Calculated from the Social Genome Model version 2.1.

Notes: Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

TABLE A.1

Increase in Earnings at Age 30 from Circumstances at Birth Simulations

By race/ethnicity and sex

	Birth weight (%)	Parents married at birth (%)	Mom has HS degree (%)	Mom's age at first birth (%)
Black women	0.4	1.2	1.0	2.3
Black men	0.4	0.5	0.4	1.9
Hispanic women	0.1	0.3	0.4	2.3
Hispanic men	0.1	0.2	0.9	1.8
White women	0.1	0.4	0.5	1.0
White men	0.0	0.3	0.4	0.7

Source: Calculated from the Social Genome Model version 2.1.

Notes: HS = high school. The "mom's age at first birth" simulation increases the age at which a mother had her first child to 22, for all mothers whose first child was born before they were 22 years old. The "mom has HS degree" simulation increases the share of moms with high school degrees by 5 percent. The "parents married at birth" simulation increases the share of parents who were married at the birth of their child by 5 percent. The "birth weight" simulation increases the birth weight of all babies born below 5.5 pounds to 5.5 pounds. Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

TABLE A.2

Increase in Earnings at Age 30 from Preschool Simulations

By race/ethnicity and sex

	Math score (%)	Reading score (%)	Parent–child relationship quality (%)	Child health (%)
Black women	2.9	1.4	0.6	1.5
Black men	2.0	1.4	1.3	1.1
Hispanic women	3.8	0.8	0.7	1.1
Hispanic men	2.2	1.2	0.6	0.8
White women	2.7	1.1	0.2	0.6
White men	2.2	0.7	0.9	0.5

Source: Calculated from the Social Genome Model version 2.1.

Notes: Each variable was improved by 0.5 standard deviations. Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

TABLE A.3

Increase in Earnings at Age 30 from Early Elementary School Simulations

By race/ethnicity and sex

	Math score (%)	Reading score (%)	Parent–child relationship quality (%)	Child health (%)
Black women	4.1	0.4	0.6	1.2
Black men	2.3	0.4	1.2	1.3
Hispanic women	4.3	0.9	0.5	0.5
Hispanic men	2.8	0.4	0.6	1.5
White women	3.1	0.9	0.0	0.4
White men	2.5	0.7	0.7	0.4

Source: Calculated from the Social Genome Model version 2.1.

Notes: Each variable was improved by 0.5 standard deviations. Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

TABLE A.4

Increase in Earnings at Age 30 from Middle Childhood Simulations

By race/ethnicity and sex

	Math score (%)	Reading score (%)	Peer relationship quality (%)	Child health (%)
Black women	4.6	0.1	2.7	0.9
Black men	2.9	0.1	0.4	0.7
Hispanic women	4.5	0.9	0.2	0.5
Hispanic men	3.4	0.3	0.9	1.8
White women	4.0	0.4	0.3	0.5
White men	3.0	0.6	0.5	0.7

Source: Calculated from the Social Genome Model version 2.1.

Notes: Each variable was improved by 0.5 standard deviations. Due to sample size restrictions in the source data, people of other races not listed—including Asian Americans, Pacific Islanders, Native Americans, and Alaska Natives—are included in the "white" category.

Notes

1. For example, Hill and colleagues (2008) show that larger improvements in cognitive test scores are more common in early elementary school than in high school.
2. When discussing racial and ethnic differences, the term "white" refers to those who are neither Hispanic nor Black, "Black" refers to those who are Black, non-Hispanic, and Hispanic refers to those who are non-white, non-Black Hispanic.
3. The Social Genome Model is a regression-based, life cycle simulation model of human development. For a more detailed description of the model and technical documentation, see Werner et al. 2022.

[4] The NLSY97 asks respondents, who are between the ages of 12 and 18, about their circumstances at birth, including mother's education and parents' marital status. The ECLS-K asks about birth weight.

[5] For example, Acs and colleagues (2016) consider five interventions that show strong effects on the cognitive and behavioral outcomes of children based on high quality experimental or quasi-experimental evaluations.

[6] We tabulated salary and wage earnings from the 2018 American Community Survey as a benchmark for the SGM. We accessed the data via IPUMS; see Ruggles and colleagues (2023) for more information.

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ABOUT THE SOCIAL GENOME PROJECT

The Social Genome Model, originally developed by Isabel Sawhill at the Brookings Institution, is now a partnership between the Brookings Institution, Child Trends, and the Urban Institute. The current version of the model (2022) was developed by Child Trends and Urban under grants from the Chan Zuckerberg Initiative and the Bill & Melinda Gates Foundation. Learn more at https://www.urban.org/research/data-methods/data-analysis/quantitative-data-analysis/microsimulation/social-genome-project.

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