The Bridgespan Group

Overview of Estimated Returns on Six Big Investments and Their Impacts on Lifetime Earnings

"Billion Dollar Bets" to Create Economic Opportunity for Every American

By Devin Murphy, Michelle Boyd, and Debby Bielak

With the goal of motivating a broader swath of philanthropists to make well-informed, actionable "big bets" to catalyze social change, The Bridgespan Group launched an ambitious research project in partnership with Bridgespan Fellow Jim Shelton. Our intent: determine how private donors can best invest to increase upward social mobility for millions of low-income Americans.

Because of a web of complex drivers that range from macroeconomic forces to failing public systems to structural racism, social mobility has largely stagnated in the United States for nearly half a century. Children who are growing up poor today are just as likely to stay poor in adulthood as their grandparents were. That discouraging fact propelled our research.

Working with an advisory board comprised of 18 leaders of foundations, think tanks, and nonprofits, Bridgespan has distilled the best available research from over 200 reports, policy briefs, and books to create a resource for donors. In addition, we interviewed dozens of experts and convened diverse groups of practitioners to test theories against on-the-ground realities. Finally, we appealed to the general public for ideas and received nearly 50 concept papers in response. Our collective efforts generated a list of 15 actionable ideas to enhance social mobility for low-income Americans. We developed six of these ideas in-depth, working with field experts and practitioners to create roadmaps for making large-scale investments.

Using the conceit of $1 billion as the full limit of investment, each of the concepts seeks to outline opportunities that provide greater leverage than scaling existing (and often costly) direct-service organizations. These approaches include:

- Support the scaling of low-cost technology applications that help very young children develop

- Shift market incentives and support providers as they make the transition from "seat time" and degrees based on a series of courses to degrees and credentials based on the skills that students actually develop

- Incent government behavior through a grant competition to reduce conviction and incarceration rates

- Influence funding flows and healthcare provision by promoting access to long-acting reversible contraceptives (LARCs) and providing training to expand family counseling among primary care providers

- Support greater economic integration of communities by buttressing housing-voucher programs with additional mobility assistance supports and removing blighted conditions in distressed neighborhoods

- Shape government oversight and funding so it's aligned with evidence-based outcomes

We have developed concept papers that add context to each of the approaches. Additionally, each paper highlights philanthropy's unique capacity to catalyze upward mobility; defines the ideal state the investments are designed to achieve; unpacks the investments and the risks; estimates the impact on people's lifetime earnings; and breaks out the costs.

Part of our intent in developing the six concepts was to ground the ideas by assessing the potential return on investment (ROI) that could be achieved through innovative approaches to using philanthropic capital. Given the current level of evidence and the fact that the bets rely on predictions of future changes in private markets, public policy, and government funding, by no means are these estimates precise. Rather, they are designed to provide a sense of what's possible when large investments aim to change public systems, markets, and collective behavior so as to increase upward mobility for many more low-income Americans.

The estimates are built on several assumptions:

- Each bet requires a leap of faith that multiple actors will work in a coordinated fashion for as long as ten years.

- In many instances, we have modelled the investments on the best available research (for example, randomized control trials, meta-analyses of evaluations, observational studies), as well as results from initiatives that are still ongoing. We recognize that these studies do not perfectly mirror what each bet proposes. As a result, we have made several additional assumptions that may not play out:

  - The bets assume that the outcomes from smaller initiatives and pilot programs could be replicated by scaled initiatives that span the entire country. Thus, the encouraging results from bespoke initiatives comprise the upper bound for our estimates.

  - In some instances, we have relied on observations of randomized control trails that while rigorous, have not yet been replicated. If we had multiple RCTs with the same results, we would have more confidence in our estimates. But with limited evaluation and testing, we do not yet know the degree to which variations in outcomes might impact the estimates.

  - Across the bets, we have used proxies for indicators in the Social Genome Model (for example, academic assessments that are tied to specific interventions for helping children develop, rather than the model's Peabody Individual Achievement Test for very young children). Because we don't always have the data for the specific measure in the Social Genome Model, it's unclear whether using a different measure (in other words, a proxy) affects the model.

Given the above assumptions, we have estimated a range of potential ROIs. The ROIs reflect what we believe is a feasible set of outcomes for each bet.

There is also an array of exogenous factors that present each bet with additional challenges. These factors include failures of design and the emergence of new

interventions, failure to ensure that the bets play out according to the over-arching strategies, conflicting incentives, and political gridlock that hinders or even blocks the intervention. The table below presents the range of returns on investment and summarizes the key risks.

Bet	Potential returns	Risks involved
Increase early childhood development	**$5.5B to $11B** in increased lifetime earnings of children who are kindergarten ready	• **Innovation failure:** inability to develop effective tech-enabled tools • **Adoption failure:** insufficient demand for tools
Establish clear and viable pathways to careers	**$7.3B to $14.7B** in increased lifetime earnings of young people who enter career pathways with new credentials	• **Insufficient incentives:** new models do not provide sufficient pressure to shift focus to competency-based credentials
Decrease rates of over-criminalization and over-incarceration	**$4.3B to $8.6B** in increased lifetime earnings of young people who will be diverted from criminal convictions	• **Implementation and political risks:** entrenched political forces do not support shifts in policies or alternatives to incarceration
Reduce unintended pregnancies	**$3.2B to $6.4B** in increased lifetime earnings of children born at the appropriate time for healthy family formation	• **Political backlash:** significant risk of political opposition
Create place-based strategies to ensure access to opportunity across regions	**$4.5B to $8.5B** in increased lifetime earnings of children who move to a new neighborhood with greater economic and educational opportunities	• **Implementation risk:** becomes difficult to implement coordinated strategies across regions • **Political backlash:** residents fight against integration of neighborhoods
Build the continuous learning and improvement capacity of social service delivery	**$3B to $6.1B** in increased lifetime earnings of children improving academic and behavioral outcomes *(illustrative)*	• **Implementation risk:** participating organizations are unable to overcome challenges to sharing data • **Political backlash:** pushback against evaluating programs based on efficacy (i.e., politicians' pet programs)

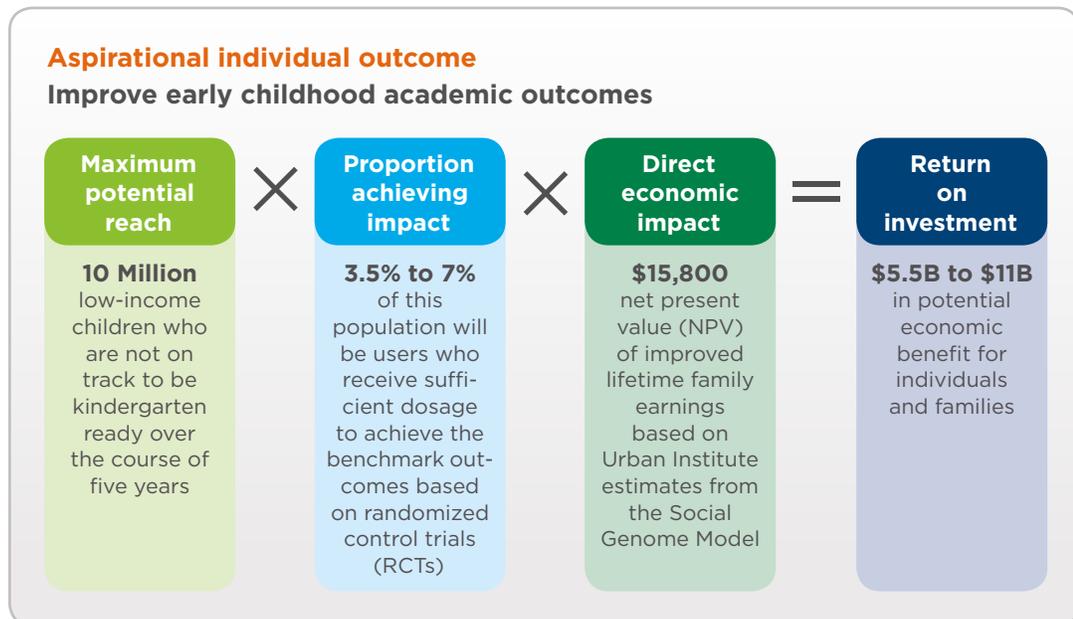To estimate the return on each investment, we developed a simple formula:

Maximum Potential Reach x Proportion Achieving Impact x Direct Economic Impact = ROI

In other words, we consulted various experts and a range of literature to evaluate each intervention and estimate the maximum population that each investment could potentially reach. We then multiplied the maximum population by the portion of the population that the investment could effectively target. Next, we partnered with the Urban Institute to use the Social Genome Model to estimate the intervention's direct impact on the lifetime earnings of those affected. Finally, we multiplied the direct economic impact by the portion of the population that would fully benefit from the intervention.

In the pages that follow, we have outlined the assumptions behind each of the six concepts and the process we used to calculate each bet's ROI.

Increase Early Childhood Development

Concept: Create and scale a suite of tech-enabled tools that can be used by parents, informal caregivers, daycare center providers, and pre-K instructors to support the healthy development of children

Aspirational individual outcome
Improve early childhood academic outcomes

Maximum potential reach		Proportion achieving impact		Direct economic impact		Return on investment
10 Million low-income children who are not on track to be kindergarten ready over the course of five years	×	**3.5% to 7%** of this population will be users who receive sufficient dosage to achieve the benchmark outcomes based on randomized control trials (RCTs)	×	**$15,800** net present value (NPV) of improved lifetime family earnings based on Urban Institute estimates from the Social Genome Model	=	**$5.5B to $11B** in potential economic benefit for individuals and families

Aspirational individual outcome: Improve early childhood academic outcomes

- The concept focuses on scaling existing interventions or spurring innovation to create technology enabled tools that target low-income communities. Mobile applications would deliver "tips-by-text" that either support parents caring for very young children (e.g., Text4baby) or help parents prepare children under the age of five for kindergarten (e.g., Ready4K). The funding would encourage approaches tailored for different populations, e.g., Latino or African American.

- Several of the existing technology tools have already demonstrated impacts on academic outcomes for students. For example, a randomized control trial (RCT) for Ready4K showed higher lowercase alphabet knowledge and letter-sound knowledge by a .21 standard deviation and a .34 standard deviation, respectively. The tools have also demonstrated evidence of impact on behaviors associated with healthy parenting. For example, on four important topics—safe sleep, infant feeding, the best time to deliver in a healthy pregnancy, and the meaning of "full-term"—Text4baby participants demonstrated a significantly higher level of health knowledge than the comparison groups. Eighty-one percent of Text4baby participants responded correctly versus 60 percent to 62 percent of other prenatal participants.

- For the purpose of this concept, we used the Social Genome Model to estimate the economic impact of a .21 standard deviation improvement in academic outcomes for children age three to four who take the Peabody Individual Achievement Test (PIAT).

Maximum potential reach: 10 million low-income children under the age of five over the course of five years

- Currently, there are nearly 20 million children under the age of five who are living in the United States.[1]

- The focus of the intervention is to support low-income children who are not on track to be kindergarten ready by age five.

- Using data from the Early Childhood Longitudinal Study—Birth Cohort (ECLS-B), Bridgespan has estimated that 5.8 million of those children are from low-income households (less than 200 percent of the federal poverty line) and probably are not on track to be kindergarten ready by the time they enroll in formal education.

- Assuming an equal distribution of lack-of-readiness across ages within that cohort, there would be 1.2 million children at each age who are off track. With each successive birth cohort, there would be an additional 1.2 million children who would be born into conditions that would put them on a similar trajectory. Assuming the installed base (5.8 million) and five annual birth cohorts (1.2 million each year) over the course of the proposed set of interventions, 10 million low-income children would comprise the target group for the intervention.

- Existing interventions have already achieved sizeable scale, with tens of thousands of unique users for Ready4K via a school district scaling strategy and nearly 850,000 unique users for Text4baby via direct-to-consumer scaling strategies.

- The proposed investment of $950 million is an order of magnitude larger than any current philanthropic investment to support technology-enabled interventions. Such an investment offers the opportunity to create a market

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1   "Annual Estimates of the Resident Population for Selected Age Group by Sex: April 1, 2010 to July 1, 2014," (US Census Bureau).

for experimenting, developing, and refining a highly scalable suite of tools that can reach the full population in need.

Proportion achieving outcome: 3.5 percent to 7 percent of the population would be users who receive sufficient dosage to achieve the benchmark outcomes from RCTs

- Within the United States, 85 percent of adults ages 18 to 29 and 79 percent of adults ages 30 to 49 have access to Web-enabled phones. When income is taken into account, nearly 50 percent of adults making less than $30,000 per year have access to Web-enabled phones.[2] Given that parents of children under the age of five are more likely to be younger, we estimate that 70 percent of the target demographic of low-income parents and children would have access to technology that disseminates the tools that are scaled through the investments. This concept is based on the assumption that: a) the full set of potential users have access to the technology-enabled tools developed via mobile application marketplaces and b) the tools would draw sufficient demand from the millions of potential users to drive meaningful conversion rates.

- In observations of digital- and social-media usage, 1 percent of participants are "super users" contributing the majority of content and interaction to the platform; 10 percent of users are "highly interactive" demonstrating significant engagement; and the remaining 90 percent or so are often passive observers. We have chosen to apply this ratio of interaction and engagement to the potential set of tools available, with the assumption that 10 percent would achieve the desired academic outcome as a result of using the tools.

- Therefore, the convergence of potential users with access to cell phones and the assumption of users converting to the desired outcome would lead to an estimated proportion of 7 percent of the maximum reach achieving the desired outcome.

- These assumptions produce the optimistic scenario for this concept, provided it achieves maximum saturation of the potential highly interactive user base. To provide a more conservative estimate, we have also assessed the potential impact of just half of that estimate achieving the desired outcome and have used that estimate to be the lower bound of the potential return on investment range.

Direct economic impact: $15,800 net present value (NPV) of improved lifetime family earnings based on estimates from the Social Genome Model
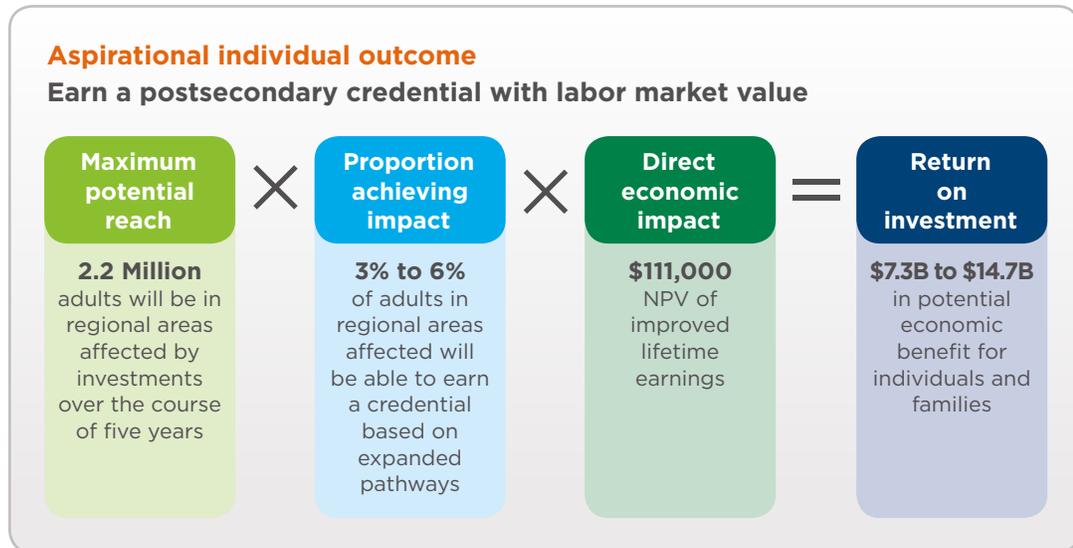
- Our colleagues from the Urban Institute estimate that the difference in lifetime family income that follows from a .21 standard deviation increase in academic scores is $15,768, using the Social Genome Model.[3]

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2   Aaron Smith, "U.S. Smartphone Use in 2015," (Pew Research Center, April 2, 2015), http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/.

3   Emily Blumenthal, Steven Martin, and Erika Poethig, "Social Genome Model Analysis of The Bridgespan Group's Billion-Dollar Bets to Improve Social Mobility," (Urban Institute, March 2016), http://www.urban.org/research/publication/social-genome-model-analysis-bridgespan-groups-billion-dollar-bets-improve-social-mobility.

Establish Pathways to Careers

Concept: Invest in initiatives that enhance the ability of employers to communicate the skills they need and encourage them to hire candidate who might lack the "proper" credentials but have the right attitude and competencies to do the job. At the same time, invest in and scale: a) alternative education providers that work with low-income young adults to build career skills; and b) employer/educator partnerships that are growing the market for competency-based learning

Aspirational individual outcome
Earn a postsecondary credential with labor market value

Maximum potential reach		Proportion achieving impact		Direct economic impact		Return on investment
2.2 Million adults will be in regional areas affected by investments over the course of five years	×	**3% to 6%** of adults in regional areas affected will be able to earn a credential based on expanded pathways	×	**$111,000** NPV of improved lifetime earnings	=	**$7.3B to $14.7B** in potential economic benefit for individuals and families

Aspirational individual outcome: Earn a postsecondary degree or credential with labor market value for individuals who otherwise would not complete their education

- The concept focuses on enabling employers to understand and communicate the skills they need in specific regions; enabling education and training providers in those regions to better align students' skills with employers' needs; and promoting greater awareness among young adults of the options that are available to them, in terms of traditional postsecondary education as well as alternative training programs. In addition, the concept aims to better connect employers, educators, trainers, and young adults.

- There is significant room for improvement among community colleges and four-year institutions in terms of their ability to help students persist and graduate with a credential with labor market value. Nearly half of all students entering postsecondary institutions will not graduate and up to three quarters of community college students will fail to graduate.[4]

  – Several innovations in postsecondary education exemplify alternative and accelerated pathways to achieving a credential:

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4   William C. Symonds, Robert Schwartz, and Ronald F. Ferguson, *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century*, Pathways to Prosperity Project (Harvard University Graduate School of Education, February 2011).

- – Accelerated study programs (e.g., City University of New York Accelerated Study in Associate Programs)

- – Job training programs that link employers to specific community colleges (e.g., College Employer Collaborative)

- – Massive open course providers offering micro-credentials linked to specific workforce needs (e.g., Udacity nanodegrees)

- – Alternative training programs focused on specific labor-market needs in hard-to-hire areas (e.g., tech boot camps for coders)

- There are also external nonprofit organizations, such as the National Academy Foundation, which focus on creating better connections between employers and education and training providers that seek to communicate the requisite skills for attaining jobs. These organizations also support training programs with "badging" indicating that students have achieved a certain skill level.

- For the purpose of this concept, we estimated the economic impact of achieving a postsecondary credential by basing the impact on the (presumed) economic benefit of a postsecondary degree compared to a high school diploma. *(Note: the Social Genome Model was not used to calculate NPV of lifetime family income.)*

Maximum potential reach: 2.2 million adults will be in regional areas affected by investments over the course of five years

- Investments will focus on covering the 15 largest economic regions covering the 15 most populated cities.[5]

- Within the 15 largest cities, there are 5.4 million adults aged 18 to 44 who have incomes less than 200 percent of the federal poverty line.

- Among this group, we estimate that 40 percent lack a credential with labor market value (given current postsecondary completion rates) and thus could benefit from a credential.[6]

- While there will be successive cohorts of students who would expand the potential target population (e.g., those who will complete high school or acquire a GED but do not enroll in a postsecondary institution or those who drop out of high school each year), we have not accounted for population growth.

Proportion achieving outcome: 3 percent to 6 percent of adults in regional areas affected will be able to achieve a credential based on expanded pathways

- The concept outlines an investment that supports employers who are trying to identify the competencies that they need and communicate those competencies to education and training providers.

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5   Calculations drawn from US Census data using cross tab of population for cities with income level.

6   Estimates based on an assumed portion of adults who have not attained a postsecondary credential based on data from the American Community Survey Data on Educational Attainment.
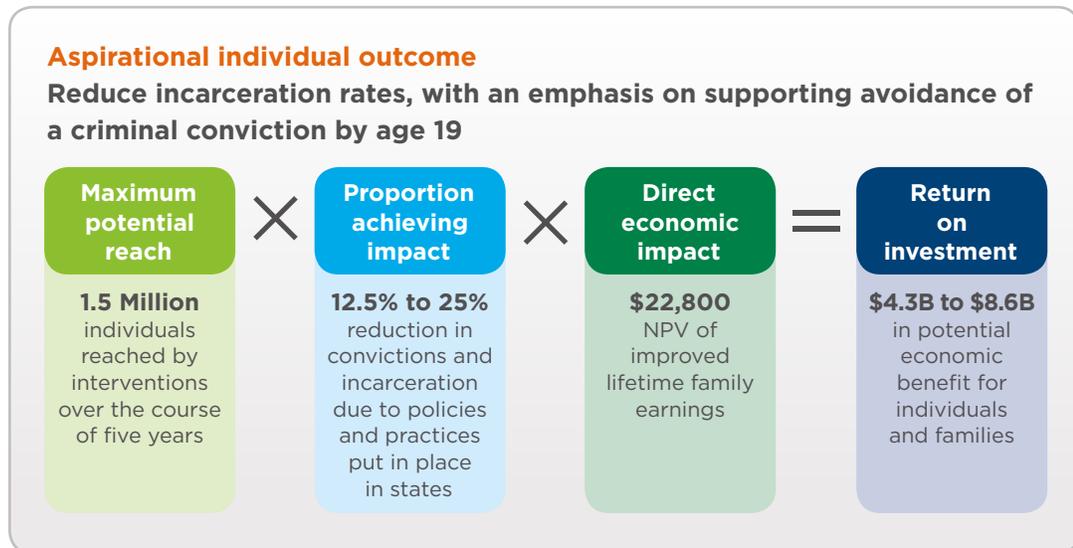
- The bulk of the funding for the concept ($760 million) is designed to support institutions that are trying to better align their programs with students' and employers' needs. An additional $100 million would go to scaling alternative-credentialing providers and advocating to allow federal financial-aid funds to go to alternative providers with effective track records.

- Substantive programs like City University of New York Accelerated Study in Associate Programs (CUNY ASAP), which have achieved a 30 percent increase in graduation rates (from 22 percent completion to 52 percent) through intensive programming, would be part of the investment to support existing institutions to change their programs and supports so as to better meet the needs of students and employers.

- We estimate that the impact of alternative credentialing providers would not be as powerful as the impact of intensive programs like CUNY ASAP, which require more resources.

- It should be noted that in its current form, the concept emphasizes alternative-credentialing programs as well as regional recognition of competencies to support stronger pathways to employment. However, the bet does not invest heavily in the wrap-around supports (e.g., intensive counseling) that are embedded in the CUNY ASAP program and have been linked with greater potential to improve completion rates. Given that these supports are the focus of the bet concept, there is some potential that the effect size—even with the discount—is overstated.

- Thus, we've estimated that the impact of the investments could fall somewhere between one-tenth and one-fifth the impact of the CUNY ASAP program (i.e., a 3 percent to 6 percent conversion rate) on the aforementioned 2.2 million adults who could potentially benefit from attaining a credential.

- Additionally, there is also a large assumption that credentialing programs that link employers to college programs—which have generally been bespoke, individual partnerships at the course or major level that are paired with a specific employer—can actually be scaled to a level that requires employers that span entire regions to accept skill-based credentials. Similar to the general observation that effects may be reduced as a promising but tiny program scales, the shift from one-to-one partnerships to broader purpose partnerships may dilute the investment's ability to drive successful, broader-scale links between traditional educators, career-prep services, and employers.

- Lastly, the concept assumes that the shorter-term credentials provided by the alternative-credential providers would carry a similar improvement in lifetime earnings as an Associate degree. As a result, the concept may overestimate the transferability and long-term recognition of the skills acquired in the certificate programs, given the benchmark standard of an Associate degree that has higher recognition.

Direct economic impact: $111,000 NPV of improved lifetime family earnings based on estimates from the Social Genome Model

- The Social Genome Model, using longitudinal data from 1997, estimates that within the year, the impact of attaining a credential to be $13,879 overall for family income and $4,953 in direct benefit to the individual.[7]

- Research from the Georgetown University Center on Education and the Workforce estimates a total of $400,000 in accumulated lifetime earnings (or the equivalent of $10,000 per year over 40 years) for an Associate degree holder over the holder of a high school diploma.[8]

- We used these two estimates to develop a simple NPV estimate of acquiring an Associate degree over a high school diploma. We have assumed a conservative annual salary increase of $5,100 over a 40-year career with an approximately 3 percent discount rate. Using a basic NPV calculation, that would yield roughly $111,000 in improved lifetime family earnings.

Decrease Over-Incarceration

Concept: Support shifts in policies to reduce criminalization in schools and overall incarceration rates, especially for nonviolent crime; support effective diversion to alternate treatment options; facilitate rehabilitation and re-entry into society

Aspirational individual outcome
Reduce incarceration rates, with an emphasis on supporting avoidance of a criminal conviction by age 19

Maximum potential reach	×	Proportion achieving impact	×	Direct economic impact	=	Return on investment
1.5 Million individuals reached by interventions over the course of five years		**12.5% to 25%** reduction in convictions and incarceration due to policies and practices put in place in states		**$22,800** NPV of improved lifetime family earnings		**$4.3B to $8.6B** in potential economic benefit for individuals and families

7   Blumenthal et al., "Social Genome Model Analysis of The Bridgespan Group's Billion-Dollar Bets to Improve Social Mobility."

8   Anthony P. Carnevale, Stephen J. Rose, and Ban Chea, *The College Payoff: Education, Occupations, and Lifetime Earnings* (The Georgetown University Center on Education and the Workforce, August 2011).

Aspirational individual outcome: Reduce incarceration rates, with an emphasis on supporting avoidance of a criminal conviction by age 19

- The concept is focused on supporting a competitive grant competition to incent states to develop plans that would reduce levels of criminal conviction and incarceration.

- The competition would build upon ongoing momentum in states seeking to reduce their imprisoned populations. Seventeen states have already developed plans for reducing recidivism within their jurisdictions, in some instances leading to billions of dollars in savings.[9] These states also provide supplemental funding to support the types of intensive diversion and mental-health programs that are a core part of any strategy to reduce over-incarceration.

- Additionally, the concept would complement and even amplify the MacArthur Foundation's Safety and Justice Challenge, a $75 million investment (in 20 jurisdictions) that's designed to support alternatives to incarceration that reduce recidivism while also cutting crime rates.

- We believe there is a reasonable basis to assume that the size of the competition would be enough to incent both policy change and practice change on the ground, given that the investment's scale is proportional to the size of the Race to the Top federal grant competition (in terms of the number of participating states and the proportion of dollars to the affected population).

- For the purpose of this concept, we used the Social Genome Model to estimate the economic impact of avoiding criminal conviction by age 19. This is a binary indicator in the model (you either have a criminal conviction or you don't). It has a strong correlation with other factors in later life stages, such as the likelihood of completing high school or marrying someone with higher education and income levels.

Maximum potential reach: 1.5 million individuals reached by interventions over the course of five years

- Currently, there are 612,000 juveniles who are placed on probation, detention, or formal release each year nationally.[10]

- We have assumed that 50 percent of those juveniles will be in jurisdictions covered by states entering and succeeding in the proposed competition, given concentrations of populations across states and the goal of extending the competition to 20 states.

- Assuming an annual potential cohort of nearly 300,000, there would be a total of 1.5 million potential individuals who would be within the targeted jurisdictions over five years.

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9   Council of State Governments Justice Center, https://csgjusticecenter.org.

10 Office of Juvenile Justice and Delinquency Prevention, "Easy Access to Juvenile Court Statistics: 1985 -2013," www.ojjdp.gov/ojstatbb/ezajcs.

Proportion achieving outcome: 12.5 percent to 25 percent reduction in convictions and incarceration due to policies and practices put in place in states

- Several states have already begun putting into place strategies to reduce conviction and incarceration rates and have demonstrated some early success. For example, California and New York have seen a 25 percent reduction in incarceration rates in recent years, due to a combination of court decisions designed to reduce overpopulation, a reduction in crime rates overall, and targeted policies (such as sentencing reforms).[11]

- We estimate there remains additional headroom for reforms in policies and diversion practices within the set of states that would apply to the competition. Given the precedents in other states, we have applied the 25 percent reduction rate to criminal convictions overall as the potential upper bound of our assumptions; we have assumed a lower bound estimate of half that total (12.5 percent).

Direct economic impact: $22,800 NPV of improved lifetime family earnings

- According to SGM79,[12] the difference in lifetime family income from avoiding criminal conviction by age 19 is $22,800.[13] This figure is based on a combination of factors including: a greater likelihood of completing high school, better job prospects, and a greater likelihood of marrying someone with a higher level of education and income.

- It should be noted that there are significant race-based differences in terms of impact. For example, the estimated annual improvement in income is $3,488 by age 29 for non-black males versus $10,240 increase in annual income for black males.[14]

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11 Marc Mauer and Nazgol Ghandnoosh, "Policy Brief: Fewer Prisoners, Fewer Crimes," (The Sentencing Project, 2014), http://www.sentencingproject.org/publications/fewer-prisoners-less-crime-a-tale-of-three-states.
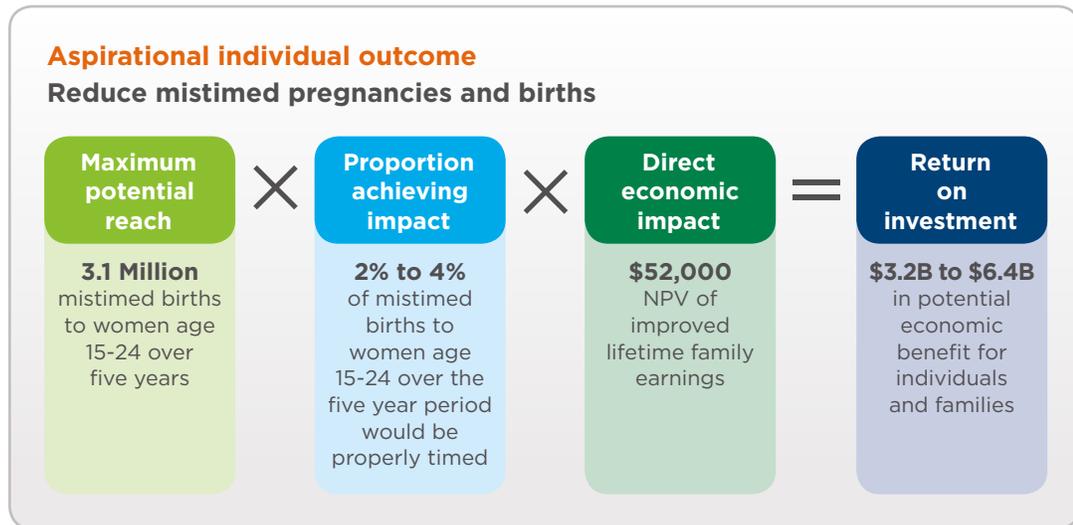
12 The SGM is formed using two data sets from the Bureau of Labor Statistics' National Longitudinal Surveys. Our primary data set is the "Children of the NLSY79" (CNLSY), representing children born mainly in the 1980s and 90s. The CNLSY is the source for our data on birth circumstances, early and middle childhood, and adolescence. No respondent in the CNLSY is yet old enough to track through adulthood, and so we impute adult values using a second sample from an earlier generation, the "National Longitudinal Survey of Youth 1979" (NLSY79).

13 Blumenthal et al., "Social Genome Model Analysis of The Bridgespan Group's Billion-Dollar Bets to Improve Social Mobility."

14 Ibid.

Reduce Unintended Pregnancy

Concept: Lead a national initiative that encourages and supports young women and their partners to make informed decisions about when to have a child and improves access to the most effective contraceptive methods

Aspirational individual outcome
Reduce mistimed pregnancies and births

Maximum potential reach	×	Proportion achieving impact	×	Direct economic impact	=	Return on investment
3.1 Million mistimed births to women age 15-24 over five years		**2% to 4%** of mistimed births to women age 15-24 over the five year period would be properly timed		**$52,000** NPV of improved lifetime family earnings		**$3.2B to $6.4B** in potential economic benefit for individuals and families

Aspirational individual outcome: Reduce unintended pregnancies among teens and young women

- The concept is focused on supporting women in making contraceptive choices that are in line with their intentions for pregnancy, both by improving public awareness of contraceptive methods and by increasing access to the most effective forms (IUDs and the implant).

- Education and awareness investments would include social-media marketing, improving and expanding online and mobile tools, and protecting and expanding government funding for comprehensive sex education. Investments to increase access include training frontline practitioners on administering IUDs and implants, improving back-office and billing procedures that limit the administration of these contraceptive methods, and further integrating primary care with family-planning services.

- These investments would primarily build on existing programs, each at varying evidence bases and levels of scale. (For example, scaling third-party providers that are currently providing training and technical assistance at health clinics and improving and expanding successful online and mobile education applications.) There would also be ancillary investments in research, to support the continuous improvement of these programs. The investments would also support advocacy campaigns to further secure government-funding sources.

- For the purpose of this concept, we used data from a paper by Isabell Sawhill[15] to estimate the effect on lifetime earnings of a child who is born at the time her mother intends. These estimates were calculated using the Social Genome Model. This is a binary indicator in the model (either a woman has a child at age 19 or she doesn't). The indicator has a strong correlation with other factors in later life stages (such as the likelihood of completing high school or marrying someone with a higher level of education and income).

Maximum potential reach: 3.1 million individuals reached by interventions over the course of five years

- Currently, more than one out of three births in the United States is unintended, which works out to about 1.5 million unintended births annually. Women under the age of 25 represent nearly 60 percent of unintended births, which adds up to 4.4 million over five years.[16]

- A high proportion of unintended births to women aged 15 to 19 and 20 to 24 are "mistimed" as defined by the mother, 77 percent and 50 percent respectively. The remaining unintended births to these women are classified as "unwanted."[17]

- For the purpose of this calculation, we evaluated the effect of a child's birth being properly timed; therefore, we referred only to the proportion of unintended births that are mistimed.

- Assuming these investments are made on a national scale over five years, the maximum possible reach would be the full number of mistimed births in the nation. However, we only have the research to support the impact of this intervention on women aged 15 to 24. Therefore, we used the number of mistimed births to women aged 15 to 24 over five years as the maximum possible reach.

Proportion achieving outcome: 2 percent to 4 percent of mistimed births to women aged 15 to 24 over the five-year period would be properly timed

- The state of Colorado implemented a program titled the Colorado Family Planning Initiative (CFPI), which shares many of the characteristics of the investments outlined above.

- During the three-year implementation of CFPI, the teen birth rate and the birth rate among 20 to 24 year old women dropped by approximately 39 percent and 19 percent, respectively. At the same time, the national teen birth rate and birth rate among 20 to 24 year old women dropped by 32 percent and 16 percent, respectively. For the purpose of simplicity, we call the marginal

15 Isabel Sawhill and Joanna Ventor, *Improving Children's Life Chances Through Better Family Planning*, *CCF Briefs* no. 55 of 56 (Brookings Institution, January 23, 2105), http://www.brookings.edu/research/reports/2015/01/improving-life-chances-better-family-planning-sawhill.

16 Unintended Pregnancy in the United States," (Guttmacher Institute, March 2016), http://www.guttmacher.org.

17 "Intended and Unintended Births in the United States: 1982–2010," (Centers for Disease Controls and Prevention, July 24, 2012), http://www.cdc.gov/nchs/data/nhsr/nhsr055.pdf.

difference in these declines (7 percent for teens and 3 percent for 20 to 24 year olds) the "Colorado effect." *(Note: the CFPI also included free provision of IUDs. Given the expansion of Medicare and private insurance to cover IUDs, we have not included that fact in our investments.)*

- We have calculated the weighted average of the Colorado effect on the target population in these investment areas to be 4 percent. We assume this would be the overall maximum potential effect of the investments outlined above, given the strong similarity between the programs. For the lower bound, we have estimated that half of this potential effect could be achieved, leading to 2 percent of mistimed births being delayed to a time when the parents are better positioned to care for the child.

- While we are using Colorado as a benchmark, the state has several demographic factors (such as higher per capita income and educational levels) that might mean the intervention wouldn't have the same kind of effect on people in other states. There's a potential for understating the impact—for example, the targeted state has a lower unintended pregnancy rate than many other states. There's also a potential of overstating the impact—for example, the intervention might target a more homogenous, informed, and economically empowered population with a greater ability to access healthcare services.
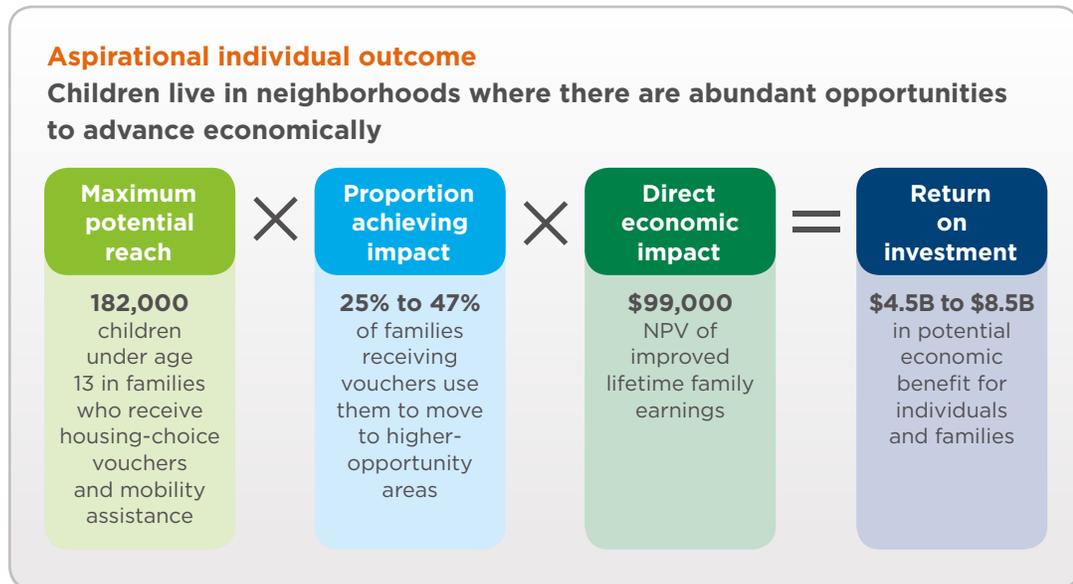
Direct economic impact: $52,000 NPV of improved lifetime family earnings

- According to the *Brookings Issue Brief*: "Improving Children's Life Chances through Better Family Planning,"[18] the difference in the lifetime family income of a child who is born when the mother is prepared to care for her is $52,000. This figure is based on a combination of factors including: a greater likelihood of being born with a higher birth weight, reading by grade level at third grade, and completing high school.

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18 Isabel Sawhill and Joanna Venator, *Improving Children's Life Chances through Better Family Planning.*

Reduce Concentrated Poverty

Concept: Help break apart the structural forces of racial and economic segregation that have created communities of concentrated poverty. Do this by investing deeply in select metro areas to both revitalize distressed neighborhoods and offer low-income people the opportunity to move to more resource-rich neighborhoods. At the same time, expand mobility efforts to many more communities through direct investments and the creation of a national hub that coordinates mobility efforts

Aspirational individual outcome
Children live in neighborhoods where there are abundant opportunities to advance economically

Maximum potential reach		Proportion achieving impact		Direct economic impact		Return on investment
182,000 children under age 13 in families who receive housing-choice vouchers and mobility assistance	×	**25% to 47%** of families receiving vouchers use them to move to higher-opportunity areas	×	**$99,000** NPV of improved lifetime family earnings	=	**$4.5B to $8.5B** in potential economic benefit for individuals and families

Aspirational individual outcome: Increase access to high-opportunity neighborhoods before age 13

- The concept is focused on breaking apart the structural forces of racial and economic segregation that have created communities of concentrated poverty.

- The concept paper outlines investments in high-poverty neighborhoods and investments to support higher levels of housing mobility for low-income families currently living in high-poverty neighborhoods.

- Due to the limited availability of robust data, the estimates detailed here relate only to the implementation of investments related to increasing housing mobility, including the creation of a national housing-mobility intermediary and medium-scale housing mobility programs in 20 to 25 metro areas.

- These investments would provide 4,000 to 8,000 families living in very high-poverty neighborhoods—that is, neighborhoods where 30 percent to 40 percent of the population live below the federal poverty level (FPL) in each of the 20 to 25 regions with a housing mobility voucher program. Such programs help low-income people secure housing in neighborhoods where less than 10 percent of the population lives below the FPL. These families would also receive two years of mobility counseling, which would help them search, secure, and transition into housing in economically diverse neighborhoods.

- Additional investments to support these programs in each region include landlord outreach, advocacy efforts to create more inclusive communities, and other services (such as access to mass transit and social network supports) to help families that move.

- We have used the research of Raj Chetty, et al. (2015),[19] which evaluates the increase in lifetime earnings of children who participated in the Moving to Opportunity (MTO) experiment in the 1990s. They found that children who moved to new neighborhoods before the age of 13 saw an increase in annual earnings in early adulthood of $3,477. They estimated that the NPV of increased earnings over their lifetimes would be $99,000.

- As the investments detailed above greatly resemble those made in the MTO project, we have chosen to directly use the numbers detailed in Chetty et al.'s analysis.

Maximum potential reach: 182,000 children under age 13 in families who receive vouchers and mobility assistance

- If the bet were to work in 20 to 25 cities, providing vouchers to between 4,000 to 8,000 families and targeting families with children under the age of 13, we have reason to believe that up to 200,000 young children could be reached.[20]

- For the purpose of this calculation, however, we worked backwards from the cost of supports to complement housing vouchers (that is, "mobility assistance") to approximate the number of children who could be affected. Based on: a) the allotted $215 million (from the total $1 billion investment) for support services for families receiving mobility vouchers, b) an individual family cost (from Chetty, Hendren, Katz (NBER, 2015)[21]), and c) an average of 1.9 children per family, we estimate that 182,000 children under age 13 would be in families who receive vouchers and mobility assistance.

Proportion achieving outcome: 25 percent to 47 percent of families receiving vouchers use them to move to higher-opportunity areas

- The bet concept is driven by the assumption that the investment leverages existing voucher dollars to support an evidence-based approach to moving to neighborhoods with greater levels of opportunity in the form of services, social capital, education, and access to jobs.

19 Raj Chetty, Nathaniel Hendren, and Lawrence F. Katz, *The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment* (National Bureau of Economic Research, May 2015).

20 Elizabeth Kneebone, "The Growth and Spread of Concentrated Poverty, 2000 to 2008-2012," Metro Area Data (Brookings Institution, July 13, 2014).

21 Chetty et al., *The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment*.

- The 47 percent estimate is based on the program uptake rate seen in MTO pilot programs.[22]

- The investments outlined above assume an implementation at a greater scale than that attempted in the MTO pilots. However, the investments above also include an additional $110 million targeting advocacy and legal support to open up exclusive communities, with the goal of helping to ensure that regions could accommodate much larger programs.

- Assuming the parallel investments can enable sufficient expansion into additional opportunity neighborhoods, we have estimated the upper bound of the potential portion achieving the outcome to be 47 percent, which is in line with the MTO pilot's results, and a lower bound to be 25 percent, given the potential for fewer families to elect to move. There's also the potential that the parallel investment fails to create enough rental units to support this approach. And there's the question of whether a scaled program that moves many more families can match the results of the much smaller MTO program. We have folded this assumption into the lower-bound estimate.

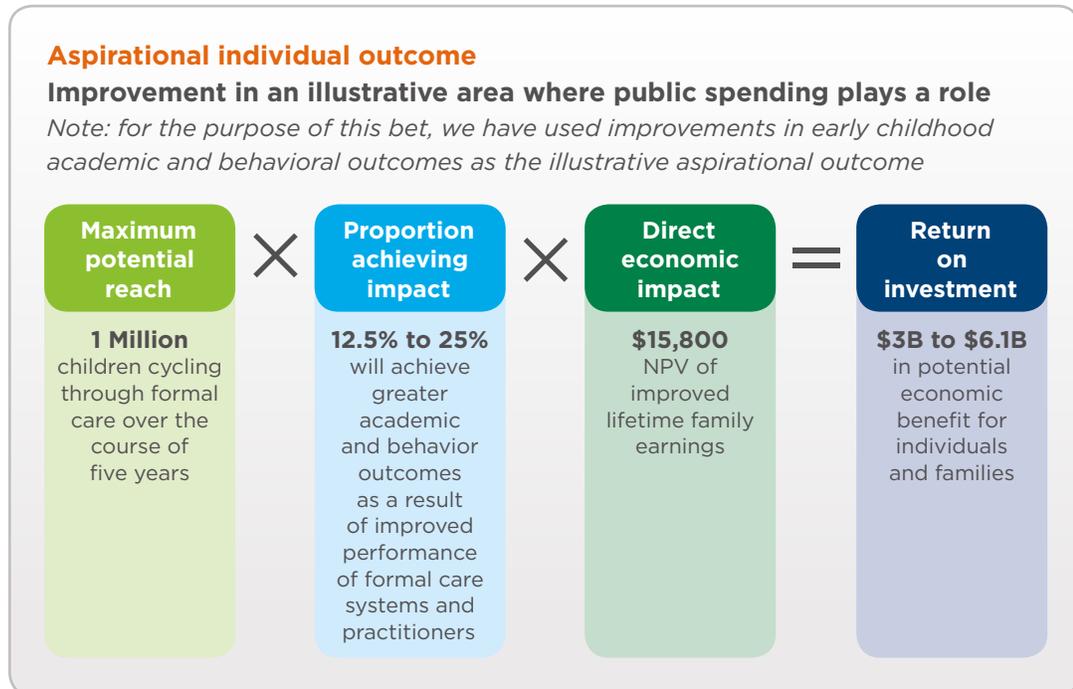**Direct economic impact:** $99,000 NPV of improved lifetime family earnings

- This number is based on estimates of improved lifetime earnings of children whose families participated in the MTO pilot and used their housing vouchers to move to high opportunity areas before the child reached age 13.

  - "We estimate that moving a child out of public housing to a low-poverty area when young (at age 8 on average) using an MTO-type experimental voucher will increase the child's total lifetime earnings by about $302,000. This is equivalent to a gain of $99,000 per child moved in present value at age 8… ."[23]

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22 Chetty et al., *The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment*.
23 Ibid.

Investing in the public and nonprofit sectors' ability to test, implement, and continuously improve evidence-based programs and policies

Concept: Invest in data infrastructure, human capital, and incentives to support a social-service culture that's focused on evidence-based programs and continuous improvement

Aspirational individual outcome

Improvement in an illustrative area where public spending plays a role

Note: for the purpose of this bet, we have used improvements in early childhood academic and behavioral outcomes as the illustrative aspirational outcome

Maximum potential reach		Proportion achieving impact		Direct economic impact		Return on investment
1 Million children cycling through formal care over the course of five years	×	**12.5% to 25%** will achieve greater academic and behavior outcomes as a result of improved performance of formal care systems and practitioners	×	**$15,800** NPV of improved lifetime family earnings	=	**$3B to $6.1B** in potential economic benefit for individuals and families

Aspirational individual outcome: Improvement in an illustrative area where public spending plays a role. For the purpose of this bet, we have used improvements in early childhood academic and behavioral outcomes

- The concept is focused on supporting greater use of data, monitoring ongoing performance, and experimenting with the design of programs so as to seed continuous-improvement practices in areas either administered or funded by the public sector, particularly through local government.

- Currently, the vast majority of funding for public programs is not tied to outcomes or to evidence-based programs that are being executed with fidelity to the evaluated model. As a result, most publicly subsidized services vary widely in terms of quality and often fail to meaningfully improve the lives of low-income individuals and families.

- Investments for this concept focus on supporting the development of effective data systems and tools that are able to monitor and track activities in real time. For example, such tools would track the level of service uptake, as well as the outcomes of these services. They would include investments in the staff capacity to assess data and use this data to identify course corrections.

They would include support for on-the-ground practitioners with training in how to implement effective practices. And they would fund experiments and innovations in service delivery (for example, A/B testing with web interfaces; behavioral nudges) with the aim of achieving results that surpass the results from the existing evidence base. The concept assumes that each of the areas where funding provides additional data systems, staff capacity, technical assistance, and experimentation will seek to improve outcomes that are tied to improving upward mobility.

- For the purpose of this concept, we have chosen to model out improvements in academic and behavioral outcomes in early childhood. Using the Social Genome Model, we sought to identify the estimated economic impact of scaling a .21 standard deviation increase in academic scores as well as behavior scores on the Peabody Individual Achievement Test for children age three to four.

Maximum potential reach: 1 million children cycling through formal care over the course of five years

- Currently, there are nearly 20 million children under the age of five who are living in the United States.

- The focus of the intervention is to support low-income children who are not on track to be kindergarten ready by age five.

- Using data from the Early Childhood Longitudinal Study—Birth Cohort (ECLS-B), Bridgespan estimated that 5.8 million of those children are from low-income households (less than 200 percent of the FPL) and are likely not on track to be kindergarten ready by the time they enroll in formal education.

- Assuming an equal distribution of lack-of-readiness across ages within that cohort, there would be 1.2 million children at each age who are off track. With each successive birth cohort, there would be an additional 1.2 million children who would be born into conditions that would put them on a similar trajectory.

- Additionally, using data from the ECLS-B, Bridgespan estimated that by age four, 50 percent of low-income children are in formal care prior to entering kindergarten. That estimate suggests that these children would be enrolled in systems that could be influenced by public funding, oversight, or more effective implementation of the programs.

- The concept targets an investment that would support 15 cities to build the infrastructure for continuous learning, development, and improvement in a core area tied to social-mobility outcomes. We have estimated that nearly 33 percent of low-income families reside in the top 15 largest cities.

- Assuming five successive annual cohorts, there would be a total of 1 million children who would cycle through formal care over the course of five years.

Proportion achieving outcome: 12.5 percent to 25 percent would achieve greater academic and behavior outcomes as a result of improved performance of formal care systems and practitioners

- The concept presumes that data and infrastructure can be used to instigate behavioral shifts throughout the early childhood education system. We have estimated that improvements in providing services for children in formal care would enable somewhere between 12.5 percent and 25 percent of children in those settings to achieve a target of a .21 standard-deviation improvement in academic and behavioral outcomes in early childhood.

Direct economic impact: $24,578 NPV of improved lifetime family earnings

- Using estimates from the Social Genome Model, the difference in lifetime family income that follows from a .21 standard deviation increase in academic scores ($15,768) as well as a .21 standard deviation increase in behavior scores ($8,810) would lead to a lifetime earnings increase of $24,578 per person.[24]

(This paper is part of the Bridgespan report "Billion Dollar Bets" to Create Economic Opportunity for Every American.)

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24 Blumenthal et al., "Social Genome Model Analysis of The Bridgespan Group's Billion-Dollar Bets to Improve Social Mobility."