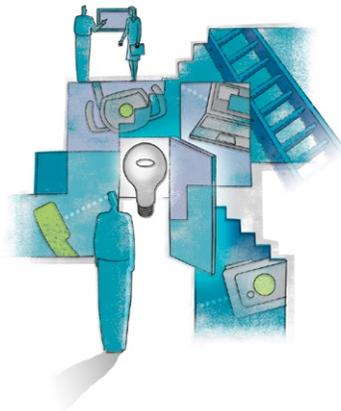


# Success by Ten

## Intervening Early, Often, and Effectively in the Education of Young Children



DURING THE FIRST FEW YEARS OF LIFE, a child's brain grows astonishingly quickly; children's brains have a unique "plasticity," making the very young unusually responsive to environmental influences. Unfortunately, the environments that children experience during these early years differ dramatically across socioeconomic groups. These differences contribute to large gaps in test scores; by age three or four, children from lower socioeconomic groups tend to have fewer skills than their counterparts from higher socioeconomic groups, a difference that too often persists into adulthood. The result is not only reduced levels of academic attainment and increased stress on the social welfare system, but also a GDP that is held below its potential.

In a discussion paper released by The Hamilton Project, Jens Ludwig of Georgetown University and Isabel Sawhill of the Brookings Institution argue that closing this gap requires intensive intervention in a child's formative years. Using evidence from the Abecedarian experiment in early education and the Success for All reading program, Ludwig and Sawhill propose a Success by Ten program to help every child achieve success in school by age ten. By intervening early, often, and effectively, the proposed program aspires to substantially improve the lives of disadvantaged children, ultimately benefiting the economy as a whole.

## THE CHALLENGE

The socioeconomic status of parents often influences the environment in which their children develop. For example, children on the highest end of the socioeconomic spectrum are read to more often, are less likely to watch television, and are far more likely to visit libraries and museums than are children on the lowest end. These different environments lead to sharply different skill levels. Before children start kindergarten, there is already a marked difference in reading and math scores between the most advantaged and least advantaged children. In addition to lagging behind in academics, children from families that fall below the poverty line are also more likely to display physical aggression or other noncognitive problems.

These early gaps in cognitive and noncognitive skills tend to persist throughout the school years and into later life. Those who score poorly before entering kindergarten are likely to do less well in school and face an increased probability of being teen parents, engaging in crime, and being unemployed as adults.

Before children even start kindergarten, there is already a marked difference in reading and math scores between the most advantaged and least advantaged children.

## Context

- The human brain has unusual plasticity in a child's first few years of life, making it especially responsive to environmental influences.
- The early environments children experience vary widely, with divisions frequently found along socioeconomic lines.
- Before starting school, disadvantaged children often present cognitive and noncognitive deficiencies from which they will never recover.
- Current early education programs are too little, and often too late.

These problems could potentially be alleviated, or even avoided, with well-designed interventions targeting young children. To date, however, the government's spending priorities have not reflected the importance of these early years. The federal government's program for disadvantaged children—Head Start—serves only 49 percent of income-eligible three- and four-year-olds. Early Head Start, which is designed for children under the age of three, has only about one-tenth of regular Head Start's budget and serves only about 62,000 children. These programs provide too little, and usually intervene too late.

## A NEW APPROACH

Ludwig and Sawhill's Success by Ten proposal aims to level the playing field by intervening early, often, and effectively in the lives of disadvantaged children. Early intervention would take the form of an intensive, high-quality education for disadvantaged children in the first five years of life and would be modeled after the Abecedarian program and its impressive results. But instead of depending on this single intervention, whose effects could fade over time,

Success by Ten would complement the early childhood program with a follow-up elementary school program, modeled on Success for All. By modeling their proposal on the previously demonstrated successes of Abecedarian and Success for All, Ludwig and Sawhill propose a program with interventions on two levels, each of which meets a threshold of scientifically established effectiveness, maximizing the chances that shortfalls currently faced by the disadvantaged will be prevented and eliminated.

Ludwig and Sawhill propose a flexible and phased-in implementation of Success by Ten, an approach that would take advantage of the early education infrastructure and Title I funding already in place and initially would require increased federal spending of about \$6 billion annually. The implementation plan would allow for experimentation and evaluation before taking the program to scale. Although the full price of a nationwide Success by Ten program would be high (up to \$40 billion more than current funding levels), Ludwig and Sawhill stress that the economy-wide benefits would far exceed the costs, while substantially improving the lives of participating disadvantaged children.

### **Early Education—Expand and Intensify Head Start and Early Head Start**

Ludwig and Sawhill propose an early intervention modeled on the Abecedarian program from the 1970s. The program randomly assigned about one hundred children of low-income and at-risk mothers in Chapel Hill, North Carolina to either an Abecedarian services group or a control group that did not receive any services. Children in the Abecedarian group received year-round, full-day care for the first five years of life. The program included transportation, low child-staff ratios (between three to one and six to one), regular assessment and monitoring, and additional social support and nutritional supplements for families.

Those who score poorly before entering kindergarten are likely to do less well in school and face an increased probability of being teen parents, engaging in crime, and being unemployed as adults.

Because Abecedarian was implemented as part of a randomized experiment, it provided an unusual opportunity to rigorously study the program's impact. The results of Abecedarian, both in the short and long terms, were striking. While children in the control group had IQ scores that were significantly below the national average, children in the Abecedarian group had IQ scores close to the national average through age five, exceeding the benefits usually seen in Head Start and Early Head Start programs. These results persisted in the long term: children from the Abecedarian group continued to have higher IQ scores at age twenty-one, were two and one-half times more likely to go to college, and were half as likely to become a teen parent or to use marijuana.

Abecedarian services cost about \$16,600 (estimated 2007 dollars) for each of the child's first five years, which is much more than the cost of other early childhood interventions such as Head Start. Ludwig and Sawhill note, however, that these additional costs directly reflected the program's greater intensity and comprehensiveness, which were the keys to its effectiveness.

## Success by Ten Highlights

**Success by Ten** aims to help every student achieve success in school by age ten by intervening early, often, and effectively in the lives of disadvantaged children.

### Intervening early

- Targets children from birth to age five
- Is modeled on a proven, intensive early education program that includes year-round, full-day care and low child-staff ratios

### Intervening often

- Uses dual-level intervention to help prevent fade-out effects after the early education component
- Limits the second intervention to elementary school programs that have been proven effective

### Intervening effectively

- Uses Abecedarian and Success for All as models because they have been rigorously researched and show impressive benefits. Abecedarian's benefits not only exceeded its costs (potentially by more than two times) but also surpassed the benefits of comparable programs
- Would be phased in over ten years to allow for relatively moderate start-up costs and the opportunity to rigorously study and evaluate the program
- Would use controlled and experimental variations in implementation to bring to light additional methods that could be even more cost effective
- Estimated implementation cost would be an additional \$6 billion annually for the first six years and up to an additional \$40 billion annually at full implementation
- Estimated benefits would be about two times the cost, including increased earnings of participants and their families, improved participants' health, reduced special education placements, reduced criminal activity, and predicted boosts to GDP

Ludwig and Sawhill also note that the relatively high costs of Abecedarian were more than compensated by its benefits, including, among other things, increased earnings of participants and their families, improvements in participants' health, and savings to the primary and secondary school systems from reductions in special education placements. The benefits of Abecedarian have been estimated to be on the order of about \$147,000 (in 2007 dollars) for each student. Ludwig and Sawhill posit that these calculations actually understate the benefits of Abecedarian because they do not account for potential reductions in criminal activity or the likely boost to GDP from the increased educational attainment of the American workforce. Overall, they conclude that Abecedarian's benefits exceeded its costs by more than two times.

## Preventing "Fade-out"—Success for All

Ludwig and Sawhill note that the promise of targeted early childhood programs often fades because low-income children subsequently attend elementary schools that fail to provide high-quality learning environments. To prevent the effects of early intervention from fading out, Success by Ten would include a follow-up elementary school program with a demonstrated record of success: Success for All.

Success for All is a comprehensive, reading-focused program that operates in more than twelve hundred schools. Under the program, children receive ninety minutes a day of reading instruction in groups that are organized across grade levels, based on each child's proven reading level. The program provides for cooperative learning, regular assessments, and targeted tutoring for students who fall behind. Over the years, a number of Success for All evaluations have shown that the program produces substantial improvements in student learning outcomes. A randomized experiment by the Department of Education, for example, found that Success for All improved student perfor-

mance by a level equal to approximately 20 percent of the current academic gap between children in low and high socioeconomic groups.

Ludwig and Sawhill recommend that the Success for All component of their proposal be funded with existing Title I funds. These resources are intended to provide an enhanced learning environment for low-income children, but evidence suggests that the funds are often used in a way that has little effect. Under Success by Ten, schools would initially be required to use Title I funds to implement a Success for All program. Schools would be free to implement alternative programs, however, if they could demonstrate through rigorous, experimental evidence that the alternative programs could be successful follow-ups to Abecedarian.

## Implementation

Ludwig and Sawhill propose that Success by Ten be implemented by combining, expanding, and transforming the current funding and infrastructure that target disadvantaged children, including Head Start and Title I funds. Given the potential risks and difficulties of implementing a new program at scale, Ludwig and Sawhill propose a ten-year phase-in process to foster rigorous evaluation of the program's impact and to allow for experimentation with alternative, and potentially more cost-effective, interventions.

The implementation process would begin with a high-poverty school forming a partnership with a local early childhood program, such as Head Start. This partnership would then apply for competitive federal grants to cover the additional costs of implementing Success by Ten in its area. Competitive grants would be awarded directly to the partnership, based on the quality of the local plan as well as a commitment by the school system to maintain electronic student-level data that would be made

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available to independent program evaluators for future program assessment. According to Ludwig and Sawhill, it is probable that a greater number of qualified local partnerships would apply for funding than the program would be able to finance; therefore, randomized lotteries would be used to assign applicant communities to various treatment groups. This not only would facilitate fair implementation on a small scale, but also would allow for the controlled, randomized experiments needed to evaluate the program's effects.

The lotteries would assign acceptable applicants to one of three outcomes—the full Success by Ten program, an experimental version of Success by Ten, or no services. The experimental versions of Success by Ten would permit alterations in specific programmatic elements, such as pupil-staff ratios, teacher qualifications and salaries, the duration of intervention, the nature of the curriculum, the nature of nonacademic services, and eligibility rules. Evaluating these controlled variations would help researchers identify ways to reduce the overall cost of the original proposal without compromising its effectiveness. These controlled variations might also help to identify ways in which the program could be tailored to the particular needs of local communities: low-income children in rural parts of West Virginia, for example, might benefit from slightly different types of intervention than would immigrant children in Chicago.

Success by Ten would increase federal spending by about \$6 billion annually during the first six years of the program. This initial, relatively modest funding level would be enough to provide services to ap-

“When fully implemented, Success by Ten would eliminate most or all of the difference in early childhood outcomes between low- and middle-income children.”

proximately five hundred thousand children a year while also robustly testing the program. This initial six-year period would allow one cohort of children to complete the five-year early education program and would give researchers a final year to rigorously study and evaluate the results. The program would then be brought to scale over the subsequent four years. Ludwig and Sawhill estimate that Success by Ten would increase federal spending by up to \$40 billion annually when fully implemented, less than 8 percent of the national K-12 budget (the cost of Success by Ten would be lower, of course, if results from the phase-in revealed alternatives that were more cost effective). After accounting for predicted reductions in total benefits that would occur as the program was brought to scale, Ludwig and Sawhill estimate that Success by Ten would still have benefits totaling about two times its cost. Even in light of these expected net gains, however, Ludwig and Sawhill argue that current federal budget deficits make it prudent to fully implement their proposal only as part of a wider deficit-reduction package that allows increased public investment in select growth-enhancing programs while reducing the overall deficit.

### Implementation Issues

The Success by Ten program would meet a real and urgent need to expand opportunities to disadvan-

tagged children, but there are a number of issues to consider regarding its implementation.

### Scaling Up

Success by Ten would face a number of challenges in scaling up. First, Ludwig and Sawhill note that the full benefits of the Abecedarian program probably can't be replicated on a national scale. Fidelity to the program structure will inevitably vary as the Success by Ten program is expanded, and it will be nearly impossible to ensure on a nationwide level the same high levels of teacher commitment that existed in the pilot program. Ludwig and Sawhill argue, however, that the results of Abecedarian were so large that even the reduced benefits of a scaled-up program would significantly exceed the expected costs. Second, full implementation of Success by Ten would dramatically increase the need for qualified teachers and adequate facilities, especially for the Abecedarian component of the program. While this resource squeeze could pose problems, the phased-in implementation would reduce the urgency of such concerns. The ten-year time frame for the phase-in would allow for long-term planning in developing infrastructure and devising strategies for recruiting teachers.

### Uncertainties

Perhaps the most salient criticism of Ludwig and Sawhill's Success by Ten proposal lies in the limited—although impressive—evidence on which it is based. While Success for All has a solid track record that has been demonstrated in large-scale studies, Abecedarian—the more expensive part of the proposal—has only been evaluated on a small scale. The Abecedarian experiment included only about one hundred children, who were further divided into treatment and control groups. In addition to this small sample size, subsequent analysis of the program's costs and benefits rely principally on a single, although thoughtfully done, cost-benefit analysis.

In light of such concerns, Ludwig and Sawhill stress the variety of complementary evidence from other early childhood programs. Cost-benefit analyses of programs such as Perry Preschool, Head Start, and the Chicago Child-Parent Center show that a variety of early childhood education programs provide benefits exceeding their costs. Because of the comparatively large academic improvements demonstrated under Abecedarian, it is a promising basis from which to start. The phased-in implementation proposed by Ludwig and Sawhill aims to reduce the risks of scaling up while increasing the potential for continuous learning and adjustment. Observing and evaluating the phase-in period experiments will be crucial for finding potential ways to cut costs while retaining effectiveness.

## CONCLUSION

There are unavoidable uncertainties in evaluating the costs and benefits of implementing any education program, and Success by Ten is no exception. Ludwig and Sawhill argue, however, that doing nothing yields a certain result—we forgo a crucial opportunity to help disadvantaged children realize their full capabilities, thereby depriving the country of the benefits of these children’s potential. Ludwig and Sawhill’s carefully designed Success by Ten program represents one promising approach for harnessing the potential of all Americans.

## Learn More About This Proposal

This policy brief is based on The Hamilton Project discussion paper, *[Success by Ten: Intervening Early, Often, and Effectively in the Education of Young Children](#)*, which was authored by:

### JENS LUDWIG

**Professor of Public Policy, Georgetown University**

Ludwig has published articles on poverty, education, and crime in leading scientific journals. In 2006, he received the David Kershaw Prize for distinguished contributions to public policy by age forty.

### ISABEL SAWHILL

**Cabot Family Chair & Senior Fellow, Brookings Institution**

Sawhill’s areas of expertise are children, education, the federal budget, poverty and inequality, social welfare policy, and teen pregnancy. She is the co-director of the Center on Children and Families at the Brookings Institution.

## Additional Hamilton Project Proposals

**Additional Hamilton Project discussion papers and policy briefs on education can be found at [www.hamiltonproject.org](http://www.hamiltonproject.org), including:**

- **[An Education Strategy to Promote Opportunity, Prosperity, and Growth](#)**

Investments in education yield large returns to both society and the individual. To better secure the benefits of education, The Hamilton Project outlines an evidence-based education strategy that emphasizes new investments in some areas (such as early education) and structural reforms in others (such as the teacher tenure system).

- **[College Grants on a Postcard: A Proposal for Simple and Predictable Federal Student Aid](#)**

The federal student aid system is ineffective at increasing college enrollment because it is too complex and delivers information to students too late. This paper uses detailed statistical analysis to show that the level of complexity is not necessary to target aid to those who need it most. It then proposes a dramatically simplified system that could significantly increase college enrollment.

**The Hamilton Project** seeks to advance America's promise of opportunity, prosperity, and growth. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by making economic growth broad-based, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments. Our strategy—strikingly different from the theories driving economic policy in recent years—calls for fiscal discipline and for increased



public investment in key growth-enhancing areas. The Project will put forward innovative policy ideas from leading economic thinkers throughout the United States—ideas based on experience and evidence, not ideology and doctrine—to introduce new, sometimes controversial, policy options into the national debate with the goal of improving our country's economic policy.

### The Hamilton Project Update

A periodic newsletter from The Hamilton Project is available for e-mail delivery. Subscribe at [www.hamiltonproject.org](http://www.hamiltonproject.org).

**The Project is named after Alexander Hamilton**, the nation's first treasury secretary, who laid the foundation for the modern American economy. Consistent with the guiding principles of the Project, Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that "prudent aids and encouragements on the part of government" are necessary to enhance and guide market forces.

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