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**Article**

## The program on children

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*Suggested Citation:* Gruber, Jonathan (2008) : The program on children, NBER Reporter Online, National Bureau of Economic Research (NBER), Cambridge, MA, Iss. 4, pp. 1-6

This Version is available at:

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# NBER Reporter

NATIONAL BUREAU OF ECONOMIC RESEARCH

Reporter OnLine at: [www.nber.org/reporter](http://www.nber.org/reporter)

2008 Number 4

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## Program Report

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## The Program on Children

Jonathan Gruber\*

The impact of public policy on the well-being of children continues to be a major area of interest for policymakers. Likewise, the economics of children's issues continue to be a major area of research for members of the Children's Program at the NBER. This program brings together a group of researchers from across many different fields, including labor economics, public economics, industrial organization, econometrics, and development economics. These researchers come together to work on a diverse set of issues related to the well-being of children, and to present their work in annual meetings each spring and at the NBER's Summer Institute each summer.

Since my last report on the Children's Program four years ago, there has been rapid growth in our roster of members, including some of the most exciting young economists in the profession. The number of Working Papers in the last full year before this report, 2007, was almost 40 percent higher than in the last full year before my previous report, 2003. Moreover, there has been a growing diversity of topics addressed by Program researchers, making this summary even more challenging! In this report, I focus on the contributions of this group of researchers to eight areas over the past four years: intergenerational linkages between parent and child; the impact of early life circumstances on later child outcomes; fertility and family structure; child health; children in developing economies; public policies (particularly child care and preschool) and child welfare; risky behavior by and around youths; and education.

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\* Gruber directs the NBER's Program on Children and is a Professor of Economics at MIT. In this article, the numbers in parentheses refer to NBER Working Papers.

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## Intergenerational Linkages

One of the major determinants of the well-being of children is the decisions made by, and changes imposed on, their parents. Over the past four years, a number of researchers in the Children's Program have explored very interesting aspects of this intergenerational linkage. One important area is maternal time inputs to newborns. John Cawley and Feng Liu (13609, 13600) find that employed women spend less time reading to their children and helping with homework, as well as less time cooking and more use of prepared meals. However, Michael Baker and Kevin Milligan (13188, 13826) find that expanded maternity leave, while increasing both maternal time at home and use of breastfeeding, did not have measurable impacts on child development outcomes or health.

Potential improvements in child outcomes from additional parental education or income also are important. Lucia Breirova and Esther Duflo (10513) find that more education for both mothers and fathers in Indonesia led to lower child mortality. Gordon Dahl and Lance Lochner (11279) find that family income increases attributable to the Earned Income Tax Credit lead to improved student test scores. And Philip Oreopolous, Marianne Page, and Ann Huff Stevens (11587) find that children with a parent displaced from a job have lower long-run earnings themselves.

In related studies, Janet Currie and Enrico Moretti (11567) find strong intergenerational correlations in the birth weight of mothers and children. Bruce Sacerdote (10894) compares adoptees to their biological siblings and finds that transmission from parent to child of education, income, height, and obesity are much higher for biological children, but that transmission of drinking and smoking is comparable in both groups. Sandra Black, Paul Devereux, and Kjell Salvanes (13336) use data from Norway to document that planned larger family sizes have little impact on child IQ, but that unplanned increases in family size through twin births do lead to lower IQ among existing children. Patricia Anderson, Kristin Butcher, and Diane Schanzenbach (13479) study the intergenerational correlation of obesity and find that it has increased since the 1970s. And one study provides intriguing evidence of transmission in the other direction: Ebonya Washington (11924) finds that legislators who

have daughters are more likely to vote in favor of women's rights than are those who have sons!

## Long-Run Impacts of Early Childhood Life Events

In addition to the intergenerational linkages between parent and child, another major influence on the life course of individuals is their early childhood experiences. A particular area of innovation over the past four years has been the study of interesting early life influences and how they affect the life course. Here the research has focused on two questions: First, how do child health conditions affect the life course? Oreopolous, Mark Stabile, Randy Walld, and Leslie Roos (11998) compare siblings to show that those in poorer health as infants have lower educational attainment and are more likely to end up on welfare. Black, Devereux, and Salvanes (11796, 10720) use birthweight variation across twin pairs to show that the twin weighing less at birth has lower IQ, education, and earnings later in life; they also show that increases in family size because of twin births lead to lower educational attainment, but this appears to reflect birth-order effects (later children receive less education) rather than family size effects per se. At a cohort level, Carlos Bozzoli, Angus S. Deaton, and Climent Quintana-Domeque (12966) find that groups with higher mortality rates have lower height as adults, consistent with a "scarring" effect of youth disease. And Anne Case, Christina Paxson, and coauthors (12667, 13495) continue to provide evidence that the income gradient in children's health becomes steeper as children age.

Second, what are the long-run effects of negative childhood shocks? Abhijit Banerjee, Duflo, Gilles Postel-Vinay, and Timothy M. Watts (12895) study the impact of a negative income shock from insect attacks in the wine-growing region of France in the late nineteenth century; they find that children born in regions that suffered income losses were shorter later in life but oth-

erwise in no worse health. Jessica W. Reyes (13097) shows that the state-specific variations in the reduction of lead used in gasoline is strongly associated 20 years later with variations in youth crime. David M. Cutler, Winnie Fung, Michael Kremer, and Monica Singhal (13539) show that malaria eradication in India led to long-run gains in literacy and primary school completion rates. Douglas Almond, Lena Edlund, and Marten Palme (13347) show that Swedish children exposed in utero to higher radiation levels from the Chernobyl accident had much worse schooling outcomes later in life. And Almond, Edlund, Hongbin Li, and Junsen Zhang (13384) find that fetal exposure to acute malnutrition during the Chinese famine of 1959–61 was associated with a wide range of worse outcomes later in life.

## Fertility and Family Structure

Since the inception of the Children's Program, a major focus of the research by Program affiliates has been the determinants and implications of fertility decisions and family structure; innovative work in this area has continued over the past four years. A number of these studies investigate the determinants and implications of marriage and divorce decisions. Dahl and Moretti (10281) show that a strong preference for sons leads couples with daughters to be more likely to divorce, and that unwed mothers carrying a boy are more likely to marry in the future. Dahl (11328) uses variation in state laws regulating the age at which individuals are allowed to drop out of school, work, and marry to show that women who marry earlier in life are more likely to live in poverty. Keith Finlay and David Neumark (13928) show that for mothers who are less likely to marry because of higher incarceration rates among potential spouses, there is little negative impact (and perhaps positive impacts) on the outcomes of their children. And Betsey Stevenson and Justin Wolfers (12944) provide a comprehensive review of trends in marriage and divorce and their determinants over the past 150 years.

Other studies in this area focus on the determinants of fertility and abortion decisions. Alma Cohen, Rajeev Dehejia, and Dmitri Romanov (13700) find that government subsidies for childbirth in Israel significantly increased fertility. Melissa Kearney and Phillip B. Levine (13045, 13436) find that expanded access to family planning services under public insurance programs reduced teen births by over 4 percent, and that this was accomplished via greater use of contraception; they also find that women who grow up disadvantaged are much more likely to give birth as teens. Elizabeth Ananat, Levine, Douglas Staiger, and I (12150) show that cohorts with higher rates of abortion have much improved longer-term outcomes, including more education and lower odds of being a single parent, while Ananat and Dan Hungerman (13402) find that the availability of birth control pills led to falls in short-term fertility for young women.

## Child Health

Another major area of activity for the Program has been extensive investigation of the broad determinants of child health. Almond and Joseph J. Doyle, Jr. (13877) use the fact that a child born just before midnight receives almost one full day less of hospital care than one born just after midnight to show that there are no health benefits to the infant from the longer hospital stay. Currie and Stabile (10435) find that Attention Deficit Hyperactivity Disorder (ADHD), the most common child mental health problem, is associated with delinquency, grade repetition, and lower test scores; these findings are confirmed and extended by Jason Fletcher and Barbara Wolfe (13474). Jens Ludwig, Dave Marcotte, and Karen Norberg (12906) use data across 26 countries to show that increased sales of antidepressants are associated with lower suicide rates. Robert Kaestner and Xin Xu (12113) show that the increase in female sports participation mandated by Title IX had strongly beneficial health impacts for adolescent girls. Currie and Matthew

Neidell (10251) find that reductions in air pollution in California during the 1990s saved over 1000 infant lives. Anderson and Butcher (11177) show that schools under financial pressure are more likely to adopt unhealthy food policies, resulting in an increase in body mass index for youths.

A particularly important determinant of children's health is public insurance policies towards children: Anna Aizer (12105) shows that information and administrative costs are barriers to low-income children receiving the public insurance to which they are entitled, and that reducing those barriers increases insurance coverage and improves health. Aizer, Currie, and Moretti (10429) show that mandatory managed care in Medicaid programs reduced the quality of prenatal care and increased poor birth outcomes.

## Children in Developing Countries

A particularly exciting development in the Children's Program over the past several years has been the growth in studies exploring the welfare of children in developing economies. As reviewed by Duflo, Rachel Glennerster, and Kremer (333T), a novel feature of many of these studies is the use of field experiments to assess the causal impact of policy interventions. Felipe Barrera-Osorio, Marianne Bertrand, Leigh Linden, and Francisco Perez-Calle (13890) evaluate cash transfers conditioned on school attendance in Colombia, and find that these transfers increase attendance and graduation rates; incentives for graduation and matriculation are found to be particularly important. Banerjee, Shawn Cole, Duflo, and Linden (11904) demonstrate strong test-score improvements among children in India from programs providing remedial education and computer-assisted learning. Duflo and Rema Hanna (11880) show that a financial incentive to reduce teacher absenteeism in India led to both increased teacher attendance and improved student outcomes. And Kremer, Edward Miguel,

and Rebecca Thornton (10971) find that a merit scholarship program for adolescent girls in Kenya led to significant gains in exam scores that persisted even after the scholarship had ended.

Other studies in this area have explored some of the central issues in development. Eric Edmonds (12926) reviews the explosion of work on child labor in developing countries; he also shows (10265) that income transfers to households in South Africa led to less child labor, while he and Nina Pavcnik (10317) show that free trade leads to higher incomes and lower child labor in developing nations. Ashlesha Datar, Arkadipta Ghosh, and Neeraj Sood (13649) show that villages in India with higher mortality rates invest less in newborns, while Duflo and Christopher Udry (10498) show that a shift in family resources from men towards women leads to more expenditures on food and education and less on alcohol and tobacco. And, Grant Miller (11704) finds that family planning in Colombia led to reduced fertility and education and income gains for young women.

## Public Policies and Child Welfare

There are dozens of policy interventions in the United States and elsewhere that have either intended or unintended consequences for child development, and many studies in the Children's Program have explored the impacts of these interventions. Some of these studies focus on interventions targeted to low-income families. Neeraj Kaushal, Qin Gao, and Jane Waldfogel (12624) study the impact of welfare reform on family expenditure patterns and show that there is an increase in spending on work-related items, but not on child learning or enrichment activities. Ted Joyce, Robert Kaestner, Sanders Korenman, and Stanley Henshaw (10214) show that "family caps" on welfare benefits have little impact on fertility decisions. Mark Duggan and Melissa Kearney (11568) show that participation in the child SSI program (which provides cash resources

to disabled children) leads to increased household income and a reduction in child poverty. But Joyce, Diane Gibson, and Silvie Colman (10796) find relatively limited impacts of maternal participation in the WIC program (which provides food to low-income pregnant women and children) on fetal growth.

A particular focus of research in this area has been on childcare and pre-school availability. Erdal Tekin (10459) finds that childcare subsidies lead to higher labor supply among single mothers. V. Joseph Hotz and Mo Xiao (11873) find that minimum quality regulations in childcare centers deter entry and reduce availability of childcare options. Michael Baker, Kevin Milligan, and I (11832) study the introduction of "\$5/day child care" in Quebec, and find that it led to more use of childcare, higher maternal labor supply, and worse child behavioral outcomes. Katherine Magnuson, Christopher Ruhm, and Jane Waldfogel (10452) find that pre-kindergarten programs are associated with short-run improvement in test scores, but also a long-run increase in behavioral problems. On the other hand, Jens Ludwig and Douglas Miller (11702) find that availability of publicly provided pre-school through the Head Start program led to lower child mortality at ages 5–9, and Ludwig and Phillips (12973) find that the benefits of Head Start exceed the costs. David Blau and Janet Currie (10670) provide a comprehensive review of childcare arrangements in the United States.

## Risky Behaviors Among and Around Youth

The final topic of considerable focus among Children's Program researchers has been risky behaviors by youths — and by those around them who affect their lives. Michael S. Visser, William T. Harbaugh, and Naci H. Mocan (12507) use experimental evidence from the laboratory to show that young people are rational and responsive to incentives in their criminal decisions, such as how much to steal. Mocan and Erdal Tekin

(12019) show that being very attractive reduces a young adult's propensity for criminal activity, while being unattractive increases it. Mark Coppejans, Donna Gilleskie, Holger Sieg, and Koleman Strumpf (12156) show that youths' demand for cigarettes is forward looking, and that they are less likely to smoke when the price of cigarettes is more volatile. Sara Markowitz, Robert Kaestner, and Michael Grossman (11378, 10459) show that increased alcohol use among teens does not change the odds of sexual activity, but does lead to lower contraceptive use; they also find that policies to reduce drinking lead to lower rates of sexually transmitted diseases. Pinka Chatterji and Jeff DeSimone (11337) find that binge drinking by youths is associated with lower probabilities of high school graduation, while DeSimone and Amy Wolaver (11035) find that binge drinking leads to lower grades. Christopher Carpenter and Carolos Dobkin (13374) find that there is a sharp increase in mortality right at age 21 when drinking becomes legal. Tekin and Markowitz (11238) show that suicidal urges among young people decrease the investment that they make in work or schooling.

Much of the risk facing youths also comes from their environment and the decisions of the adults around them. Jeffrey R. Kling, Jens Ludwig, and Lawrence F. Katz (10777) study the important Moving to Opportunity demonstration that randomly moved families out of public housing projects; they find that moving to lower-poverty areas reduces arrests among female youth for both violent and property crimes, while for males violent crimes fall but property crimes rise. Currie and Tekin (12171) use a variety of data strategies to find strong evidence that the mistreatment of children leads them to later engage in criminal activities. Doyle (13291) uses the fact that children at risk of foster care are randomly assigned to case managers, some of whom have a much higher propensity than others to place them in foster care, to show that children placed in foster care have somewhat higher arrest rates later

in life. Aizer (13773) shows that interacting with violent peers increases violence among urban youths. But Matthew Gentzkow and Jesse Shapiro (12021) find that increased preschool exposure to television (because of differential introduction rates of television in the United States) actually *raises* average test scores among youths, and Dahl and Stefano DellaVigna (13718) find that the release of violent movies *lowers* the incidence of youth violence.

## Education

The economics of education remains the main area of focus for researchers affiliated with the Children's Program. Since this work will be summarized independently in a Program Report on the Education Program by its Director Caroline M. Hoxby, I will only briefly discuss the large amount of work in this area.

This past year researchers have made important contributions in five central areas. The most activity has been around evaluating state and federal efforts to increase school accountability and to promote school choice. Eric A. Hanushek and Margaret Raymond (10591) provide an overview of state accountability efforts and find improved student performance, although papers by Neal and Schanzenbach (13293), David N. Figlio (11193), and Brian Jacob (12817) find other responses by schools and students that undercut these gains.

The next step in educational reform, beyond accountability, is to move to free school choice and perhaps even vouchers, whereby parents can bring their public tax dollars to whatever school they choose rather than just the local school. Justine S. Hastings, Thomas J. Kane, and Douglas O. Staiger (11805, 12145) and Hastings, Richard VanWeeden, and Jeffrey Weinstein (12995) use unique data from North Carolina on parent's school choice preferences to explore the role of information in public school choice. Julie B. Cullen and Brian Jacob (13443) find that students winning lotteries to attend higher quality schools in

the Chicago Public School system do not see any improvement in performance, while Joshua Angrist, Eric Bettinger, and Michael Kremer (10713) showed very positive long-run effects of school choice in Colombia.

Another set of papers provided compelling evidence on the impact of a host of interventions in the educational process. For example, Cecelia E. Rouse, Alan B. Krueger, and Lisa Markham (10315) find that a popular computer program for improving writing skills had little positive impact; Brian Jacob and Lars Lefgren (13514) find that grade retention strategies lead to an increase in dropping out of school; and Black, Devereux, and Salvanes (10911) find that compulsory schooling laws lead to reduced teenage childbearing in both the United States and Norway.

In the last few years there was a particular focus on the determinants and implications of segregation among students. David Card and Krueger (10366) find that the abandonment of affirmative action in higher educational admissions decisions led to a very large drop in minority acceptance rates, but had little impact on the college-going of highly qualified minorities. Figlio (11195) finds that across siblings, the one whose name is associated more typically with lower socio-economic status tends to be graded worse by teachers. Thomas Dee (11660) finds that assignment to same-gender teachers improves the performance of both boys and girls in high school, while Florian Hoffman and Oreopolous (13182) find similar effects in a college setting. Card and Jesse Rothstein (12078) find that the black-white test score gap is highest in the most segregated school districts.

Finally, the Program also continues to focus on the all important higher education sector. Kane (10658) finds that allowing residents of the District of Columbia to use in-state tuition in attending colleges in Maryland and Virginia doubled the number of D.C. residents attending college in those other states. Oreopolous, Till Van Wachter, and Andrew Heisz (12159) find that

graduating from college in a recession lowers earnings for eight to ten years thereafter. Angrist, Daniel Lang, and Oreopolous (12790) find that financial incentives for college students in Canada led to improved grades and college completion for female students. Rothstein and Rouse (13117) find that when a U.S. college moved from loans to direct grants to its students, students were willing to take much lower paying jobs.

And, Susan Dynarski (10357, 10470) discusses the pros and cons of tax subsidized savings accounts for college.

## Conclusions

The past four years have seen continued growth in the areas of interest and the depth of research produced by members of the Children's Program. The results are an important set of findings

that dramatically advance our understanding of child well-being. Moreover, the findings summarized here are only a part of the exciting research program being carried out by Program members. This policy-relevant work will continue to promote our understanding of children's well-being in the United States and around the world.

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## Research Summaries

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# Bossonomics? The Economics Of Management And Productivity

Nick Bloom and John Van Reenen\*

## Management and Productivity

Economists have long speculated on why such astounding differences in productivity exist between firms and plants within countries, even within the same narrow sector.<sup>1</sup> While the popular press and business schools have long stressed the importance of different management practices, empirical economists have had relatively little to say about management.<sup>2</sup> A major problem has been the absence of high quality management data that is measured in a consistent way across firms and countries.

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\* Nick Bloom is a Research Associate in the NBER's Programs on Economic Fluctuations and Growth, Monetary Economics, and Productivity, and an Assistant Professor of Economics at Stanford. John Van Reenen is a Research Associate in the NBER's Program on Labor Economics and a Professor of Economics at the London School of Economics. Their profiles appear later in this issue.

Despite this data constraint, heterogeneity in managerial and entrepreneurial ability has become the foundation for a wide range of literatures.<sup>3</sup> In many benchmark theories, it is assumed that management is an unobservable factor that varies across firms, driving productivity differences. In parallel, Mundlak labelled his fixed-effect differences in productivity as "unobserved managerial ability."<sup>4</sup>

## Measuring Management using Double-Blind Surveys

To address this lack of management data, we have been developing a methodology for measuring management practices.<sup>5</sup> We use an interview-based evaluation tool that defines and scores from one ("worst practice") to five ("best practice") 18 basic management practices. This evaluation tool was developed by an international consulting firm, and scores these practices in three broad areas:

- *Monitoring*: how well do companies track what goes on inside their firms, and use this for continuous improvement?
- *Target setting*: do companies set the right targets, track the right outcomes, and take appropriate action if the two don't tally?
- *Incentives*: are companies promoting and rewarding employees based on performance, and systematically trying to hire and keep their best employees?

To obtain accurate responses from firms, we interview production plant managers using a "double-blind" technique: managers are not told they are being scored or shown the scoring grid; they are only told they are being "interviewed about management practices for a research project." To run this blind scoring, we use open questions. For example, on the first monitoring question, we ask "tell me how you monitor your production process," rather than asking a closed question such as "do you moni-