THE IMPACT OF EARLY CHILDHOOD EDUCATION ON HEALTH AND WELL-BEING

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Seeing and Hearing: The Impacts of New York City’s Universal Prekindergarten Program on the Health of Low-Income Children

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Robert Wood Johnson Foundation’s Policies for Action Hub
Background: effects of pre-k

• Major findings from prior research:
  • Short-run impacts often fade within a few years
  • Yet, long-run impacts persist through adulthood

• Most research had been of specialized programs or smaller-scale experiments

• Little data on large-scale, high-quality, government-sponsored, universal pre-k
Our hypotheses

• **Pre-k could be good for health**…
  • Health screenings & detection of delays relative to other kids
  • Healthier environment than home (food, physical activity)
  • Immunizations

• **Pre-k could be bad for health**…
  • Spread of infectious diseases
  • Negative learned behaviors (e.g., aggression)
  • Increased risk of injuries
 Mayor Bill de Blasio & NYC’s Pre-K for All

- More than 250% increase in children enrolled in full-day pre-k from 2013 and 2015
- Enrollment data show largest growth in low-income and immigrant neighborhoods

New York City Launches Historic Expansion of Pre-K to More Than 51,000 Children

September 4, 2014
Features of NYC’s UPK program

• All sites were required to follow uniform safety and curricular standards
• Developmental and vision screenings required
• Eight immunizations required
• Ongoing quality evaluations
NYU’s Policies for Action Hub + Medicaid data

New York State Medicaid Claims

- 6-7 million patients/year
- 200-300 million claims/year
- Also available: social, welfare, and demographic data

NYU Health Evaluation and Analytics Lab (HEAL)

NYU Wagner’s RWJF Policies for Action Hub

NYU Research Centers

NYC Government Agencies
Study design: exploiting the birth date cutoff

- **Birth date to be eligible in 2014**: Jan 1, 2010 – Dec 31, 2010
- **Birth date to be eligible in 2015**: Jan 1, 2011 – Dec 31, 2011
- **Ideal bandwidth (tested empirically)**: 60-days (Nov 1 – Mar 1)

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**Figure 1: Timing of Observations**

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<td>(a) 2013-2014 (pre-UPK)</td>
<td>K</td>
<td>PK(5)</td>
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<td>(b) 2014-2015 (post-UPK, 1st year)</td>
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<td>(c) 2015-2016 (post-UPK, 2nd year)</td>
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Study design: multiple experiments

• 2 comparisons for 2014 pre-k academic year:
  • “Oldest” eligible for UPK in 2014 vs those who were slightly too old
  • “Youngest” eligible for UPK in 2014 vs those who were slightly too young

• 1 comparison for 2015 pre-k academic year:
  • “Youngest” eligible for UPK in 2015 vs those who were slightly too young

• 1 comparison for second-year kindergarten effect:
  • “Oldest” eligible for UPK in their kindergarten year vs those who were too old for pre-k in their 1st grade year
Results: pre-k year

• **Vision diagnoses:**
  • 2-3 percentage points more likely

• **Asthma diagnoses (2014 only):**
  • 2-3 percentage points more likely

• **Hearing treatments:**
  • 1 percentage point more likely

• **Vision treatments:**
  • 1-3 percentage points more likely

• **Immunizations & infectious disease screenings:**
  • 4-6 percentage points more likely
Results: treatment timing & kindergarten year

• Assessing relative timing for treatments:
  • Proportional hazards
  • Pre-k eligible children experienced earlier first treatments of vision problems

• Testing whether diagnoses are reduced in the kindergarten year:
  • DRD methodology
  • We observe no offsetting reduction
Conclusions & future directions

• Health as a pathway for long-term benefits

• Pre-ks as a non-healthcare site for health interventions

• Future research could link actual enrollment and health for better estimates

• Ongoing evaluations should integrate pre-k quality metrics and assess the new “Three-K for All” policy
Dissemination & reception

• NBER working paper received press from Chalkbeat, Business Insider, local papers, and a Vox News podcast

• Positive feedback from NYC health and education officials

• Interest from NYU faculty to explore similar questions about education and health
The Impact of Early Childhood Education on Health and Well-Being

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Quantifying the Life-cycle Benefits of a Prototypical Early Childhood Program
The Carolina Abecedarian Project (ABC/CARE)
It supports childcare for working mothers, but is too costly

It seems to work only for girls

Looking at self-reported crime, it has no effect

Too costly at $80,000 per child

Program too old to be informative

Control group substitution bias is threat to validity
This paper presents a Cost-Benefit Analysis

- We combine datasets to predict lifecycle benefits and costs
- Benefit/cost ratios and rates of return are estimated

ABC/CARE program features:

• Two very similar programs launched in the early 1970s
  • Center-based
  • Start at age 8 weeks
  • Intensive (8 hours/day)
    • 7:45 a.m. to 5:30 p.m., 5 days per week, 50 weeks per year.

• **Targeted:** Disadvantaged families (High Risk Index: low-IQ parent, low family income, no relatives in the area, etc)
  • 98% children were African-American
  • 63% born to first-time mothers

• **Goals:** intentional curriculum on building language through adult-child interaction.
Relevant for current policy discussions

- Core elements exist in today’s high-quality programs:
  - Lead teacher with BA degree
  - Professional development and on-site coaching of staff
  - Child-centric, play-based curriculum
  - Socioemotional development
  - Full day
  - Doctor and nurse on staff. Continuity of care to ensure medical follow-up
  - Referrals for developmental screenings
  - Healthy meals and snacks while in the center

- Many children eligible for ABC/CARE in U.S.
  - 19% of all African-American children in the U.S. today, 43% at its inception
  - Corresponding figures for total population are 6% and 15%
Previous Abecedarian Analysis

• Key findings
  • High-quality programs can reduce chronic disease and health care costs.
  • Benefits include lower drug use and blood pressure, better education outcomes and higher incomes for treated children

Overview of findings from CBA
Program has substantial benefits on:

- Health, quality of life and healthy behaviors
- Participant’s earnings
- Crime
- Education
- Mother’s earnings and employment
Program effects differ by gender

- More beneficial treatment effects for girls
- More substantial *monetized* benefits for boys

CBA

• The overall rate of return: statistically significant 13.7% per annum with a benefit/cost ratio of 7.3
  • Even after accounting for the welfare costs of taxation to finance the intervention

• Estimates are robust to variety of sensitivity analyses
Net Present Value of The Main Components of The CBA, Treatment vs. Next Best

Per-annum Rate of Return: Males and Females 13.7% (s.e. 3%).
Benefit–cost Ratio: Males and Females 7.3 (s.e. 1.8).
How ABC/CARE benefitted families

• The quality, duration and reliability of the program and center provided parents with the means and confidence to enter into the job market.

• Mothers entered the workforce, gained skills and increased their earnings, even beyond the program.

• Increases in parental income alone paid for the cost of the entire program after just five years.
How ABC/CARE benefitted children

- Permanent gains in IQ and social-emotional skills.
- Children received foundational skills that made them more productive in the future workforce.
- Females saw positive effects on years of education, high school graduation, adult employment and income and parental income.
- Males had higher education, health, employment and income outcomes; lower adult hypertension, blood pressure and drug use.
Quality is key

- Children in the high-quality program had significantly better life outcomes than those who were not in center-based care or who were in lower-quality child care.

- Low-quality child care has negative effects for males.

- Females are more resilient to lower-quality settings.
Key contributions to the literature

• Forecasted long-term benefits and costs of adult health
  • In partnership with health economists at the USC Schaeffer Center

• Accounted for control contamination
  • 75% in the control group attended alternative child care

• Incorporated benefits to the family

• Creates a methodology that could be applied in other settings
Illuminating a Path Forward
What it means

• Preschool can be too little too late for disadvantaged children.

• Quality pays off for children and supports families: The cost of this comprehensive approach pays for itself within five years because families have high-quality child care and can confidently go back to work.

• The returns on programs for low-income families have returns on health, nutrition, child care, and early learning.

• Early childhood interventions therefore can increase achievement and upward mobility while reducing health care costs and social spending.
• Policymakers can invest with confidence in high-quality child care for low-income families.

• Attaching quality to child care provides two generations of benefits—it helps parents grow their income and children grow smarter.

• Simply providing access to child care without early health and learning is a missed opportunity to promote upward mobility in two generations.

• Investing in high-quality child care quickly pays for itself in income gains among parents.
• Quality early learning is essential for building skills that enable greater achievement and health.

• Policymakers who invest in high-quality early learning programs from birth can permanently boost IQ and social-emotional skills that create productive, independent adults.

• Child care functions as early learning in the real world—child care without high-quality learning is a huge missed opportunity.

• Low-quality child care can be harmful to children, particularly males.
How does this study support policy work?

• **Health**: Justification for retaining and increasing child health and nutrition programs.

• **Early Learning and Family Support**: Economic argument for understanding why child care and early childhood development are linked and attaching quality early health and learning to child care benefits.

• **Powerful way to reduce the effects of poverty on families and child development**—boosting parental income and the child’s economic and social prospects.

• **Intergenerational Impacts**: High-quality childcare allows mothers to return to work and earn more over time which has economic benefits in the short-term and long-term.
ABC/CARE is Effective

- It supports childcare and educational attainment for mothers and is economically efficient.
- It works for boys and girls, but in different dimensions and is economically efficient.
- It reduces crime and is economically efficient.
- Program permits long-term follow-up - In addition, program widely replicated and motivates a variety of new initiatives.
- Control group substitution is informative on differential impact of low quality childcare on boys and benefits of home care.

We All Agree
It’s An Effective Program

It’s expensive, but has a very high rate of return.

Different methodological approaches agree
The rate of return is 13.7% - it survives extensive sensitivity analysis.
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PRITZKER CHILDREN'S INITIATIVE

Partners:

Frank Porter Graham Child Development Institute

USC Schaeffer
Leonard D. Schaeffer Center for Health Policy & Economics

CENTER FOR THE ECONOMICS OF HUMAN DEVELOPMENT
The University of Chicago

THE UNIVERSITY OF CHICAGO
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