WHY (AND HOW TO) INVEST EARLY?
SCIENCE AND THE INVESTMENT CASE

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Kigali, Rwanda, July 2015
The brain grows rapidly during the first two years...and use it or lose it

Newborn   1 month   6 months   2 years   6 years   14 years

http://www.cell.com/action/showImagesData?pii=S0896-6273%2807%2900777-5
A child’s brain grows rapidly during the first 1,000 days: a window of opportunity

First 1,000 Days

The challenge: Children from poorer families are less likely to get the investments they need, risking early deficits in brain development that grow over time

Brain growth over time by socio-economic status

Ex. 1: Madagascar: gaps emerge early and widen with age

Educated mothers

Uneducated mothers

Galasso, Fernald, Weber 2014
Ex. 2: Language performance of 5-6 year old children in five countries, by socio-economic status

Ex. 3: Slovakia: gaps in early development between Roma children 3-6 of low and very low educated mothers
In the United States, by the time children are 3 years

- Know 1100 words if from economically advantaged families
- Know 500 words if from economically disadvantaged families

In the United States, by the time children are 4:

- Those from economically advantaged families have heard 30 million more words (Hart and Risley 1995).
Against this background: individual and social returns are highest when investments are made early

- Returns to a unit dollar invested at different ages

Source: http://heckmanequation.org/
What are key factors promoting healthy early child development?

“Nutrition feeds the brain and builds the body”

“Stimulation sparks the mind”

“Love and protection buffer the negative impacts of stress and adversity”

Lake and Chan, 2014
Nutrition

Promotes optimal growth and brain development
Feeding styles matter too: responsive feeding is associated with better growth and weight.

### Responsiveness vs. Structure

<table>
<thead>
<tr>
<th>Responsive</th>
<th>Indulgent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looks like you like the beans.</td>
<td>Have more ice cream!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Controlling</th>
<th>Uninvolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forceful</td>
<td>Don’t bother me!</td>
</tr>
<tr>
<td>Restrictive</td>
<td></td>
</tr>
<tr>
<td>Eat the beans!</td>
<td></td>
</tr>
</tbody>
</table>

Baumrind, 1977; from Dr. Maureen Black
Lack of Sufficient Nutrition: Wasting and Stunting in Children

Wasted
Stunted

<table>
<thead>
<tr>
<th>Wasted</th>
<th>Stunted</th>
<th>Underweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Stunting: low height for age ("short")

Stunting: Length-for-age $< -2$ z-scores (2.27 %ile)

WHO international norms
Globally, stunting and underweight of children < age 5 is going down

However, globally, 24% of children < age 5 years are stunted or 165,000,000 children.

Sub-Saharan Africa, Asia
What Are Key Factors Promoting Healthy Early Child Development?

“Nutrition feeds the brain and builds the body”

“Stimulation sparks the mind”

“Love and protection buffer the negative impacts of toxic stress and adversity”

Lake and Chan, 2014
Cognitive stimulation sparks the mind...

Viewing words... Listening to words...

Passively viewing words
Speaking words
Generating Verbs
Listening to words

Speaking words... Making verbs...
Some evidence that young children from wealthier countries tend to receive more cognitive stimulating caregiving.

Cognitive stimulation activities

Source: Bornstein and Putnick 2012.

Note: The bar graphs show the number of caregiving activities reported by mothers in the past three days, based on comparable data from the United Nations. The caregiving activities measured were reading books, telling stories, and naming/counting/drawing with the child.
What Are Key Factors Promoting Healthy Early Child Development?

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Lake and Chan, 2014
Love and protection buffer the negative impacts of stress and adversity

Stress and adversity.
Examples of underlying causes:
- Chronic deprivation and prolonged hunger
- Domestic violence and abuse
- Violent conflicts

Stress and adversity can disrupt healthy brain development
Examples of effects:
- Increased cortisol (hormone) production
- Reduced ability to absorb nutrients

Lake and Chan, 2014
How do we design and implement the best programs?

Solution 1: Only look where there is light

“Nutrition feeds the brain and builds the body”

“Stimulation sparks the mind”

“Love and protection buffer the negative impacts of stress and adversity”

Or?
Or do we bring our own light?

**Measure** gaps in human development outcomes

Use **science and reasoning** to better understand pathways

And test our assumptions using rigorous **program impact evaluations**
Elements of having an impact (and knowing you did)

The art

The program

The science

Measure what happens with the beneficiaries

Compare with similar non-beneficiaries to estimate what would have happened without the program
Ex. 1: Early stimulation: helping children develop into healthy, productive adults: the story of Jamaica (1986)

Randomized Control Trial

Read also: https://blogs.worldbank.org/education/international-children-s-day-reflecting-impact-early-childhood-development
Ex. 1: Early stimulation: helping children develop into healthy, productive adults: the story of Jamaica (1986)

Early stimulation activities:

• Higher cognitive development
• Higher education outcomes as youth
• Higher earnings as adults 20 years later
Ending extreme poverty and building shared prosperity requires evidence to identify those programs and policies that will have a real impact. The World Bank’s Strategic Impact Evaluation Fund (SIEF) makes this happen by investing in impact evaluations of innovative human development programs in low-and middle income countries, and by working directly with policymakers and other key stakeholders to use the results and build better policies and programs that successfully improve people’s lives.

SIEF is a multi-donor trust fund created in 2012 with the support of the British government’s Department for International Development (DFID) and currently also receives support from the London-based Children’s Investment Fund Foundation (CIFF), which seeks catalytic change for children including promoting early childhood development and evidence-based solutions. SIEF focuses on four human development areas that are crucial to improving the lives of the world’s poorest and most vulnerable: Early Childhood Development and Nutrition, Basic Education, Health Systems and Service Delivery, and Water Supply, Sanitation, and Hygiene.

SIEF partners with leading impact evaluation researchers and those who develop and implement innovative programs.
Who would like to have some more rigorous evidence on what ECD programs work best?

Thank You!

I Do!
PS. And, should we not also measure program costs?