Parental Beliefs, Investments, and Child Development: Experimental Evidence from Chile

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Motivation

- Broad consensus that parental investments are crucial determinants for child development [Heckman 2006, 2007] [Cunha, Heckman 2007], subset of nurturing care [LANCET 2016]
  - Material investments
  - Quality parent-child interaction (opportunity for learning/responsive caregiving)

Question: What are the determinants and drivers of parental investments?
  - How to define information, beliefs [Bonstein Handbook of Parenting]
  - Map beliefs to practices/investments and investments to outcomes

- Large scale program in Chile aimed at shifting information, parental perceptions and beliefs about parenting
Framework: dynamic process of human capital formation [Attanasio's keynote]

Stylized framework to model parental behavior: choose ‘investments’ I as a function of:

- **preferences** (how much parents value their children human development, how much they enjoy engaging/interacting with their children)
- **constraints** (income/resources, time, prices], environment
- a given level *child development level* at the beginning of the period \((H_0)\)
- **Subjective beliefs** about the process of child development: how do investments map into next period child development?

\((I, H_0) \rightarrow H_1\)
What we would like to measure? $H_1$

**Why it is important** [beliefs about the process of child development] ?

- Subjective returns about the importance of investing [Cunha, Elo, and Culhane 2013] [Attanasio, Cunha, Jervis, 2019], or the perceived cost about not adopting a positive practices

- Subjective perceptions that intelligence and child development is malleable
Cuhna: scenarios to elicit perceived beliefs on how investments map onto outcomes

**Scenario 1: high investment**
- El cuidador principal:
  - no pierde la paciencia con el niño cuando hace pataletas.
  - No se enoja ni lo golpea.
  - Lo apoya cuando está asustado o enojado.

**Scenario 2: low investment**
- El cuidador principal:
  - A veces pierde la paciencia con el niño cuando hace pataletas.
  - Se enoja con el niño.

<table>
<thead>
<tr>
<th>El cuidador principal:</th>
<th>El cuidador principal:</th>
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<th>El cuidador principal:</th>
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</thead>
<tbody>
<tr>
<td>• elogia al niño/niña cuando se porta bien</td>
<td>• elogia al niño/niña cuando se porta bien</td>
<td>• No elogia al niño a menudo cuando se porta bien</td>
<td>• No establece reglas claras</td>
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<tr>
<td>• no le presta atención cuando no coopera.</td>
<td>• no le presta atención cuando no coopera.</td>
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<tr>
<td>• Establece reglas claras</td>
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</table>
What we would like to measure? $U(H_1, I)$

- Elicit **what is perceived to be important**: unpacking preferences. What domains are valued [cognition, behavior, creativity] at different stages
  - intergenerational transmissions of parenting styles [Zilibotti, Doepke 2017]
  - Kağıtçıbaşı 2007 and Sharon Wolf’s work Ghana
- Elicit aspirations about educational attainment
Parenting equilibrium as a function of the economic environment

Across countries

Within countries and over time

- Democratic/authoritative (structure, communication, scaffolding) requires effort and non-cognitive skills

- Educational aspirations for their children held by parents Q1 in Chile increased from 18 to 63% between 1999 and 2009 [Urzúa, 2012]

Doepke, Sorrenti, Zilbotti 2019 using World Value Surveys

Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important?
What we would like to measure?

- Know what a ‘normal’ child development level is for a given age? $H_0$

Investments I

- Know what to do (information, demonstration, social learning)
- Do what you know mediated by:
  - Beliefs that caregivers can activate behaviors [parenting self-efficacy] [Bandura]
  - Behavioral constraints: attention/planning/mental space
Nadie es Perfecto a large-scale low intensity group-based parenting intervention in Chile

[CARNEIRO, GALASSO, LOPEZ, CORDERO, BEDREGAL 2019]
Nadie es Perfecto (NEP): background

- Adapted from the Health Canada “Nobody’s Perfect” program
  - Community nurses systematized parenting needs about children 0-6
  - Semi-structured curriculum: promote positive parenting in group dynamics.

- Implemented in Chile in 2009 within the Chile Crece Contigo system
  - Delivered through public health clinics (existing primary health care infrastructure)
  - Group session conducted by a trained facilitators (health worker)
  - Target: low income families of children ages 0-5, not in crisis [1/2 sample belong to Q1]
Tested two modalities:

NEP Basico (Canadian standard Policy) group parenting sessions
- 6-8 weekly sessions, 2 hours each
- 6-12 parents per session
- 1 certified facilitator from the health center
- Sessions implemented through group dynamics organized by topic
- Parents take home simple booklets by topic

NEP Intensivo: Basico + two sessions of parent-child interactions
- designed to boost language (dialogic reading) and the importance of play [only experimental]
- Discussion of videos, age-specific activities
Demand side intervention within an ecosystem of services
Innovation: curriculum experiential learning

Awareness; Internalizing the experience; adopt new strategies

- Emotional connection: Facilitator asks participants common questions and daily struggles

- Parents choose which topics will be discussed in each session
  - • Managing Behavior (24.1%)
  - • Parental self-image and self-care (21.8%)
  - • Child cognitive and socio-emotional development (18.6%)

- Facilitator prepare group activities to tackle these problems
- Parents discuss main challenges to adopt new strategies at home.
Beliefs
- Parenting styles
- Parenting self-efficacy/sense of competence
- Perceived benefits of stimulation

Parenting behaviors
- Socio-emotional support (discipline, nurturance)
- Cognitive stimulation (materials/play activities)
- Child expenditures in health/education

Child development outcomes
- Language
- Executive function
- Socio-emotional development

Pathways and theory of change

Mental health caregiver
Parental endowments

NEP
Evaluation Design

- Sampled 162 public health centers, stratified by type
- Drew random sample 18 families per center among potential participants (waitlist 45-60 per health center)
- Within centers random assignment: NEP basico, NEP intensivo, Control
- Total sample: 2,916 hh's, 3,600 children at baseline
- Compliance with treatment: 25% basico, 30% intensivo
- Attrition: 10% households, 19% children
- Timeline:
  - 2011 baseline >> 2011/12 intervention >>> 2014 endline
Beliefs
- Ideas about parenting (IAP)
  - Parenting sense of competence scale (PSCS)
    - Beliefs about parental role in caregiving (PACOTIS)
      - Elicitation beliefs

Parenting behaviors
- Parenting Behavior Checklist (nurturing, discipline)
  - HOME/Family Care Indicators
- Child expenditures in health/education

Child development outcomes
- Receptive Language (TEVI-R ~ TVIP)
- Dimensional Change Card Sort (DCCS)
- Battelle socio-personal Internalizing/Externalizing behaviors: Achenbach (CBCL)

Parenting Stress Index, Depression
Perceived social support
Parental cognition, personality
Baseline SES gradients in beliefs

Parenting style and primary caregiver education

- permissive
- authoritarian

Parental Sense of Competence by primary caregiver education

- primary
- hs dropout
- secondary
- tertiary
Baseline SES gradients in investments

PBC and primary caregiver education

Home environment (FCI IRT) by primary caregiver education

- primary
- hs dropout
- secondary
- tertiary
## Results: Beliefs

<table>
<thead>
<tr>
<th>Beliefs</th>
<th>Obs.</th>
<th>NEP-B</th>
<th>NEP-I</th>
<th>P-value test B–I</th>
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</thead>
<tbody>
<tr>
<td>Parental Beliefs, Attitudes, Perceptions</td>
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<td>Perceived Self-efficacy</td>
<td>2543</td>
<td>0.037</td>
<td>0.100**†</td>
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<td></td>
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<td>Perceived Parental Impact of own behavior on child development</td>
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<td>0.067</td>
<td>0.103**†</td>
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<td>Perceived Social Support - Family</td>
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<td>Perceived Social Support - Friends</td>
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<tr>
<td>Perceived Social Support – Others</td>
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<td>Democratic style</td>
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<td>Authoritarian style</td>
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<td>Permissive style</td>
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<td>Elicited Age High Investment Home Scenario</td>
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<td>-0.064</td>
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<td>Elicited Age Low Investment Home Scenario</td>
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## Results: investments

<table>
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<th>Obs.</th>
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<th>NEP-I</th>
<th>P-value test B=I</th>
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<td>Home Index</td>
<td>2545</td>
<td>0.084</td>
<td>0.155**†</td>
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<td>PBC Affection</td>
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<td>0.042</td>
<td>0.085*</td>
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<tr>
<td>PBC Interaction</td>
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<td>0.013</td>
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<td>(0.046)</td>
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<td>PBC Negative discipline</td>
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<td>-0.077*</td>
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<tr>
<td>PBC Positive discipline</td>
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<td>0.988</td>
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## Results: Child Development Outcomes

<table>
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<tr>
<th></th>
<th>Obs.</th>
<th>NEP-B</th>
<th>NEP-I</th>
<th>P value</th>
<th>Test B-I</th>
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<tr>
<td>Receptive Language</td>
<td>2895</td>
<td>0.076*</td>
<td>0.100**†</td>
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<td>Personal-Social Development: Composite Index</td>
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<td>0.064</td>
<td>0.132**†</td>
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<td>(0.061)</td>
<td>(0.062)</td>
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<td>Behavioral problems: Externalization</td>
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<td>-0.022</td>
<td>-0.014</td>
<td>0.874</td>
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<tr>
<td>Behavioral problems: Internalization</td>
<td>1887</td>
<td>-0.028</td>
<td>-0.019</td>
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<td>Executive Function</td>
<td>2879</td>
<td>-0.008</td>
<td>0.035</td>
<td>0.329</td>
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<td>Sustained attention</td>
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<td>-0.035</td>
<td>0.009</td>
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<td>(0.044)</td>
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Mediation analysis:

- Simple estimation of Direct and Indirect Effects using Montecarlo Simulation methods:

- Effects in receptive language explained up to 20% by intervention-induced changes in HOME and (to a less extent) self-efficacy

- Effects in socio-emotional development explained up to 40% by intervention-induced changes in HOME, Nurturing and Discipline behaviors.
Conclusions

- Large and exciting measurement agenda on the determinants of parental investments
- NEP: We find sustained impacts three years after the end of the intervention in parental beliefs, stimulation practices, and child outcomes.
- NEP delivers the highest returns for children in the most disadvantaged households.
- This is remarkable/surprising:
  - Low intensity of the intervention: just 6/8+2 sessions over 3 months
  - Effects persist. In many ECD interventions the effects quickly fade out. Potential key role of beliefs and expectations in sustaining effects
- Mediation: changes in behaviors play a bigger role in observed changes in socio-emotional development than in language.
- Need more structure to fully map pathways of change from beliefs->behaviors->outcomes