Parenting Style and the Development of Human Capital in Children

Marco Cosconati

Bank of Italy & IZA
Introduction

Motivation

- The impact of parental home inputs on children’s outcomes has been widely studied by economists.
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The effectiveness of alternative parenting strategies in producing desirable child outcomes has been investigated by researchers in child development and sociology.
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It is controversial if leaving discretion to children is a better approach to parenting than setting strict limits.
The impact of parental home inputs on children’s outcomes has been widely studied by economists.

The effectiveness of alternative parenting strategies in producing desirable child outcomes has been investigated by researchers in child development and sociology.

It is controversial if leaving discretion to children is a better approach to parenting than setting strict limits.

It has been recently been suggested that the “Chinese” parenting model, as opposed to “Western” parenting, is the main source of academic success of Asian children with respect to their peers.
Addressing this debate from an economic prospective:

1. enhances our understanding of the impact of parental inputs on children’s human capital
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2. is consistent with recent evidence about the importance of discipline/motivation for the formation of cognitive skills

3. has potentially important implications for public policies that ease parents’ monitoring cost by restricting children's recreational activities
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1. enhances our understanding of the impact of parental inputs on children’s human capital
2. is consistent with recent evidence about the importance of discipline/motivation for the formation of cognitive skills
3. has potentially important implications for public policies that ease parents’ monitoring cost by restricting children’s recreational activities
4. allows us to more closely look at parent-child interaction
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Parenting in the Data

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<td>67.04</td>
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Goal of the Paper and Main Finding

- Develop and estimate a model of parent-child interaction to better understand the relationship between parenting styles and children’s human capital

Finding:
One size does not fit all: strict parenting in not the best policy for all type of children

Implication: a mandatory curfew law could have positive or negative effects on children’s cognitive skills (PIAT MATH test scores)
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Information structure and order of moves

- There are two forward looking players: the parent and the child
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Information structure and order of moves

- There are two forward looking players: the parent and the child
- Two periods

- Child’s effort is imperfectly monitored by parents (moral hazard)
- Parents are uncertain about the child’s valuation of her human capital (adverse selection)

The order of moves in the stage game is as follows:
- Conditional on the stock of human capital, $G_{t-1}$ and the beliefs about the type of the child, $p_{t-1}$, parents choose one of three parenting styles: strict, neutral, permissive; $R_t \in \{s, n, p\}$
- The child chooses an effort level $e_t \in [0, 1]$ (unobserved by parents)
- A shock $\epsilon_t$, unobserved by parents, is drawn
- Child’s human capital realization, $G_t$, becomes public
- Parents update their initial beliefs $p_{t-1}$
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Primitives
Child’s Preferences

Child:
- cares about leisure and prefers loose limits
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- cares about her human capital
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\[ u_t = \begin{cases} 
(1 - e_t)w(R_t) & \text{if } t = 1, 2 \\
\omega_i G_2, i \in \{L, H\} & \text{when the game is over} \end{cases} \]

where:
- \(0 < \omega_L < \omega_H\)
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- \( w(R_t) = \mathbb{I}[R_t = s] + \mathbb{I}[R_t = n]\mu_n + \mathbb{I}[R_t = p]\mu_p \)
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- \( w(R_t) = I[R_t = s] + I[R_t = n] \mu_n + I[R_t = p] \mu_p \)
- \( \mu_p > \mu_n > \mu_s = 1 \Rightarrow \) stricter limits diminish the value of recreational activities

- parents have a prior \( p_0 \) on the vector of types \( \omega \) at the beginning of the first period
Parents

- Care about the child’s human capital
Primitives
Parents’ Preferences

Parents
- Care about the child’s human capital
- Dislike strict parenting
Primitives

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Parents’ preferences are given by:

\[
v_t = \begin{cases} 
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  \log(G_2) & \text{when the game is over.}
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with:

- \( y(R_t) = -I[R_t = s]c_s - I[R_t = n]c_n \)
- \( c_s > c_n > c_p = 0 \Rightarrow \text{stricter limits imply an higher monitoring cost} \)
Primitives

Human Capital Production Function

Human Capital $G_t$ is produced according to the following production function:

$$G_t = F(e_t, G_{t-1}; \epsilon_t) = \gamma[e_t^\alpha - \alpha e_t] G_{t-1}^\beta \epsilon_t$$
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with $G_0 > 0$, $\epsilon_t \sim \exp(\lambda)$, $\alpha \in (0,1)$ and $\gamma, \beta > 0$. This implies that:
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- $G_t \in [0, \infty)$
- Bayes’ rule applies everywhere
- MLRP property holds
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with $G_0 > 0$, $\epsilon_t \sim \text{exp}(\lambda)$, $\alpha \in (0, 1)$ and $\gamma, \beta > 0$. This implies that:

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Equilibrium

- Solution concept: PBE

Lemma: For any finite number of types, there exists a unique equilibrium in which:

1. The child plays a type monotonic strategy, i.e., children with higher $\omega_i$ choose more effort in both periods.
2. Parents play a cut-off strategy in the second period of the form:

$$R_2 = \begin{cases} 
\text{strict if } 0 < G_1 < G \\
\text{neutral if } G \leq G_1 < G \\
\text{permissive otherwise.}
\end{cases}$$

where $G \geq G_1 \geq 0$ are endogenously determined cut-offs.

There exists a unique optimal action $R_1 \in \{s, n, p\}$ as a function of the initial child's human capital and beliefs about her type.
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Empirical Implementation

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- The PIAT Math test scores measure children’s cognitive skills.
I estimate the parameters of model by SML, by iterating between the numerical solution of the model, achieved through the solution of a system on non-linear equations, and the calculation of the likelihood function.
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A Thought Experiment

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<th>G</th>
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Intuition: Because children like loose limits a curfew law restricts the instruments available to parents to reward good performances.
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Table: Distribution of Level Effect

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- Some extensions are possible: multiple periods and the use of different types of limits.
- Parent-child interaction is still a black-box: more research in family economics is needed to enrich the existing framework.