Human capital effects of one-on-one time with parents
Evidence from a Swedish childcare access reform

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Purpose

• Study the human capital effects of better opportunities for one-on-one time with a parent during infancy

• Nationwide reform 2002
  • All municipalities obliged to offer 15 hours/week childcare for older siblings whose parents were on parental leave
  • Increased childcare access and enrollment in municipalities which did not already offer childcare

• Differences-in-differences model
  • children with and without a sibling of childcare age, before and after reform in municipalities affected by the reform.

• Human capital effects
  • Standardized core subject test scores in 6th grade (age 13)
  • Effects by gender and maternal education
  • Mechanisms: Health, home environment, childcare enrollment age
Our contribution

- Exogenous increase in opportunities for one-on-one time with a parent
  - Importance of child related investments e.g. Francesconi and Heckman (2016)
- Investments during infancy
  - Early investments have larger effects than later e.g. Hsin and Felfe (2014)
  - Attachment and socioemotional development Moulin et al. (2018)
- Home environment of younger siblings became more similar to that of firstborns
  - Sibling gap due to differential parental investments e.g. Black et al. (2005); Lehmann et al. (2018)
- Heterogeneous effects with respect to gender and maternal education
  - Parental stress is found to be higher for low educated mothers Parkes et al. (2015)
  - Boys are more sensitive to adverse childhood environment e.g. Bertrand and Pan (2013)
  - Girls are more sensitive to cognitive stimulus Fort et al. (2019)
Empirical strategy

• Intention-to-treat effects – effect of better opportunities
• Differences-in-differences
  • Comparing infants with and without siblings of childcare age
  • Comparing infants born pre- and post-reform
  • Restricted to municipalities that were most affected by the reform
  • Placebo analysis using municipalities that were least affected

\[ Y_{imcd} = \alpha + \delta_{postc} \times sibling_i + \gamma_{sibling_i} + \theta_{mc} + \lambda_d + X_i \beta' + \epsilon_{imcd} \]

• Municipality-cohort fe (\( \theta \)), birth month fe (\( \lambda \)), pre-determined characteristics of child and parents (\( X \))
• Standard errors (\( \epsilon \)) clustered at municipality level
Data

• Children born 1999-2003
• Administrative data on all Swedish children and their families
  • Family links and demographics
  • Parental education, annual earnings
  • Parental leave use
  • Children’s 6th grade test scores
  • Child and parental health: Inpatient and outpatient care, drug prescriptions
• Survey data on childcare enrollment
  • National Agency for Education
Main results:
Effects of better opportunities for one-on-one time on standardized 6th grade test scores in core subjects.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
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<tbody>
<tr>
<td></td>
<td>All</td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>One-on-one time</td>
<td>0.029</td>
<td>0.043**</td>
<td>0.017</td>
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<tr>
<td></td>
<td>(0.019)</td>
<td>(0.021)</td>
<td>(0.025)</td>
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<tr>
<td>Observations</td>
<td>43,566</td>
<td>22,145</td>
<td>21,421</td>
</tr>
<tr>
<td>Control mean</td>
<td>-0.0790</td>
<td>-0.199</td>
<td>0.0467</td>
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<tr>
<td>Mother low education</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>One-on-one time</td>
<td>0.034</td>
<td>0.063**</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>(0.024)</td>
<td>(0.028)</td>
<td>(0.034)</td>
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<tr>
<td>Observations</td>
<td>32,173</td>
<td>16,400</td>
<td>15,773</td>
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<tr>
<td>Control mean</td>
<td>-0.215</td>
<td>-0.337</td>
<td>-0.0843</td>
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<tr>
<td>Mother high education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-on-one time</td>
<td>0.041</td>
<td>0.003</td>
<td>0.086**</td>
</tr>
<tr>
<td></td>
<td>(0.029)</td>
<td>(0.040)</td>
<td>(0.041)</td>
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<tr>
<td>Observations</td>
<td>10,874</td>
<td>5,498</td>
<td>5,376</td>
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<tr>
<td>Control mean</td>
<td>0.364</td>
<td>0.256</td>
<td>0.475</td>
</tr>
</tbody>
</table>
Effects over the test score distribution

Sons of less than college educated mothers

Daughters of university educated mothers
Mechanisms

• No strong effect on child health
  • Possibly improved mental health in school age for boys
  • Possibly worse health in preschool age for affected

• No strong effects on quantity nor quality of the home environment
  • No effects on maternal return to work or age at childcare enrolment
  • No evidence of sibling spillovers – older siblings test scores do not improve.
  • No effects on parental leave division between parents
  • Possibly lower fertility/increased spacing for girls of high educated mom
Conclusion

• Strong first stage for all
  • Heterogeneity in effects likely reflects differences in effects, rather than differential utilization of opportunity

• Consistent with improvements in quality of parent-infant interaction
  • More undivided attention – better conditions for early attachment

• Potential for family policy to strengthen disadvantaged families
  • Low performing sons of low educated mothers