The Effect of Preschool on the School Performance of Children from Immigrant Families
Introducing Free Preschool in Two Districts in Oslo

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Aim of this study: To explore whether a year in preschool affects subsequent school performance of children from immigrant families


Children with an immigrant background face particular challenges when they enter the educational system

Evidence suggests gap between the educational outcomes of children from immigrant families and native children (Schølberg et al, 2008; Shnepf, 2007; Bleakly and Chin, 2008).

Few studies explore how early interventions affect school performance of children with an immigrant background (exceptions are Currie and Thomas (1999) and Fredriksson et al. (2010))
Increase in preschool enrollment

Figure:
Background for the intervention

- Large increase in immigrant population in schools: From 2,544 pupils in 1977 to 28,000 pupils in 1996/1997
- Children from immigrant families were underrepresented in child care institutions at the time
- The objective was to provide all children with experience from preschool before starting school

- A substantial amount of government funding was assigned to the project
- Two city districts in particularly challenged areas in Oslo were chosen as intervention districts
Preschool in the Norwegian school system

- Children start school in August the calendar year they turn six years old
- The last year before starting school, children enrolled in child care centers follow an integrated preschool program
- Registered child care centers receive substantial subsidies and are in general of high quality
- In 1998 approximately 85% of three to five year-old children in Oslo were enrolled in a child care center
- The average fee paid was 500 $ monthly, but this varied by family income
- The learning program implemented in preschools emphasized learning through play
Implementation

- Implementet autumn 1998/spring 1999
- A number of new preschool slots were made available
- Language development was emphasized and bilingual teachers were hired
- The program included four hours in child care free of charge
- Families were approached at home about information about the offer
- All children in the chosen city districts received the offer of free preschool
The comparison group

- 26 city districts in Oslo at the time
- The two treated district had the highest share of children from immigrant families: 59 % and 48 % respectively
- We construct a comparison group from the ten districts with the subsequent highest share of children from immigrant families
- Comparison districts have an immigrant share in the range 42 % to 18 %
- We conduct a number of robustness tests to explore if the results change when including/excluding districts
Data

- We use data from FD Trygd, a combination of a number of the Norwegian registries, provided by Statistics Norway.
- The data contains records for every Norwegian resident from 1992 to 2005.
- We merge on outcomes from an education database containing information on 10th graders school achievements.
- GPA is constructed from grades in 12 subjects obtained when graduating at age 16.
- Children get marks from 1-6, 6 being top score. It is legally impossible to fail.
- GPA matters for high school quality.
How performance has developed over time

Figure:
Empirical strategy

- We estimate a difference in difference model with OLS on a sample of children from immigrant families.

**Figure:**
Empirical strategy cont.

Figure:
Empirical strategy cont.

Figure:
The difference in difference estimate
## Main results

**Specification and robustness checks: GPA**

<table>
<thead>
<tr>
<th></th>
<th>Girls</th>
<th>Boys</th>
<th>Coh. includ.</th>
<th>Coh. omit.</th>
<th>N</th>
<th>R²</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.27</td>
<td>-0.11</td>
<td>92,93</td>
<td>92</td>
<td>1800</td>
<td>0.17</td>
<td>3.85</td>
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<tr>
<td></td>
<td>0.21</td>
<td>-0.02</td>
<td>88-93</td>
<td>88-92</td>
<td>4945</td>
<td>0.14</td>
<td>3.78</td>
</tr>
</tbody>
</table>
To explore possible other explanations for the results in the previous table, we run a number of robustness tests:

- Placebo reform pretending the intervention was taking place in 1997: No significant results
- Effect on native children? No
- Effect on exam grade: Similar results as in main specification
- Robust to including a number of year- and district specific trends: Yes, results still very similar
- Examining moving patterns: No reform effect
- Effect on attrition: No effect
Mechanisms

Why did the girls’ school performance improve?

- we explore possible effects on parents labor supply and education
  - no effect on mothers or fathers outcomes
- we estimate the effect on different subjects
  - large effects on girls’ marks in Norwegian and English
  - similar effects on marks in other subjects
Gender difference

- Other studies find similar results (Cambell et al. 2002, Anderson 2008, Heckman 2010)
- We cannot entirely rule out differences in uptake
- The preschool intervention could possibly affect other outcomes among boys that we cannot observe yet, i.e. criminal behavior and health outcomes
- Studies of interventions aimed at older children suggest that the gender of the teacher matters for school performance (Dee 2005, 2007)
Concluding remarks

- We find further evidence of the importance of early intervention
- In line with some previous studies we find effects for girls only
- The intervention in Oslo reduced the GPA gap of girls with native and immigrant background by more than 80 %
- Provision of preeschool appears to be a powerful tool to improve educational outcomes among girls from an immigrant background
- Future research should pay particular attention to how early intervention can affect boys’ development positively