Is More Time in Head Start Always Better for Children? The Moderating Role of Classroom Quality

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Introduction

- More time in center-based early childhood programs is associated with higher cognitive skills but also behavior problems (e.g., C. J. L. 2012, South et al., 2007; McCleary et al., 2010; NICHD, 2003, 2006).
- Classroom quality is important for children's development & learning (e.g., Connors et al., 2009; NICHD, 2003, 2006; South et al., 2007).
- It may be that the combination of time in a center-based program and the quality of that care setting influence children's development (McCleary et al., 2010; Zaslow et al., 2010).

Research Goal

To determine if Head Start quality moderates the impacts of weekly hours in Head Start on children’s cognitive and social-emotional development over one year.

Head Start Impact Study (HSIS)

- Randomized design
- Followed 5,440 3- and 4-year-olds applied to 351 Head Start Centers
- Small centers were combined into 202 center groups for purposes of random assignment

Sample

- Limited to children with at least 1 child outcome
- Randomly selected one Head Start center to which children applied per center group
- Limited to center groups where there is no missing data for children in intervention & control groups
- 2,482 children in 270 Head Start centers and 697 Head Start classrooms
- Includes children in non-Head Start center-based care, family child care, or parent care as well as Head Start

Instrumental Variables Approach (IV)

Selection bias limits our ability to estimate causal impacts.

- Using IV we leverage the random assignment in HSIS to isolate the variance in weekly hours of Head Start attended not related to child, family, or Head Start characteristics (i.e., exogenous variation).
- Instrument: Number of weekly hours of Head Start offered
- 0 for children randomized to control
- Positive number (18 to 60) for children randomized to Head Start;
  based on hours offered by Head Start center to which they applied

Method

- IV to estimate impacts of weekly hours of Head Start on child outcomes
- Split sample into High and Low Quality based on median quality
- Estimated IV models in high and low quality subsamples
- Used t-tests to compare estimates in high and low quality subsamples

Table 1. Impacts of Weekly Hours of Head Start on Child Outcomes

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>PPVT</th>
<th>WJLW</th>
<th>WJAP</th>
<th>Externalizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Stage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly hours of Head Start offered</td>
<td>0.002***</td>
<td>0.0001</td>
<td>0.0002</td>
<td>0.0001</td>
</tr>
<tr>
<td>Stage 1</td>
<td>0.003***</td>
<td>0.0001</td>
<td>0.0002</td>
<td>0.0001</td>
</tr>
<tr>
<td>Stage 2</td>
<td>0.002***</td>
<td>0.0001</td>
<td>0.0002</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Table 2. Moderation by Head Start Quality (IV Results)

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Teacher-Child Interactions</th>
<th>Negative Teacher-Child Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Quality</td>
<td>PPVT</td>
<td>WJAP</td>
</tr>
<tr>
<td>B Hours</td>
<td>0.007***</td>
<td>0.002***</td>
</tr>
<tr>
<td>(SE)</td>
<td>0.0002</td>
<td>0.0001</td>
</tr>
<tr>
<td>Low Quality</td>
<td>PPVT</td>
<td>WJAP</td>
</tr>
<tr>
<td>B Hours</td>
<td>0.003***</td>
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</tr>
</tbody>
</table>

Note: Effect sizes were estimated by multiplying hourly effects by 40 for full-day and 20 for half-day.

Summary of Findings:

- Weekly hours of Head Start matter for cognitive development
- Some evidence that quality matters, especially for math & externalizing problems
- Materials & Space and Negative Interactions are more influential than Positive Interactions
- Moderation by Negative Interactions becomes significant at p<0.001 when controlling for Positive Interactions

Limitations & Future Directions:

- Distribution of Head Start quality was skewed; Low quality was not very low quality, especially for Positive Interactions
- Need to deal with selection bias in Head Start quality

Policy Implications:

- ECE policies and resource allocation should consider both program operating schedule and program quality
- Fewer hours in high quality care may be more beneficial than more hours in lower quality care (but the counterfactual is important to consider)
- Relative benefits of serving more children for fewer hours or fewer children for more hours should be considered

Key References

- Connors et al. (in preparation). Refining early measures of early childhood classroom quality
- Li et al. (2010). Effects of Head Start on children’s cognitive, pre-academic, and behavioral outcomes: An instrumental variables analysis. Poster presented at SREI.