Tailoring Deadlines to Improve Childhood Immunization Timeliness

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Early-childhood immunization

1/3 of under-5 deaths are vaccine preventable
Even among those who do receive the vaccination, 34% receive it a month or more after when the child was age-eligible and 11% receive it more than three months late (DHS, 2019).
Deadlines as a Commitment Device

• Deadlines/commitment devices can be effective at overcoming procrastination for preventative health behavior.

• Welfare consequences: Deadlines can reduce overall completion for certain individuals with large cost shocks.

• Feature of early-childhood immunisations: repeated action $\rightarrow$ use previous behaviour to tailor deadlines/incentives by parent’s type.
Research Question

• **Policy relevance:** Can we use parents’ previous behavior to tailor deadlines/incentives for timely immunizations?

• **Econ:** Can we identify the parental type (present bias and cost variance) using previous behavior?
Setting

Sindh province, Pakistan: 50 million people, 3 million children under 2

- Infant vaccination schedule

<table>
<thead>
<tr>
<th>Age</th>
<th>Vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>BCG, OPV0</td>
</tr>
<tr>
<td>6 weeks</td>
<td>Penta1, OPV1, Rota1</td>
</tr>
<tr>
<td>10 weeks</td>
<td>Penta2, OPV2, Rota2</td>
</tr>
<tr>
<td>14 weeks</td>
<td>Penta3, OPV3, IPV1</td>
</tr>
<tr>
<td>9 months</td>
<td>Measles1</td>
</tr>
<tr>
<td>15 months</td>
<td>Measles2</td>
</tr>
</tbody>
</table>

- 94% of 1-year-olds have had at least one vaccine

- 35% have had all vaccines

- 1/3 receive it more than a month late
Baseline household survey: measures of present bias and cost variance, deadline preference, treatment randomization.

Treatments: Incentive payments with or without deadlines in place until child is 24 months old.

Immunization behavior: Test for effect of treatments on remaining immunizations.
Interventions

Randomised at the household level:

- **Control:** Status quo

- **T1. Payment with No Deadline:** Receive an additional 500 PKR ($2) when the child receives the vaccine (till the age of 2).

- **T2. Payment with Strict Deadline:** Receive an additional 500 PKR ($2) if the child receives the vaccine within one week of the eligible date.

- **T3. Payment with Lax Deadline:** Receive an additional 500 PKR ($2) if the child receives the vaccine within one month of the eligible date.