Evaluating the Impact of Scholarships in Cambodia

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The international background

- Impact evaluation results from conditional cash transfer programs
  - Impact on consumption poverty
  - Impact on enrollment
  - Impact on learning
  - Implications for Cambodia
The international background: CCT and scholarship programs around the world

- Conditional cash transfer (CCT) and “scholarship” programs have become very popular in developing countries, especially in Latin America.

- By providing cash, conditional on certain education (and sometimes health) behaviors by households, these programs have two main objectives:
  1. Reduce consumption poverty (distributing cash)
  2. Increase investments in human capital (cash tied to conditions)
The international background: CCT and scholarship programs around the world

- CCT programs in Latin America have very carefully designed impact evaluations
  - Random assignment into treatment and control groups during pilot phase
  - External impact evaluation
  - Collection of baseline and follow-up information on a very large number of outcomes

- Convincing evidence of positive impacts have ensured the political sustainability of programs, and have led to their creation in virtually every country in Latin America
The international background:
In most cases, programs appear to have increased consumption and reduced poverty…

Short-term effects on consumption poverty

- **Mexico**: Households randomly assigned to PROGRESA have consumption that is 13-18 % higher

- **Nicaragua**: RPS households have ~ 13 % higher consumption, implying decreases in the extreme poverty rate of 15 % points, and in the poverty rate of 5 % points

- **Ecuador**: No significant program effect of CCT program on consumption, explained at least in part, by a massive 17 % point reduction in child labor
The international background:

In most cases, programs appear to have increased consumption and reduced poverty...

**Long-term effects on consumption poverty**

- In Mexico, households appear to invest about 25 cents out of every peso transferred by PROGRESA in productive assets in micro-enterprises and agricultural production
  - Estimates suggest that, by investing transfers, beneficiary households increased consumption by about 24% after six years on the program
  - Short-term, “static” comparisons of consumption poverty between CCT beneficiary and control households may seriously underestimate the returns to transfers
The international background:
CCT and scholarships have large, significant effects on school enrollment in a number of countries…

Impact on school enrollment rates
- Large number of evaluations, including: Mexico, Nicaragua, Honduras, Ecuador, Brazil, Colombia, Argentina, and Bangladesh
- Evaluations generally find positive program effects on enrollment, including those with the most robust evaluation strategies
The international background:
CCT and scholarships have large, significant effects on school enrollment in a number of countries…

<table>
<thead>
<tr>
<th>Program</th>
<th>Program effect</th>
<th>Age range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>2.7 (11.1)</td>
<td>1st-5th grade at baseline (6th grade)</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>17.7</td>
<td>Age 7-13</td>
</tr>
<tr>
<td>Honduras</td>
<td>3.3</td>
<td>Age 6-12</td>
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<tr>
<td>Ecuador</td>
<td>10.0</td>
<td>Age 6-17</td>
</tr>
<tr>
<td>Colombia</td>
<td>2.1 (5.6)</td>
<td>Age 8-13 (age 14-17)</td>
</tr>
<tr>
<td>Brazil</td>
<td>3.0</td>
<td>Age 10-15</td>
</tr>
<tr>
<td>Bangladesh: stipends for girls</td>
<td>12.0</td>
<td>7th grade at baseline</td>
</tr>
</tbody>
</table>
The international background:
CCT and scholarship program effects on enrollment are largest for children with low propensities to enroll…

1. Comparisons across countries: Larger program effects in countries with lower baseline enrollment levels
   - Impact on enrollment in primary school is ~ 6 times as large in Nicaragua as in Brazil or Mexico

2. Comparisons across grades within countries: Larger program effects in transition grades with high dropout rates
   - Impact of PROGRESA in Mexico is 4 times as large for children in 6th grade as children in other grades

3. Comparisons of households by socioeconomic status: Larger program effects among poorer households
   - In Nicaragua, program effect on enrollment is 26% points among extremely poor households, 12% points among poor, and 5% points among non-poor
   - Larger program effects among poorest households also found in Mexico, Honduras, and Ecuador
The international background:
Evidence on the effect of programs on educational attainment of adults and learning outcomes is limited...

Results from Mexico:

1. Children randomly assigned to receive program two years earlier have approximately 0.2 more years of schooling
   - If rate of return to schooling is ~ 10 percent, this means that, on average, these children will earn approximately 2 percent higher wages as adults

2. However, no effect of program on test scores—either in the short run, or the long run
   - Are CCTs and scholarship programs bringing into school children who are so disadvantaged in other ways that the amount of learning that takes place is limited?
   - Is the quality of the supply so low that children are learning very little—in spite of the additional years of schooling attained?
Implications of international evidence for Cambodia...

- **Impact on consumption poverty**: Cash transfers will generally reduce consumption poverty if they are well targeted
  - Offsetting changes by households are small
  - However, impact on consumption poverty depends critically on targeting of program

- **Cambodia**:
  1. Proxy means test
  2. Programs targets students who have already made it to 6th grade: if the poorest children have dropped out before then, then the program cannot benefit them
  3. Positive redistributive effect of the program is likely to be limited
Cambodia: Grade attainment, 15-19 year olds
Implications of international evidence for Cambodia...

- **Impact on school enrollment**: Conditional cash transfer and scholarship programs increase enrollment rates, especially if baseline enrollment rates are low.
- **Impact on learning outcomes**: Impact on learning outcomes is likely to be limited unless programs also improve quality of supply.

**Cambodia**:
1. Potential for large enrollment effects, because baseline enrollment is low.
2. Impacts on learning outcomes are likely to require investments to improve quality of supply.
3. It would be possible to create a more comprehensive program, like those in Latin America, which also attempts to improve health status (not just schooling outcomes).
Impact evaluation in Cambodia

- Part 1:
  - Retrospective impact evaluation analysis of JFPR program
- Part 2:
  - Prospective evaluation of World Bank supported scholarship program
Impact evaluation in Cambodia

- Part 1
- Retrospective impact evaluation analysis of JFPR program
  - Strategy
  - Results
  - Implications
Estimating the impact of the JFPR scholarship program...

No planning for impact evaluation when program was designed and implemented: Non-experimental evaluation strategy:

1. Collect information on enrollment and attendance of all JFPR applicants (recipients and non-recipients) with visits to all 93 program schools

2. Use statistical techniques (regression, matching) to adjust for “observable” differences between recipients and non-recipients at baseline, as recorded in the application form

3. Use differences-in-differences to estimate program impact
   - Compare enrollment and school attendance of JFPR scholarship recipients and non-recipients two years after start of program
Estimating the impact of the JFPR scholarship program…

- Basic result: Overall, JFPR program increased school enrollment and attendance between 20 and 30 percentage points
  - Put differently, somewhere between one out of every five and one out of every three girls who received the scholarship program would not have been enrolled in school had she not received the scholarship
- Impact of program was larger if the scholarship was given to a poorer girl: scholarship program reduces “inequality of opportunities”
  - Number of scholarships per school was fixed
  - Number of applicants and poverty of applicants varied from school to school
  - As a result, “similar” applicants received scholarship if they applied to one school but not to another
Estimating the impact of the JFPR scholarship program…
Estimating the impact of the JFPR scholarship program...

The evaluation of the JFPR program was innovative and has had important benefits:

- Affected design of the CESP scholarship program
- Has been highlighted as an important example for other countries in South East Asia
- Has been highlighted in a variety of international events
  - (Conference on CCTs in Istanbul in June 2006—more than 500 participants from around the world)
Estimating the impact of the JFPR scholarship program…

However, evaluation also had some shortcomings—basically because evaluation design was not taken into account at the start of the project:

- Are recipients and non-recipients truly comparable?
  - Insufficient information on how, exactly, LMCs selected scholarship beneficiaries

- Information collected on only a small number of outcomes (enrollment, attendance)
  - What about impacts on learning, school enrollment of siblings, welfare of households?

- No triangulation of school-based data with household data
  - What if some of the students who did not receive scholarships enrolled at a different school?
    - Attempt to correct for this with the use of statistical techniques
Impact evaluation in Cambodia

- Part 2
- Prospective evaluation of World Bank supported scholarship program
  - CESSP scholarship program
  - Evaluation strategy
(1) Evaluation based on regression discontinuity—almost as good as random assignment:

- Rank all applicants to a CESP lower secondary school by the score they received on the application (dropout-risk)
- Compare changes in outcomes after intervention for those who “just” received a scholarship (applicant with the 24th or 25th highest score) with those who “just” missed receiving a scholarship (applicant with 26th or 27th highest score)
  - Argument is that these applicants are extremely similar
Regression discontinuity approach

Compare outcomes between these applicants … … for example enrollment of 90% versus enrollment of 70%: impact of 20 percentage points

And between these applicants … … for example enrollment of 70% versus enrollment of 40%: impact of 30 percentage points

Dollars received in scholarship

Within-school ranking of dropout-risk
Designing the impact evaluation of the CESP scholarship program…

(3) Compare the impact of $45 and $60 scholarships

- Unclear how large a transfer is needed to achieve a certain effect on enrollment
- Note that the “optimal” size of the scholarship need not be equal to the total direct cost of schooling:
  - Optimal amount may be larger than direct cost of schooling to account for opportunity cost of schooling
  - Optimal amount may be smaller because households themselves see education, in part, as an investment that will yield returns in the future
Designing the impact evaluation of the CESP scholarship program…

(2) Collect data on a **large number of outcomes**

- School enrollment and attendance
- Test performance (mathematics, Khmer vocabulary)
- Knowledge about risky behaviors (smoking, HIV-AIDS)
- Self-assessment and expectations about future
- Work—of applicants and other household members
- Schooling of other household members
- Consumption and poverty
Designing the impact evaluation of the CESP scholarship program…

(4) Collect information at both school and household levels

School-level information:
- Much larger sample size (pool of almost 30,000 applicants)
- Regular visits: understand the evolution of changes
- Can potentially correlate data on outcomes with data on school or teacher quality
  - Evidence from Mexico suggests that the impact of CCT program on both enrollment and learning outcomes depends on the quality of supply

Household information:
- Observe all applicants in sampled areas—not just those who enroll in school and are present on the day of the school visit
- Collect information on a much larger number of outcomes and on other household members
Conclusion: Impact evaluation and the design of public policies...

Characteristics of successful impact evaluations:

- Agreement on the outcomes that the intervention intends to affect
- Careful planning for evaluation during project design
- Data collection at baseline and follow-up for both “treatment” and “control” groups
- Changes made to intervention to take account of results of evaluation