Determinants of Dropout in Primary Education in Rural Cambodia: A Multilevel Analysis

HENG Boret, TANIGUCHI Kyoko and HIRAKAWA Yukiko
Graduate School for International Development and Cooperation (IDEC)
Hiroshima University, Japan
hirayuki@Hiroshima-u.ac.jp
I. Research Background

UNESCO (Education for All- Global Monitoring Report 2014)

“Despite improvements in getting children into school, dropout before the last grade remains a serious problem in many low and middle income countries.”
I. Research Background (Cont.)

II. Literature review (Research method)

1. Interview asking: “Why did you dropout?” =“Why do you think…”

- The answer is an “opinion”.
- The answer can include self-justification, social consideration, etc.

My family was poor, so I had to work.

Retrospective data

2. Survival analysis using prospective data (data before dropping out).

- No opinion. The result is more objective.
- Effect size can be identified.
- Process of dropout (risk factors, trigger events and symptoms) can be identified.

Prospective data

Do you have a TV?
Do you have motorbikes?

Dropout

Family economic status measured by possession of goods

See whether a student have dropped out or not during the research period.
II. Literature review (Research method)

• Event history method or survival analysis is considered as the most appropriate for studying a dynamic pattern of dropout (Willett and Singer, 1991).

• There are a series of research on causes of dropout using survival analysis implemented in developed countries.


• In developing countries, no ready made data set: it is difficult to obtain reliable data.
II. Literature review
Survival analysis in Cambodia

No Fata
a) Area: Kampong Cham Province
b) Sample: 5 primary schools and
   5 lower secondary schools
   G1- 4 276 students (77 dropouts)
   3 cohorts: G4-7 282 (124)
   G7-9 392 (163)
c) Periods: 2008-2011
d) Method of analysis: Cox regression (time variant model)
## II. Literature review
### Survival analysis in Cambodia

Outline of findings: significant factors

<table>
<thead>
<tr>
<th>Cohort</th>
<th>G1-4</th>
<th>G4-7</th>
<th>G7-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divorced parents</td>
<td>***</td>
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<tr>
<td>Age of first entry</td>
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<td>Relation among students</td>
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<tr>
<td>Absence</td>
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<tr>
<td>Ethnicity</td>
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<td>Relative achievement</td>
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<td>Repetition</td>
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<td>Homework completion</td>
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<td>Self-esteem</td>
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<td>Preschool experience</td>
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## II. Literature review

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Type of research</th>
<th>Type of data</th>
<th>Findings</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valesco (2001)</td>
<td>Interview and Focus Group Discussion, Qualitative</td>
<td>Retrospective data</td>
<td>Poverty and necessity to work</td>
<td>6 provinces 242 stakeholders</td>
</tr>
<tr>
<td>World Bank (2005)</td>
<td>Correlational Study of Districts Using Household Survey</td>
<td>Retrospective data</td>
<td>Poverty, late school entry, school facilities</td>
<td>All provinces</td>
</tr>
<tr>
<td>No (2012)</td>
<td>Survival Analysis, Longitudinal Study (3 years)</td>
<td>Prospective data</td>
<td>G4 and G7- Relative achievement, repetition, and self-esteem D4- Ethnicity and gender</td>
<td>1 Province (Kampong Cham) 5 schools for G1 and G4 5 schools for G7</td>
</tr>
<tr>
<td>No et al (2012)</td>
<td>Survival Analysis, Longitudinal Study (1 year)</td>
<td>Prospective data</td>
<td>Both G1 and G5- Relative achievement G1- Parents education</td>
<td>1 Province (Prey Veng) 5 schools for G1 and G5</td>
</tr>
<tr>
<td>Ang (2012)</td>
<td>Survival Analysis, Longitudinal Study (1 year)</td>
<td>Prospective data</td>
<td>G4: Relative achievement, repetition</td>
<td>1 Province (Battambang) 5 schools for G4</td>
</tr>
</tbody>
</table>
II. Literature review

• No’s studies could identify student and family factors, but school effect and school factors could not be identified.

• No’s research found that achievement in class (relative achievement) is important, but do students dropout
  - because they felt disappointed by low acquisition of subject matters or
  - because they were discouraged by low rank in class?
III. Research objective

• Research questions
  • Do schools make a difference in the dropout? If yes, how large is it?
  • What school, individual and family factors significantly increase the odds of the dropout?
  • Which achievements affect dropout decision?
    a) Relative achievement measured by class tests and converted to z score or
    b) Achievement measured by a researcher made achievement test
IV. Method of research (sampling)

• Research Area
  • Preah Net Preah District- Banteay Meanchey Province
  • Sangker District – Battambang Province
  • Thbaung Khmum District – Kampong Cham Province

• Randomly sampled
  29 public primary schools
  30 public lower secondary schools
  Students in G1, G4 and G7 at the initial data collection (3 cohorts)
IV. Method of research (instrument/implementation)

Initial data collection  February- April, 2014
• Guided interviews for grade 1 and 4 students ⇒ student/family factors
  Questionnaire for G7 students
• Questionnaires for principals and teachers ⇒ school factors
• Observation checklist ⇒ school factors
• School record ⇒ relative achievement (student factor)
• Researcher made tests (Khmer test and math test) ⇒ achievement (student factor)
• Representative students’ notebook ⇒ day of teacher absence (school factor)

The instruments were based on No (2012), except the researcher made test.

Follow up data collection  February- April, 2015
• Name list and interview to classmates
IV. Method of research (analysis)

• Multilevel logistic regression (HLM version 7)
• As the dependent variable is dichotomous, Bernoulli model is used for identifying factors of dropout.
V. Findings (G4 cohort)

Null model

- About 11% was explained by school variance.
- About 89% was explained by student level.

\[ ICC = \frac{\tau_{00}}{\tau_{00} + \frac{\pi^2}{3}} = \frac{\tau_{00}}{\tau_{00} + 3.29} \]

\[ ICC = \frac{0.399}{0.399 + 3.29} = 0.108 \]

See Appendix B
V. Findings (G4 cohort)

• Model 3: Full model (Individual + School)

See Appendix

• In school level (Level 2)
  - Mean socioeconomic status (B = -1.1, OR = 0.333, *p < .05)
    More students dropout from schools situated in poor community.

  - Mean achievement measured by researcher made tests (B = 0.09, OR = 1.094, ***p < .001)
    More students dropout from good achievement schools.

Teacher absenteeism was not included in the model.
V. Findings (G4)

• Model 3: Full model (Individual + School)
See Appendix

• In individual level (Level 1)
  - Educational Aspiration (B = -0.424, OR = 0.655, **p < .01)
    Students with high aspiration have lower probability of dropout.
  - Distance from school to home (B = 0.303, OR = 1.35, *p < .05)
    Students who live near schools have lower probability of dropout.
  - Absolute achievement measured by the researcher made tests was not found significant.

Relative achievement was not included in the model.
VI. Further study

For this study:
• Explores other school-level factors that might influence school dropout in G4.
• Explores other individual-level factors that might influence school dropout in G4, especially relative achievement.
• Do analysis of other cohorts (G1 and G7).

Derivative topic:
The researcher made tests revealed low student achievement.
⇒ Go to Taniguchi, K.’ presentation.
References


