Migration, Remittances and Child Schooling in Rural Cambodia

RESEARCH PROPOSAL
(Revision)
Presented to
Partnership for Economic Policy (PEP)

By
Mr. Saing Chan Hang
&
Mr. Ker Bopha
Ms. Phay Sokcheng
Ms. Phon Dary

Cambodia
Before you begin

Please make sure to carefully review and understand the following:

- Webpage – especially with regards to the PAGE priority themes and
- Guidelines – for designing a research project proposal (in scientific terms)
- PEP requirements and strategy for policy engagement and research communication

Please note that:

- This template is mandatory for proposals of projects submitted under the PMMA and MPIA groups, i.e. that do not involve data collection
- Plagiarism is strictly forbidden – see note on “references and plagiarism” at the end of this document/template. PEP will be using a software program to detect cases of plagiarism.
- PEP encourages applicant research teams to submit proposals in English, but content (in text boxes below) may also be written in French or Spanish (and will be accepted given proper justification of language barrier).

There are three main areas/dimensions to all PEP-supported projects: capacity building, research and policy engagement. Each dimension must be considered with due care and attention, as they will be assessed individually and concurrently to determine the overall quality of a proposal.

The PEP proposal template is structured in five sections, as follows:

- Project overview and objectives
- Capacity building – team composition and experience
- Research – literature review, method and data
- Policy relevance and engagement strategy
- Other considerations

SECTION I – PROJECT OVERVIEW & OBJECTIVES

1.1. Abstract (max 100 to 250 words)

The abstract should state the main research question, the context and its relevance in terms of policy issues/needs in relation to PAGE priority issues. Complete with a brief description of the method and data that will be used.

This study investigates the role of remittances and absence of migrant household members on human capital formation in rural Cambodia. It asks whether migration reduces or increases
educational attainment among school-age children (5-19), especially among boys and girls. Unlike previous studies that used cross-sectional data, this study uses two waves of panel household data (2014 & 2017) in 11 rural villages in Cambodia. This study uses instrumental variable method to identify the impact since remittances and absence of migrants are generally treated as endogenous variables in the literature of migration. Following the method applied in Hu (2012), we use average remittances at the village level and ratio of migrant household to household population as instruments for remittances and migration (absence) of member of household, respectively. To ascertain the validity of our instruments, we test the relevance of each instrument by running first stage for each treatment variable. And, to disentangle the effect of the two treatments, we run system of recursive three equations as suggested by Hu (2012) who used conditional mixed process model (CMP) developed by Roodman (2009). CMP consists of user-friendly Stata’s written command, which allows flexibility in the functional assumption of error terms across equations.

This study fills gap in the current local literature and contributes to the government policy development. For one thing, results from recent studies in Cambodia did not provide causal relation between migration and human capital. For instance, Hing et al. (2014) examined the connection between migration and child schooling in Cambodia by using binary treatment of migrant household and addressing endogeneity problem, and they were not able to show causal connection as their instrumental variable estimates were not statistically significant at any conventional level. Interestingly, OECD (2017) included both remittances and absenteeism in their estimation equation to show positive effect of remittances and negative effect of absence of migrant household members in 8 provinces in Cambodia; nonetheless, they did not address endogeneity problem. This study is intended to fill this gap by attempting to provide causal connection using new econometric method applied in studies, such as Hu (2012), Rozelle, Taylor & Debrauw (1999), and Bansak and Chezum (2009). More importantly, this study coincides with the currently rapid increase in number of migrants sent to other areas inside and outside the country, such as Thailand, South Korea, Malaysia and Japan (Hing et al 2014 p.2). It is intended to provide evidence and raise awareness among policymakers regarding the negative impact of absence of migrant from household on the enrollment of left-behind children. Public policy to help retain children in school and provide them sufficient support so that they perform desirable in school is highly indispensable given that local and national economic development relies also on accumulation of human capital. It is also important to note that support for these children may differ from those for children whose parents left them because of divorce, death or domestic violence.

1.2. Main research questions and contributions (max 500 to 700 words)

Explain the focus (or key questions) of your research and its policy relevance. Explain why you think this is an interesting research question and what the potential usefulness and value added of your work might be - in terms of both (general) knowledge gaps and policy needs for evidence base.

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1 Three stage least squares (3SLS) is also an alternative econometric method to examine the impact of migration on outcome by simultaneously controlling for remittances and absence of migrant from household. Rozelle, Taylor & Debrauw (1999) applied this method to investigate the impact of migration on agricultural productivity in China. The paper was published in the AER (American Economic Review). This study, however, follows method used in Bansak and Chezum (2009) because they also looked at the impact of migration on human capital formation. This paper was also published in the AER.
Migration, whether internal (within the country, i.e. rural-urban) or international, has been a remarkable phenomenon in Cambodia during the last decade owing to the rapid growth of urbanization across cities, particularly Phnom Penh city, where tremendous development of various industries, including garment and textile, real estate, hotel and construction, is concentrated, and the rise in low-skilled labor demand in countries such as Thailand, Malaysia, South Korea and Japan (Hing et al 2014 p.2). The topic has been emphasized by policymakers and researchers, as well as in many government policy documents, such as the National Strategic Development Plan (NSDP) 2014-2018 and Policy on Labour Migration for Cambodia. On one hand, NSDP 2014-2018 clearly indicates the government’s intention (action) to reduce migration (rural-urban) by investing in rural infrastructures such as quality water, roads and electricity, which are expected to generate employment opportunities and promote local community development in rural Cambodia (The Royal Government of Cambodia, 2016 p.143). On the other hand, Policy on Labour Migration for Cambodia introduced in 2010 aims instead to promote international migration and to protect Cambodian migrants residing in the host country. Nonetheless, it does not outline steps that can be taken to support the left-behind children and old dependence.

Given substantial rise in interest among policymakers and researchers in this topics, several studies has been conducted to understand causes and consequences of rural-urban and international migration in Cambodia. Studies that provide anecdotal evidence regarding the push and pull factors of migration in Cambodia comprise Chan (2009), IOM (2010), Hing et al. (2010 & 2011). Recent empirical studies tend to focus on its impact on poverty reduction, for instance, Tong (2012) and Roth and Tiberti (2016), who confirm the poverty-reducing role of migration. In addition, studies on migration and human capital formation in Cambodia is sparse and not rigorous. For instance, Hing et al. (2014) used Socio-Economic Survey 2009 and applied instrumental variable (IV) method to investigate the effect of migration on education, labor and health of children. Interestingly, they find negative effect on child school attendance and health, but positive effect on hours worked among children. However, they caution the causal interpretation of their results of child educational attainment since their IV estimates for both outcomes (school attendance and years of schooling) are not statistically distinguishable from zero. OECD (2017) examines the impact of both remittances and migration on child schooling and finds negative affect. Nonetheless, the study did not address endogeneity problem of both remittances and migration. This study is intended to fill this gap by revisiting the relationship between migration and human capital formation and apply different econometric method, like the one in Hu (2012). The method looks at the impact of remittances on child enrollment by also controlling for number of adult household members who were absent from household during the last 5 years and treats both treatment variables endogenous. Instrumental variable (IV) method is used to address endogeneity problem. In other word, conditional mixed process model (CMP) is used to disentangle the effects of remittance and departure of household member.

The main research question of this study is below:

Q: How do remittances and absence of migrant household members affect schooling decision of children in rural Cambodia?

Our hypotheses are below:
H1: Children from households who receive remittances are more likely enrolled in school than those from households without remittances.

H2: Children from households who experience more absent working-age adults due to migration are less likely enrolled in school than those from households with fewer or no migrants.

We also investigate heterogeneity of impacts across child gender.

There are three aspects, which make this study different from existing studies in Cambodia. First, no well-identified study has shown robust positive effect of remittances on child schooling and negative effect of migration on child schooling in the setting of Cambodia. Hing et al (2014) examined the topic, but did not control for remittances in their regression equation. And they were not able to provide causal interpretation of the effect of migration on child schooling. Second, this study provides a new perspective for the setting of Cambodia regarding how migration shapes human capital formation in a manner that it affects outcome via two channels, i.e. remittances and absence of working age adults, simultaneously. OECD (2017) also used this framework to examine the impact of remittances on education expenditures, but it did not address endogeneity problem. Third, unlike the two aforementioned studies which used cross-sectional data in 2009 (Hing et al. 2014) and 2014 (OECD, 2017) this study uses two waves of panel rural household data between 2014 and 2017.

This study adds to a growing body of literature on linkages between migration and remittances and investment in human capital. It fills gap of local literature indicating a non-causal relationship between migration and human capital formation. It also probes heterogeneity of impacts across gender of children in rural area.

SECTION II – CAPACITY BUILDING

2.1. Team composition and experience

For each research team member, please indicate (using the following tables – one per member):

1. **Age, sex, as well as relevant/prior training and experience** in the issues and research techniques involved (start with team/project leader).
   - Note that PEP favors gender-mixed teams, composed of a maximum of four (4) members, at least 50% female researchers, and at least two (2) junior researchers (aged under 30), all contributing substantively to the research project. PEP also seeks gender balance in team leaders and thus positively encourages female-led research teams.
   - Each listed member must post an up-to-date CV in their profile on the PEP website – refer to “How to submit a proposal” on the call’s webpage.

2. **Benchmark and expected capacity building:**
   - Describe the research capacities that each team member (and potentially her/his affiliated institutions) is expected to build through their participation in this project.
This is an important aspect in the evaluation of proposals and should be presented in detail.

• What techniques, literature, theories, tools, etc. will each team member and her/his institutions learn (acquire in practice) or deepen her/his knowledge of?
• How will these skills help each team member in their career development?
• What are the current state of knowledge of each team member in regard to the project you are proposing?

3. **Task and contributions to project**: Indicate the specific tasks each team member would carry out in executing the project.

   - Note that one of the team members must be clearly identified as responsible for coordinating and reporting on the design/implementation of the projects’ policy engagement and communication strategy (see section III below). To achieve a more balanced task distribution, PEP advises to select a member other than the project leader.

### Team leader

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex (M, F)</th>
<th>Highest degree/diploma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Saing Chan Hang</td>
<td>36</td>
<td>M</td>
<td>PhD</td>
</tr>
</tbody>
</table>

#### Training and experience

- **Training**
  - No training in the last 5 years

- **Work experience**
  - Research fellow at the economic unit of the Cambodia Development Resource Institute (CDRI)
  - Lecturer of economics at Pannasastra University of Cambodia

#### Expected capacity building

- Keep data management and analysis skills up-to-date in terms of application and manipulation of STATA commands.
- Obtain more solid understanding of the conceptual framework and empirical method commonly discussed in the field of migration and human capital formation.

#### Contribution to project

- **Required tasks:**
  - Coordinate a consultation meeting with policymakers and academics.
  - Allocate tasks among team members based on their specialization and willingness to learn and contribute.
  - Provide mentorship to Ms Phon Dary and Phay Sokchendo on the formulation of conceptual framework, empirical methodology, and data analysis and management.
  - Review conceptual and empirical methodology and write up section on empirical method and data.
• Review results of the analysis delivered by Ms Phon Dary and Phay Sokcheng.
• Review final report prior to submission.
• Delegate junior researcher, Ms Phon Dary and Phay Sokcheng to attend PEP’s training and make sure that knowledge is later shared with CDRI’s colleagues and researchers from her research network.

**Team member #2**

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex (M, F)</th>
<th>Highest degree/diploma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Ker Bopha</td>
<td>51</td>
<td>M</td>
<td>Master degree</td>
</tr>
</tbody>
</table>

**Training and experience**

**Training**
- Introduction to general equilibrium modelling using GTAP, UNESCAP, Bangkok, Thailand
- Extension of social protection, Turin, Italy
- Policy analysis technique on child poverty, University of Southampton, UK
- Strategic management, National Institute of Public Management, Malaysia

**Work experience**
- Research associate, Cambodia Development Resource Institute (CDRI)
- Survey coordinator, Malaria Consortium Field office Pailin Province
- Survey coordinator, United Nation Children’s Fund
- Staff, Ministry of Planning

**Expected capacity building**
- Keep updating research skills, such as writing STATA codes and formulating conceptual framework.
- Improve quantitative methodological knowledge on program evaluation
- Update knowledge on linkages between remittances, migration and human capital formation.

**Contribution to project**

**Required tasks:**
- Provide advise/mentorship to Ms Phon Dary and Phay Sokcheng on tasks such as summarizing literature, managing data, writing do-file (STATA), preparing presentation of the findings
- Write up introduction and conclusion sections of the paper
- Participate in stakeholders’ consultation meeting

**Team member #3**

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<th>Name</th>
<th>Age</th>
<th>Sex (M, F)</th>
<th>Highest degree/diploma</th>
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</thead>
<tbody>
<tr>
<td>Ms. Phon Dary</td>
<td>32</td>
<td>F</td>
<td>Master degree</td>
</tr>
</tbody>
</table>
Training and experience

Training:
- Econometrics with STATA application
- Arc-GIS training on potential area of irrigated single rice in Cambodia
- Training on how to calculate food supply in protein, calories and lysine

Work experience:
- Research associate at the agriculture unit of Cambodia Development Resource Institute
- Research assistant, the Learning Institute
- Training officer, the Ministry of Interior
- Editor, the BBC World Service Trust

Expected capacity building

- Acquire research skills, such as reviewing literature, organizing conceptual framework, managing and analysing secondary data, writing STATA codes, interpreting statistical results, writing research report, and presenting findings at consultative workshop or international conference.
- Participate in PEP’s training.

Contribution to project

Required tasks:
- Present and revise research proposal in collaboration with team leader and members
- Participate in stakeholders’ consultative meeting
- Write STATA codes with the assistance from team leader and Mr. Ker Bopha.
- Write up sections on empirical results and robustness check/discussion.
- Present findings at consultative workshop.

Team member #4

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<tr>
<th>Name</th>
<th>Age</th>
<th>Sex (M, F)</th>
<th>Highest degree/diploma</th>
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</thead>
<tbody>
<tr>
<td>Ms. Phay Sokcheng</td>
<td>28</td>
<td>F</td>
<td>Master degree</td>
</tr>
</tbody>
</table>

Training and experience

Training
- Training on Evaluation of Public Policies: Parametric and Non-parametric approach, PEP, Nairobi, Kenya
- Modeling techniques for economy-wide foot and mouth disease impact assessment, Phnom Penh
- Basic poverty analysis using STATA
- Econometric and statistical analysis using STATA

Work experience
- Research associate at the economic unit of the Cambodia Development Resource Institute
- Research assistant at the economic unit of the Cambodia Development Resource Institute
- Assistant project officer for support children and young people
**Expected capacity building**

- Participate in PEP’s training
- Learn new econometric method with the application of STATA
- Learn new theory on the connection between migration, remittance and human capital accumulation

**Contribution to project**

**Task required:**

- Present and revise research proposal in collaboration with team leader and members
- Participate in stakeholders’ consultative meeting
- Write STATA codes with the assistance from team leader and Mr. Ker Bopha.
- Write up sections on literature, empirical results and discussion.
- Present findings at consultative workshop.

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### 2.2. List of past, current or pending (non-PEP) projects in related areas involving team members, including resulting publications (If any)

Name funding institution, title of project and related publications, list of team members involved.

<table>
<thead>
<tr>
<th>Name of funding institutions</th>
<th>Title of projects and related publications (link)</th>
<th>Team member(s) involved</th>
</tr>
</thead>
</table>
| Oklahoma State University    | **Title:** Rural Electrification in Cambodia: Does It Improve Welfare of Household?  
| Oklahoma State University    | **Title:** Assessing the impact of district primary education in India  
Member: Mr. Saing Chan Hang |
| Australian National University | **Title:** Irrigated agriculture in Cambodia  
Publication (reference): | Team leader: Ms. Phon Dary |
2.3. **List of past or current PEP-supported projects involving team members, including resulting publications**

<table>
<thead>
<tr>
<th>Project code (e.g. PMMA-12345)</th>
<th>Title of project and related external (non-PEP) publications, if any</th>
<th>Team member(s) involved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Title: Estimating the economic effects of emigration and remittances of the left-behind</td>
<td>Team leader: Mr. Hing Vutha Members: Mr. Roth Vathana, Ms. Phan Dalis, Ms. Sum Sreymom</td>
</tr>
<tr>
<td></td>
<td>Title: Revisiting unfinished agenda: multiple-source borrowings, farm production and use of fertilizer in rural Cambodia</td>
<td>Team leader: Mr. Roth Vathana Members: Ms. Phann Dalis, Ms. Pon Dorina</td>
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**SECTION III – RESEARCH**

3.1. **Literature review** (max 1000 to 1500 words)

Explain specific gaps in existing literature that your research aims to fill. You might want to explain whether or not this question has been addressed before in this context (including key references), and if so, what you wish to achieve (in addition) by examining the question again?

This section briefly discusses conceptual framework of the interconnection between migration and human capital formation, provides both international and local literature of the topic and explains gap that this study is intended to fill. Intuitively, there are two channels through which migration potentially affects child schooling. First, it affects child schooling via remittances. That is, remittances relax household credit and budget constraint by increasing household income...
and therefore, allow household to invest in children education (Hanson and Woodruff, 2003). The second channel, which negatively affects child schooling is through absenteeism of working age adults who migrate to search for job. Households, who experience loss of adult labor due to migration, are more likely to place their children in either household chores or farm work (Bansak and Chezum, 2009). Consequently, those children are less likely to be enrolled in school and are more likely to drop out of school. In addition, absence of working age adults who are parents could also disrupt human capital formation through reduction in inputs of children education production (Giannelli and Mangiavacchi, 2010). Therefore, the net effect of migration on children educational attainment is unclear.

Studies on the impact of migration on human capital formation, child schooling in particularly, have revealed two lines of evidence based on the type of treatment variables that were used. The two commonly used treatment variables of migration include remittances and number of migrants who were absent from household. Based on international literature, remittances are found to increase schooling of school-age children (Hanson and Woodruff, 2003; Edwards and Ureta, 2003; Mansuri, 2006; Calero et al., 2009; Bansak and Chezum, 2009; Antman, 2012; Hu, 2012), while absence of migrants are found to reduce educational attainment of school-age children (McKenzie and Rapoport, 2006; Lu and Treiman, 2007; Bansak and Chezum, 2009; Giannelli and Mangiavacchi, 2010; Hu, 2012). Among recent studies, Hu (2012) was the only paper that used conditional mixed process (CMP) developed by Roodman (2009) to separate the effects of remittance and absence of migrant household member on child’s enrollment.

Hanson and Woodruff (2003) examined the impact of migration to the United States on educational attainment of left-behind children aged 10-15 in Mexico by using micro 10% census of population and housing in 2000. They used binary treatments of migration and remittances in separate estimation equations and found positive impact of both alternative treatments on years of schooling for both boys and girls. This study attributed the impact to the increase in household income from remittances. In the same country, Antman (2012) used several waves of household surveys from Mexican migration project and exploited the variation in the age of children at the time their father migrated within Mexico and to the US to identify the impact of migration on educational attainment of children aged 0-19. The study did not find any effect of father’s migration within Mexico on schooling for both boys and girls, but find positive and statistically significant effect of father’s migration to the US on girls’ educational attainment. In other setting, such as El Salvador, Edwards and Ureta (2003) found that children from the remittance-receiving households were more likely to stay longer in school than those from the non-recipient households. Similar evidence from other settings includes Mansuri (2006) in Pakistan, Calera et al. (2009) in Ecuador, Mansour et al. (2011) in Jordan, Bansak and Chezum (2009) in Nepal, and Hu (2012) in China. It is important to note that among these studies only Bansak and Chezum (2009) and Hu (2012) included both remittances and absence of migrants in their estimation equations and also addressed endogeneity problem of migration. The studies show the positive effect of the former treatment and negative effect of the later treatment on educational attainment of children in their respective countries.

Despite a growing body of literature that shows positive effect of migration on education of children, several studies reveal contradicting findings. For instance, Giannelli and Mangiavacchi (2010) used Living Standard and Measurement Survey in 2005 to look at the long-term impact of parental migration on schooling of left-behind children in Albania and found that past parental migration reduced school attendance and increased the probability of dropping out of school of the left-behind children. The study attributes the effect to the lack of parental care owing to parental absence from household. Additionally, in rural setting of Mexico, McKenzie and
Rapoport (2006) used national survey of demographic dynamic in 1997 and binary treatment of whether household had a migrant member and also found that migration had a negative effect on schooling attendance and attainment of boys aged 12-18 and girls aged 16-18. In South Africa, Lu and Treiman (2007) showed that children from migrant households without remittances were less likely to be enrolled than those from the remittance receiving households. As indicated earlier, Bansak and Chezum (2009) and Hu (2012) also found the negative effect of migration on children enrollment in Nepal and China, respectively.

In terms of local literature, well-identified studies on the impact of migration on children schooling is sparse. Most recent study includes OECD (2017), which investigated the impact of migration on household education expenditures in 8 provinces in Cambodia. The study included both binary treatment variables (e.g. remittances and migrant) in its estimation equation. And it found that remittances increased education spending, while migration (absence of adults from household due to migration) reduced education spending. However, the study did not address endogeneity problem leaving the uncertainty for causal interpretation. Hing et al. (2014) addressed endogeneity problem by using instrumental variable (IV) approach like in Hanson and Woodruff (2003), but their IV estimates were not statistically distinguishable from zero.

Following the line of the above local literature, this paper is intended to revisit the topic to fill this gap by using new econometric method like the one in Hu (2012) to provide more robust and causal impact of migration on human capital formation. The approach also addresses endogeneity problem and controls for both remittances and absence of migrants from household. This method shows simultaneously the positive impact of the former treatment and negative impact of the later treatment. Nonetheless, limitation regarding making the generalization of the findings from this study remains provided that data used in this study cover only 11 rural villages in Cambodia.

3.2. **Methodology** (max 1200 to 1600 words)

Presentation of the specific techniques that will be used to answer the research questions and how exactly they will be used to do so.

- Explain whether you will use a particular technique normally used in other contexts or whether you intend to extend a particular method and how you will do so.
- Explain if these methods have already been used in the context you are interested in (including key references).
- **For PMMA (microeconomic analysis) proposals only:** In case the proposed methodology aims to empirically estimate a causal relationship, explain potential sources of endogeneity in the context of your research, and how the proposed technique(s) would allow the identification of the relevant parameters.

Existing literature on educational attainment has shown that family income, family structure and parental education are important determinants of schooling decision of children (Hanson & Woodruff, 2003). As discussed in the literature section, conceptually, migration may affect investment in human capital through both income (remittance decisions) and disruption of family structure (absence of migrant member of household). In general, if credit market is perfect, households experiencing negative income shocks, such as flood, drought, job loss, etc., or change in family structure (e.g. increase in household size) can still invest in their children
education since they can borrow. However, in setting of rural Cambodia credit market is never perfect. Thus, remittances allow migrant household to relax credit constraint and invest more in their children education. Nevertheless, migration increases absence of parents or working age adults in household resulting in loss of parental care or increase in household responsibilities for left-behind children. As a result, children from migrant household are either less likely to be enrolled in or more likely to drop out of school. We base our estimation model on this notion and estimate below equation using Linear Probability Model (LPM), which is also similar to equation in Hu (2012) and Bansak and Chezum (2009).

\[ Enrol_{ijt} = \alpha_0 + \beta_1 Remit_{ijt} + \beta_2 Migrants_{ijt} + \alpha_1 X_{ijt} + \alpha_2 V_{kt} + \delta_t + \epsilon_{ijt} \]  

(1)

Where \( Enrol_{ijt} \) measures whether a child \( i \) in household \( j \) and at year \( t \) is currently enrolled in school. \( Remit_{ijt} \) is total remittances measured in ten thousand Riel (local currency). \( Migrants_{ijt} \) is the number of migrants who left household at least three months ago during the last five years, which captures absence of members of households due to migration. \( X_{ijt} \) is a vector of a child and household characteristics, while \( V_{kt} \) is a vector of village \( k \) characteristics. Child characteristics include age, gender and being the oldest child in household, while household characteristics include household size, education of household head, number of household members aged above 65, education of household head, number of school-age boys and school-age girls, index of durable asset, index of livestock, and household’s agricultural land. Village characteristics include distance to nearest bus stop, distance to primary school, distance to lower secondary school, access to all-weather road, percentage of household with electricity, index of village amenities, dummy of drought last year and dummy of flood last year. \( \delta_t \) is year fixed effect, which controls for change over time that are common across migrant and non-migrant households, such as macroeconomic conditions. \( \epsilon_{ijt} \) is an error term. Standard errors (Heteroskedasticity consistent standard errors or White-Huber standard errors) obtained for each estimate are also corrected for the presence of heteroskedasticity among errors following White (1980). Our empirical specification predicts that \( \beta_1 \) is positive (income effect), while \( \beta_2 \) is negative (disruption effect).

Although reverse causality is not likely in the rural context of Cambodia, our estimation concern remains since treatment variables (\( Remit_{ijt} \) and \( Migrants_{ijt} \)) in our model are not purely exogenous, which means covariance of each treatment with error term conditional on observed children, household and village characteristics in equation (1) are not zero. On one hand, if there are unobservable factors influencing both treatment variables and outcome, our

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2 In our analysis, we define treatment households as those who receive transfers/remittances from migrant household member and non-migrant households as those who have no migrant household members. It is important to note that in our sample there are migrant households who receive no remittances from their migrated members. Thus, we also examine whether our results are sensitive to definitions of treatment group by also comparing outcomes of children in migrant households receiving remittances (we exclude children in migrant household receiving no remittances from out sample) with those of children in non-migrant households.

3 Reverse causality arises when member of household uses migration and remittances as means to increase investment in education of their children. Calero et al. (2009) raised this concern in the context of Ecuador. In rural setting of Cambodia, it is not likely provided that majority of the households are myopic and do not complete primary school, and therefore it is unlikely that their incentive to invest in children education motivates them to migrate. Instead, other factors, such as high expected wage in urban areas and migrant-receiving countries and ability of household members, are more likely dominant factors that encourage them to migrate.
LPM estimates may be biased. For instance, more able members of household, especially parents, are more likely to migrate (disruption) and send more remittances (income) back to household assuming that migrant with stronger ability earns more income. Thus, more able parents are more likely to self-select into migration resulting in an increase in both absence of household members and remittances. Additionally, children born to higher ability parents see their parents as their role models and are more motivated to stay in school longer and to perform more satisfactorily in school than children from lower ability parents. Therefore, it is likely that unobserved parental ability directly influences child schooling. This further confounds our LPM estimates. As a result, our LPM estimates bias upward since unobserved parental ability affects outcome directly and indirectly through remittances (income) and absence (disruption). Error term in equation (1) comprises unobserved migrant ability ($\varepsilon_{ijt} = MigrantAbility_{ijt} + \nu_{ijt}$). On the other hand, negative labor market shocks, such as job loss of head or member of household, may bias our LPM estimates downward since this will force household member to migrate and remit and children spend less time in school and stay longer in the farm due to income loss. In sum, the net direction of bias is unclear. In our estimation equation, we also try to control for factors that influence labor market conditions by including index of amenities and weather conditions (flood and drought). For instance, workers are more likely attracted to community with quality amenity assuming availability of jobs in the community and less (or without) frequent weather shocks, such as flood and drought, which generally reduces employment opportunities, such as ploughing, transplanting of paddy, caring for crops and harvesting.

We follow Hu (2012), whose method is also in line with others, including Bansak and Chezum (2009), Hanson and Woodruff (2003) and Rozelle, Taylor and Debrauw (1999), to address endogeneity of decisions to migrate and remit. Past history of migration within each community normally predicts trends and patterns of migration in each respective community, while a norm of migrant to remit in each community should also predict decision of migrant to send remittance back to their villages. Therefore, we use average remittances at village level as instrument for remittance (a proxy for norm to remit) and ratio of migrant household to population household in each village in 2011 (a proxy for history of migration network) as instruments for absence of migrant household members. We include average remittances at village level as a proxy for local remittance norm. By endogenizing remittances and absence in equation (1), first stage regression equations for each treatment variable are below.

\[ \text{Remit}_{ijt} = \pi_0 + \pi_1Migrants_{ijt} + \pi_2Z^R_t + \pi_3X_{ijt} + \pi_4V_{kt} + \delta_t + \nu_{ijt} \]  
\[ \text{Migrant}_{ijt} = \gamma_0 + \gamma_1Z^M_t + \gamma_2X_{ijt} + \gamma_3V_{kt}\delta_t + \phi_{ijt} \]  

$Z^R_t$ is the average remittance of household at village level and instrument for remittance, while $Z^M_t$ is the ratio of migrant household to household population in each village in 2011 and instrument for household members' decision to migrate. We expect that migration network, a proxy of which is ratio of migrant household in 2011, should predict household decision to migrate and have no direct effect of children enrollment since it occurred at least 3 years prior to the first wave of the survey. In addition, since remittance sent back home may be influenced by the village norm to remit (Hu, 2012 and Rozelle et al., 1999) average remittance in the village should predict remittance sent by migrant member of household.

To robustly identify and disentangle the effects of remittance and absence, we follow Hu (2012) by applying conditional mixed process model (CMP) introduced by Roodman (2009) and treating the three equations as system of recursive simultaneous equations, where $\text{Remit}_{ijt}$ and
Migrants are endogenous. System of equation approach allows error terms across equation to be correlated, thereby addressing endogeneity issue of migration and remittances. Thus, identification of $\beta_1$ and $\beta_2$ relies on the assumption that errors of the system of equations are jointly normally distributed. Since CMP allows flexibility in the functional form of error term in each equation in the system we use probit regression for equation (1) as enrollment is a binary variable. And we apply tobit model for equation (2) since remittance is non-negative and censored around zero. OLS is applied to equation (3) since migrant is not binary.

Since we are also interested in differential impact across gender and household wealth statuses. First, we run CMP for boy and girl samples separately. And, add interaction terms between treatment variables and dummies of household durable asset to see whether there is presence of differential impacts on children across households’ wealth statuses. The underlying reason is that children from lower wealth status household in rural Cambodia are more likely negatively affected by the absence of migrant household member because they are more likely to replace absent member on the farm and their family is usually credit constrained. Nevertheless, remittance sent back home may offset the negative effect if poor households are motivated to invest in their children’s education.

3.3. Data requirements and sources (max 400 to 700 words)

This is a critical part of the proposal. The key issue is to explain the reason for the choice of your particular databases. You must establish that they are ideal for the question you wish to address and that you have or will have access to these data before your project begins. Please consult the “Guide for designing a research project proposals” for more detail.

We use two waves of household survey in 2014 and 2017 from the Moving Out of Poverty Project (MOP), which was collected by our institute, the Cambodia Development Resource Institute (CDRI), to test our proposed hypotheses. The advantage of using panel household data is that it allows us to control for unobserved time-invariant factors that could confound our estimates. Additionally, panel data for the setting of Cambodia are sparse, and when they do exist, they are not publicly available. Nonetheless, the use of these data is not without caveat. Since our sample does not represent rural Cambodia, findings from our study do not allow us to make any generalization. However, results from our study are still useful for policy makers and researchers to update their priors regarding the effects of migration and remittances on investment in children education. They also open door for future research, which may be conducted at broader scale and a more nationally representative manner. For instance, study on linkages between migration and public policies in Cambodia by a think-tank, such as the OECD, in 2017 is very informative although the data were collected from 8 provinces in 2014. Our study will add value to this work in terms of its application of a more rigorous econometric approach and the use of up-to-date dataset.

In our dataset, cluster of the data is at village level, which is the lowest administrative unit for Cambodia. There are 11 clusters, which were purposefully identified by the Cambodia Development Resource Institute (CDRI) from Cambodia’s four largest geographical zones, including Tonle Sap plain, Mekong delta plain, Mountain/Plateau and Coastal area. Households were randomly selected from each cluster (Sample of households for each round are presented in Table A.1. in the Appendix.). Each round was conducted in March 2014 and 2017, respectively. The survey collected information on household
demography, education, household durable and livestock assets, land ownership, credit market, food and non-food consumptions, production expenditures, income and common property resources.

We construct a sample of 3,529 school-aged children by restricting the survey sample to children aged between 5 and 19. We identify this age group because children may start school early and stay late to complete their 12-year basic education. Table A.2. in the appendix shows that there are 1,886 children in 2014 and 1,643 in 2017. The reduction in number of children over the period may be due in part to the fact that some children who were at school age in 2014 were older than 19 in 2017. Approximately two-thirds of the children are from household with migration experience. This suggests the important role that remittances and absence of household member may play in affecting investment in human capital in rural Cambodia. Nonetheless, although there is a meager increase in number of migrant households over the periods, the number of migrant households receiving no remittances almost doubled during the same period. This may reduce the influence of remittances over outcome, but instead strengthen the effect of migration (absence) on outcome. Table 1 below provides a summary of variables used in the analysis.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome</strong></td>
<td></td>
</tr>
<tr>
<td>Enrolment</td>
<td>1, if a child (aged 5-19) is currently enrolled; 0, otherwise</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
</tr>
<tr>
<td>Remittances</td>
<td>Amounts of remittances per household in ‘0000 Riel</td>
</tr>
<tr>
<td>Migrant</td>
<td>Total number of migrants per household during the last 5 years</td>
</tr>
<tr>
<td>Remit*Durable assets</td>
<td>Interaction between dummy of durable asset index and treatment “Remittance”</td>
</tr>
<tr>
<td>Migrant*Durable assets</td>
<td>Interaction between dummy of durable asset index and treatment “Migrant”</td>
</tr>
<tr>
<td><strong>Instrumental variables</strong></td>
<td></td>
</tr>
<tr>
<td>Average remittance</td>
<td>Average remittance at the village level</td>
</tr>
<tr>
<td>Ratio of migrant</td>
<td>Ratio of migrant household to household population in each village</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Child characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Age of a child</td>
<td>Age of a child</td>
</tr>
<tr>
<td>Gender of a child</td>
<td>1, if a child is a boy</td>
</tr>
<tr>
<td>A child is oldest</td>
<td>1, if a child is oldest in the household</td>
</tr>
<tr>
<td><strong>Household characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Household size</td>
<td>Total number of current members of household</td>
</tr>
<tr>
<td>Education of household head</td>
<td>Highest years of schooling completed by household head</td>
</tr>
<tr>
<td>Number of old dependence</td>
<td>Number of adults aged above 65</td>
</tr>
<tr>
<td>Household agriculture work</td>
<td></td>
</tr>
</tbody>
</table>
**SECTION IV - POLICY ENGAGEMENT**

4.1. **Policy relevance**

4.1.1. Describe policy context and needs

Describe the specific policy issues or needs that your research aims to address; how your potential outcomes and findings may be used in policy making? Please be as precise as possible, indicating specific current or prospective policies and the specific contributions your research would make.

Also, justify timing of your research in terms of policy and socioeconomic needs and context – e.g. reference to existing, planned or potential policies at the national, regional or local level; specific political context; international examples of similar policy problems or solutions, etc.

Although emigration, particularly among low-educated and low-skilled working-age Cambodians, seems to be commonplace and rising, there has not been majority agreement, let alone consensus, among researchers and policymakers on what policies and long-term
strategic direction on emigration should look like and how emigration should be integrated into
the National Strategic Development Plan and other sectoral policies (e.g., Industrial
Development Plan, Education Policy and National Employment Policy, just to name a few).
OECD/CDRI (2017) points to the ‘inconsistency and incoherence’ of national and sectoral
policies to incorporate emigration and the limited coverage of the issue in the two levels of
policy documents.

Policymaking is also in dilemma to strike the balance among various intellectual thinking on
socio-economic effects of emigration summarized in the below Vann diagram.

**Group 1:**
Those who argue for in-country and in-locality job creation to prevent brain-drain due to emigration

**Group 2:**
Those who see emigration as a life changing and socio-economic improving factor for both sending households and country. It is also considered a strategy to lessen unemployment pressure in the domestic labour market.

**Group 3:**
Those who strive for the optimal balance between the intellectual thinking in Groups 1 & 2

Labour Migration Policy launched in 2014 focuses on three main strategic priorities: (1) good
governance of labour migration through formulating and implementing regulatory, legal and
institutional framework; (2) protection and provision of support services for migrant workers
before and during migration episode; and (3) provision of support services for return migrants in
terms of reintegration into community of origin and skill recognition. Objective 6 of Goal 3 of the
National Employment Policy also emphasizes measures to facilitate migration flow and protect
migrant workers (RGC 2015). These policies falls into the thinking of those in Group 2.

In terms of policy relevance of our study, it is not feasible for the results to contribute to policy
debates on emigration in all sectors given the multidimensionality of the issue. We, therefore,
contribute to the debates that try to disentangle relationship between emigration and human
development of children who are left behind, mostly with grand parents and relatives, when
their immediate parents emigrate—an issue which has received growing and significant
attention from the Ministry of Education, Youth and Sport (MoEYS) and the United Nations
Children’s Fund (UNICEF).

The National Policy on Early Childhood Care and Development led by MoEYS features
prominently the need to care for school-aged children early on. The policy envisions six goals
and objectives ranging from provision of support services to all women during pregnancy to
ensure that the child is born healthy and to ensure that children from birth to school age should
enjoy ‘physical, cognitive, mental and emotional development’ both at home and care
centres. Children without parents to care for due to emigration might lack such home care support compared to those with the parental care. This, in theory, could negatively affect cognitive development of the children even though migrating parents use remittances to invest in children’s education. If so, the Ministry of Education, Youth and Sport would need to think about additional support services to children having migrating parents. An extreme intervention, however, is to try to reduce, if not eliminate, emigration, which is hard and runs counter to the current national policy on migration and employment.

Having said that, recommendations from our study will be relevant to policy debates on emigration and human development in three fronts.

1. Rigorous and scientific evidence is always necessary for a well-rounded design and implementation of public policies. Since not many studies on the issue we examine are available, the study’s results will be necessary inputs into the policy documents.

2. The research piece is an awareness raising work for researchers and policymakers to think seriously about how to integrate emigration and its impact on various dimensions of human development, especially those of children who will play an important role in the economy when they grow up.

3. If the results show that the net effect of emigration is negative for child schooling, MoEYS might want to design intervention programs to help the affected children. Given that our study examines heterogeneity of the impact, investigating characteristics of the affected children and those of the households and community they live in, the information is necessary for program designers to target better.

We, nonetheless, acknowledge that recommendations of the study might not be relevant to the policy debates immediately after the completion of the project, for the attention to integrate emigration, as above mentioned, into education and other sectors remains limited and fragmented. We hope the government and other relevant entities working on the issue will pick up the recommendations as this phenomenon continues.

### 4.1.2. Consultations to date

List the consultations that you have had with potential research users (e.g. policy makers or stakeholders) and that have helped define your research question, and/or informed you of the specific policy context described above.

For each institution consulted, please:
- List key (individual) representatives who participated in the consultation
- Describe the main outcome(s) of the consultation (feedback, inputs, etc.)

<table>
<thead>
<tr>
<th>Name of institution/organization</th>
<th>Name of instit./org.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>List the key representative involved in consultations (names and titles/ positions)</strong></td>
<td></td>
</tr>
<tr>
<td>- Name, title/position</td>
<td>- Name, title/position</td>
</tr>
<tr>
<td><strong>Describe main outcomes of consultation - feedback or inputs received</strong></td>
<td></td>
</tr>
</tbody>
</table>
4.2. **Engagement strategy**

4.2.1. Identify target audiences

Identify potential users of your research findings – institutions/organizations that may use your findings to inform, advise or influence policy or other relevant decision-making processes. Please explain why you believe these institutions/organizations are the most important potential users of your research, to inform relevant development/policy decisions.

<table>
<thead>
<tr>
<th>Name of institution/organization #1</th>
<th>Ministry of Education, Youth and Sports</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explain relevance of this user to inform key decisions</strong></td>
<td></td>
</tr>
<tr>
<td>In its policy document on Early Childhood Care and Development, the ministry of education, youth and sports (MOEYS) clearly acknowledges the importance of early childhood care and development (starting from conception to six years of age) in helping children succeed and perform desirably in school. The policy states broadly a range of factors that may affect a child’s physical and emotional development, but does not indicates the role of absence of parents and adults from household due to migration. Therefore, there is room for us to raise awareness of this</td>
<td></td>
</tr>
</tbody>
</table>
role among policymakers at the ministry. If this is taken seriously, findings from this study can be incorporated into the ministry’s policy document.

<table>
<thead>
<tr>
<th>Name of institution/organization #2</th>
<th>Ministry of Labor and Vocational Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain relevance of this user to inform key decisions</td>
<td>The ministry of labor and vocational training launched its policy on labor migration in 2014, which focused mainly on the protection of migrant in the host country and re-integrating them into the society back home, but did not the potential impact of absence of parents or working-age adults from household on schooling of left-behind children. Therefore, findings from this study help people in charge of formulating the policy to reconsider the net gain from promoting international migration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of institution/organization #3</th>
<th>United Nations Children’s Fund (UNICEF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain relevance of this user to inform key decisions</td>
<td>The UNICEF has been the leading advocate for early childhood care and development in Cambodia. Its current collaborative programs (2016-2018) with the government seeks to ensure that all children in Cambodia survive, thrive and reach their full potential. The programs include Integrated Early Childhood Development, Inclusive Quality Education, Child Protection, and Social Inclusion. Therefore, findings that show loss of child schooling due to absence of parents or working-age adults from household are very important input for them to inform policymakers.</td>
</tr>
</tbody>
</table>

4.2.2. Define outreach and engagement strategy

How, from proposal design to the dissemination of your research results, will you consult and communicate with these users to both gather their inputs and keep them informed of your project, in order to increase chances of research uptake?

Prior to the proposal writing, we reviewed all migration- and education-related policy documents produced by these institutions to identify theme which we thought was important, but neglected. We will consult with the three institutions mentioned above by presenting our preliminary findings to get some inputs from them before completing first draft of the report. We then also gather their comments by sharing our zero draft report with them. The draft report should also include policy options to address problems found in the study. A consultative workshop among various and relevant key stakeholders will be organized to extend outreach of the message from the study.

4.2.3. Outline your preliminary dissemination strategy

Outline your preliminary dissemination strategy (channels, tools, events, audiences, etc.). Note that PEP expects grantees to disseminate information about their research work and (expected) outcomes throughout the project cycle, and not only after publication.
We will utilize our CDRI’s existing channels to disseminate findings of our study. We will present preliminary findings at the CDRI’s bi-weekly research workshop to get inputs from colleagues (researchers) and the director of research. Occasionally, we invite faculty members from local universities to share their thoughts in this workshop. We will also invite representatives from the Ministry of Labour and Vocational Training, Ministry of Education, Youth and Sports, and the UNICEF, to get their reaction to our results and policy options. Additionally, after finalizing our report, we will also seek opportunity to present findings of our study at universities, such as Royal University of Phnom Penh (RUPP), which is CDRI’s research partner, to raise awareness among youth in Cambodia about the potential loss of human capital due to migration. We will also invite representatives from the Ministry of Labour and Vocational Training, Ministry of Education, Youth and Sports, and the UNICEF, to get their reaction to our results and policy options. Additionally, after finalizing our report, we will also seek opportunity to present findings of our study at universities, such as Royal University of Phnom Penh (RUPP), which is CDRI’s research partner, to raise awareness among youth in Cambodia about the potential loss of human capital due to migration. We will also use CDRI’s existing means of publications, such as CDRI’s Cambodia Development Review (which consists of 3-4 articles per issue and 4 issues a year), Policy Brief (a stand-alone 3-4 page article) and Working Paper Series. Our research products featured in these publications are publicly available online.

SECTION V - OTHER CONSIDERATIONS

5.1. Describe any ethical, social, gender or environmental issues or risks that should be noted in relation to your proposed research project.

The dataset we use were ethically and socially conducted with full consent from both household and individual responses. Letters were sent to Ministry of Interior copied to various relevant government ministries and authorities. Approved letters were presented to all village chiefs where the survey occurred. The chiefs were also briefed the purposes and ethical aspects of the survey and its subsequent findings. The analysis keeps individual and household information highly confidential by not revealing names or characteristics that could be discriminated and gender-biased.

5.2. References and plagiarism:

Applicants should be very careful to avoid any appearance of plagiarism. Any text of five or more consecutive words that is borrowed from another source should be carefully contained between quotation marks with a reference to the source (including page number) immediately following the quotation. It is essential that we be able to distinguish what you have written yourself from what you have borrowed from elsewhere.

Note also that copying large extracts (such as several paragraphs) from other texts is not a good practice, and is usually unacceptable. For a fuller description of plagiarism, please refer, for example, to the following website:

- [http://writing.yalecollege.yale.edu/advice-students/using-sources/understanding-and-avoiding-plagiarism](http://writing.yalecollege.yale.edu/advice-students/using-sources/understanding-and-avoiding-plagiarism)

PEP will be using a software program to detect cases of plagiarism.
References


Appendix

Table A.1: Samples of households for 2014 and 2017

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Battambang</td>
<td>Thma Koul</td>
<td>Ta Meun</td>
<td>Krasang</td>
<td>Rural</td>
<td>Tonle Sap Plain</td>
<td>115</td>
<td>116</td>
<td>103</td>
</tr>
<tr>
<td>Battambang</td>
<td>Sangkae</td>
<td>Kampong Preah</td>
<td>Andoung Trach</td>
<td>Rural</td>
<td>Tonle Sap Plain</td>
<td>85</td>
<td>82</td>
<td>76</td>
</tr>
<tr>
<td>Kampong Speu</td>
<td>Odongk</td>
<td>Khsem Khsan</td>
<td>Trapeang Prei</td>
<td>Rural</td>
<td>Mountain/Plateau</td>
<td>75</td>
<td>73</td>
<td>68</td>
</tr>
<tr>
<td>Kampong Thom</td>
<td>Kampong Sray</td>
<td>Kampong Kou</td>
<td>Khsach Chi Ros</td>
<td>Rural</td>
<td>Tonle Sap Plain</td>
<td>119</td>
<td>115</td>
<td>101</td>
</tr>
<tr>
<td>Kampong Thom</td>
<td>Santuk</td>
<td>Kraya</td>
<td>Dang Kdar</td>
<td>Rural</td>
<td>Mountain/Plateau</td>
<td>125</td>
<td>121</td>
<td>113</td>
</tr>
<tr>
<td>Kampot</td>
<td>Kampot</td>
<td>Koun Satv</td>
<td>Kampong Thaot</td>
<td>Rural</td>
<td>Coastal</td>
<td>119</td>
<td>112</td>
<td>109</td>
</tr>
<tr>
<td>Kandal</td>
<td>Lvea Aem</td>
<td>Preaek Kmeng</td>
<td>Preaek Kmeng</td>
<td>Rural</td>
<td>Mekong Plain</td>
<td>114</td>
<td>120</td>
<td>113</td>
</tr>
<tr>
<td>Kracheh</td>
<td>Chhloung</td>
<td>Kanhchor</td>
<td>Kanhchor</td>
<td>Rural</td>
<td>Mountain/Plateau</td>
<td>120</td>
<td>119</td>
<td>107</td>
</tr>
<tr>
<td>Preah Vihear</td>
<td>Kuleaen</td>
<td>Phnum Penh</td>
<td>Bos</td>
<td>Rural</td>
<td>Tonle Sap Plain</td>
<td>85</td>
<td>85</td>
<td>83</td>
</tr>
<tr>
<td>Prey Veng</td>
<td>Peam Ro</td>
<td>Ba Baong</td>
<td>Ba Baong</td>
<td>Rural</td>
<td>Mekong Plain</td>
<td>125</td>
<td>122</td>
<td>113</td>
</tr>
<tr>
<td>Krong Preah Shihanouk</td>
<td>Prey Nob</td>
<td>Prey Nob</td>
<td>Prey Nob Muoy</td>
<td>Rural</td>
<td>Coastal</td>
<td>80</td>
<td>83</td>
<td>73</td>
</tr>
</tbody>
</table>

Note: Attrition is 94 households. However, since there are duplications of heads of households in 2017, which were dropped from the sample, and missing observations in 2017, the resulting attrition is 103 (1,162-1059=103).
Table A.2. Distribution of households and children across household migration statuses (panel data 2014-2017)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Migrant household with remittances</th>
<th>Migrant household without remittances</th>
<th>Non-migrant household</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Year 2014</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td>508</td>
<td>105</td>
<td>446</td>
<td>1,059</td>
</tr>
<tr>
<td>Children (aged 5-19)</td>
<td>833</td>
<td>205</td>
<td>848</td>
<td>1,886</td>
</tr>
<tr>
<td>Boys</td>
<td>429</td>
<td>101</td>
<td>432</td>
<td>962</td>
</tr>
<tr>
<td>Girls</td>
<td>404</td>
<td>104</td>
<td>416</td>
<td>924</td>
</tr>
<tr>
<td><strong>Panel A: Year 2017</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td>196</td>
<td>451</td>
<td>412</td>
<td>1,059</td>
</tr>
<tr>
<td>Children (aged 5-19)</td>
<td>648</td>
<td>312</td>
<td>683</td>
<td>1,643</td>
</tr>
<tr>
<td>Boys</td>
<td>317</td>
<td>143</td>
<td>345</td>
<td>805</td>
</tr>
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