

**THE IMPACT OF PARENTAL ABSENCE ON EARLY CHILDHOOD
DEVELOPMENT IN THE CONTEXT OF THAILAND**

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ABSTRACT

Among various consequences of migration, the outcomes related to the separation of migrant parents and children have gained increasing attention from scholars on migration as well as from other stakeholders. This analysis investigates the impact of parental migration on early childhood development, based on a UNICEF-funded study conducted at the end of 2013 to early 2014 in Thailand. The survey purposively selected children aged 36 months and younger from three household types based on the presence of both parents, mother only, or neither parent. The Denver II screening tool was used to assess whether children had suspected delayed development. In total, 923 children are included in the analysis. Results reveal that the crucial factor for delayed development among early childhood is whether the mother is present in the household. Children who were cared for by others were not at higher risk of delayed development as long as their mother was present, while the father's absence did not make a difference, when other factors are controlled. Mothers may be able to create a more favorable home environment for language development than other family members. Our findings confirm the bond of affection between mother and child as instrumental for healthy development in early life. This study raises concern for the large number of children living separately from their mother, and raises questions about the long-term effects of parental migration for this generation of Thai children. Our results may be applied in other settings where migration of parents is also common.

BACKGROUND

Among various consequences of migration, the outcomes related to the separation of migrant parents and children have gained increasing attention from scholars on migration as well as from other stakeholders (e.g. NSO 2013; UNICEF, 2013). In developing countries, migration of rural people in working age to cities or overseas is a common phenomenon (e.g. Asis & Ruiz-Marave, 2011; Sukamdi et al., 2012) and has been a research topic for many decades. Along with this discussion, the issue of the return from migration, particularly whether its benefits are able to overcome its costs, has not yet reached at a satisfactory conclusion. The most common reason for parent-child separation is parents migrating to work elsewhere in search of higher incomes. Yet, little is known about the extent to which parent-child separation leaves an impact on family well-being, particularly on young children whose parents are inarguably the best caretaker (e.g. Jacobvitz, 2014; Nanthamongkolchai et al., 2003; 2007; 2010). More research is needed to provide evidence on whether parents' decision to move out of their home leaves an important impact on their young children remaining behind, who never got a chance to take part in their parents' decision.

Thailand is not different from other developing countries that have been characterized by migration of working-age people. However, the magnitude of parent-child separation (mostly due to parental migration) is relatively high compared to other developing countries. The report of the MICS2012 survey which is nationally representative shows how common the situation of Thai children living without parents has become. According to the report, 42.4% of children under the age of 18 were living separately from one or both parents in 2012, up from 36.0% in 2005/6 (NSO, 2006; 2013). A closer look at the MICS2012 survey data indicates that 21% were living without either parent while both were alive. The rate in other countries is much lower, 5.0%, 4.4%, 3.4%, and 6.5% for Laos PDR, Vietnam, Costa Rica, and Nigeria, respectively. Looking at young children brings even more concern: about two-fifths (40.0%) of children aged 0-4 years live without one or both parents, while more than one fifth (21.0%) live without both parents while both were alive. Other existing research in Thailand also points at the prevalence of children living without parents. For example, an area-specific research study (Jampaklay et al., 2012) suggests that about three-fourths of the surveyed children aged 8-15 experienced living separately from fathers and about 60% from mothers for a period of at least 2 months since they were born.

Our analysis examines whether there is a relationship between parental migration and the development of young children remaining in the household of origin. We explore whether children who live through changes in living arrangements in household of origin brought about by the migration of their parents have similar levels of development as those living with their parents. We focus on children in early childhood, when growth processes are accelerated and milestones emerge, generally recognized as the most important life phase in terms of development (Boyden & Dercon, 2012: 12,). UNICEF (2013) states that *“The early years of life are crucial not for individual health and physical development, but also for cognitive and social-emotional development. Events in the first few years of life are formative and play a vital role in building human capital, breaking the cycle of poverty, promoting economic productivity, and eliminating social disparities and inequities”*.

IMPACT OF MIGRATION ON CHILDREN’S WELL-BEING

Migration is a process and a decision that impacts the welfare of the household, the home community, and the whole economy in various ways (Azam & Gubert, 2006). Most often, the implications of migration on the welfare of the home of origin are documented as fairly large and positive. Remittances are perhaps the most tangible and least controversial link between migration and development (e.g. Ratha, 2007; Addy et al., 2003; Skeldon, 1997). Migration alleviates poverty by, for instance, increasing incomes from remittances, contributing to the ability to smooth consumption, and giving households access to finance for starting a new business. Furthermore, migration and remittances allow for higher investment in health care and education. In Thailand, for example, empirical evidence shows that children benefit educationally if any household members remit (e.g. Curran et al, 2004). Findings from the CLAIM study (Jampaklay et al., 2012) indicate that the majority of migrant parents sent money home at least once in the past 12 months prior to the survey and the median amount of remittances sent to households each month is 3,000 baht (or around US\$91). Other studies in rural Thailand, however, reflect that not remitting or intermittent remittance sending is not uncommon (e.g. Jampaklay, 2009). Therefore, it may not be conclusive to assume that benefits from remittances outweigh the cost that migration may entail.

Despite the fact that the benefits of migration have been recognized, serious challenges presented by migration are reportedly widespread. These include stressful separation between migrants and their family, which can lead to unfavorable outcomes among children living separately from parents as well as their

alternative caretakers. While migration reduces the need for children's labor and heightens chances of children to obtain better education, research also warns that labor migration provides an example of an alternative route to economic mobility; for example, migration in the U.S. has been associated with lower aspirations to attend university (Kandel and Kao, 2001). Many young adolescents in rural areas are inspired by migrants and look forward to their time to leave home and work, following the same path of migrants from the same hometown, those who are perceived as successful (Jampaklay, Vapattanawong, & Prasithima, 2012).

Research on the impact of migration of parents on their children remaining at their place of origin in Thailand is limited. Among a few, a study by Jampaklay et al. (2012) provides results which are indicative of both positive and negative effects. On the one hand, the research reported children's being financially better off after their parent(s) moved. On the other hand, children's caretakers in households where both parents moved are at higher risk of having psychological health problems. Moreover, children of migrant parents reported doing worse in school, tended to report drinking alcohol more, and were less satisfied with where they live than their counterparts. Children whose parents are migrants were also reported as less independent and less happy.

Research in other contexts also indicates both positive and negative outcomes on children's physical and psychological health. In the Mexican context, where there is a long history of sending migrants to the U.S., Hildebrandt and McKenzie (2005) analyzed health outcomes of children in migrant and non-migrant households and found lower rates of infant mortality and higher birth weight for children in migrant household compared with those in non-migrant households. The authors explain that migration of parents improves child's health outcomes through triggering wealth and knowledge, especially on the mother's part. However, while showing a positive impact, the authors also find that the children of migrants are less likely than children of non-migrants to be breastfed, fully vaccinated, or taken to a doctor in their first year of life. Moreover, it is noted in their study that the phenomenon of absent parents may have longer-term negative effects on health outcomes.

The positive impact of migration on child's physical health is also found in Carletto et al.'s study (2011) which assessed the impact of Guatemalan parents' migration to the US on Height for Age-Z (HAZ - a long term measure of child nutritional status and illness) scores and stunting prevalence for left-behind children under 6 years of

age. They found that children in households with a migrant to the US have higher HAZ scores and lower prevalence of stunting relative to their counterparts. The researchers suggest the possible channels through which migration may operate are improved food security and reduced morbidity. In accordance with Carletto et al. (2011), Mansuri (2006) found in his analysis using Pakistani data that migration has a positive and significant impact on height for age among children aged 6 months to 10 years of age. Gender differences are noted, as the effects are much smaller for boys than girls. The study suggests that boys may get preference in terms of nutrition and health care when resources are stretched.

However, adverse impacts of parents' migration have also been documented. Graham and Jordan (2011) measured the psychological well-being among children of labor migrants under aged 12 in four countries, Philippines, Indonesia, Thailand, and Vietnam. The results showed that in Indonesia and Thailand children of fathers who work overseas had poorer psychological well-being indices than children from non-migrant households. In Sri Lanka, Wickramage et al. (2015) found that 43% of left-behind children aged 6-59 months in Sri Lanka had mental disorders, compared with 34% among children of non-migrant parents. The researchers argue that socio-emotional maladjustment and behavioral problems may occur in absence of a parent in left-behind children. Male left-behind children were more vulnerable to psychopathology.

Prior research also provides evidence of the negative effect of migration on children's physical health. For example, in Mexico, Nobles (2007) found that parents' international migration has a negative impact on the children's Height for Age (HAZ). A study by Zhen (2013) based on the data of the Chinese Food and Nutrition Surveillance System indicates that nutrition status of under-five children with mothers migrating to urban areas was lower than those with mothers who were employed in their hometown. The lower nutritional status of children in migrant households was also highlighted in a Sri Lankan study (Wickramage et al., 2015) showing that over a quarter (30%) of the left-behind children were 'underweight or severely underweight' compared to 18% of children in non-migrant households.

PARENTAL MIGRATION AND CHILD DEVELOPMENT

Most research investigating the connection between migration and children's well-being focuses on health outcomes, particularly nutritional status and psychological health. To our knowledge, attempts to particularly look at the risk on child

developmental outcomes as potentially affected by parental absence have yet to be investigated. Literature on child development has documented other factors affecting child development including poverty, associated health, nutrition, and socio-cultural contexts (e.g. Walker et al., 2007; Leng & Park, 2010). Young children living in poverty or in socio-cultural risk environments are likely to be exposed to biological and psychological risks that affect development through changes in brain structure and function. Factors such as gender inequality, low maternal education, and reduced access to services can be considered as socio-cultural risks. Biological risks include prenatal and postnatal growth, nutrient deficiencies, infectious disease, and environmental toxins, while psychosocial risks include parenting factors, maternal depression and exposure to violence (Walker et al., 2007). Other researchers put forth that greater family resources enable the family to afford greater investments in multiple dimensions of children's human capital. Studies in the West find a strong association between higher household income and a variety of child development outcomes (Leng & Park, 2010).

One broad agreement about child development is that development involves a complex transaction between genotypic, biological, and maturational processes that are shaped by children's experiences, actions, and interactions, as well as by broader environmental influences, including their caregivers' cultural values, embedded in diverse contexts (Boyden & Dercon, 2012; Walker *et al.* 2007). Boyden & Dercon (2012) explain that "...*individual characteristics (for instance, personality) and biological forces (including genetics, epigenetics, and neurobiological factors) work together with family dynamics (for example, attachment to caregivers, family functioning), and broader historical, sociocultural, and environmental factors (such as socio-economic status) in shaping children's growth and adaptation (p.13)*". This is most important in the first and second year, when the baby is first being exposed to the world around him/her. Thus, a major factor in determining the rate of children's mental growth is the environment, especially the caretakers who can help a baby's brain grow by providing the right stimulation and reactions.

Empirically, relatively less attention has been paid to assessing migration's impact on sending communities generally, and more specifically on children living separately from migrant parents. Migration may affect those left-behind, e.g. children, adolescents, and caretakers, through a multiplicity of mechanisms. These causal mechanisms by which each group is affected should be highlighted to inform the design and choice of public policy, monitor its implementation, and evaluate its

impact. This will help to design policies that minimize the negative impacts of migration, while maximizing its positive effects.

Our analysis investigates the impact of parental migration on early childhood well-being and development, based on a study in one northern and one northeastern province with high out-migration rates in Thailand. Our findings raise concern about children living separately from parents; children living apart from parents are less likely to experience enriching activities with their caretakers, and are more likely to experience physical punishment. In particular, children living apart from both parents were more likely to have delayed development.

DATA AND METHODS

Data set and study sample

We use a data set from the first round (baseline) of a longitudinal study in Thailand called *The Impact of Internal Migration on Early Childhood Well-being and Development: A Longitudinal and Mixed-method Study*. The survey was conducted by Institute for Population and Social Research, Mahidol University with the financial support of UNICEF-Thailand. The overall objective of the survey is to comprehensively investigate impacts of parental absence on the well-being of young children (age 0-3) living apart from parents. The data collection was conducted in two provinces, purposively selected based on their high prevalence of internal migration, according to data on a nationally-representative survey (NSO, 2006). In addition to featuring a longitudinal design, this study is a mixed-method study (both quantitative and qualitative approaches). The first round of the quantitative survey was conducted from September, 2013 to February, 2014, followed by in-depth interviews of parents and caretakers conducted from the end of October, 2014 to February, 2015. The data utilized in this paper were derived from the quantitative data only. The report of the baseline data is forthcoming.

Eligible households for the survey contain at least one child from newborn to 36 months old. To disentangle the effects of parental migration from other factors as much as possible, the study includes only children who were normal term and not low birth weight, i.e. children born at ≥ 37 weeks gestation and with a birth weight of at least 1,500 grams (Matte et al., 2001), and who are not disabled.

The study children either live with both parents, live with their mother only¹, or live with neither parent. The sample size of these three household types was pre-determined: households with a child with both parents absent were set to be 60%² of the total sample, with 20% for children with mother at home and father absent and another 20% for children with both parents at home. The total number of households interviewed is 1,080 households. If more than one eligible child was present in the household, only one eligible child was randomly selected as the target child.

It should be noted, however, that although the total sample size is 1,080, not all children participated in the child development assessment, our main outcome, detailed in the following section. There are 96 children missing on child development data. Among them, 17 children came for the test but did not cooperate, thus could not be tested and results could not be obtained. Therefore, the sample with child development data is 984 children or 91% of the total surveyed. After taking out some cases with incomplete data on some independent variables, the final sample size for the analysis is 923 children.

Results from comparing some characteristics between children included in and excluded from the analysis show that there are no significant differences between the two in terms of household type, age, sex, and whether they are cared for by mother or others (results not shown). Therefore, we can be certain to some extent that excluded and included children are quite similar.

The research tools and methodology were approved by the Institutional Review Board (IRB) of the Institute for Population and Social Research (IPSR), Mahidol University (COA. No. 2013/1-1-22).

Dependent variable

In our study, children's development is measured using the tool called the Denver Development Screening Test (DDST) or Denver II. The first version of the test was introduced in 1967 and was developed again in 1992 (Frankenberg et al., 1992;

¹ The survey excluded the category of children who live with father only because it is rare for young children to live with their father but not their mother.

² We disproportionately sampled this group more than others to address children with both parents absent regardless of reasons of absence.

Frankenburg, Dodds, Archer, Shapiro, & Bresnick, 1992). The test is designed for pediatricians, teachers, or health personnel to primarily screen infants to 6 years old children for delayed development. The tool evaluates child development in four domains: Personal Social, Fine Motor Adaptive, Gross Motor, and Language. Each domain is measured through several items to test. In total, there are 125 items covering the four domains. The Denver II was developed for use in Thailand by the National Institute for Child Development (Kotchabhakdi & Lawsuwonpong, 1992).

In the survey on which our analysis is based, the Denver II test was administered by qualified health personnel who were trained on how to administer the tool. At the same time as the Denver II tests were administered at the health-promoting hospital, the child's height and weight were measured to assess their nutritional status.

Our analysis focuses on one child outcome, whether a child is assessed as having suspected delayed development. The child is coded 1 if suspected as delayed and 0 if assessed to have normal development. Because of the binary outcome of the dependent variable, we use logistic regression for this analysis.

Independent variables

Our main independent variable indicates the absence of parents, which is in turn interconnected with who the main caretaker of the child is. Our analysis categorizes the main independent variable in two ways to capture both parental absence and the child's main caretaker. We then analyzed two separate models for each of the main independent variable described as follows:

The first measure of the main independent variable is *Parental absence status or household type*. This variable reflects whether parent(s) are present in the household at the time of the survey. The variable is classified into three categories: 1) both parents present, 2) mother present-father absent, and 3) both parents absent. In the multivariate analysis, the reference category is having both parents present.

The other main independent variable combines the maternal status (present or absent) and the relationship of the caretaker to the child. Although mother might be present in the household, it is not always the case that the mother assumes the role of main caretaker. This independent variable is classified into three categories: 1) mother present and mother is main caretaker, 2) mother present but someone else is the main caretaker, and 3) mother absent with someone else as the main caretaker.

This classification will help examine whether the presence of the mother, though not the main caretaker herself, does make a difference on child development.³

Other covariates

In the multivariate analysis, we include characteristics of children at individual and household levels, of their mother, and caretaker, which may be related to both child development and parental migration. These covariate include the child's individual characteristics (age, sex, and nutritional status), whether parents are in an intact relationship⁴, mother's characteristics (age, education), household characteristics (economic status, household size), child development promoting activities, and caretaker's attitude toward physical punishment. We also control for a variable indicating whether the child's main caretaker works in addition to caring for the child. Two variables gauging the well-being of the caretakers, life satisfaction and mental health, are included in the model as well. In addition, father's absence is also included in each model (except for the model with the 1st independent variable or parental absence status), both to examine its effect on child development and to control for the different samples. The measurements of some of these covariates are explained in more detail below.

The relationship between household socioeconomic status and child development is well documented (e.g. Leng & Park, 2010; Walker et al., 2007). Higher status is associated with higher educational attainment for the mother; greater ability to provide proper nutrition for the child; and a greater likelihood of access to health services and educational resources, among others. Previous research in Thailand has indicated that socioeconomic status is closely tied to delayed child development (Isaranurug, Nanthamongkolchai, & Kaewsiri, 2005), and the link with malnutrition is also important. To examine relative wealth within the sample of households, a principal components analysis (PCA) was conducted using household assets (such

³ In addition, we also explored the effects of the combination of migration and remittances on child development. However, results do not show a significant relationship between remittances and child development, thus they are not shown in this analysis.

⁴ For the children in the absence of either father or both parents, the surveyed sample includes both children whose parents are in the intact or in the dissolved relationship. Data show that 60% of children who live with mother only, their parents' relationship is intact, while the figure is 82% among children who live with none of the parents.

as possession of a gas stove, washing machine, computer, etc.) and housing characteristics (such as the type of roof, type of walls, etc.); the results of the PCA were used to create a wealth index (Rutstein & Johnson, 2004; Filmer & Pritchett, 2001).

Child rearing practice is closely related to child development. The survey asked about seven child development promoting activities: *talk to target child, hug/touch the target child, play with target child, take/let the target child play outside home/at playground/surrounding nearby, introduce the target child to surrounding objects, sing together with target child/sing lullaby, and compose tales/stories to target child*. These questions were previously developed for a study to evaluate the effectiveness of a training program for mothers of young children in Thailand (Nanthamongkolchai et al., 2010). The first measure we use in our analysis is a summary of these child development promoting activities to indicate optimal or less optimal rearing practice⁵. The other measure is to consider only activities which varies across types of households, *introduce the target child to surrounding objects, sing together with target child/sing lullaby, and compose tales/stories to target child*.⁶ The bivariate analysis (results not shown) shows that only singing with/to the child is significantly related to delayed development. Therefore, only the summary measure and sing activity (never=1, sometimes/regularly=0) are explored (separately) in the multivariate analysis. Since only the sing activity shows a significant effect in the multivariate analysis, we show only results of the model when the sing activity is included.

We also included in the model the attitude of the caretakers towards physical punishment in disciplining children. As most physical abuse takes place in the context of physical punishment, past literature identifies physical punishment as a risk factor in children's development and categorizes any form of physical punishment as maltreatment (Lansford & Deater-Deckard, 2012). Respondents were asked how much they agree with the statement "*It is necessary to use physical*

⁵ This is calculated by adding together scores for each activity (1 for never, 2 for sometimes, and 3 for everyday/almost every day), and then constructing an indicator suggesting optimal or less-optimal rearing practices. Child rearing practice is considered optimal if the score is at least 80% of the highest score (scored 17-21) and less optimal otherwise.

⁶ Descriptive results (not shown) indicate that some child rearing activities are commonly practiced (play or talk with the child, hug or hold the child), while some are less common (sing or compose tales for the child).

punishment in bringing up a child properly". The proportion of agree and strongly agree are categorized as 1, otherwise is 0.

Child development and nutritional status may also be closely related. We use nutritional status of children using WHO criteria for weight for age (to measure underweight), height for age (to measure stunting) and weight for height (to measure wasting and overweight) (WHO, 2006). In our analysis, we summarize children's nutritional status by dividing children into three nutritional groups: 1) those who are normal on all three nutritional measures, 2) those who are overweight, and 3) those who have any kind of malnutrition (having at least one nutritional problem, excluding overweight).

Life satisfaction of caretakers as an indicator of subjective well-being (Diener, Sapyta, & Suh, 1998) is derived from caretaker's responses to 5 statements: *In most ways my life is close to my ideal; The conditions of my life are excellent; I am satisfied with my life; So far I have gotten the important things I want in life; and If I could live my life over, I would change almost nothing*. The response ranges from 1 for strongly disagree to 5 for strongly agree. Each statement's score is added up to one life satisfaction score, ranging from 5 to 25. A higher score indicates greater life satisfaction of the caretakers.

Caretakers' psychological health is assessed based on SRQ-20 (self-reporting questionnaire 20), which is composed of 20 self-reported questions asked about respondents' condition over a 30-day recall period (Harding et al, 1980). Previous study found that SRQ-20 is an effective screening tool for determining the likelihood of psychiatric disturbance in an individual (e.g. Harpham et al., 2003). Each question has two responses, yes (1) or no (0), with yes implying psychological symptoms. Following previous studies (e.g. Harpham et al., 2003; Tuan, Harpham, and Huong, 2004), we categorized the score which ranges from 0-20 into an indicator variable. A caretaker is considered healthy psychologically if the score is lower than 8 and unhealthy if the score is 8 or higher.

RESULTS

Table 1 shows descriptive statistics of all variables included in our analysis by parental absence status (household type), i.e. whether the child lives with both parents, with mother only, or without both parents. Although data shown in Table 1 reflect both the similarities and differences in characteristics of children at individual

and household levels across three types of household in which they live, overall, diversity is more evident.

One of the important information is the primary caretaker of the target child. Results show that if the child lived with both parents or with the mother alone, the biological mother is usually the main caretaker (89% and 76% respectively). The lower proportion of mother taking role as the main caretaker in father-absent household suggests that mothers whose husband works elsewhere may also work outside the household to financially support their family more than mother whose spouse live in. In this household type, the other 24% of children are cared for by their maternal grandmother. It is interesting to note that when the child's father is absent, no one reported the paternal grandmother as the main caretaker. In both-parent absent households, 57% of the caretakers are the maternal grandmother, while only 29% are the paternal grandmother. This reflects more involvement of maternal relatives in extended family support in Thai society.

Of central interest is the children's outcome of development assessed by Denver II tool. Results show that among the analytical sample (n=932), children with both parents absent had the highest percentage with suspected delayed development (24.2%). Children whose father is absent and those who live with both parents had a virtually equal percentage of suspected delay (17.4% and 17.2% respectively). The relationship between child development and parental migration status is statistically significant as indicated by the Chi-squared test (p-value <0.05). The percentage with suspected delayed development found in our study sample is a little lower than that found among children aged 0-5 years old at the national level survey, which was reported as 27% (Department of Health, 2015). However, the prevalence we found in our analysis is still much higher than the goal set by the Ministry of Health of 90% normal development for children aged 0-5 years. Additional analysis looking at each aspect of child development that was tested by Denver II indicates that only language development shows a significant difference by parental migrant status (results not shown). Children with both parents absent have the highest proportion of having a delay in language development (15%), followed by children whose fathers are absent (9%), while 8% of children who live with both parents had language development delayed.

Another individual child characteristic is nutritional status. Overall, 79%-83% of the children have normal nutritional status, 6%-10% can be considered as overweight,

while 7%-13% have at least one kind of malnutrition (underweight, stunting, and/or wasting, excluding overweight). No significant difference is found between children living with and without one or both parents.

As mentioned earlier, parent-absent households may also include parents not in an intact relationship. The percentage of parents not in an intact relationship is higher in father-absent households (40%) than in both-parent absent households (17%). This suggests that most parents who are both absent from the child's home are still married, indicating that they left for work rather than due to marital dissolution. But among households in which fathers left while mothers stay at home, two out of five have a dissolved relationship. We do not have data on which event occurred first, (leaving home or the relationship ending) however.

Based on the wealth index measure, households with both parents present were the wealthiest ones in the sample; 55% were in the top (the 5th) or the 4th economic quintile, while those with both parents absent were the poorest; almost one-third (31%) were in the poorest or the second lowest categories. The difference is statistically significant at $p\text{-value} < 0.001$.

Child development promoting activities are different across the three types of households. Households with both parents absent are most likely to fall into the less-optimal child rearing practice category (about one third), while the proportion of less-optimal child development promoting activities is similar among both-parent present and father-absent households (about one fifth). Similarly, the proportion who said that they never sing a lullaby to the child is also found in both-parent absent households (33% versus 23% and 22% in both-parent present and father-absent household respectively).

Another dissimilar characteristic across households types is the attitude of the primary caretakers towards physical discipline (agree or strongly agree with the statement "*It is necessary to use physical punishment in bring up a child properly*"). Clearly, caretakers in households with both parents absent agree or strongly agree with this statement more than in other types of households (50% compared with 37% and 39% for households with both parents present and with father absent respectively). Since the majority of children who do not live with either parent live with grandparents, the result may reflect different attitudes between the older and younger generations.

Households with both parents absent are also different in some of caretaker's characteristics. When parents are both absent, the caretakers are more likely to work in addition to providing care to the child (54%) than when parents are at home (47%) or only father absent (41%). Caretakers in both-parent absent households are also assessed to be at risk of psychological problem (35%) in a higher proportion than those in both-parent present (21%) and father-absent households (24%).

In short, data consistently show that both-parent absent households are quite different from households with both parents present or with only fathers absent, the other two types of household which are virtually similar in several aspects shown in Table 1.

(Table 1 about here)

Next, we examine the extent to which parental absence and its associated aspects (measured in two ways described in the methods section) are related to children's delayed development using multivariate analyses controlling for related characteristics. Results from logistic regression are shown in Table 2, presenting two models for each main independent variable: 1) household type, and 2) the combination of mother's migration status and the main caretaker of the child.

Model 1 clearly shows that living without both parents leaves a significant adverse effect on child development, regardless of other characteristics of the child, mother, household, caretaker, as well as child rearing practices. Children whose parents are both absent from home are about two times more likely to experience delayed development compared with children who live with both parents in the household. If only the father is absent, while the mother is still in the household, the likelihood of the child having delayed development is not significantly different from children who live with both parents. In particular, we note that the absence of both parents is significant regardless of whether or not parents are in intact or in a dissolved relationship. Our finding reflects the importance of having mother at home with young children as a protective factor for child development. This is in line with one side of previous literature on parental migration which evidences the adverse effect on children's outcomes, although they looked at different aspects and did not specifically discuss the absence of mother vs of father. For example, Nobles' analysis using Mexican data (2007) suggest that the migration process introduces detriments to child health and nutrition, at least in the short run. The study explains that the

disadvantage may occur because parental absence from the household makes the provision of child nutrition or access to health care more difficult, given the initial shift in time constraints of the remaining caretaker.

Other significant predictors of children's delayed development are child's sex and child's age. The finding that male children are almost two times more likely to be assessed as having delayed development than females net of other characteristics is intriguing. This is consistent with a previous study in Thailand although it was found among older children. Nanthamongkolchai et al. (2007) studies child development among 3-6 year-old children and found that in addition to parenting styles, male children have a 2 times higher chance of delayed development than females. The same research also found similar results about gender difference on intelligence development among 6-12 year-old children (Nanthamongkolchai et al., 2003). No explanation on why this gender difference exists in this Thai research is provided, however. In other contexts, gender differences have also been found. Huttenlocher et al. (1991), for example, examine the role of exposure to speech in 14-26 month-old children's early vocabulary growth and found that on average girls accelerate more quickly than boys. The authors suggest that the gender differences seem to reflect true differences in vocabulary size, that cannot be explained by the view that mothers speak significantly more frequently to girls than to boys. Thus, according to the authors, gender differences in early vocabulary growth reflect early capacity differences, not differential responses of mothers to their sons and daughters. Moreover, the study interestingly found that gender differences disappear after two years.

Compared with children aged 0-11 months old, those aged 24-29 months old are more likely to be detected as having delayed development; their likelihood of having delayed development is almost two times higher. This is somewhat consistent with results of the most current national survey on child development in Thailand (Department of Health, 2015) which shows higher percentage of delayed development among older age groups (although the age group of children in the national survey report is classified differently from our analysis); the prevalence of delayed development among children aged 3-5 years is 34% versus 22% among children aged 0-2 years. We do not find a significant association between nutritional status and child development in our analysis.

While previous study, including the national survey in Thailand (Department of Health, 2015), suggests mother's age and education as significant predictors of child development, we did not find mother's characteristics (i.e. age and education) significant of child development. Two characteristics at household level, measuring household economic status and demographic characteristics (household size) do not show any significant effect on child development either. None of caretaker's characteristics including their well-being shows a significant effect on child development.

While attitudes towards physical punishment is not significantly related to child development, we found a significant effect of one promoting activity on child development. Interestingly, children whose caretaker reported never singing a lullaby to the child (in the past week as the time period of the question asked) have a 40% higher chance of having delayed development. As documented in the literature, singing a lullaby to a baby is an activity that simultaneously promotes child development in multiple domains: it stimulates early language development, promotes attachment, and supports an infant's growing spatial awareness (Parlakian, 2010).

Model 2 explores the effect of the combination of mother's absence and whether the mother is the main caretaker. The first models tell us the importance of having the mother at home and having the mother taking the main caretaker role on child development. However, as mentioned earlier, having a mother at home does not always imply that the mother is the main caretaker. As shown in Table 1, a number of children of usually-resident mothers are mainly cared for by other persons including grandmothers (11% for both-parent present and 24% for mother-present household). Therefore, it is important to understand whether the presence of the mother makes a difference for child development even in cases where she is not the main caretaker.

While we do not know the mechanisms of why this is so, results clearly reveal that the co-residence of the mother with the child does matter even when she does not assume the role of main caretaker. A higher risk of being assessed as delayed compared with children who live with their mother and are cared for by their mother is found only among children who have non-maternal care while the mother does not live in the same household. The likelihood of having delayed development for children whose mother is at home but who are cared for by others is not significantly different from children who live with and are cared for by their mother.

This is important evidence showing that having a mother present is contributing on child development regardless of whether they are the main caretaker. And, this in turn provides evidence that migration of mothers away from young children affects the well-being of the child, in this case as measured by their development. It seems that although someone else takes a primary role in caring the child, having a mother present in the household does have a positive effect.

Note that this model also includes a variable indicating whether the child's father is absent and, as in the first model, whether the child's parents have an intact relationship. None of the two variables is significant, though, implying that the presence or absence of the father and parents' marital relationship do not make a difference for child development when other variables are taken into account. What really matters for child development, according to the results, is having the mother living in the same household.

It is likely that co-residing with the child, although working outside or going to school during the day, still provides the mother an opportunity to interact with the child and to perform child development activities. Mothers living with their child may also be able to supervise the childcare provided mainly by others. It is possible that mother, though not necessary the primary caretaker herself, may be able to create home literacy environment, including singing a lullaby, reading or composing tales or stories, crucial for child development, better than nonmaternal caretaker. For example, Raikes et al. (2006)'s study provides evidence of the relations between mother-child book-reading and child language outcomes. The association appears to be strong and direct during the first 2 years of life. As seen in Table 1, children who live with their mother (in both-parent present and father-absent households) are exposed to optimal child development promoting activities in a higher proportion than those without their mother (76% and 66% respectively). And they are more likely to experience with family member's singing lullaby to (77%-78% compared with 67% in both-parent absent households). This is consistent with previous research.

Literature (e.g. APS, 2016) say that the bond of affection between parents and children is instrumental for a healthy parent-child relationship which further extends to relationships between children, their siblings, and other family members. Infants' successful attachment to their parents builds their confidence to explore and interact with their environment, the footing for further social, emotional, and cognitive development. Jacobvitz (2014) states that "*although it is in the best interest of*

the child to have many, many caregivers within a family group, our research over many decades reveals that there is, really, just one person who carries the extra burden of a special attachment. That person, the one who bears ultimate responsibility for the health and well-being of an infant, is typically the mother. ...A young child is biologically wired to choose just one person as the primary attachment figure. We believe this ensures that one person is ultimately responsible for meeting an infant's needs."

(Table 2 about here)

CONCLUSION

This analysis investigates the impact of parental migration on early childhood well-being and development in Thailand, based on a study conducted at the end of 2013 to early 2014 in one northern and one northeastern province with high out-migration rates. The survey purposively selected children aged 36 months and younger from three household types based on the presence of both parents, mother only, or neither parent. The Denver II screening tool was used to assess whether children had suspected delayed development and children were weighed and measured to assess malnutrition or obesity. In total, 923 children are included in the analysis.

Our analysis provides evidence for concern about children living separately from parents. In particular, living apart from mother poses a higher risk of delayed development for early childhood. Multivariate analysis shows that the crucial factor for delayed development among young children is whether the mother is present in the household. Children who were cared for by others were not at higher risk of having delayed as long as their mother was present. We find that the father's absence did not make a difference, when other factors are controlled. This finding raises concern for the large number of children living separately from their mother, and raises questions about the long-term effects of parental migration for this generation of Thai children. Literature documents that the first three years of life are critical and poor development at this age is likely to have long-term effects (UNICEF, 2001).

The results raise many issues of interest for further investigation as well as for policy recommendations. While these results come from data collected at a single time point, some broad recommendations may be made and deserve further study. First, promoting informed decisions about migrating away from young children under non parental care is needed. Parents make the decision to migrate with imperfect information about the income that they will be able to send back to the family, and

more importantly, whether this income balances what children lose from being away from their parents. Previous findings from a long-term study of child development—also using the Denver II tool—indicate that many children in Thailand suffer from delayed development, implying that many Thai parents lack knowledge of child development (Department of Health, 2007.) Parents need help to make more informed decisions by learning from the experience of others and from child development experts about the implications of having the child in non-parental care when s/he is very young. Therefore, informative and inclusive programs and interventions to inform parents of young children and their families about the potential impact of children growing up separately from parents, especially from mother, with regard to child development are needed.

Second, our results point to the need for encouraging child development activities among parents and other child caretakers. Thai parents and children's caretakers may have only a limited understanding of child development and of the child rearing practices that can contribute to enhanced development. Results show that some child development activities are not regularly practiced by the majority of the study households (e.g. singing a lullaby, composing tales/stories, reading books). These practices seem to be least practiced in both-parent absent households and in households where the child caretakers are older.

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Table 1 Percentage of study children by selected characteristics across household types

	N	Both parents present	Father absent	Both parents absent
Total		215 100.0	195 100.0	513 100.0
Primary caretaker***				
Mother		89.3	75.9	0.0
Maternal grandparent		4.2	23.6	63.4
Paternal grandparent		4.7	0.0	23.0
Other		1.9	0.5	23.7
Suspected delay development*				
Male		53.5	56.9	53.4
Age*				
0-11		25.6	28.2	20.1
12-17		20.0	24.1	17.5
18-23		19.5	16.4	20.9
24-29		20.0	16.4	20.1
30-36		14.9	14.9	21.4
Nutritional status				
Normal		79.1	81.0	83.2
Overweight		9.3	6.2	9.8
Malnutrition (with one nutritional problem)		11.6	12.8	7.0
Parents are intact***				
100.0		60.0	82.5	
Mother's age***				
15-19		13.0	18.5	6.8
20-24		28.4	30.3	24.4
25-29		17.7	22.6	32.4
30-34		22.3	16.9	26.7
35-48		18.6	11.8	9.8
Mother's education***				
Primary school		22.3	15.4	10.9
Middle school		38.6	38.5	29.2
High school		24.2	30.8	32.8
>High school		14.9	15.4	27.1
Household wealth***				
1st quintile		6.1	5.6	6.8
2nd quintile		13.5	14.9	24.6
3rd quintile		26.1	30.8	32.2
4th quintile		39.1	33.3	28.1
5th quintile		15.4	15.4	8.4

Household size***				
2-4 persons	22.8	39.0	56.7	
5-6 persons	47.4	45.1	32.9	
>6 persons	29.8	15.9	10.3	
<hr/>				
Child rearing practice				
Less-optimal rearing practice (score<80%)**	24.2	23.6	33.9	
Never sing to the child**	22.8	22.1	33.3	
Agree/strongly agree with physical punishment**	37.2	39.0	48.9	
<hr/>				
Caretaker's characteristics				
Caretaker works in addition to caring the child**	47.4	40.5	54.0	
Caretaker's life satisfaction score (mean(s.d.))	17.6(2.5)	17.3(2.7)	17.3(2.5)	
Caretaker having psychological health problem***	20.5	24.1	35.3	

, **, and * Chi-squared test is significant at 0.05, 01, and 0.001 respectively*

Table 2 Odds ratio of variables predicting delayed development

Independent variable	Model 1		Model 2	
	Odds ratio	SE	Odds ratio	SE
Household type				
(ref: Both parents present)				
Father absent	1.1	0.3		
Both parents absent	1.8	0.4	*	
Mother's status and type of caretaker				
(ref: Mother present, mother caretaker)				
Mother present, non-maternal caretaker			1.5	0.5
Mother absent			1.8	0.5
				*
Father is absent				
			1.0	0.3
Parents are in intact relationship				
	1.1	0.3	1.2	0.3
Child characteristics				
Male	1.7	0.3	**	1.7
				0.3

Child age (ref: 0-11 months)				
12-17	1.5	0.4		1.5
18-23	1.3	0.4		1.3
24-29	1.8	0.5	*	1.7
30-36	1.5	0.4		1.5
				0.4
Child's nutritional status (ref: normal)				
Overweight	1.1	0.3		1.1
Stunt/underweight/wasting	1.6	0.4		1.6
				0.4
Mother's characteristics				
Mother's age				
(ref: 15-19 years)				
20-24	0.8	0.2		0.8
25-29	0.7	0.2		0.7
30-34	0.6	0.2		0.6
35-48	0.9	0.3		0.9
				0.3
Mother's education				
(ref: Primary or less)				
Middle school	0.9	0.3		0.9
High school	0.8	0.2		0.8
>High school	0.8	0.2		0.8
				0.2
Household characteristics				
Household wealth				
(ref: lowest quintile)				
2nd quintile	0.7	0.3		0.8
3rd quintile	0.9	0.3		0.9
4th quintile	0.6	0.2		0.6
5th quintile	0.6	0.3		0.6
				0.3
Household size				
(ref: 2-4 persons)				
5-6 persons	1.2	0.2		1.2
>6 persons	1.4	0.4		1.4
				0.3
Child rearing practice				
Never sing to the child	1.4	0.3	*	1.4
Agree/strongly agree with physical	0.9	0.2		0.9
				0.2

punishment

Caretaker's characteristics

Works in addition to caring the child	1.0	0.2	1.0	0.2
Life satisfaction score	1.0	0.0	1.0	0.0
Have psychological health problem	1.2	0.2	1.2	0.2
Constant	0.3	0.2	0.2	0.2

N = 923

log likelihood =

-451.3

-450.78